Varstvo spomenikov

Journal for the Protection of Monuments

50

70 LET / YEARS

Zavod za varstvo kulturne dediščine Slovenije
Institute for the Protection of Cultural Heritage of Slovenia

Revija Varstvo spomenikov je periodična znanstveno-strokovna publikacija Zavoda za varstvo kulturne dediščine Slovenije. Revija izhaja od leta 1948.
Revija Varstvo spomenikov je namenjena širjenju znanstvenih in strokovnih spoznanj in vedenj o varstvu in ohranjanju nepremične kulturne dediščine. Številke praviloma niso tematsko usmerjene. V reviji so objavljeni prispevki različnih znanstvenih ved in disciplin (arheologija, etnologija, umetnostna zgodovina, arhitektura, krajinska arhitektura, konservatorstvo, restavratorstvo ipd.), ki sledijo znanstvenemu in profesionalnemu zanimanju avtorjev za varovanje, raziskovanje in upravljanje kulturne dediščine, mednarodne akte in nacionalno zakonodajo, prostorsko načrtovanje in informatiko na področju spomeniškega varstva, konservatorske študije, zgodovino in doktrino spomeniškega varstva itd.

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The journal's purpose is to disseminate scientific and professional findings and knowledge about the protection and preservation of immovable cultural heritage.
The issues are generally not dedicated to a single topic. In the journal are published articles from various scientific fields (archaeology, ethnology, arts history, architecture, landscape architecture, conservation and restoration, etc.), which follow the scientific and professional interests of authors regarding the protection, research and management of cultural heritage, international legal acts and national legislation, spatial planning, information and computer science in the field of monument protection, conservation studies, history and the doctrines of monument protection, etc.

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Predstavitve / Presentations

Predgovor

Letos ob praznovanju evropskega leta kulturne dediščine 2018 zaznamujemo tudi sedemdeseto obletnico izhajanja najstarejše publikacije s področja ohranjanja in varovanja kulturne dediščine na Slovenskem – Varstva spomenikov. Ob tej priložnosti je pred nami jubilejna 50. številka Varstva spomenikov, s katero zaznamujemo obletnico izida prve številke Varstva spomenikov v letu 1948 (Vestnik zavoda za zaščito in znanstveno proučevanje kulturnih spomenikov in prirodnih znamenitosti, Leto 1, št. 1). V uvodniku te številke so zapisali: »Merilo narodove kulture in zrelosti se v največji meri izraža v prizadevanju po zaščiti in proučevanju kulturnih spomenikov, ki pomenijo poleg svoje posebne znanstvene ali umetnostne in estetske vrednosti pogosto tudi znatno materialno vrednost.« Prav zavedanje, da kulturna dediščina oblikuje našo identiteto in vsakdanje življenje, je vodilo pisce uvodnika, da so zapisali: »Dolžnost nas vseh je, da cenimo in spoštujemo ustvarjalne napore, pričevalnost dela ali dokumentacijo življenja neštetih generacij, da se seznanjamo z načeli in nalogami spomeniškega varstva tudi v naši živi sedanjosti, ko stojimo na prelomu, v katerem propada staro in raste novo ...«. Vse to nas zavezuje, da s pravilno vzgojo poglabljamo zavest »... o nujnosti ohranitve pomembnih kulturnih dobrin, za katere odgovarjamo pred svojim lastnim narodom, našimi potomci in pred svetom«.

Prav vse povzete usmeritve izpred sedemdesetih let so aktualne še danes: pomen kulturne dediščine za širšo družbo, prispevek kulturne dediščine h gospodarstvu, vloga kulturne dediščine v evropski kulturni diplomaciji in pomen dolgoročnega varstva kulturne dediščine, kar vse zaznamuje letošnje evropsko leto kulturne dediščine 2018.

Novi prispevki v jubilejni številki kažejo na raznovrstnost in interdisciplinarnost konservatorske stroke pri nas, ki se je skozi desetletja razvila v sodobno in razvito profesionalno vedo, ki ima ogromno zaslug za varovanje kulturne dediščine v Sloveniji in njeno upravljanje.

Prvi članek v tokratni številki, *Rimska obmorska vila v Simonovem zalivu v Izoli (Slovenija): konservatorsko-restavratorski posegi na mozaikih in preliminarni rezultati arheoloških raziskav v sklopu projekta AS (2015–2017)* avtoric M. Lesar Kikelj, S. Kramar, M. Ravnik, N. Škrjanc in K. Zanier, opisuje le delček celotnega projekta AS – Arheologija za vse, vseeno pa predstavlja zelo kompleksen prispevek k ohranjanju kulturne dediščine. Konserviranje in restavriranje nista samo fizično poseganje v materialno substanco kulturne dediščine, ki jo čas neusmiljeno premaguje, ampak tudi stremljenje k doslednemu upoštevanju najvišjih meril stroke ne glede na mnenja o tržni vrednosti predmeta kulturne dediščine in ne glede na okoliščine, ki na ta predmet vplivajo. Glede tega ni kompromisov, čeprav je včasih zaradi vpetosti v večji ustroj/projekt obseg konservatorsko-restavratorskega dela omejen ali prilagojen. Da bi razumeli 2000 let star mozaik, njegov nastanek ter tehnologijo in materiale, s katerimi je narejen, so se morali raziskovalci vrniti v preteklost. Raztreščene mozaične kocke, ki jim v tisočletjih niso prizanašali ne agresivna vegetacija, ne naplavljena zemlja, ne meteorna voda, ne zmrzal in ne topne soli, so z naravoslovnimi raziskavami, vključevanjem v raziskovalne projekte ter sodelovanjem z domačimi in tujimi institucijami skušali spraviti v določen red ter jim delno povrniti vlogo, ki so jo imele ob nastanku. Sledili so metodologiji dela, ki so jo določili ob začetku del, in pripeljali konservatorsko-restavratorska dela do želenih zaključkov. Sprotno vzdrževanje, ki so mu prepuščeni mozaiki v Simonovem zalivu, pa ostaja bistvenega pomena pri ohranjanju.

Jelka Pirkovič se s člankom *Uvod v sistematiko upravljanja arheološke dediščine* podaja na področje upravljanja kulturne dediščine (arheologije). Ključni namen razprave je oblikovati teoretsko izhodišče za udejanjanje sodobnejšega, bolj celovitega sistema upravljanja nepremične kulturne dediščine in še posebej arheološke dediščine, v katerem je upoštevana osnovna zahteva preventivne arheologije po ohranjanju arheološke dediščine in situ. Razprava na podlagi analize virov in literature opisuje spremembe v filozofiji varstva arheološke dediščine ter izzive, ki jih pred arheologe postavljata globalizacija in gospodarska recesija. Osrednji del razprave je namenjen utemeljevanju posebnosti varstva in upravljanja arheološke dediščine ter predstavitvi povezave med prostorskim načrtovanjem, vrednotenjem in upravljanjem tovrstne dediščine. Razprava tudi podaja izhodišča za vključevanje javnosti v upravljanje ter v osrednjem delu predstavi model sodobnega celostnega upravljanja.

Marvy Lah v članku *Kulturna krajina znotraj sistema varstva kulturne dediščine* predstavlja predlog metode vrednotenja kulturnih krajin v sistemu varstva kulturne dediščine, ki doslej še ni bila izdelana. Neenoten način vrednotenja kulturnih krajin je morda vzrok za tako veliko število evidentiranih krajin v Registru kulturne dediščine. Enotna metoda vrednotenja kulturnih krajin v sistemu varstva kulturne dediščine je pomembna, saj bo pokazala realno stanje. Z njo bi se sedanje stanje zagotovo spremenilo, in

sicer tako, da bi bilo zavarovanih krajin manj, obenem pa bi bile te bolj enakomerno porazdeljene po nacionalnem prostoru. Z merili vrednotenja bi bilo mogoče strokovno in lažje identificirati dediščinske krajine ter jih, kar je najpomembnejše, argumentirano zavarovati oziroma izbrisati iz Registra kulturne dediščine tiste, ki nimajo spomeniških lastnosti.

Zasnova programa integriranih raziskav in izhodišč za pripravo načrta upravljanja podvodne kulturne dediščine slovenskega morja je naslednji članek; njegovi avtorji A. Gaspari, D. Badovinac, J. Bizjak, M. Erič, S. Karinja, Z. Mileusnić, S. Poglajen in K. Zanier poudarjajo družbeni pomen kulturne dediščine na morskem dnu in v priobalju slovenskega dela Tržaškega zaliva, potrebo po njenem ohranjanju v javno korist, razvojne priložnosti na znanstvenem, kulturnem, izobraževalnem in turističnem področju ter možnosti za njeno vključitev v celostno upravljanje morskega okolja. Posebna pozornost je namenjena vključevanju rezultatov raziskav v programe in projekte za ozaveščanje o pomenu podvodne kulturne dediščine in njeno promocijo, za zagotovitev njene dostopnosti in predstavitev (interpretacijo) v okviru možnosti in omejitev vzgojno-izobraževalne in turistične rabe ter uveljavljanju participatornega pristopa in spodbujanja partnerstev pri upravljanju.

Adela Pukl v članku *Kulturna dediščina gradov v Sloveniji: stanje in potencial etnoloških prizadevanj* z etnološkega gledišča ugotavlja, da se vedno več ljudi v Sloveniji in po svetu zaveda pomembnosti lastne kulturne dediščine in njene vrednosti. Kljub različnim vzrokom propadanja grajske dediščine v Sloveniji, ki sega že na konec 18. stoletja, ko se je začel proces opuščanja gradov, je spodbudno dejstvo, da kulturni spomeniki na podlagi celovite obravnave dobivajo nove vsebine in programe, ki so kot celota pomembni elementi tako na lokalni in regionalni kot na nacionalni ravni.

V prispevku *Dokumentiranje in preverjanje stanja ter odkrivanje novih arheoloških najdišč v gozdnatem in hribovitem terenu, primeri iz Bele krajine* P. Mason, K. Udovč in D. Mlekuž primerjajo klasično topografijo ter novejšo metodo za odkrivanje novih arheoloških najdišč in preverjanje obsega tistih, ki so že registrirana, temelječo na zračnem laserskem skeniranju (Airborne Laser Scanning, ALS) oziroma tridimenzionalnem kartiranju površja (Light Detection And Ranging, LiDAR). Ta omogoča identifikacijo struktur in drugih sledi pretekle uporabe pokrajine tudi na območjih, poraslih z gosto vegetacijo. Avtorji predstavljajo novoodkrito arheološko najdišče ter nove podatke o registriranih arheoloških najdiščih, ki smo jih pridobili z ZLS-snemanjem. Obravnavana najdišča ležijo na gozdnatem območju Poljanske gore v Beli krajini.

Irena Potočnik v prispevku *Dokumentiranje reliefa in doprsnih kipov na pročelju Kulturnega doma v Črnomlju* obravnava več vidikov novejše, a že priznane in ustaljene metode dokumentiranja kulturne dediščine. Namen del je bilo zajetje podatkov o obliki in dimenzijah reliefa in kipov, izbrana je bila metoda terestričnega laserskega skeniranja. Rezultati so oblikovani tako, da končnemu uporabniku glede na trenutno stanje omogočajo kar največjo možnost hranjenja in uporabe podatkov ter ravnanja z njimi. Če bi se pokazalo, da je podatke treba nadgraditi, so na več lokacijah shranjene tudi kopije izvornih digitalnih podatkov.

Na koncu Patrick Schicht v prispevku *Smernice za arhitekturno zgodovinske raziskave v Avstriji* predstavlja v letu 2014 objavljen izčrpen in pregleden temeljni priročnik Standardi varstva arhitekturnih spomenikov, ki členjeno povzema veljavne okvirne pogoje za strokovno obravnavo arhitekturnih spomenikov ter jih povezuje z drugimi zakoni in standardi. S tem mejnikom evropskega spomeniškega varstva, ki je pritegnil veliko mednarodno pozornost, so vsem udeležencem podane transparentne in državljanom približane podlage načrtovanja, ki omogočajo učinkovit potek projektov in tudi sledljive poti odločanja. Ti standardi so razčlenjeni v tri segmente, tj. evidentiranje, ohranjanje in spreminjanje. Predvsem prvi steber naglo pridobiva pomen, kar se kaže v nadgradnji določb. »Smernice za arheološke ukrepe«, »Standardi za konservatorsko obravnavo arheoloških najdb« ter »Navodila za evidentiranje in spremljanje stanja stenskih poslikav in arhitekturnih površin« pomenijo začetek zadevnih predpisov ter specifično določajo potrebne procese in minimalne standarde.

Marko Stokin

Foreword

This year, as well as celebrating the European Year of Cultural Heritage 2018, we are marking the seventieth anniversary of the first appearance of Slovenia's oldest publication on the conservation and protection of cultural heritage – *Varstvo spomenikov*. The jubilee 50th edition of *Varstvo spomenikov* you are now reading commemorates the publication of the first issue of the journal in 1948, as the „Gazette of the Institute for the Protection and Scientific Study of Cultural Monuments and Natural Curiosities, Vol. 1, No 1". The editorial that opened this first issue contained the following observations: „The measure of a nation's culture and maturity is expressed to the utmost extent in efforts to protect and study cultural monuments, which in addition to their particular scientific or artistic and aesthetic value often also represent significant material value." The awareness that cultural heritage forms our identity and everyday life is what guided the writers of the editorial to remind us that: „All of us have a duty to esteem and respect the creative endeavours of countless past generations, the expressive power of their work and the documentation of their lives, and to familiarise ourselves with the principles and tasks of monument protection in our living present, which finds us at the point of transition between the decline of the old and the rise of the new..." All of this obliges us to deepen, through proper education, our awareness „... of the urgent need to conserve important cultural assets for which we bear the responsibility to our own nation, our descendants and the world."

All of these considerations from seventy years ago remain valid today: the importance of cultural heritage for wider society, the contribution of cultural heritage to the economy, the role of cultural heritage in European cultural diplomacy and the importance of the long-term protection of cultural heritage, all of which are marked by this year's European Year of Cultural Heritage 2018.

The new articles in this jubilee edition of the journal are an indication of the diversity and interdisciplinary character of the conservation profession in this country, which over the decades has developed into a modern and well-developed professional discipline that has done an enormous amount to protect and manage Slovenia's cultural heritage.

The first article in this issue, *Roman villa maritima in Simonov Zaliv, Izola (Slovenia): conservation-restoration interventions on mosaics and preliminary results of archaeological investigations in the context of the AS project (2015–2017)* by M. Lesar Kikelj, S. Kramar, M. Ravnik, N. Škrjanec and K. Zanier, covers just a small part of the overall AS (Archaeology for All) project but even so represents a very complex contribution to the conservation of cultural heritage. Conservation and restoration are more than just a physical intervention into the material substance of cultural heritage that is left to the mercy of time, they are also an attempt to consistently follow the highest standards of the discipline, regardless of opinions about the commercial value of an object of cultural heritage, and regardless of the circumstances that affect this object. There can be no compromises in this regard, although the extent of conservation-restoration work can sometimes be limited or adapted because it forms part of a larger structure or project. In order to understand a 2,000-year-old mosaic – how it was made and the technology and materials used to make it – the researchers had to return to the past. Over the course of thousands of years, the shattered tiles of mosaics have been exposed to aggressive vegetation, alluvial deposits, rainwater, frost and soluble salts. Through scientific research, participation in research projects and cooperation with institutions at home and abroad, attempts have been made to put them into some kind of order and restore to them, at least in part, the role they had when they were made. The researchers involved in the project followed the methodology of work that was determined at the outset and brought their conservation-restoration work to the desired conclusions. The ongoing maintenance to which the mosaics in Simonov Zaliv have now been left continues to be of vital importance for their conservation.

Jelka Pirkovič delves into the management of cultural heritage (archaeology) in her article *Introduction to the archaeological heritage management system*. The key purpose of this paper is to formulate a theoretical starting point for the realisation of a more modern, more integrated system of management of immovable cultural heritage, and in particular of archaeological heritage, in which the essential requirement of preventive archaeology to preserve archaeological heritage *in situ* is taken into account. On the basis of analysis of sources and literature, the paper describes changes in the philosophy of archaeological heritage protection and the challenges posed to archaeologists by globalisation and economic recession. The central part of the paper underlines the specific aspects of the protection and management of archaeological heritage and presents the connections between spatial planning and the evaluation and management of this type of heritage. The paper also of-

fers starting points for public participation in management and presents, in its central section, a model of modern integrated management.

Marvy Lah's article *Cultural landscapes within the cultural heritage protection system* proposes a method for evaluating cultural landscapes within the system of cultural heritage protection – something that has not been developed until now. The lack of uniformity in the way in which cultural landscapes are evaluated is perhaps the reason that such a large number of landscapes are recorded in the Cultural Heritage Register. A uniform method of evaluation of cultural landscapes within the system of cultural heritage protection is important because it will show the real situation. It would almost certainly lead to a change in the present situation, in that there would be fewer protected landscapes, while at the same time these would be more evenly distributed across the national territory. Evaluation criteria would make it easier to identify heritage landscapes accurately and, most important, enable experts to present arguments for their protection or for the removal from the Cultural Heritage Register of those that do not have the characteristics of monuments.

The next article is entitled *Design of a programme of integrated research and starting points for the preparation of a management plan for underwater cultural heritage in the Slovenian sea*; its authors A. Gaspari, D. Badovinac, J. Bizjak, M. Erič, S. Karinja, Z. Mileusnić, S. Poglajen and K. Zanier emphasise the social importance of cultural heritage on the seabed and in nearshore areas of the Slovenian part of the Gulf of Trieste, the need to conserve it for the public good, development opportunities in the scientific, cultural, educational and tourism fields, and possibilities for its inclusion in the integrated management of the marine environment. Particular attention is dedicated to incorporating the results of studies into programmes and projects designed to raise awareness of the importance of underwater cultural heritage and its promotion, ensuring its accessibility and presentation (interpretation) as far as this is possible and within the limitations imposed by educational and tourism-related use, and advocating a participatory approach and the promotion of management partnerships.

In her article *Castle heritage in Slovenia: current state and the potential of ethnological efforts*, Adela Pukl concludes that increasing numbers of people both in Slovenia and around the world are aware of the importance and value of their own cultural heritage. Despite the various reasons for the decline of castle heritage in Slovenia, which dates back to the end of the eighteenth century when the process of abandoning castles began, it is encouraging to see that cultural monuments are gaining new content and programmes on the basis of a comprehensive approach and, taken as a whole, are important elements at both the local and regional levels and at the national level.

The article *Documentation and monitoring of state of archaeological sites and detection of new sites in forested hilly terrain – examples from Bela Krajina* by P. Mason, K. Udovč in D. Mlekuž compares traditional topography and a more recent method for the detection of new archaeological sites and verification of the size of already registered sites based on Airborne Laser Scanning (ALS) or three-dimensional mapping of the surface (Light Detection And Ranging, LiDAR). This method enables identification of structures and other traces of past use of the landscape, even in areas covered by thick vegetation. The authors present a newly discovered archaeological site and new data on registered archaeological sites obtained through ALS. The sites covered in the article lie in the forested area of Poljanska Gora in Slovenia's south-eastern Bela Krajina region.

Irena Potočnik's article *Documenting the relief and busts on the façade of the House of Culture in Črnomelj* covers several aspects of a relatively new but already recognised and established method of documenting cultural heritage. The purpose of the work was to gather data on the form and dimensions of the relief and the busts. Terrestrial laser scanning was the method selected. The results are formulated in such a way as to allow the end user the best possibilities for the storage, handling and use of the data with regard to the current situation. If it should prove that the data require upgrading, copies of the original digital data are kept in several locations.

The final article, Patrick Schicht's *Guidelines for architectural historical research in Austria*, presents a comprehensive yet concise basic manual of „Standards for the protection of architectural monuments", published in 2014, which summarises, segment by segment, the applicable outline conditions for the professional treatment of architectural monuments and links them to other laws and standards. With this milestone of European monuments protection, which has attracted considerable international attention, all stakeholders are offered a transparent basis for planning that is closer to citizens and enables projects to be run effectively while also ensuring traceable decision-making processes. These standards are divided into three segments: recording, conserving and modifying. The first segment or pillar in particular is rapidly gaining in importance, something that is reflected in an ongoing upgrading of provisions. The „Guidelines for archaeological measures", „Standards for the conservation treatment of archaeological finds" and „Instructions for recording and monitoring the state of wall paintings and architectural areas" represent the beginning of specific regulation in these respective fields and set out in detail the necessary processes and minimum standards.

Marko Stokin

Martina Lesar Kikelj, Sabina Kramar, Mateja Ravnik, Nataša Škrjanec, Katharina Zanier

Rimska obmorska vila v Simonovem zalivu v Izoli (Slovenija): konservatorsko-restavratorski posegi na mozaikih in preliminarni rezultati arheoloških raziskav v sklopu projekta AS (2015–2017)

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Izvleček

Med letoma 2015 in 2017 je ZVKDS, Restavratorski center, v okviru projekta »AS – Arheologija za vse. Oživljanje arheološkega parka Simonov zaliv«, ki je potekal pod vodstvom Univerze na Primorskem, izvedel konservatorsko-restavratorska dela na mozaikih, kot bistvenem segmentu arheoloških arhitekturnih ostalin, ter na ostankih zidov rimske obmorske vile v Simonovem zalivu v Izoli. Za območji 1 in 2 arheološkega najdišča smo preučili več možnosti prezentacij arheoloških ostalin. Izbrani metodološki pristopi konservatorsko-restavratorskih posegov na mozaikih in zidovih so bili določeni glede na stanje mozaikov, geološko sestavo tal in predviden zaščitni sistem (začasni nadstreški, drenaža), ki naj bi kar najbolje kljuboval nepredvidljivim značilnostim obmorskega podnebja v Arheološkem parku Simonov zaliv v Izoli. Restavriranje mozaikov *in situ* na območju 1 ter dvig mozaičnih površin v treh prostorih območja 2 sta se v okviru predvidenih zmogljivosti projekta izkazali kot optimalni rešitvi. V sklopu projekta je Univerza na Primorskem izvajala tudi raziskavo v obliki arheološkega izkopavanja, in sicer dela prostora P5, ter uredila infrastrukturo drenažnega sistema po celotnem območju 2. V sklopu izkopavanj prostora P5 je bil dokumentiran vrstni red propadanja vile in kasnejših procesov odlaganja zemljine. Izkopavanja za potrebe odvodnjavanja in drenaže so posegla v podlage za mozaike v prostorih P3–P5, na območju portika P1 in prostora P6 pa so bila odkrita mozaična tla, v izkopu za drenažo tudi nadaljevanje severnega zidu portika proti zahodu.

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Uvod

Univerza na Primorskem je kot upravljavec arheološkega parka in vodilni partner pridobila nepovratna sredstva iz Programa Finančnega mehanizma EGP 2009–2014 za sofinanciranje projekta »AS – Arheologija za vse. Oživljanje arheološkega parka Simonov zaliv« (v nadaljevanju projekt AS) (Lazar, 2016a, 2016b). V sklopu projekta so bili konservirani in prezentirani ostanki rimske obmorske vile ali vile maritime v Simonovem zalivu v Izoli, kamor prištevamo mozaike in zidove. Za zaščito prezentiranih ostalin so bila postavljena jadrna nadkritja in urejen je bil sistem drenaže. Na najdišču je bil vzpostavljen tudi interpretacijski center. Prav tako je bil na območju pristanišča vile zasnovan prvi podvodni arheološki park v Sloveniji.

Vsa omenjena dela so potekala na območju arheološkega najdišča Simonov zaliv, ki je kulturni spomenik državnega pomena (EŠD 195). Gre za verjetno najbolje ohranjene in raziskane ostanke rimske obmorske vile s pristaniščem v Sloveniji. Arheološki arhitekturni kompleks v Simonovem zalivu leži na prostoru, ki obsega pet hektarjev in ga sestavljajo delno raziskani, rezidencialni predel vile na rtiču Korbat, vodovod ter pristanišče z bankino, pomolom in valobranom ter velik predel skladiščnih ali podobnih funkcionalnih prostorov neposredno pod hribom Kane, kjer je v morju še vedno vidna grajena kamnita manipulativna ploščad ob pristanišču (Stokin, Zanier, 2011).

Na rtiču Korbat, kjer je tudi z zaščitno ograjo omejena površina arheološkega parka, sta bila do sedaj raziskana in odkrita le dva predela večje rezidencialne stavbe oziroma območji 1 in 2 (slika 1). Na območju 1, osrednjem delu vile, so se v preteklosti vrstila številna sondiranja in izkopavanja. Območje 2, južni predel vile ob portiku, je bilo izkopano večinoma med letoma 1986 in 1991 ter nato v letih 2015 in 2016 v sklopu projekta AS. Na podlagi rezultatov novejših raziskav se zdi, da so prostori, združeni v območje 1, predstavljali najstarejše jedro vile, zgrajeno v zadnjih desetletjih pr. n. št., prostori območja 2 pa so del nekaj desetletij mlajše razširitve vile, ki se je zaključila v času cesarja Tiberija (14–37 n. št.) (Groh, Sedlmayer, 2008; Groh et al. 2009; Groh, Sedlmayer, 2009; Stokin, Zanier, 2011[1]). Območji se nekoliko razlikujeta tudi v usmerjenosti zidov, precejšnje razlike pa so v absolutni višini hodnih površin oziroma mozaikov, ki so na območju 2 v povprečju za 0,56 m nižje kot na območju 1.[2] Zamik mlajšega dela vile območja 2, v primerjavi s severnim, starejšim delom vile območja 1, znaša 6 stopinj proti zahodu.[3]

Od leta 2010 je območje na rtu Korbat namenjeno t. i. Arheološkemu parku Simonov zaliv, ki je v poletnih sezonah dostopen javnosti. Že odkriti, izrazito bogati mozaiki obmorske vile so bili do nedavnega pokriti z zaščitnim nasutjem, zaradi česar sta bili pričevalnost in tudi privlačnost arheološkega parka bistveno okrnjeni. Mozaiki so bili v sklopu projekta AS primerno zaščiteni in ponovno predstavljeni javnosti, kar je bil tudi eden od najpomembnejših ciljev projekta.

1 V novi, obsežni publikaciji o rimski vili v Simonovem zalivu (Groh, Sedlmayer, 2017: str. 94–97, 221) je izgradnja osrednjega dela vile oziroma območja 1 datirana v zgodnjo avgustejsko dobo (30–15 pr. n. št.), vendar v tem obdobju naj ne bi bili še položeni mozaiki tega območja. Prostori območja 2, razen portika, naj bi nastali v srednji ali pozni avgustejski dobi med letoma 15 pr. n. št. in 15. n. št. in v tem obdobju naj bi nastali tudi vsi mozaiki območij 1 in 2. Izjema je portik P1 z mozaičnimi tlemi, ki naj bi bil dodan kasneje, med letoma 15 in 20 n. št. Okoli leta 70 n. št. naj bi opustili območje 1, na območju 2 pa naj bi nastale pomožne konstrukcije za potrebe drugačne razdelitve in uporabe prostorov.

2 Mozaiki območja 1 so na nadmorski višini med 2,01 in 2,13 m (povprečna višina hodne površine je na koti 2,09 m n. m.), medtem ko je na območju 2 originalni nivo hodne površine močno poškodovan zaradi procesov propadanja in drobljenja geološke podlage, in sicer pada tako proti jugu kot proti severu s poglobitvami predvsem na območju prostora P5 – tako se nivo hodne površine, merjen čim bliže zidovom, giblje med 1,64 in 1,41 m n. m. (povprečna višina hodne površine je na koti 1,56 m n. m.).

3 Odklon od severa zidov, ki potekajo v smeri vzhod–zahod na območju 1, tako znaša 58 stopinj proti jugu, zidovi območja 2 so zamaknjeni za 52 stopinj proti jugu, zidovi v smeri sever–jug pa so zamaknjeni na območju 1 za 32 stopinj in na območju 2 za 38 stopinj proti vzhodu; razlika v obeh smereh je torej 6 stopinj.

Splošna problematika prezentacije mozaikov

Vilo v Simonovem zalivu zaznamujejo zelo obsežne mozaične površine – do zdaj je bilo dokumentiranih skupaj 284 m² hodnih površin, tlakovanih z mozaiki. Že pred desetletji so se tukaj arheologi in konservatorji-restavratorji soočili s problematiko prezentacije mozaikov. Ta je bila končno dosežena in zaključena v letu 2017 z izvedbo v projektu AS (Lesar Kikelj, 2016).

Že leta 1990 je bil pod vodstvom prof. Ivana Bogovčiča izveden konservatorsko-restavratorski poseg v treh bivalnih prostorih rimske vile na območju 2. Poseg je bil omejen zgolj na delni dvig mozaične površine v prostoru P5 ter v hodniku P4, ki je povezan s prav tako dvignjenim pragom v severozahodnem prostoru P3 (Bogovčič, 1995, str. 13). Mag. Marko Stokin je v sklopu *Programa prezentacije in zaščite arheoloških ostankov v Simonovem zalivu 1991* ter v okviru takratnih finančnih zmogljivosti predvidel sistem prezentacije na način, da se »pretežni del ponovno zasuje, dvignjeni kosi pa se obdelajo in prezentirajo na površju« (Bogovčič, 1995, str. 14). Predlagan sistem takrat ni bil izveden. Dvignjeni fragmenti so bili sprva deponirani v prostorih takratnega Zavoda za varstvo kulturne dediščine v Piranu, kasneje pa prepeljani v Restavratorski center v Ljubljani. Leta 2010 so bili v okviru projekta PArSJAd – *Arheološki parki severnega Jadrana* (Program čezmejnega sodelovanja Slovenija–Italija 2007–2013) mozaiki obdelani in pripravljeni[4] za vrnitev na originalno lokacijo ob ustrezni priložnosti[5] (Dobrilovič, Lesar, 2011).

Leta 2010 so bila prav tako v okviru projekta PArSJAd izvedena konservatorska dela na celotnem območju 1 (izvzet je bil mozaik v prostoru P17) ter v prostoru 4 območja 2. Konserviranje-restavriranje mozaikov je deloma potekalo v sklopu delavnice, ki sta jo organizirala ZVKDS, RC, in Triptih, d. o. o. (Bogovčič, 2011; Žagar, 2012). Delavnica je bila logično nadaljevanje mednarodnega simpozija o mozaikih z naslovom *Mozaiki severnega Jadrana* (Stokin, Kramar, 2011), izvedenega v Ljubljani leta 2010. Na simpoziju smo poleg pregleda stanja na področju mozaikov v tujini pridobili tudi celosten vpogled na takratno stanje v Sloveniji, ki je govoril v prid nujni evalvaciji in ponovni vzpostavitvi strokovnega dela na področju mozaikov pri nas.[6] Delavnica ter nadaljevanje konservatorsko-restavratorskih del v Arheološkem parku Simonov zaliv sta bila tudi povod za ustanovitev mednarodne konzultacijske ekipe, znotraj katere so se že takrat porajale različne izvedbene rešitve obnove, prezentacije in vzdrževanja mozaikov. V ekipo so bili povabljeni tako slovenski kot tudi italijanski, makedonski in kasneje hrvaški strokovnjaki z različnih področij (konservatorstva-restavratorstva, arheologije, arhitekture, geologije, umetnostne zgodovine itd.) iz različnih institucij, ki so imeli teoretične in praktične izkušnje s tovrstno kulturno dediščino.

Z njihovimi izkušnjami smo želeli določiti optimalne smernice in metodologijo dela za območji 1 in 2 na vzorčnem mozaiku hodnika P4 območja 2. Predlogi so bili takrat oblikovani daljnosežno, saj še ni bilo znano, v okviru katerega projekta bi se začeti posegi lahko nadaljevali in morda celo zaključili. Oblikovana je bila celo ideja obnove na predlogu modularnega postopnega dopolnjevanja celotnega arheološkega parka.[7]

Ob prijavi projekta AS je bilo treba natančno določiti vse postopke in jih finančno ovrednotiti, pri čemer pa je bilo treba upoštevati le rešitve za ohranjanje mozaikov v Arheološkem parku Simonov zaliv, za katere je bilo možno v času prijave pridobiti vsa potrebna dovoljenja. Zato so bile v sklopu prijave ter med samim projektom izbrane rešitve prezentacije, ki so zagotavljale ohranitev ostalin, hkrati pa so bile finančno vzdržne in niso pogojevale pridobitve gradbenega dovoljenja (saj tega v kratkem času priprave prijave ni bilo možno pridobiti). Izbrane rešitve so opisane v nadaljevanju prispevka in so povezane tudi s celotnim odkritjem mozaika v prostoru P5.

4 Hrbtna ojačitev fragmentov je bila v projektu PArSJAd izvedena z malto z naravnim hidravličnim apnenim (NHL) vezivom, vendar pa je kasneje, zaradi pojava že prej prisotne plesni na fragmentih in posledično krušenja malte na največjem fragmentu (prostor P4/hodnik), dela prevzel akad. restavrator Dare Tratar ter izvedel postopek armiranja hrbtišča z uporabo podaljšane (cementno-apnene) malte. Uporabil je torej »klasičen« postopek konserviranja-restavriranja iz preteklih let, pri katerem je bilo izvedeno tudi poliranje površine mozaičnih kock, ki ga danes ne uporabljamo več (fotodokumentacija arhiva ZVKDS, RC). Odločili smo se, da postavimo fragmente mozaikov na originalno lokacijo, kljub uporabi cementno-apnene malte ter poliranju površine. Tako smo prikazali različne metodološke pristope, ki se z leti spreminjajo. Prav tako je na lokaciji potekal monitoring, kjer se spremljajo razlika v odzivu na zunanje dejavnike ter spremembe na posameznih fragmentih in na preostalem mozaiku, na katerem je uporabljena izključno apnena malta (NHL in zračno apno).

5 Mozaični kosi so bili na prvotno lokacijo vrnjeni šele v okviru projekta AS.

6 Od zadnjih večjih konservatorsko-restavratorskih posegov na mozaikih je preteklo dokaj veliko časa in nastala je potreba po ponovnem ovrednotenju celostnega pristopa ohranjanja mozaikov. V preteklosti so bila namreč odkrita in raziskana arheološka najdišča, na katerih so bili odkriti mozaiki restavrirani *in situ*, prezentirani v muzejih ali deponirani v njihovem prvotnem, navadno zelo slabem stanju, brez nujnega postopka konservacije. Od zadnjih arheoloških odkritij in večjih restavriranj mozaikov pri nas so minila desetletja, in v tem obdobju je bil na mozaikih le tu in tam izveden kak konservatorsko-restavratorski poseg, ki je takrat pomenil sodoben pristop pri ohranjanju tovrstne dediščine. Vendar pa danes peščica restavratorjev, ki so se v preteklosti ukvarjali z restavriranjem mozaikov, ugotavlja, da je po toliko letih nujno treba vzpostaviti sodoben pristop konserviranja in restavriranja mozaikov ter predvsem slediti tudi dogajanju na področju celostnega ohranjanja mozaikov v svetu.

Arheološke raziskave na območju *vile maritime* v sklopu projekta AS

V delovnih sklopih projekta AS je bil opredeljen tudi obseg arheoloških raziskav, vezanih na dva glavna sklopa izvajanja del, in sicer na konservatorsko-restavratorske posege na mozaikih na območjih 1 in 2 ter na gradbena, obrtniška in inštalacijska dela za vzpostavitev drenažnega sistema, predvsem zaradi sanacije območja 2. Tako smo arheološko raziskali še preostali del prostora P5 (sicer raziskan v letih 1989–1994), dokumentirali stanje mozaikov na območjih 1 in 2 ter posegli v podlage in nasutja območja 2, kjer smo ob izgradnji infrastrukture prišli do novih ugotovitev tudi glede mozaikov portika in prostora P6 ter same zasnove vile.

Časovno lahko raziskani del vile umestimo v že obstoječo kronologijo, ki nastanek območja 2 postavlja v čas med letoma 15 pr. n. št. in 15 n. št. ter konec intenzivnejše poselitve v čas okrog let 50–70 n. št., čeprav določene najdbe govorijo v prid omejene uporabe območja 2 še do 4. stoletja (Stokin, Zanier, 2011: 49, Groh, Sedlmayer, 2017: 94–97, 221).

7 Primer modularnega dopolnjevanja je temeljil na morebitnem dodatnem odkrivanju ostalin kadarkoli v prihodnosti ter je zajemal ohranjanje *in situ* in nadkritja (z gradbenim dovoljenjem) v obliki sestavljivih modulov (s predvideno samooskrbo s sončno elektrarno na strehi), ki bi se kadarkoli lahko dopolnjevali in sestavljali celoto.

Arheološka izkopavanja na severnem delu prostora P5

V sklopu projekta AS smo se za izvedbo izkopavanj v prostoru P5 odločili zaradi celostne prezentacije prostora. Raziskavo smo umestili v mrežo kvadrantov, velikih 5 x 5 m, ki smo jo naslonili na že v preteklih sezonah (1989–1992) obstoječo mrežo, a smo kvadrante oštevilčili tekoče od št. 1 dalje (kv. 1/15–12/15).

Mozaiki območja 2 so bili ob začetku projekta AS na terenu zaščiteni s plastjo geotekstila ter nasutja iz grušča, peska in mivke. Po odstranitvi nasutij se je pokazalo, da je bil večji del prostora P5 raziskan v sezonah 1989–1994 do mozaika, medtem ko severni del prostora še ni bil izkopan, v profilu izkopa pa smo lahko opredelili kamnito strukturo; ta je predstavljala podrto vzhodno steno prostora P5 z ruševino, del notranjega ometa prostora P6 in še dobro ohranjen notranji omet prostora P5, oba ohranjena *in situ* (slika 2).

Stratigrafija plasti, dokumentiranih med izkopavanjem, si je od mozaičnih tal proti travni ruši sledila po naslednjem vrstnem redu odlaganja. Med ruševino opečnate strehe objekta, sestavljene iz tegul in imbreksov, ter mozaičnim tlakom smo dokumentirali zemljeno plast, ki bi jo časovno lahko umestili v obdobje tik po propadu vile. V tej plasti pa smo lahko dokumentirali koncentracijo ožgane gline in oglja. Na streho se je nato odložila tanka zemljena plast, časovno nastala po propadu objekta, verjetno kot posledica spolzenja plasti zemljine (koluvij) oz. naplavin bližnjega potoka (aluvija). Na to plast je v naslednji fazi propada objekta padla stena z ometi, ki je bila v jugozahodnem delu izkopnega polja dokumentirana še kot celota, medtem ko se je po ostalem območju stena ohranila v obliki ruševine. V severnem delu izkopa smo dokumentirali tudi del ruševine severne stene prostora P5, nanjo se je odložila zemljena plast, to pa je sčasoma zarasla travna ruša (slika 3).

Tla prostora P5 so bila tlakovana z mozaičnimi kockami, ki so sestavljale kompleksen ornament z motivi štirikrakih zvezd in rombov v notranji ploskvi mozaika, vpetih v borduro pletenice, zamejene z dvojnimi črtami. V tej fazi raziskave smo dokumentirali redkokdaj izpostavljene in dokumentirane črte (vodila za postavljanje mozaičnih kock), vrezane v še vlažen nukleus (slika 4).

Na zidovih smo opredelili več nanosov notranjega ometa, ki pripada steni sosednjega prostora P6. Po odstranitvi ometov smo prišli do kamnite stene, ki je delila prostora P5 in P6 in v kateri je bil najden igralni žeton iz modrega stekla – očitno je bil ob ometanju stene vzidan vanjo. Po etapah so bili odstranjeni tudi celotna stena in notranji ometi prostora P5, ki so bili v osnovi poslikani, vendar je fini omet s stenskimi poslikavami odpadel že pred podrtjem stene in je bil v fragmentih najden pod ruševino strehe, zato smo v tej fazi na steni dokumentirali le še grobi omet (slika 5).

Pod porušeno steno z ometi smo dokumentirali tanko glineno plast zemljine, ki se je nalagala v času med padcem strehe in podrtjem stene. V tej fazi smo izkopavanje začeli voditi po sistemu mikrokvadrantov. Celotno izkopno polje smo razdelili v 37 mikrokvadrantov, velikih 1 x 1 m, ki nam omogočajo natančnejše prostorsko lociranje in distribucijo najdb in gradbenega materiala.
Ruševina strehe je bila dobro ohranjena, s posameznimi predeli, kjer strešnikov ni bilo. Lesena strešna konstrukcija ni bila ohranjena (slika 6).

Po odstranitvi strehe in dela plasti zemljine pod njo smo lahko na več mestih dokumentirali način izvedbe stenskih ometov v odnosu do mozaičnih tal, stratigrafijo podlag za mozaike in sistem dreniranja tik ob steni, predvsem na stiku zidu in tlakov.
Na severozahodni strani se je pokazalo, da je bil očitno del prostora poškodovan, saj je bil zaznan usek v plasti in mozaične kocke. V plasti pod streho smo našli več kosov prej odpadlih stenskih poslikav, ki so bile poslikane z oker, zelenimi, rdečimi in črnimi pigmenti v različnih kombinacijah geometričnih motivov.
Ob zazidanem prehodu iz prostora P5 v prostor P6, v katerem so bila mozaična tla drugačna kot v prostorih P5 in P6, smo našli več odlomkov okenskega stekla, kar je zelo zanimivo, predvsem ker gre za notranje prostore vile.
V plasti pa je bilo tudi več večjih kosov, najverjetneje stropnega ometa, sorazmerno malo najdb (stekla, keramike, železa in svinca) ter deli različnih školjk. Na zemljeni plasti tik nad mozaiki smo na severni strani prostora dokumentirali ožgano zaplato zemlje in večjo količino oglja, ki bi lahko predstavljala kurišče začasnega tipa. To bi lahko kazalo na kratkotrajno ponovno uporabo posameznih prostorov po opustitvi vile, kar je v skladu z interpretacijo podobnih pomožnih ureditev v prostorih P1 in P3 (gl. Stokin, Zanier 2011, str. 101; Groh, Sedlmayer 2017, str. 48–49).
Med konserviranjem in dvigovanjem mozaikov v prostoru P4 (hodnik) smo se odločili, da v preteklosti že raziskani del prostora P4 odkrijemo do stika s hodnikom P9, ki na severni strani obdaja prostora P5 in verjetno P6. Tako smo v sklopu arheološke raziskave prostora 5 posegli tudi v severni del prostora P4, kjer smo ob mlajših nasutjih in ruševini dokumentirali velik poseg v mozaik in podlago prostora P4 (slika 7). Poseg/vkop, izveden po opustitvi vile, je bil zapolnjen z ruševino in kamnitim drobirjem ter redkimi kosi rimske keramike in gradbenega materiala. Vkop je poškodoval tudi zidove novo odkritega prostora P23, ki se sicer delno nakazujejo v severnem delu izkopa prostora P3 in delno v severozahodnemu vogalu izkopa prostora P4. Očitno je, da je tudi prostor P23 imel mozaična tla, saj se v zahodnem profilu izkopnega polja vidi podlaga zanje s posameznimi mozaičnimi kockami. Na tem nivoju smo izkopavanje zaključili in dokumentirali stanje. Ker se mozaiki niso nadaljevali proti severu, smo severni del veže prekrili z geotekstilom in peskom.

V tej fazi je bil očiščen tudi del prostora P9, izkopanega v sezoni 1996, kjer smo ponovno dokumentirali že odkrita mozaična tla.[8] Lahko smo opazili, da so del mozaika kasneje, a še v rimskem obdobju, popravljali s kockami manjših dimenzij (0,5 x 0,5 cm) in drugačno podlago oz. nukleusom (slike 7, 8, 9). Tudi tu smo mozaik ohranili *in situ* s plastjo geotekstila in peska.

Arheološka raziskava ob izvedbi drenažnega sistema na območju 2

Drugi večji arheološki poseg v sklopu projekta je obsegal arheološko raziskavo ob arhitekturni ureditvi parka in izvedbi drenažnega sistema za območje 2. Tudi v prostoru P1 je ob izvedbi drenaže prišlo do novih odkritij: odkrit in očiščen je bil namreč večji fragment mozaika prostora P1, torej portika, od katerega so bila v preteklosti mozaična tla dokumentirana samo v južnem odseku prostora (Stokin, Zanier, 2011: 54–56; Groh, Sedlmayer 2017: 44–46, slike 44–54), medtem ko v večjem delu portika mozaik ni bil ohranjen. Gre za enostaven mozaik s svetlo podlago z enojno črno obrobno linijo. Pri novo odkritem segmentu mozaika smo lahko opazili posebnost uporabe svetlih (ne samo belih) kock v zelo različnih sivih, zelenih, roza in modrih odtenkih, kar se v drugih prostorih vile ne pojavlja.
V skladu z vsebino članka se bomo osredotočili večinoma na rezultate posegov v podlage za mozaike v prostorih P3–P5 v sklopu izvedbe drenažnega sistema na območju 2.
Po Projektu za izvedbo (Kleibencetl, 2015, Mapa 3.1) sta bila v sistemu drenaže mozaikov predvidena dva kraka drenažnih jarkov, in sicer južni na severni strani portika (P1) in severni, ki je v loku zajel vse tri prostore P3–P5 in se izven območja mozaikov združil z drenažo iz portika. Drenažni sistem obeh se je potem nadaljeval proti iztoku v morje s padcem 0,5 %. Vode se odvajajo gravitacijsko, med plimo pa se prečrpavajo v jašek, od koder se gravitacijsko odvajajo, ko so razmere ugodnejše.
Po *in situ* konserviranju[9] in dvigu mozaikov v prostorih območja 2 smo najprej dokumentirali dejansko stanje preostalih podlag, torej najprej nukleusa. Sledilo je sistematično arheološko strojno odstranjevanje podlag za mozaike – nukleusa, rudusa, statumna in soliduma – ter glinenih spodnjih plasti do globine 0,55 m oz. do globine pribl. 1 m na dnu izkopa drenažnega sistema. Izkazalo se je, da se sestava podlag razlikuje med posameznimi prostori, s tem da prostora P3 in P4 kažeta podobne značilnosti, medtem ko ima prostor P5 rahlo drugačno sestavo podlag.[10]
V prostoru P3 smo zabeležili naslednje zaporedje podlag in nasutij:[11] *nucleus*, *rudus*, *statumen*, dve plasti soliduma in spodaj ležeča glinena plast, že del geološke osnove[12] (slika 11). V prostoru P4 je zaporedje podlag in nasutij nekoliko drugačno: *nucleus*, maltna izravnalna plast na površini rudusa, *rudus*, *statumen*, dve plasti soliduma in spodaj ležeča glinena plast[13] (slika 10).

8 Obenem smo tudi ugotovili, da sosednji, severni prostor P10 do zdaj še ni bil izkopan (nasprotno je nepravilno nakazano v monografiji Stokin, Zanier, 2011) oziroma da so pretekla izkopavanja odkrila samo predelno steno med prostoroma P9 in P10.

9 Pred dvigom so bili mozaiki konservirani, posamezne kocke pa ponovno postavljene na originalno mesto, tako da je poseg lahko potekal brez težav in izgub posameznih kock, porazgubljenih po prostoru. Glej tudi: Kramar idr., v tisku.

10 Podlaga za mozaike je bila malta, sestavljena iz apna in različnih vrst agregatnih zrn (npr. pesek, oglje, prodniki, opeka), ki smo jih kvantitativno opredelili – velikostno in v deležih glede na celoto.

11 Klasična stratigrafija mozaikov po Vitruviju: *tesserae* (*tesserulae*, *tesselae*) – kocke; izravnalna plast za vlaganje kock, iz gašenega apna in fine kamnite moke; *nucleus* – podložna plast, trdno zbita apnena malta z drobci zdrobljene keramike in/ali opeke (tudi fina opečna moka); *rudus* – trdno zbita apnena malta z drobci prodnikov in opečnega zdroba; *statumen* – temeljna plast, trdno zbita plast iz prodnikov (do za pest velikih kamnov); *solidum* – navlažena in trdno zbita zemlja in/ali odpadni material.

12 *Nucleus* je bil debel pribl. 5 cm, s tem da se je ločil zgornji del nukleusa (v debelini 2 cm) od spodnjega dela (3 cm); zgornji del je bil bolj drobljiv, a je imel enako sestavo kot spodnji. Malta je bila sestavljena iz več kosov opeke velikosti do 1 cm (7 %), več kosov apna velikosti do 0,5 cm (5 %), črnih prodnikov velikosti do 0,5 cm (2 %). Sledil je *rudus* v debelini pribl. 8 cm, ki je bil sestavljen iz kosov opek velikosti med 1 in 3 cm (20–40 %; več opeke je bilo dokumentirane na zahodni strani podlage), kamnov peščenjaka velikosti do 2 cm (10 %) in peščenjakov velikosti do 10 cm (20 %) ter kosov apna velikosti do 1 cm (7 %). Pod rudusom je bil dokumentiran *statumen* v podobni debelini (8 cm). Sestavljali so ga kamni velikosti do 20 x 25 cm (70 %), kosi opek velikosti do 2 cm (2 %) in rumena glina kot vezivo. Sledila so nasutja, in sicer dve glineni plasti soliduma, zgornja z večjim številom keramičnega gradiva (do 5 %), s posameznimi večjimi kamni velikosti do 10 x 15 cm (3 %) in oksidi (10 %) v debelini pribl. 17 cm ter spodnja s kamenjem velikosti do 8 cm (7 %) in kosi zdrobljene opeke velikosti do 5 cm (5 %), oksidi (3 %) ter redkimi najdbami (1 %) v debelini do 50 cm. Na prvi plasti soliduma je bila dokumentirana zaplata ožgane ilovice s pepelom nepravilne oblike. Na dnu izkopa za drenažo smo dokumentirali sivo zeleno glineno plast, ki je vsebovala posamezne kose peščenjaka velikosti do 10 cm (3 %).

13 Pribl. 3 cm ali več debel *nucleus* je bil sestavljen iz kosov opeke velikosti do 1 cm (7 %), kosov apna velikosti do 0,5 cm (5 %), črnih prodnikov velikosti do 0,5 cm (2 %) in malte. Sledil je *rudus* v debelini med 12 in 20 cm (debelejši na južnem delu prostora, kjer je bil zgornji del podlage izravnan z 2,5 do 3,5 cm debelo maltno izravnalno plastjo, ki je verjetno služila izravnavi bolj grobega nasutja rudusa in pripravi ravne površine za finejše podlage (nukleusa)). Izravnava je po sestavi malta z do 0,5 cm velikimi kosi opeke (3 %) in do 0,5 cm velikimi prodniki (2 %). *Rudus* je bil sestavljen iz kosov opek velikosti med 1 in 2 cm (20–30 %; več na zahodni strani prostora), kamnov peščenjaka velikosti do 2 cm (7 %) in peščenjaka velikosti pribl. 8 x 5 cm (30–40 %) ter kosov apna velikosti do 1 cm (3 %). Pod rudusom je bil dokumentiran *statumen* v debelini 8 cm. Sestavljali so ga kamni velikosti od 8 x 5 do 20 x 15 cm (40 %) in rumene gline z oksidi. Sledila so nasutja, podobna tistim v prostoru P3, glinen *solidum* z gradivom v debelini med 14 in 18 cm ter *solidum* z zdrobljeno opeko v debelini do 50 cm.

V prostoru P5 pa se zaporedje podlag in nasutij ponovno razlikuje od tistega v prostorih P3 in P4: *nucleus*, ponekod maltna izravnalna plast, zaključek, druga plast nukleusa (glej opombo 11), tanek *rudus*, *statumen*, le ena plast *soliduma* in spodaj ležeča glinena plast.[14]

Način posedanja mozaikov, kjer se je na zahodni strani mozaične površine izoblikoval raven plato, bi lahko nakazoval na spodaj ležeče trdnejše podlage (morda starejši zid), a se je ob izkopavanjih izkazalo, da starejših arhitekturnih ostalin na tem mestu ni bilo in da gre posedanje mozaika pripisati geološki podlagi na območju 2, ki je v tem primeru fliš.
Med izkopavanji nas je presenetila sorazmerno velika količina najdb v nasutjih za mozaike (solidumu). Med gradivom lahko izpostavimo del sigilatne skodele z napisom AT HI iz avgustejskega obdobja (zadnja desetletja 1. stoletja pr. n. št. in začetek 1. stoletja n. št.) ter del ostenja amfore z grafitom/napisom SPIIRATI (verjetno ime *Speratus*), vpraskanim po pečenju, *post cocturam*).

Posebnosti mozaikov

Konservatorsko-restavratorski poseg je zajemal obnovo antičnih mozaikov ter zidov severnega (območje 1) in južnega (območje 2) dela vile. Velik poudarek je bil namenjen načinu prezentacije mozaikov, saj je neenaka geološka sestava tal obeh območij narekovala različen konservatorsko-restavratorski pristop. Na končne odločitve so vplivali predvsem nadmorska višina mozaikov in geološka sestava tal, ki pogojujeta ohranjenost, ter stalna zaščita mozaikov in zidov pred zunanjimi negativnimi dejavniki z nadstreškom in drenažnim sistemom z odvajanjem meteornih voda, ki ju je v osnovi predvidel načrt upravljanja najdišča (Lazar, Zanier, 2014).
V bližini arheološkega parka poteka geološka meja med apnencem in flišem (slika 12) (fliš sestavlja zaporedje kamnin glinavcev, peščenjakov in muljevcev) (Pleničar idr., 1973). Predvidevamo,[15] da je geološka meja hkrati tudi meja med območjema 1 in 2, saj prav posledice umeščenosti mozaikov na različnih geoloških podlagah kažejo na to možnost. Ostaline na območju 2 naj bi bile tako na flišni podlagi oziroma na preperini fliša. Mozaiki na tem območju so bili že v osnovi postavljeni na pribl. 50 cm nižjem nivoju kot mozaiki območja 1,[16] poleg tega so se tla tu neenakomerno posedla (zato imamo opraviti z zelo velikimi nivojskimi razlikami), gladina morja pa se je v 2000 letih dvignila (Antonioli et al., 2007; Antonioli et al., 2008). Mozaiki so tako pristali na zanje zelo kritični nadmorski višini, tako da sta obe območji zelo blizu morja. Vpliv plimovanja je zato močnejši, obenem pa nepropustna ilovnata površina fliša povzroča zastajanje meteornih voda in podtalnice ter zadrževanje usedlin, pomešanih z vodo, v konkavno posedlih predelih (slika 13), kar je privedlo do oslabitve podlag mozaikov. Voda na površini je v zimskem času tudi zamrznila.

Že na podlagi spoznanj iz raziskav leta 1990 (Bogovčič, 1995) vemo, da gre za atipično poškodovanost mozaikov, specifičen problem ločevanja mozaičnih kock v segmentu nukleusa. Do razslojevanja apnenih plasti je prišlo tudi v segmentu rudusa. Inž. Ivo Nemec v preiskavah ugotavlja, da so horizontalne razpoke, ki so danes zapolnjene z vmesnimi finimi humusnimi frakcijami, posledica zmrzovanja (Nemec, 1991). Tako se je dokaj debela plast separirane usedline/zemlje lažje vrinila med horizontalne in vertikalne razpoke in posamezne plasti malte ter jih ločila. Separacija plasti mozaične podlage pa se je z leti še povečevala, saj smo v sklopu projekta AS zabeležili enakomerno močno povečanje vrinjene zemlje v vseh prostorih. Tako je bilo za to območje določeno, da se mozaiki dvignejo,[17] izravnajo, konservirajo-restavrirajo ter nato vrnejo na prvotno lokacijo, vendar z novo podlago.
Mozaike na območju 1 smo konservirali ter delno restavrirali *in situ*, saj imajo za podlago apnenčasta in hkrati prepustna tla, kar je dobra in trdna podlaga, ki kljubuje negativnim zunanjim dejavnikom. Kljub močni razraščenosti preslice, zelo invazivne rastline, ki se je integrirala med plasti mozaičnih kockic in plastjo nukleusa, smo se odločili, da mozaike prezentiramo in konserviramo *in situ*. Pred tem smo na podlagi konzultacij s strokovnjaki Biotehniške fakultete, UL, ter kolegi restavratorji, ki se soočajo s podobno problematiko, pridobili navodila glede načina postopnega izkoreninjenja te rastline.

Izbira najustreznejše metodologije dela in način prezentacije arheoloških ostalin

S stališča konservatorsko-restavratorske stroke poznamo več načinov ohranjanja mozaikov, ki vključujejo tako strogo obliko varovanja ostalin z ustreznim zasutjem kot tudi različne načine prezentacije mozaičnih površin. Za vsako območje posebej je bilo treba predvideti različne možnosti izvedbe glede na stanje in specifiko posameznih mozaikov, ki smo jih pred tem dodobra preučili. Odločitve so se sprejemale na strokovnih posvetih na terenu, kamor so bili vabljeni strokovnjaki različnih področij. Vsako sprejeto odločitev je potrdil odgovorni konservator Jaka Bizjak.[18]
Za obe območji je bilo treba preučiti različne predloge izvedbe, ki so se med izvajanjem preostalih del celotnega projekta prilagajali, na koncu pa je bil uporabljen najboljši. Predlog izvedbe je zajemal šest različnih rešitev (slika 14):
A: dvig mozaikov, prezentacija s pilotiranjem ter izravnano mozaično površino;
B: dvig mozaikov s predhodnim dokumentiranjem neravnin s kalupom, prezentacija s pilotiranjem in deformirano/dejansko mozaično površino;
C: dvig mozaikov, prezentacija z izvedbo nove podlage po vzorcu originalne stratigrafske sestave ter izravnano mozaično površino na prvotnem nivoju mozaikov;
Č: dvig mozaikov s predhodnim dokumentiranjem neravnin s pomočjo kalupov, prezentacija deformiranega/dejanskega stanja mozaične površine z izvedbo nove podlage po vzorcu originalne stratigrafske sestave;
D: konserviranje-restavriranje *in situ* ter prezentacija deformiranega/dejanskega stanja;
E: dvig mozaikov, prezentacija izravnane mozaične površine na premičnih nosilcih, nameščenih na novi podlagi na prvotnem nivoju mozaikov.

Na končno odločitev, kot je razloženo v nadaljevanju, je vplivalo več dejavnikov in nazadnje je bil za območje 1 izbran predlog D: konserviranje-restavriranje *in situ* ter prezentacija deformiranega/dejanskega stanja, za območje 2 pa predlog C: dvig mozaikov, prezentacija z izvedbo nove podlage po vzorcu originalne stratigrafske sestave ter izravnano mozaično površino na prvotnem nivoju mozaikov.
Razlogov za takšno odločitev je bilo več. Za območje 1 smo se odločali le med predlogoma C in D, vendar brez izvedbe drenažnega sistema. Zaradi trdne apnenčaste podlage se dvigovanje in izvedba nove mozaične podlage za to območje za zdaj še nista zdela nujna, zato smo se odločili za predlog D, s tem da je treba vsaj dvakrat letno zatirati preslico ter spremljati vremenske razmere, da se prepreči škoda zaradi zgodnjih spomladanskih zmrzali. Kljub vsemu pa bi dvigovanje mozaikov (predlog C) lahko prišlo v poštev v prihodnosti prav zaradi močno razpredenega koreninskega sistema preslice med posameznimi plastmi mozaika ter morebitnega negativnega delovanja zmrzali, ki lahko povzroči dodatno razslojevanje plasti. Monitoring eno leto po zaključku projekta bo pokazal, ali bo dvigovanje mozaika predvsem v prostoru P17 v prihodnosti vendarle potrebno.
Zaradi slabe ohranjenosti in nizkega nivoja samih mozaikov *in situ* konserviranje in restavriranje dejanskega stanja (predlog D) mozaikov na območju 2 že v preteklosti ni zagotovilo zadovoljivih rezultatov, zato sta veljala dvig mozaikov in izvedba novih nosilcev (pilotov) ali podlage za ključna za nadaljnjo ohranitev in prezentacijo mozaikov na tem območju. Predloga izvedbe A in B, s predlaganim pilotiranjem, sta bila za območje 2 delno povzeta po izhodiščih za izvedbo prezentacije mozaikov (Bogovčič, 2000), ki jih je Ivan Bogovčič pripravil po zaključku projekta dvigovanja treh fragmentov iz prostorov P3, P4 in P5, ki pa zaradi pomanjkanja finančnih sredstev takrat ni bil izveden. Pilotiranje smo kasneje po nasvetu strokovnjakov,[19] ki so izdelali načrt za drenažo, opustili, saj naj po natančnem pregledu tal piloti ne bi bili potrebni za ustavitev nadaljnjega posedanja. Na tem mestu sta bila predvidena že opisani drenažni izkop ter priprava podlage po vzoru antičnih, ki naj bi mozaikom nudila dovolj trdne temelje.
Podoben predlog Č smo pri mozaikih območja 2 opustili iz

14 Pribl. 2,5 do 4,5 cm debel *nucleus* je bil sestavljen iz kosov opeke velikosti do 1 cm (7 %), kosov apna velikosti do 1 cm (5 %), manjših peščenjakov velikosti do 0,5 cm (3 %) in malte. Sledila je tanka plast *rudusa*, ki je bil ponekod zaključen z maltno izravnavo v debelini med 1,5 in 3 cm, na določenih mestih pa *rudus* niti ni bil položen (npr. v osrednjem delu prostora in ob vzhodnem zidu). *Rudus* je bil sestavljen iz kosov opek velikosti do 1 cm (2 %), prodnikov velikosti do 2 cm (20 %) in črnih prodnikov velikosti do 1 cm (15 %), kosov apna velikosti do 1 cm (10 %) in malte. Edino v rudusu prostora P5 so bili primešani prodniki. Izravnava je bila po sestavi malta z do 0,5 cm velikimi kosi opeke (1 %) in do 0,5 cm velikimi prodniki (1 %). V nadaljevanju je bil dokumentiran *statumen* v debelini pribl. 15 cm. Ponekod je bil *nucleus* položen brez podlage rudusa direktno na statumen, ki ga sestavljajo kamni velikosti od 5 x 8 cm (10 %) do 20 x 15 cm (40 %), prodniki velikosti do 8 cm (20 %) in rumena glina z oksidi. Le v prostoru P5 smo dokumentirali precej enoten *solidum*, po sestavi podoben zgornji plasti soliduma v prostorih P3 in P4. Na vrhu soliduma, ki je bil podoben podlagam v prostorih 3 in 4, smo dokumentirali več zaplat pepela in ožgane ilovice, ki pa so ležale pod tanko plastjo mivke in ilovice rumene barve brez najdb. Debelina soliduma je tako znašala med 37 in 55 cm in je bila očitno odvisna tudi od posedanja in preperevanja/odnašanja materiala (debelejši je bil namreč *solidum* tik ob zidovih, kjer je posedanje najmanjše). V prostoru P5 ni bilo glinene plasti z zdrobljenimi kosi opeke (v prostorih P3 in P4 je bila prisotna kot druga plast soliduma). Pod solidumom je bila v dnu izkopa za drenažo dokumentirana sivo zelena glinena plast s kamni, ki je očitno enotna v vseh treh prostorih in verjetno predstavlja preperelo flišnato geološko osnovo.

15 Na delavnici v okviru projekta PArSJAd leta 2010 je svoja dognanja glede geološke sestave tal Izole in okolice predstavil dr. Timotej Verbovšek (univ. dipl. inž. geol.), UL, NTF. Lociranje obeh območij arheološkega parka je bilo podprto z osnovno geološko karto (Pleničar idr., 1973), ki opisuje litološko-stratigrafske značilnosti kamnin, ki gradijo slovensko ozemlje, njihove medsebojne odnose, starost in druge pomembne lastnosti. Ta karta je osnova za razumevanje geološke zgradbe danega območja, ki prikazuje mejo med flišem in apnencem.

16 Razlika v višini je tudi do 60 cm, najmanjša pa znaša 0,39 m; to se zdi veliko, tako da se poraja domneva, da se je pogreznil celoten južni del in ne samo mozaiki. Višina praga med prostoroma P5 in P6, ujetega med zidove, je npr. 1,64 m n. m., medtem ko je na severu najbližja na 2,03 m.

17 Način dviga je delno določila že plast vrinjene zemlje tik pod mozaičnimi kockami in delom izravnalne malte (posteljice). Dvignjeni fragmenti so bili tako sestavljeni iz mozaičnih kock in zdrobljene izravnalne malte.

18 Na sestankih so bili prisotni tako odgovorni iz ZVKDS, OE Piran, kot vodilni partnerji UP FHŠ ter predstavniki ZVKDS, RC, s podizvajalci in svetovalci. Osnovna strategija dela je bila podana že ob prijavi projekta, nato smo rahla odstopanja in prilagajanja metodologije del prilagodili razmeram na terenu, tako da je delo lahko potekalo čim bolj optimalno.

19 Konzultacije so potekale z univ. dipl. inž. grad. Iztokom Kleibencetlom (ISAN 12, podjetje za gradnjo in vzdrževanje objektov, d. o. o.).

naslednjih razlogov. Prezentacija dejanskega stanja z deformacijami z dvigom mozaikov in izvedbo nove podlage bi zahtevala vrsto obsežnih dodatnih ukrepov in izdelavo ogromnih kalupov za odtis neravnin. Tako prezentirane površine so tudi bolj občutljive za poškodbe, mehanske obremenitve (morebitno stopanje po mozaični površini med vzdrževanjem) ter za samo vzdrževanje, saj na poglobljenih predelih zastajajo usedline zemlje in okoliških nečistoč. Vendarle pa tak način prezentiranja zagotavlja manjše poseganje v mozaične površine, predvsem pa jih predstavlja v luči 2000-letnega delovanja časa nanje.
Prezentacija poravnane površine je prav tako zahtevala vrsto posegov, kot sta npr. redukcija fug, nastalih zaradi posedanja podlage, ter korekcija na močno deformiranih predelih mozaika. Za končno odločitev pa je bilo ključno to, da smo mozaike želeli vrniti na višji nivo, torej na nivo, na katerem so bili ob svojem nastanku pred 2000 leti, poleg tega bi s tem upočasnili nadaljnje propadanje.
Dvig mozaikov je bil zaradi vseh že opisanih in v nadaljevanju navedenih okoliščin ter slabega stanja določen že kmalu po pregledu stanja mozaikov, vendar pa smo se zaradi nejasnosti glede stalne ali le občasne postavitve nadstreškov odločali tudi med možnostjo vrnitve posameznih dvignjenih fragmentov na lokacijo na prenosnih nosilcih (predlog E). V tem primeru bi lahko mozaike v zimskem času odstranili iz arheološkega parka in deponirali v primernem prostoru. Zaradi pomanjkanja ustreznega prostora za hrambo fragmentov v zimskem času in z estetskega vidika problematičnih zelo vidnih fug med posameznimi fragmenti na premičnih nosilcih smo se nazadnje odločili za stalno vrnitev mozaikov na najdišče (predlog C), in sicer na novo podlago, pripravljeno po vzoru antične, saj ta omogoča naravno dihanje in prehajanje vlage skozi vse pripravljalne plasti.
Ob izbiri najustreznejše prezentacije se je porajalo tudi vprašanje, ali so morda pod mozaiki starejše arheološke ostaline. Mozaiki v prostoru P5 so se namreč posedali zelo nenavadno, kar bi lahko nakazovalo na možnost obstoja starejših zidov; kasnejša arheološka izkopavanja v sklopu izvedbe drenažnega sistema so to možnost ovrgla.

Izbor in priprava malte za mozaične podlage

Posebnega pomena je bilo mednarodno interdisciplinarno sodelovanje, ki vključuje tudi razvoj ustreznih kompatibilnih in reverzibilnih malt z vezivom iz naravnega hidravličnega apna. Za razliko od muzejske prezentacije mozaikov zahteva *in situ* prezentacija tudi upoštevanje nestabilnih pogojev, ki bi vplivali na novo podlago, ter zagotavljanje dolgoročne konservacije. Nova malta mora biti obstojna pri različnih vremenskih pogojih ter mora obenem zagotavljati kompatibilnost in reverzibilnost kot tudi, v primeru prenosnih nosilcev, enostavno ravnanje s fragmenti. Po uspešni uporabi lahke agregatne malte z naravnim hidravličnim apnenim vezivom pri muzejski prezentaciji emonskega mozaika (Županek et al., 2016) smo želeli preučiti še, kako različni mineralni dodatki vplivajo na fizikalne in mehanske lastnosti malt ter na njihovo obstojnost. Naravno hidravlično apno velja za enega izmed najobetavnejših veziv pri konservatorsko-restavratorskih posegih, saj je kemijsko in mehansko kompatibilno z antičnimi materiali (Jorne, 2014), poleg tega pa je lahko odstranljivo, kadar je to potrebno. Za razliko od zračnega apna ima lastnost vezanja in strjevanja tako ob prisotnosti vode kot na zraku in je obstojno v vlažnih pogojih.
Z namenom povišati tlačno trdnost malte z apnenim hidravličnim vezivom, ki smo jo uporabili pri muzejski prezentaciji, smo preučevali vpliv različnih mineralnih dodatkov, in sicer metakaolina in mikrosilike, na mehanske lastnosti lahke agregatne malte. Poleg tega smo preiskali tudi zmrzlinsko obstojnost teh dodatkov. Mineralni dodatki so naravni ali umetni materiali, ki jih mešamo z vezivom, da bodisi izboljšamo želene lastnosti ali odstranimo neželene. V antiki sta bila taka mineralna dodatka vulkanski pepel in drobljena opeka; z njima so zaradi hidravlične (reakcija z vodo) in/ali pucolanske reakcije (reakcija s $Ca(OH)_2$ ob stiku z vodo) dosegali, da je bila malta bolj obstojna in da je imela večjo trdnost kot čista apnena malta. V današnjem času se kot mineralni dodatki najpogosteje uporabljajo elektrofiltrski pepel, granulirana plavžna žlindra, mikrosilika in metakaolin. Slednji je naravni kalciniran pucolan (po večini sestavljen iz SiO_2 in Al_2O_3) in je produkt kalcinirane kaolinitne gline, ki ob reakciji s $CaOH_2$ iz apna tvori hidratacijske produkte. Mikrosilika pa spada med umetne pucolane in je stranski industrijski proizvod, sestavljen pretežno iz SiO_2. Detajlni rezultati raziskave so podani v članku *Mechanical and durability properties of lightweight mortars for the backing of ancient mosaics* (Kramar in Lesar Kikelj, 2016), tu pa podajamo povzetek izsledkov.
Prvi sklop preiskav za pripravo ustrezne malte za mozaike v Simonovem zalivu je obsegal preučevanje vpliva mineralnih dodatkov na mehanske lastnosti malte. Izhajali smo iz recepture, ki je bila izbrana za prezentacijo emonskega mozaika. Preiskali smo vpliv dveh različnih metakaolinov (oznake MK1, MK2) in treh različnih mikrosilik (oznake MS1, MS2, MS3), ki smo jih maltnim mešanicam dodajali v različnih deležih, in sicer smo del veziva nadomestili z 10-, 20- ali 30-odstotnim deležem določenega mineralnega dodatka. Za pripravo malte smo uporabili lahek agregat iz recikliranega stekla različnih granulacij (Rondofil, Mikrosil), za vezivo pa naravno hidravlično apno NHL 3,5. Dodali smo tudi polipropilenska vlakna. Mešanicam malte smo določili njihov razlez, prostorninsko maso sveže in strjene malte ter tlačno in upogibno trdnost.

Na podlagi rezultatov smo ugotovili, da malta z dodatkom metakaolina dosega nižje vrednosti tlačne trdnosti po 28 dneh v primerjavi z mešanicami, ki vsebujejo mikrosiliko. Najvišjo tlačno vrednost ima malta z dodatkom sive mikrosilike KEMA, hkrati pa tudi nekoliko nižje vrednosti suhe prostorninske mase. Z večanjem vsebnosti mineralnega dodatka se zvišuje tlačna trdnost malt, prostorninska masa strjene malte pa se načeloma zmanjšuje. Prostorninska masa malte z metakaolinom je v območju od 568 do 615 kg/m^3, z mikrosiliko pa od 553 do 580 kg/m^3.

Za preiskave zmrzlinske obstojnosti smo na podlagi prejšnjih preiskav izbrali mešanice lahkih malt, ki vsebujejo 20 % mineralnega dodatka – dva metakaolina in tri mikrosilike. Ugotovili smo, da je zmrzlinsko najbolj obstojna lahka malta brez mineralnih dodatkov. Največjo izgubo mase in največ poškodb po izpostavitvi ciklom zmrzovanja in tajanja opazimo pri mešanicah, ki vsebujejo mikrosiliko, medtem ko se pri mešanicah z metakaolinom poškodbe pojavijo v manjšem obsegu (slika 15).

Glede na rezultate preiskave smo se odločili, da za zadnjo plast/posteljico, na katero smo položili mozaične fragmente, ne uporabimo zračnega apna, kot to narekuje originalna sestava antičnih podlag, temveč malto z vezivom iz naravnega hidravličnega apna NHL 3,5 brez mineralnih dodatkov ter s kalcitnim peskom zrnavosti od 0,1 do 0,5 mm. Uporabili smo nekoliko obarvano hidravlično apno in tako dobili malto, ki se je kar najbolje ujemala z obstoječo mozaično površino. Z raziskavo smo dobili potrditev, da različni dodatki v osnovi ne povečajo obstojnosti in trdnosti malte v tolikšni meri, da bi se zanje odločili, vplivajo pa na hitrejše pridobivanje zgodnjih trdnosti, kar v našem primeru ni bila večja prednost. Preostala podlaga, na katero smo položili izbrano končno plast, je narejena po vzoru originalne antične podlage in je opisana v naslednjem poglavju.

Konservatorsko-restavratorski posegi

V tem poglavju je opisan celoten poseg na mozaikih in zidovih rimske obmorske vile obeh območij v letih 2015–2017, vključno s pripravljalnimi in ostalimi vzporednimi deli. Konservatorsko-restavratorski posegi na antičnih mozaikih so se izvajali na območju 1 v prostorih P14, P15, P16, P17 in P20 ter na območju 2 v prostorih P3, P4 in P5. Vsi mozaiki, razen tistih v prostoru P17 in delno v prostoru P5, so bili leta 2010 v okviru projekta PArSJAd po izvedbi osnovnih konservatorsko-restavratorskih posegov zaščiteni z nasutjem, ki so ga sestavljale tkanina (KORTEX GTPP, tkan geotekstil iz visoko trdnih polipropilenskih (PP) trakov), ki je ločevala mozaik pred prašnimi delci, ekspandirana glina ter plast peska (grobi pesek in mivka). Ob pričetku del je bila zaščita previdno odstranjena. Pred nadaljnjimi deli smo stanje mozaikov natančno dokumentirali, vse faze med posegi in po njih pa so bile dokumentirane sproti. Mozaik v prostoru P17 med deli v letih 2010 in 2011, ko so bili preostali mozaiki odkriti, konservirani in zaščiteni z nasutjem, ni bil obravnavan.
Ponekod je ob robovih mozaik prekrivala le plast nasutega peska in zemlje. Največ poškodb je povzročila agresivna vegetacija (preslica), katere koreninski sistem se je razraščal preko vseh sestavin mozaika in povzročil razslojevanje in drobljenje malte, s tem pa tudi odstopanje mozaičnih kock. Z nadaljnjimi konservatorsko-restavratorskimi postopki smo mozaike utrdili do ustrezne stabilnosti.
Večino časa so bili v arheološkem parku nad mozaiki postavljeni zaščitni šotori podjetja Petre šotori, d. o. o., ki so ščitili mozaike med zelo občutljivimi konservatorsko-restavratorskimi posegi pred zunanjimi dejavniki, kot so direktna sončna svetloba in pripeka, močni nalivi, zmrzal in burja. Vsekakor pa s šotori mozaikov ni bilo moč v celoti zaščititi, tako da je bilo nekatere posege zaradi neustreznih zunanjih pogojev med delom treba ponoviti. Zaščita s šotori je bila nujna predvsem med dvigovanjem in vračanjem mozaikov, še posebej pa v času zorenja novo položenih apnenih podlag.

Mozaiki območja 1

Opis mozaikov in naravoslovne preiskave

V okviru projekta AS smo na območju 1 obravnavali črno-bele mozaike iz petih prostorov (P14, P15, P16, P17 in P20). Mozaik v prostoru P14 ima osnovo iz belih kock, postavljenih poševno, ter okvir z belo štiritračno pletenino na črni podlagi, ki je precej razširjen okrasni motiv rimskih mozaikov.[20] Borduro na obeh straneh omejujejo ena vrsta belih kock, tri vrste črnih kock in tri vrste belih kock, postavljenih ravno. Mozaik je samo deloma ohranjen: manjka celoten južni predel in tudi na ohranjenem delu mozaika je več lakun oziroma večjih jam, ki so verjetno nastale po opustitvi vile ali kot posledica sodobnejših kmetijskih dejavnosti, ki so na tem območju potekale do odkritja arheoloških ostalin v prvi polovici 20. stoletja.
Območje praga v vratni odprtini med prostoroma P14 in P15 krasi skoraj kvadraten štirikotnik na beli osnovi; obrobljen je z dvema vrstama črnih kock, postavljenih ravno, znotraj pa je krožni okras, ki ga sestavljata dva črna polkroga s konkavnim premerom, ki objemata vreteno.
Bel mozaik v prostoru P15 je označen z enostavnim črnim trakom kot obrobo.[21] Kocke so načeloma postavljene poševno. Obroba je sestavljena iz dveh vrst črnih kock, po-

20 Za motiv gl. Rinaldi, 2007: 33–37.
21 Za razširjenost mozaikov z enostavno obrobo gl. Rinaldi, 2007: 70–71.

stavljenih ravno; na obeh straneh je zaključena z dvema vrstama belih kock, prav tako postavljenih ravno.
Osnova mozaika v prostoru P16 je sestavljena iz belih kock, postavljenih poševno; dvojno črno obrobo sestavljata dva pasova iz treh vrst črnih kock, ločena s štirimi vrstami belih kock in ob robovih zamejena s tremi vrstami belih kock, postavljenih ravno;[22] na površini nukleusa smo dokumentirali pripravljalno gravuro oziroma vrezano linijo, ki je nakazala obrobo mozaika. V jugovzhodnem delu prostora je velika jama pravokotne oblike. Gre za arheološko sondo iz časa V. Šribarja (Šribar, 1958–1958: 276, in priloga 1), ki je poškodovala mozaik prostora P16, zid in mozaik sosednjega prostora P17. V južnem predelu prostora P16 so vidne tudi brazde, ki so nastale zaradi oranja v pretekli kmetijski rabi območja.
Beli mozaik v prostoru P17 je obdan z okvirjem enojnega črnega pasu. V velikem enobarvnem belem delu mozaika v prostoru P17 so kocke postavljene poševno. Črni pas v obrobi sestavlja pet vrst črnih kock, na obeh straneh črnega pasu pa so še po tri vrste belih kock, postavljenih ravno. Ko je bil leta 1991 zadnjič izkopan objekt 1, je južni del prostora P17 ostal neizkopan, zaradi česar ostaja njegova ureditev nejasna, tudi če upoštevamo dokumentacijo B. Tamaro iz dvajsetih let 20. stoletja: obroba mozaika omejuje v južnem kotu prostora pravokotno strukturo, ki bi lahko bila majhen ločen prostor. V talni površini so tudi vidni zidani kvadratni temelji (0,50 x 0,50 m) z razmikom 1,50 m od južnega zidu prostora, ki so bili verjetno namenjeni postavitvi stebrov.
Na prehodu med prostoroma P17 in P20 je bil lociran mozaik z arkadami,[23] ki je bil leta 1925 dvignjen in odnesen najprej v Izolo v Ospizio Besenghi ter nato v Pokrajinski muzej Koper, kjer je še vedno razstavljen (Stokin, Zanier, 2011: 71–74).
V prostoru P20 je bel mozaik z enostavno črno obrobo. V enobarvnem belem delu prostora P20 so kocke postavljene poševno. Črni pas obrobe sestavljajo tri vrste ravno postavljenih črnih *tesserae*, na obeh straneh črnega pasu pa so še po tri vrste ravno postavljenih belih kock.

V 1 dm^2 mozaika v prostoru P14 je pribl. 85 kock, v 1 dm^2 mozaika v prostoru P15 pa jih je pribl. 60. V prostoru P16 je celo 95 kock na dm^2, medtem ko je v prostoru P17 65 kock na dm^2 in v prostoru P20 60 kock na dm^2. V vseh omenjenih mozaikih prepoznamo klasično zaporedje pripravljalnih plasti, *statumen*, *rudus*, *nucleus* in posteljico, ki pa je večinoma preperela, medtem ko malta[24] med kockami ni ohranjena. V prostoru P16 je *statumen* sestavljen iz opek, ki so diagonalno vstavljene v ilovnato plast, brez malte; v drugih prostorih območja 1 je bil *statumen* dokumentiran le v manjših predelih ob lakunah. Za malto iz nukleusa in rudusa mozaika v prostoru P16 je značilno, da ne vsebuje agregatnih zrn keramike, saj agregat po večini sestavlja debelozrnat kalcit. V podlagah prostorov P14 in P15 je sicer prisoten debelozrnat agregat keramike skupaj s kamnitimi dodatki, vendar pa ni fine frakcije keramike (ki je del veziva in reagira z apnom). Mozaika iz prostorov P17 in P20 imata v rudusu in nukleusu zrna drobljene keramike, v rudusu pa tudi kamnite dodatke (bel in siv kamen, tudi mozaične kocke). Posteljica je v vseh prostorih sestavljena iz finozrnate, bele apnene malte.[25]

Posegi

Ko smo v prostorih P14, P15, P16 in P20 ročno odstranili večslojno zaščito z mozaikov (geotekstil, ekspandirana glina, pesek in mivka) (slika 16), smo s površine mozaičnih kock previdno odstranili tudi vso nečistočo. Vzporedno z odstranjevanjem vegetacije z mozaikov in zidov sta potekala utrjevanje in injiciranje nestabilnih delov. Posamezne mozaične kocke, ki so odstopile od podlage, so bile rekonstruirane oziroma z apneno malto pritrjene na originalno mesto. Narejeni so bili poskusi mehanskega in kemičnega čiščenja površine mozaičnih kock, na podlagi katerih je bila določena metodologija dela za vse omenjene prostore območja 1. Pri odstranjevanju trdovratnih nečistoč se je povsod, razen v prostoru P17, kjer smo uporabili le vodo in ščetke, izkazala za najuspešnejšo uporaba izmenjevalnih ionskih smol (kationske smole), medtem ko se poskus z oblogami amonijevega karbonata ni izkazal za tako uspešnega[26] (slika 17). Ponekod je bilo treba trdovratne nečistoče dodatno mehansko odstraniti s skalpeli. Preslico, ki je med našim delom večkrat na novo zrasla, smo zatirali z nanašanjem biocidnega sredstva v pulpi, ki smo ga položili na rastlino. Izkazalo se je, da je bilo od zadnjega konservatorsko-restavratorskega posega[27] treba skoraj v celoti nadomestiti obšivno malto iz leta 2010 z novo. Stara apneno-cementna malta je bila odstranjena, robovi mozaika so bili poravnani in ponovno utrjeni ter obšiti z novo apneno malto na osnovi hidravličnega apna.

Mozaik v prostoru P17 je bil obravnavan nekoliko drugače kot preostali mozaiki v prostorih območja 1. Sprva smo veliko dela vložili v zelo natančno odstranjevanje starega filca, položenega v devetdesetih letih 20. stoletja, ki se je z leti sprijel z mozaičnimi kockami; te so bile že same po sebi zelo nestabilne in slabo pritrjene na podlago. Sledila sta odstranjevanje vegetacije in zemlje ter začasno imobiliziranje zaključnih robov mozaika z omočeno vato. Posamezne mozaične kocke so bile ponovno fiksirane na originalno mesto, pred tem pa je bila na robovih odstranjena vsa preperela in zdrobljena originalna malta pod mozaičnimi kockami in med njimi, ki je ni bilo mogoče utrditi. Po celotni površini smo na najbolj kritičnih mestih lokalno odstranili korenine preslice izpod mozaičnih kock ter te mesta injektirali z apneno malto, kar pomeni, da so bile kocke začasno dvignjene, s podlage je bil očiščen koreninski sistem, kocke pa so bile vrnjene na prvotno mesto. Za pričvrščevanje posameznih kock je bila uporabljena apnena malta. Za obšivanje mozaičnih robov smo pred nanašanjem naredili več mešanic malte s hidravličnim apnenim vezivom in različnimi agregati, ki so malti dali ustrezen odtenek. Izbrali smo kremenčev pesek, ki je malto obarval toliko, da se je barvno najbolj skladala s celotnim mozaikom. Površina mozaika je bila stabilizirana s pomočjo gumijastih kladiv. Hkrati je potekala rekonstrukcija določenih predelov mozaične površine z uporabo kock iz okolice poškodovanega predela. V času rasti preslice smo, tako kot v vseh preostalih prostorih in na zidovih, na rastlino nanesli biocidno sredstvo v pulpi in tako zatrli njeno nadaljnjo rast (slika 18). Sledilo je utrjevanje ohranjenih prvotnih plasti malte s karbonatnim utrjevalcem Calosilom E 25. Za mozaično površino smo najprej uporabili sistem suhega čiščenja s ščetkanjem, nato je sledilo čiščenje površine z vodo ter mehkimi ščetkami in naravnimi spužvami. Čeprav smo površino dobro očistili z vodo, smo v nadaljevanju naredili kemijske poskuse čiščenja s pulpo amonijevega karbonata (10-odstotna raztopina) ter izmenjaje z ionskimi smolami (kationskimi in anionskimi). Poskusi niso prinesli dodatnih izboljšav, kot v preostalih prostorih, zato smo tu ta poseg opustili.

Glede zapolnjevanja večjih lakun območja 1 smo vprašanja o končni prezentaciji pustili do nadaljnjega odprta. V letu 2010 so bile v okviru projekta PArSJAd zapolnjene vse lakune prostora P14, ki žal niso dobro prenesle zimske zmrzali in so se površinsko nekoliko razslojile (uporabljena je bila zračna apnena malta), poleg tega pa smo v projektu AS v prostoru P17 izvedli poskusno zapolnjevanje poškodovanih predelov z rekonstrukcijo antičnih plasti rudusa in nukleusa z žganim apnom. Na manjšem predelu jugovzhodnega dela mozaičnih tal smo naredili testno polje plasti rudusa enake debeline in v enakem nivoju, kot je bila originalna plast rudusa, v velikosti pribl. 0,5 m^2; nanj smo nanesli dve vrsti nukleusa, prav tako enake debeline, saj smo ju zaključili v nivoju z originalno plastjo. V eni od mešanic smo uporabili hidravlično apneno vezivo, v drugi pa zračno apno (slika 19). Po letu dni ni bilo opaziti razlike v trdnosti in videzu, nadaljnje opazovanje/monitoring pa bo prineslo najprimernejši način konserviranja za celotno območje 1.
Poleg mozaikov so bili konservirani tudi zidovi, ki jih je posebej obravnavalo podjetje Kapitel, d. o. o. Po predhodnem dogovoru z odgovornim konservatorjem ZVKDS je bil izdelan način konserviranja zidov na podlagi apnenih malt. Poudariti je treba, da so bili zidovi na območju 1 v preteklih konservatorsko-restavratorskih posegih deloma že rekonstruirani, saj so bili na nekaterih mestih ohranjeni tudi pod nivojem mozaikov (gl. Stokin, Zanier: 68–74, slike 66–76). Dotrajani oziroma nestabilni predeli zidov so bili najprej odstranjeni in nato ponovno konsolidirani s peščenjakom, dostopnim na najdišču, ter z naravno hidravlično apneno malto s keramičnim agregatom. Z isto malto so bili fugirani tudi drugi predeli in predvsem krone zidov, ki predstavljajo osnovno zaščito struktur (Kapitel, d. o. o., Vila Marittima – Simonov zaliv, gradbena knjiga, Žminj, 2015). Na severnem delu območja 1 so bile glede na predhodno konsolidacijo zidov, izvedeno leta 1991, in po posvetu z odgovornim konservatorjem tudi predrugačene lokacije pragov v prostorih P16 in P20, z namenom, da bi se čim bolj približali originalni poziciji pragov (slika 20).

Mozaiki območja 2

Opis mozaikov in naravoslovne preiskave

Konservatorsko-restavratorske posege smo izvajali na mozaikih v prostorih P3, P4 in P5. Na območju 2 sta ohranjena mozaika s kompleksnejšimi motivi: mozaik v prostoru P3 ima veliko ploskev, okrašeno z visečimi črnimi in belimi rombi,[28] ki je obrobljena s črno-belimi pasovi, sestavljenimi z ravno postavljenimi kockami; zunanji okvir mozaika je bele barve. V enobarvnem zunanjem predelu mozaika so kocke postavljene poševno. Drugače sledi usmerjenost mozaičnih kock načeloma okrasnim motivom, vendar se opazijo določene razlike pri polaganju kock: na nekaterih delih je bila prej postavljena obroba rombov v dveh vrstah kock, nato so bili rombi zapolnjeni z vzporednimi vrstami kock, njihova usmerjenost pa se razlikuje po posameznih rombih. Naleteli pa smo na posamezne izjeme, na katerih so bili rombi zapolnjeni kot dva ločena trikotnika (slika 21).

Na prehodu iz prostora P3 v notranji hodnik P4 je bil na pragu manjši delno ohranjen mozaik velikosti 1 x 1,15 m, z belimi osmerokotnimi vzorci na črni podlagi in z belo-črno obrobo. Mozaik na pragu je bil dvignjen že leta 1990.
V hodniku P4 je bel mozaik z enostavno črno enojno obrobo. V enobarvnem, belem predelu so kocke postavljene poševno. Obroba je sestavljena iz dveh vrst črnih kock, postavljenih ravno, in je na obeh straneh zaključena s po dvema vrstama belih kock, prav tako postavljenih ravno. Fragment v južnem predelu prostora je bil dvignjen leta 1990.
Modularna shema mozaika v prostoru P5 je sestavljena iz

22 Za razvoj iz enojne obrobe mozaikov v dvojne gl. Morricone Matini 1973, 504; Rinaldi, 2007: 70–71.
23 Za motiv z arkadami gl. Donderer, 1989: 188–190; Vincenti, 2001; Rinaldi, 2005; Rinaldi, 2007: 46–47.
24 Iz mikroskopskih analiz vzorcev je razvidno, da so bile mozaične kocke vtisnjene v posteljico in nato tudi z vrha zapolnjene s finozrnato malto (fugirna malta). Tako izdelavo mozaikov smo opazili tudi pri vzorcih iz Mošenj ter Emone.
25 Detajlna analiza podlag mozaikov rimske vile v Simonovem zalivu in nekaterih drugih rimskodobnih objektov z mozaiki v Sloveniji je predstavljena v članku Kramar idr., v tisku.
26 Naravoslovne analize so pokazale, da vsebnost soli v maltah in kockah ni visoka, zato smo poseg z amonijevim karbonatom opustili.
27 Obšivanje mozaikov je bilo izvedeno v času projekta PArSJAd v letih 2010 in 2011.
28 Za motiv gl. Meder, 2003: 76; Rinald, 2007: 96.

kvadratov z zvezdami, obrobljenih z mrežo iz rombov in manjših kvadratov.[29] Večji kvadrati s črno osnovo so okrašeni z belimi štirikrakimi zvezdami s konkavnimi robovi in centralno črno konico. Rombi so črni na beli podlagi, manjši beli kvadrati pa imajo dvojni profil iz črnih kock. Tako okrašeno ploskev obdaja širok okvir z belo podlago iz poševno postavljenih kock, ki ga krasita dve beli kiti iz dveh trakov na črni osnovi, ki ju na obeh straneh omejujejo dve vrsti belih kock, dve vrsti črnih kock in dve vrsti belih kock. Tudi pri mozaiku v prostoru P5 smo lahko ugotovili, da so za polaganje mozaičnih kock okrasnih motivov uporabili podobno rešitev kot pri mozaiku v prostoru P3: zunanji rob ključnih okrasnih motivov je poudarjen s po dvema vrstama kock, nato je bila notranjost motiva zapolnjena z vzporednimi vrstami mozaičnih kock. Le ponekod je vidna nekoliko drugačna notranja struktura postavitve kock (slika 22).

Mozaika v prostorih P3 in P5 imata pribl. 80 kock v dm^2, mozaik v prostoru P4 pa samo pribl. 65 kock v dm^2. Tudi pri mozaikih na območju 2 lahko sledimo zaporedju plasti podlage. *Statumen* je sestavljen iz manjših kamnitih elementov in vsebuje veliko malte. Mozaika v prostorih P3 in P4 imata v rudusu skoraj samo keramični agregat, značilna je tudi zelo debela plast nukleusa, ki je ponekod v prostoru P3 izvedena kot dvojna plast (Kramar idr., v tisku). Razlika v podlagah glede na prostor P5 se kaže v precej debeli plasti nukleusa (podobne debeline kot v prostoru P3) ter v tanki plasti rudusa, ki ga ponekod celo ni. Tudi *rudus* in *statumen* vsebujeta večji odstotek prodnikov kot podlagi v prostorih P3 in P4. Med precej enoten *solidum* se je vrinila tudi plast mivke. Tudi na območju 2 je apnena malta posteljice v veliki meri preperela. Med posameznimi sloji podlage smo na več mestih lahko prepoznali plasti zemlje, ki so se verjetno vrinile vmes, potem ko je prišlo do razslojevanja med plastmi zaradi zmrzali (Nemec, 1991).

Poseg

Pogoji na območju 2, v katerih so bili mozaiki, so narekovali drugačen način izvedbe konservatorsko-restavratorskih del kot na mozaikih na območju 1. Najprej smo nasutje/zaščito v celoti ročno odstranili. S počasnim odstranjevanjem smo se izognili hitrim spremembam temperature in prehitremu izhlapevanju vode z mozaičnih površin.
Vsa dela smo prilagodili postopku dvigovanja mozaikov. Uporabili smo dva različna načina, in sicer dviganje mozaikov v kosih ter kombinirano metodo dviganja mozaika na valj ter v kosih. V prostorih P3 in P5 smo izvedli dviganje v kosih. Gre za pogostejšo in enostavnejšo metodo, ki zahteva nekoliko manj priprav kot metoda dvigovanja na valj. Ker slednja zahteva absolutno ravno površino mozaika, smo jo lahko uporabili le v sredinskem delu mozaika v prostoru P4, saj so se strmo posedle le stranice mozaika, sredina prostora pa je bila popolnoma ravna. Uporabili smo torej kombinirano metodo (slika 23), pri čemer smo najprej dvignili neravne robove po kosih do predela, kjer se je mozaik popolnoma zravnal. Ko so bile stranice na stiku med poševno postavljenimi in ravno položenimi kockami, ki obenem predstavlja tudi obrobo, sproščene/dvignjene, smo pripravili vse potrebno za metodo dvigovanja na valj. Valj smo izdelali na terenu, po predhodno pripravljenem načrtu.

Mozaike smo površinsko očistili prahu in nečistoč, odstranili vso vegetacijo z njih ter s predela ob zidovih, posamezne mozaične kocke pa smo vstavili v prvotni položaj. Vsi razrahljani deli so bili utrjeni (uporabili smo mehka kladiva), sledilo je natančno suho ščetkanje in čiščenje z vodo. Tako je bil mozaik pripravljen za dvigovanje s prvotnega ležišča (slika 24).

Pred dvigovanjem je bila pripravljena vsa potrebna dokumentacija. Poleg terestričnega trirazsežnostnega laserskega skeniranja smo izvedli tudi klasične izrise na folijo v merilu 1 : 1 ter na pavs papir v merilu 1 : 10 (potek dokumentiranja je natančneje opisano v poglavju Dokumentiranje).
Tik pred nanosom facinga oz. zaščite površine je bil mozaik ponovno očiščen površinskih nečistoč, saj je bil, preden smo postavili šotore za potrebe dvigovanja in vračanja mozaikov, ves čas izpostavljen neugodnim mikroklimatskim pogojem. Sledila je zaščita površine z dvema plastema bombažne gaze in lepilom na akrilni osnovi (Vinavil 59, vodna disperzija homopolimera vinil acetata z visoko vsebnostjo trdnih snovi). V prostoru P4 smo raven sredinski del, ki smo ga dvignili na valj, dodatno ojačali s plastjo jute. Sledil je natančen razrez mozaika po že prej izdelanem načrtu, na katerem so bile večje mozaične površine posameznih prostorov razdeljene v manjše, za dviganje primerne fragmente (slika 25). Prostor P3 smo razdelili na 43 fragmentov, prostor P4 na 20 manjših in en večji fragment, prostor P5 pa na 80 fragmentov (slika 26). Dvignjeni kosi so bili nameščeni na pripravljene panelne plošče ter prepeljani v ateljejske prostore, kjer so bile neravnine poravnane, hrbtišče pa očiščeno vmesnih humusnih tamponov in preperele rimskodobne malte. Preostanek originalne malte je bil utrjen s karbonatnim utrjevalcem Calosil E 25. Po utrjevanju so bili fragmenti v ateljeju sestavljeni v celoto, in narejene so bile manjše korekcije hrbtišča s prelepljenjem kock in redukcije širokih fug, nastalih zaradi posedanja tal (slika 27).

Med obdelavo hrbtišča v ateljeju je bila na območju 2 izvedena predvidena drenaža, nakar je sledila izvedba spodnjega dela podlage za mozaike po predlogu podjetja Kapitel, d. o. o.,[30] in sicer po vzoru originalnih/obstoječih podlag v treh plasteh (*statumen*, *rudus*, *nucleus*). Poseg je vključeval čiščenje preostalega apnenega nasutja, ki je ostalo na lokaciji po dvigovanju mozaikov,[31] odstranitev rimskodobnih podlag in nasutij do predvidene globine za izdelavo sistema drenaže, nasutje območja z drenažnim materialom ter izravnavo in utrjevanje terena. Sledila je izdelava podlage za postavitev mozaikov[32] (slika 28). Novo izdelana plast statumna vsebuje kose manj pečene opeke, ki so bili na teren, predhodno ustrezno steptan, ročno zloženi v višini do 8 cm (opus spicatum). Naslednja plast rudusa je mešanica živega apna ter kamenega agregata debeline do 32 mm in manj pečene opeke z dodatkom pepela v razmerju 1 : 6 : 1. Ta plast je bila položena v debelini do pribl. 10 cm in je bila po vgradnji ponovno steptana z lesenim teptalcem, dokler ni bila dosežena želena debelina. Zadnja plast nukleusa je malta z živim apnom, kamenim agregatom debeline do 16 mm ter manj pečeno opeko z dodatkom pepela v razmerju 1 : 6 : 1. Nukleus je bil položen v debelini 3 cm in je bil po vgradnji prav tako steptan z lesenim teptalcem do potrebne višine. Podlaga je bila na koncu zvaljana in poravnana. Ker je bilo treba dela zaključiti do dogovorjenega datuma, pogoji ob izdelavi podlag niso bili ugodni, saj so se te izvajale v zimskih mesecih. Vplivi zunanjih dejavnikov so bili kljub zaščiti območij s šotori dokaj agresivni: močno deževje, ki je zalilo mozaične prostore, nizka temperatura, visoka vlaga ter na drugi strani burja, ki je prehitro izsušila ozračje, so otežili zorenje podlag. Preden smo nadaljevali vračanje mozaičnih fragmentov, je malta zorela približno mesec dni. Medtem smo pod večjim šotorom postavili še manjšega, stranice velikega šotora pa so bile zaprte. Vzporedno smo izvajali monitoring ter spremljali nihanje temperature in vlage. Ko je ozračje doseglo konstantno temperaturo nad 10 °C, smo nadaljevali polaganje zaključne malte/posteljice, v katero smo položili mozaične fragmente.

Izravnalna plast za vlaganje mozaičnih kock/fragmentov je segala do višine prvotnega nivoja mozaikov (predlog C). Fragmente smo nato sistematično polagali iz sredine proti robovom prostora. Preden smo nanesli malto, smo na podlago izrisali obliko fragmenta in malto postopoma nanašali na začrtani predel. Fragment smo položili v še svežo malto, ki je dopuščala natančno približevanje ter uskladitev posameznih fragmentov in morebitnih manjših odstopanj nekaterih kock, dokler se niso stranice natančno prilegale druga drugi. Z vodno tehtnico smo sproti nadzorovali višino (slika 29).
Del mozaika prostora P4, ki je bil dvignjen na valj, je bil položen nazaj postopoma. Malto smo nanašali na podlago v obvladljivih količinah in mozaik na kolutu počasi spuščali v zarisane okvirje. Ko je bil položen sredinski del, smo dodali stranice.

Fragmente smo dodatno zravnali/vtisnili z valjanjem in lokalno z mehkimi kladivci izvedli manjše korekcije višine. S tem smo dosegli, da so se fragmenti dobro vtisnili v malto in da je ta zapolnila fuge med mozaičnimi kockami. Ponekod, kjer malta ni dosegla želene višine, smo z zgornje strani z malto (fugirna malta) dodatno zapolnili prostore med kockami, da bi dosegli večjo stabilnost kock. V prostorih P3 in P4 smo ta postopek izvedli na celotni površini, v prostoru P5 pa le lokalno. Ko je bila površina še vlažna, smo s parnimi čistilci postopoma odstranili zaščito lica mozaika (facinga) s celotne površine. Lakune smo zapolnili z isto malto, jo poravnali malo pod nivo površine mozaičnih kock in površino obdelali do mat videza. Hkrati smo v tej fazi na utrjeno plast peska položili in v prostor umestili tudi fragmente, dvignjene v letu 1990, ter jih z dekorativno malto povezali s celoto.
S parnimi čistilci smo s površine odstranili ostanke lepila in pri tem na nekaterih mestih nestabilne kocke ponovno vstavili v novo malto, fuge med kockami pa smo dodatno zapolnili z malto na osnovi hidravličnega apnenega veziva. Tudi na območju 2 smo poleg mozaikov konservirali tudi zidove. Ti v preteklosti niso bili predmet konservatorsko-restavratorskih posegov. Zahodni zid prostora P3 se je rušil, zato je bil razstavljen in ponovno sestavljen z obstoječim kamnom in naravno hidravlično apneno malto (NHL 3,5). Z isto malto je bila izvedena minimalna konsolidacija nestabilnih delov zidne mase. Vrh zidu je bil zaključno obdelan kot presek zida v neravnem nivoju. Dela je izvajalo podjetje Peterlin v konzultaciji s podjetjem Kapitel, d. o. o., ter pod nadzorom odgovornega konservatorja. Med prostori P3 in P23, P4 in P5 ter P5 in P6 so bili urejeni in nakazani tudi pragovi, ki so bili poškodovani in niso imeli mozaičnih tal. Mozaik praga pod zazidanim prehodom v severovzhodnem vogalu prostora P5 je bil ohranjen *in situ*.

Dokumentiranje

Pri projektu lahko izpostavimo uspešno sodelovanje arheologov in restavratorjev v iskanju skupnih točk za vzpostavitev sistema dokumentiranja, ki je ključno opravilo vsakega poseganja v arheološke ostaline.
Uporabljena delovna metodologija dokumentiranja arheoloških raziskav tako v prostoru P5 kot pri arhitekturni ureditvi parka ter pri vzpostavitvi drenažnega sistema je bila smiselno izpeljana iz uveljavljene terenske raziskovalne metodologije arheološke stroke.
Izkopno polje smo prilagajali poteku del, in sicer smo v sklopu izkopavanj prostora P5 izkopno polje naslonili na rob izkopnega polja sezon 1989–1992, prav tako smo mrežo kvadrantov naslonili na že obstoječo mrežo; v ključnih fazah izkopavanj v prostoru P5 smo mrežo še bolj podrobno razdelili na mikrokvadrante velikosti 1 x 1 m. Izkopavanja za potrebe GOI-del (gradbenih, obrtnih in inštalacijskih

29 Za okrasne motive gl. Rinaldi, 2007: 33–35, 153.

30 Poskusne podlage po vzoru antičnih je na območju 1 izvedlo podjetje Kapitel, d. o. o.

31 Ta poseg je ob izdelavi drenaže izvedlo podjetje Adriaing, d. o. o., iz Kopra.

32 Podlage na območju 2 pa je izvedlo podjetje Peterlin po natančnih navodilih podjetja Kapitel, d. o. o.

del) smo izvajali v predvidenem izkopu za jarke odvodnje, drenažne kanale ter razširitve za jaške in elektriko.
Vse strukture in plasti smo opisno dokumentirali z obrazci ter jih prostorsko umestili v Gauss-Kruegerjev koordinatni sistem, prav tako smo med izkopavanji vzeli več kot sto vzorcev malte in ometa, mozaičnih kock, apna in oglja ter posebej ovrednotili tiste najdbe, ki so bile tipološko opredeljive kot posebne (PN). Situacije, strukture in plasti smo tudi fotografsko dokumentirali in po potrebi izvedli ortofoto snemanja površine z uporabo georeferenciranih fotoskic (vertikalnih posnetkov v primeru tlorisov ter narisov/stranskih pogledov v primeru lic zidov). Zaključke izkopnega polja ali prereze čez strukture in plasti smo fotografirali tudi kot profile (ki so umeščeni v prostor).
V sklopu konservatorsko-restavratorskih del smo vzpostavili sistem dokumentiranja, ki je temeljil na konceptu mikrostratigrafije, kar pomeni, da smo oštevilčili in ovrednotili vse pripravljalne plasti mozaikov in plasti naplavljene fine zemlje med njimi, kakor tudi negativne stratigrafske enote oziroma večje lakune in poškodbe. Enote smo dokumentirali na obrazcih in fotografijah in jih sistematično povzorčili.[33] Prilagodili smo tudi obstoječi obrazec *Poročilo o konservatorsko-restavratorskih posegih na stenskih poslikavah in mozaikih* za potrebe celostnega dokumentiranja konservatorsko-restavratorskih posegov na mozaikih na podlagi obstoječih standardov,[34] kot sta Getty Illustrated Glossary (Getty Conservation Institute, Israel Antiquities Authority, 2003) in spletna podatkovna baza o mozaikih mednarodnega centra za dokumentacijo o mozaikih v Ravenni (Centre for the Documentation of Mosaics).[35]
Poseg na terenu je spremljalo terestrično lasersko skeniranje[36] arheoloških ostankov pred konservatorsko-restavratorskim posegom in po njem. Takoj po arheoloških izkopavanjih in odkritju mozaika v prostoru P5 v celoti je hrvaško podjetje Vektra, d. o. o., izvedlo geodetske meritve in terestrično lasersko skeniranje (to je sodobna metoda hitrega, obsežnega in zelo natančnega zbiranja podatkov v prostoru) ter izdelalo trirazsežnostni model v obliki oblaka barvnih točk, v katerem je vsaka točka v prostoru določena z visoko natančnostjo in predstavljena v koordinatnem sistemu (slika 30). Trirazsežnostni posnetek prikazuje dejansko stanje vseh mozaikov v objektih 1 in 2, z vsemi neravninami, ki so na površini nastale v tisočletjih. Posnetek je zagotovil kvalitetne podatke prereza reliefa na vsaki točki mozaične površine za primer dvigovanja in ravnanja mozaikov. Za izvedbo je bila uporabljena naprava Z + F Imager 5010C. Z modelom, ki ga lahko uporabimo za izdelavo AutoCAD načrta dejanskega stanja za potrebe nadaljnjega ohranjanja umetnine, sta zagotovljeni tudi visoka stopnja geometrične natančnosti (1 mm) in natančnost posnetka terena oz. objekta. Prav tako sta bila izvedena detajlno fotografiranje in fotogrametrična obdelava vseh polj mozaikov za potrebe izdelave ortofoto posnetka visoke resolucije v merilu. Za načrtovanje nadaljnjih postopkov smo uporabili posnetek v merilu 1 : 10.

Poleg sodobnega načina dokumentiranja smo uporabili tudi klasičen pristop grafičnega dokumentiranja. Ko so bile izvedene vse arheološke raziskave in je bil v celoti odkrit tudi mozaik v prostoru P5, smo na folijo natančno prerisali vse poškodbe in obrise okrasnih motivov po posameznih prostorih v merilu 1 : 1. Kljub neravninam na mozaikih smo dobili dovolj natančne podatke, ki smo jih lahko uporabili pri nadaljnjih konservatorsko-restavratorskih odločitvah. Folijo smo uporabili za izdelavo parcelacije mozaikov po posameznih prostorih na manjše fragmente, služila nam je tako ob vračanju mozaikov kot tudi pri zlaganju fragmentov v ateljejskih prostorih. Izris okrasnega motiva je bil ročno prerisan tudi na pavs papir v merilu 1 : 10[37] (slika 31). Medtem ko so bile lakune na pavs papirju v celoti zapolnjene z okrasnim motivom, pa rekonstrukcija *in situ* ni bila izvedena, saj smo se odločili za prezentacijo dejanskega stanja z vsemi poškodbami. Nadomestili smo le posamezne manjkajoče mozaične kocke zaradi večje stabilnosti mozaične površine.
Pred dvigom mozaikov je bilo treba določiti točke za orientacijo ob vračanju fragmentov. Za natančno pozicioniranje mozaikov smo uporabili tako središčno vrednost dolžine in širine prostora kot tudi njegove diagonale. Prav tako smo na vsakem fragmentu s kompasom določili severno smer. Posneli smo koordinate točke v prostoru z laserskim teodolitom. Pri postopku vračanja mozaikov smo folije uporabili za določitev natančne pozicije posameznih fragmentov *in situ*. Izhodiščna točka oziroma začetek polaganja fragmentov je bila določena na sredini prostora, od tam smo fragmente polagali navzven proti robovom.
Med izvajanjem vseh teh postopkov sta potekali fotografska ter videodokumentacija. Poleg fotografskih in krajših videoposnetkov smo uporabili tudi sistem snemanja/posnetkov z GoPro kamero HD HERO. Avdiovizualni posnetki so bili montirani v kratke strokovne filme, ki prikazujejo večino izvedenih konservatorsko-restavratorskih postopkov.

33 Ravno na področju odvzema vzorcev je stratigrafski pristop prinesel večje koristi, saj so bili vzorci enotno povezani z opredeljenimi stratigrafskimi enotami. Stratigrafski pristop za restavratorje ni samoumeven in je tudi v preteklosti prišlo do velikih zapletov pri interpretaciji vzorcev ravno zato, ker so bili oštevilčeni samo posamezni vzorci, izvor vzorcev pa je bil dokumentiran zelo na splošno in je zatorej velikokrat težko rezultate starejših naravoslovnih preiskav vzorcev povezati s specifično plastjo podlage v mozaiku.
34 Pri tem lahko izpostavimo bolj specifične vidike, ki so bili vključeni v naš obrazec, kot je npr. polje, predvideno za zbiranje podatkov o številu mozaičnih kock v dm^2. V preteklosti so bile za mozaike v glavnem zabeležene samo dimenzije posameznih kock, ki so v posameznem mozaiku v veliki meri zelo variabilne, zato nedvomno boljšo informacijo za morebitne primerjave pridobimo le s podatkom o gostoti teser na točno določeni površini. Prav tako smo v obrazec vključili podatke o teksturi oziroma usmerjenosti kock, ki je značilna za posamezen mozaik oziroma lahko kaže, predvsem v kompleksnejših mozaikih, tudi na specifične načine in rešitve v izvedbi okrasnih vzorcev (gl. npr. mozaika v prostorih P3 in P5).
35 Glej spletno stran: http://www.mosaicocidm.it/Mosaico/Welcome.action.
36 Terestrično lasersko snemanje (TLS) je naprednejša tehnologija za celovit tridimenzionalni zajem prostorskih podatkov. Deluje na principu odboja laserskega žarka, s pomočjo katerega določimo obliko, velikost in položaj objektov v prostoru. Oddani laserski signal potuje po celotnem obravnavanem objektu in se od njega odbija nazaj k instrumentu. Razdalja med sprejemnikom in obravnavano točko se izračuna na osnovi meritve faznih razlik. Rezultat snemanja je oblak točk – množica prostorskih 3D-točk.
37 Izris vzorcev vseh mozaikov v objektu 2 na pavs papir je pripravil konservator-restavrator Nikola Upevče.

Zaključek

Zasnova in ureditev nadkritja dveh območij arheoloških ostalin sledita vodilu zaščite predvsem *in situ* prezentiranih mozaikov pred atmosferskimi vplivi.[38] Nadkritji mozaikov sta izvedeni kot zaščitna montažna šotora primerne višine glede na konfiguracijo terena in glede na možnost odvodnjavanja s čim boljšo celostno prezentacijo arheoloških izkopanin. Zaščita je v skladu s projektnimi pogoji ZVKDS predvidena iz odpornega napetega platna in takšne oblike, da ne vzbuja povezave z obliko strehe nekdanje rimske vile. Sredinske in obodne podpore so v čim manjši meri znotraj območja arheoloških ostalin in mozaikov in so izvedene brez temeljenja. Konstrukcijo tvori nekaj sredinskih in več obodnih podpornih lesenih stebrov. Napete obodne vrvi stabilizirajo in napenjajo strešno tkanino. Konstrukcija je pritrjena brez temeljenja s sidri – klini.

Čeprav članek opisuje le delček celotnega projekta AS, pa ta predstavlja zelo kompleksen in neprecenljiv prispevek k ohranjanju kulturne dediščine. Konserviranje in restavriranje nista samo fizično poseganje v materialno substanco kulturne dediščine, ki jo čas neusmiljeno premaguje, ampak tudi stremljenje k doslednemu upoštevanju najvišjih meril stroke ne glede na mnenja o tržni vrednosti predmeta kulturne dediščine in ne glede na okoliščine, ki na ta predmet vplivajo. Glede tega ni kompromisov, čeprav je včasih zaradi vpetosti v večji ustroj/projekt obseg konservatorskega-restavratorskega dela omejen ali prilagojen.
Da bi razumeli 2000 let star mozaik, njegov nastanek ter tehnologijo in materiale, s katerimi je narejen, smo se morali vrniti v preteklost. Raztreščene mozaične kocke, ki jim v tisočletjih niso prizanašali ne agresivna vegetacija, ne naplavljena zemlja, ne meteorna voda, ne zmrzal in ne topne soli, smo z naravoslovnimi raziskavami, vključevanjem v raziskovalne projekte ter sodelovanjem z domačimi in tujimi institucijami skušali spraviti v določen red ter jim delno povrniti vlogo, ki so jo imele ob nastanku.

Metodologiji dela, ki smo jo določili ob začetku del, smo sledili in pripeljali konservatorsko-restavratorska dela do želenih zaključkov. Sprotno vzdrževanje, ki so mu prepuščeni mozaiki v Simonovem zalivu, pa ostaja bistvenega pomena pri ohranjanju kulturne dediščine.

Zahvale

Arheološka in konservatorsko-restavratorska dela so bila izvedena v okviru projekta AS – Arheologija za vse. Oživljanje arheološkega parka Simonov zaliv, ki je bil sofinanciran iz Programa finančnega mehanizma EGP 2009–2014. Avtorji se za finančno podporo za izvedbo naravoslovnih preiskav zahvaljujejo tudi ARRS (program št. P2-0273).
Zahvaljujemo se vsem sodelujočim v projektu.[39]

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38 Mikroklimatske razmere v Simonovem zalivu so znane po izjemno spremenljivem vremenu in močnih vetrovih (tramontana, zmrzal).
39 Vodja projekta AS: prof. dr. Irena Lazar.
Arheološka ekipa, ki jo je vodila Mateja Ravnik: doc. dr. Alenka Tomaž, doc. dr. Zrinka Mielusnić, Aleš Ogorelec, Andrej Preložnik, Ivana Pintarič ter študenti UP FHŠ – Aleksander Močibob, Matic Žlogar, Anka Bitenc, Aleš Ferjančič, Karin Bernardi, Kristina Kenda, Dunja Selan, Terezija Mrak, Robert Selan.
Konservatorsko-restavratorska ekipa pod vodstvom mag. Martine Lesar Kikelj in vodje del na terenu Nataše Škrjanec: Kristina Zadnik-Sinožič, Mateja Krošelj, Tinca Jerin, Eva Sirk, Vita Joksič, Matej Pevec, Rok Pahor, Anka Batič, Anja Urbanc, Katja Pohl, Karmen Križančič, Mateja Kavčič, Saša Snoj, Klara Matič, Neža Hočevar.
Mednarodna ekipa: Michele Machiarolla, Alessandro Lugari, Nikola Upevče, Toni Šaina, Matko Kezele.
Tehnična ekipa ZVKDS: Marko Brsenhorn s sodelavci.
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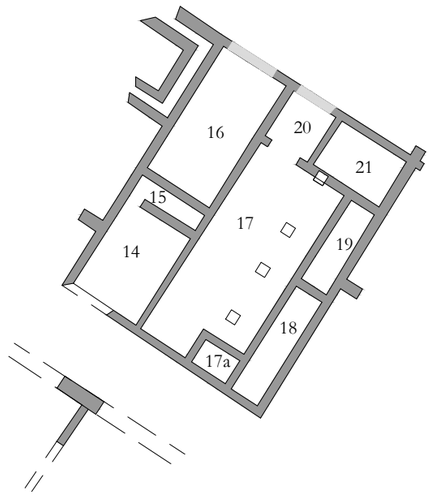
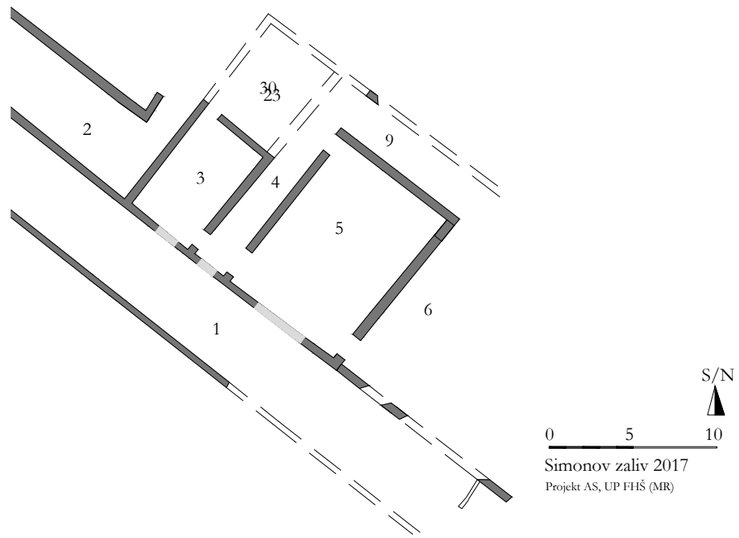




1. Rimska vila v Simonovem zalivu, tloris območij 1 in 2 z označenimi prostori (izdelava: Mateja Ravnik, po Stokin, Zanier, 2011, dopolnjeno po Groh, Sedlmayer, 2017)
1. Roman villa in Simonov Zaliv, ground plan of Areas 1 and 2 with rooms marked in (drawn by: Mateja Ravnik, after Stokin, Zanier, 2011, completed after Groh, Sedlmayer, 2017)

A

B

2. Stanje območja 2 med izvajanjem projekta AS: A) stanje pred začetkom del (prekritje z gruščem, pogled proti zahodu); B) stanje ob koncu arheoloških izkopavanj (mozaična tla prostora P5, pogled proti severozahodu); C) stanje po dvigu mozaikov (*nucleus* v prostorih P3–P5, pogled proti jugozahodu); Č) stanje po koncu konservatorsko-restavratorskih del (izravnana mozaična tla v prostorih P3–P5, pogled proti severozahodu) (foto: Mateja Ravnik in Aleš Ogorelec)

C

Č

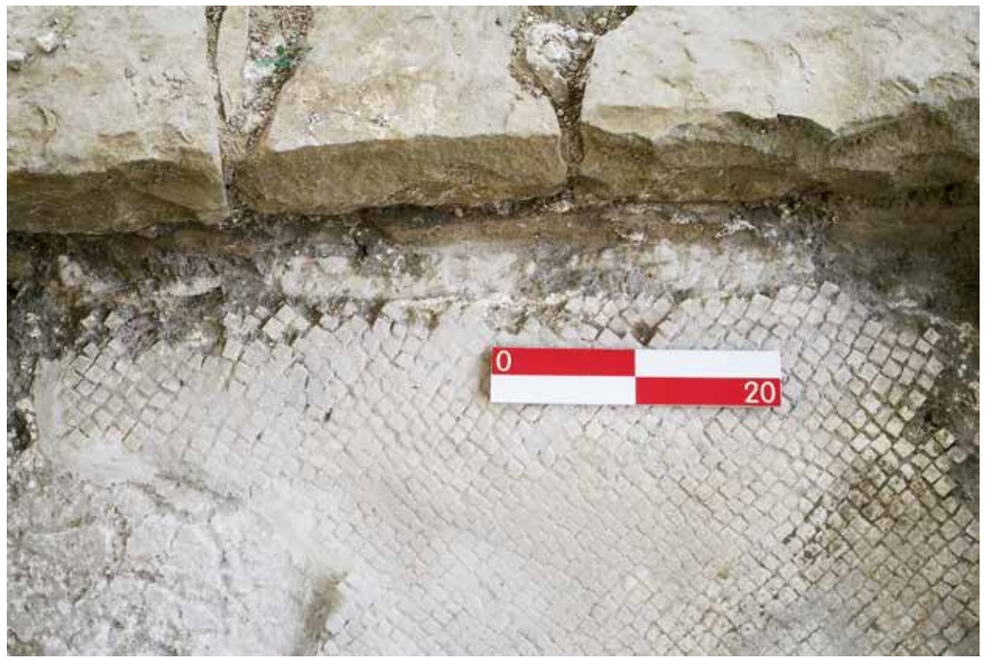
2. State of Area 2 during implementation of the AS project: A) state before the start of work (gravel covering, view to W); B) state on completion of archaeological excavations (the mosaic pavement of room P5, view to NW); C) state after lifting the mosaics (nucleus in rooms P3–P5, view to SW); Č) state after completion of conservation-restoration work (levelled mosaic pavement in rooms P3–P5, view to NW) (photos: Mateja Ravnik and Aleš Ogorelec)

3. Detajl profila v izkopnem polju prostora P5, pogled proti severu (foto: Mateja Ravnik)
3. Detail of the profile in the excavation field of room P5, view to N (photo: Mateja Ravnik)

A

B

4. Prostor P5: A) detajl zarisane črte v nukleusu prostora P5, pogled proti jugu; B) okras mozaika, pogled proti severu (foto: Mateja Ravnik)
4. Room P5: A) detail of drawn line in the nucleus of room P5, view to S; B) decoration of mosaic, view to N (photo: Mateja Ravnik)



A

B

5. Prostor P5: A) detajl načina zidave tik ob severni steni na stiku ometa in mozaičnih tal, pogled proti severu; B) ruševina vzhodne stene P5 med izkopavanjem, pogled proti severozahodu (foto: Mateja Ravnik)

5. Room P5: A) detail of the method of building next to the N wall at the contact of the plaster and the mosaic floor, view to N; B) remains of the east wall of room P5 during excavation, view to NW (photo: Mateja Ravnik)

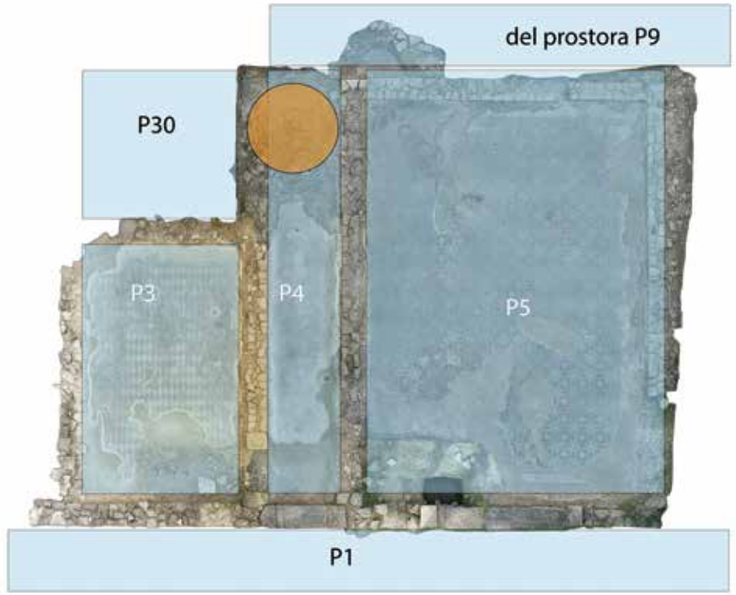
6. Prostor P5 – detajl strešne kritine, pogled proti severovzhodu (foto: Mateja Ravnik)

6. Room P5 – detail of roof covering, view to NE (photo: Mateja Ravnik)

7. Pogled na del prostora P4 (hodnika), kjer se v osrednjem delu vidi vkop, ki je poškodoval mozaična tla prostora; ta so na desni strani že pripravljena za dvig na valj, pogled proti vzhodu (foto: Aleš Ogorelec).

7. View of part of room P4 (passage), where in the central section a trench is visible that damaged the mosaic floor of the room; on the right hand side this is already to be lifted onto the roller; view to E (photo: Aleš Ogorelec).

8. Detajl mozaičnih tal prostora P9, v spodnjem delu fotografije je vidno popravljanje mozaika, pogled proti jugu (foto: Mateja Ravnik).
8. Detail of the mosaic pavement in room P9; repairs to the mosaic are visible in the lower part of the photograph; view to S (photo: Mateja Ravnik).



9. Shematiziran prikaz območja 2 z novimi ugotovitvami – vrisana sta vkop v prostoru P4 (označeno z rumeno) ter nov prostor P23 severno od prostora P3. Prostori P1, P3, P4, P5, P9 so bili raziskani v izkopavalnih sezonah med letoma 1989 in 1992, del prostora P1 in severni del prostora P5 pa tudi v sezonah 2015–2017.
9. Diagram of Area 2 with new findings – the trench in room P4 (marked in yellow) and the new room P23 to the north of room P3 are drawn in. Rooms P1, P3, P4, P5 and P9 were investigated in the excavation seasons between 1989 and 1992, while part of room P1 and the northern part of room P5 were also investigated in seasons 2015–2017.

10. Profil v prostoru P4, pogled proti severu (foto: Aleš Ogorelec)
10. Profile in room P4, view to N (photo: Aleš Ogorelec)

A

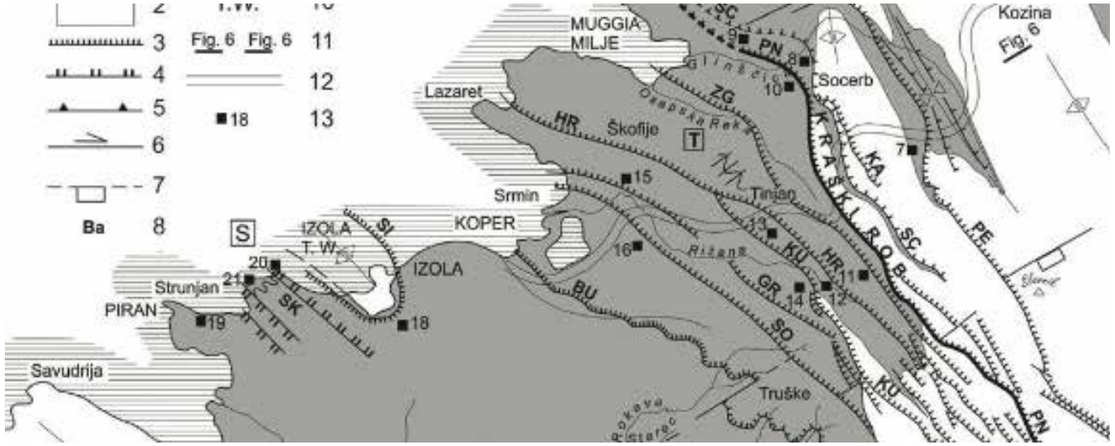
B

11. A) profil v prostoru P3, pogled proti severu; B) detajl podlag in nasutij v prostoru P3, pogled proti severozahodu; C) detajl podlag in nasutij ob vzhodni steni prostora P5, pogled proti severovzhodu; Č) detajl podlag in nasutij v sredini prostora P5, pogled proti severu (foto: Mateja Ravnik, Aleš Ogorelec)

C

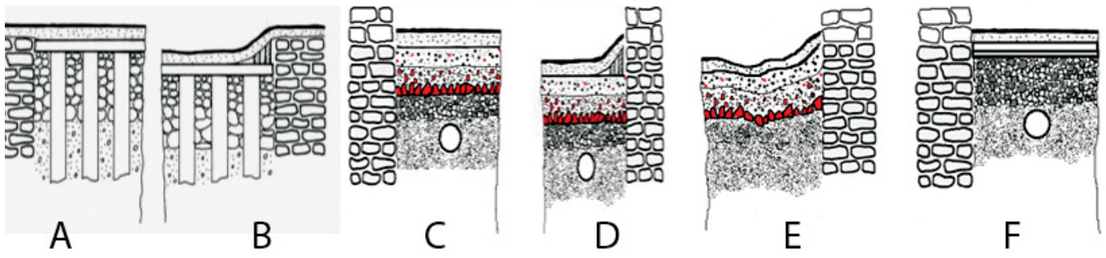
Č

11. A) profile in room P3, view to N; B) detail of foundations and fillers in room P3, view to NW; C) detail of foundations and fillers along the E wall of room P5, view to NE; Č) detail of foundations and fillers in the centre of room P5, view to N (photos: Mateja Ravnik, Aleš Ogorelec)

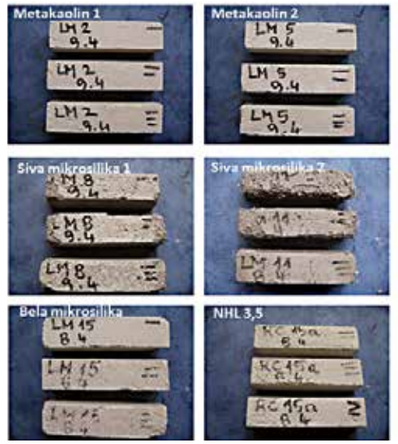


12. Geološka karta severozahodne Istre (po Placer idr., 2010, str. 63, slika 5)
12. Geological map of NW Istria (after Placer et al., 2010, p. 63, Fig. 5)

13. Posledice deževja in zastajanje vode na mozaikih območja 2 (foto: Martina Lesar Kikelj)
13. The consequences of rain and standing water on the mosaics in Area 2 (photo: Martina Lesar Kikelj)



14. Grafični izris različnih predlogov končne prezentacije mozaikov (A in B Ivan Bogovčič, C, D, E, F Martina. L. Kikelj)
14. Diagrams of the different proposals for the final presentation of the mosaics (A and B Ivan Bogovčič, C, D, E, F Martina. L. Kikelj)



15. Preizkušanci malt po testu zmrzlinske obstojnosti (foto: Sabina Kramar)
15. Test samples of mortars after the frost resistance test (photo: Sabina Kramar)

16. Stanje pred pričetkom odstranjevanja večslojne zaščite z mozaikov v prostorih P14, P15, P16, P20 in P17 (foto: Nataša Škrjanec)
16. Situation before the start of removal of the protective layers from the mosaics in rooms P14, P15, P16, P20 and P17 (photo: Nataša Škrjanec)

17. Odstranjevanje trdovratnih plasti nečistoč s kationskimi smolami v prostoru P15 ter čiščenje površine z vodo in naravnimi spužvami v prostoru P17 (foto: Martina Lesar Kikelj)
17. Removal of stubborn layers of dirt using cation resins in room P15 and cleaning the surface with water and natural sponges in room P17 (photos: Martina Lesar Kikelj)

18. Prostor P17: A) previdno odstranjevanje filca z mozaičnih kock ter korenin preslice izpod njih; B) stabilizacija mozaičnih kock in obšivanje; C) vegetacija (preslica) v lakuni mozaika; Č) odstranjevanje vegetacije in nasutja ter konserviranje šestih odkritih mozaičnih fragmentov (foto: Nataša Škrjanec, Martina Lesar Kikelj)
18. Room P17: A) careful removal of felt from tesserae and of the horsetail roots under them; B) stabilisation of tesserae and sealing of edges; C) vegetation (horsetail) in a lacuna in the mosaic; Č) removal of vegetation and filler and conservation of six uncovered mosaic fragments (photos: Nataša Škrjanec, Martina Lesar Kikelj)

19. Izdelava testnega polja plasti rudusa enake debeline in v enakem nivoju, kot je bila originalna plast rudusa, ter stanje testnega polja po enem letu (slika 19.a) (foto: Nataša Škrjanec)
19. Making a test field for the rudus layer of the same thickness and at the same level as the original rudus layer, and the state of the test field after one year (photo 19.a) (photo: Nataša Škrjanec)

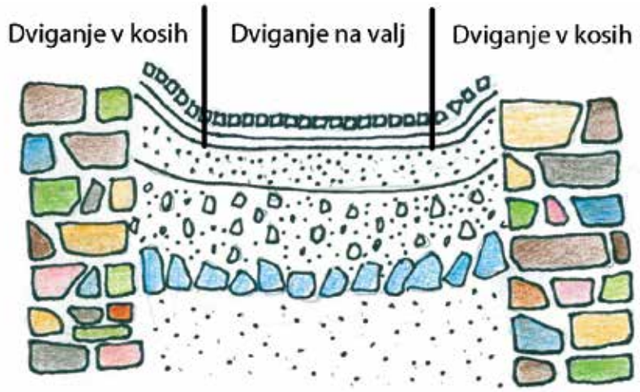
19. Stanje testnega polja po enem letu (foto: Nataša Škrjanec)
19. The state of the test field after one year (photo: Nataša Škrjanec)

20. Mozaiki na območju 1 po končanem posegu pogled na mozaike in zidove območja 1, leta 2016 začasno zaščitene s folijo DELTA–LITE[1] (stran 43) (foto: Nataša Škrjanec)
20. The mosaics in Area 1 after the completed intervention, a view of the mosaics and walls of Area 1, temporarily protected in 2016 by a DELTA–LITE sheet[2] (p. 43) (photos: Nataša Škrjanec)

1 Folija DELTA–LITE omogoča dvojno zaščito, je vodotesna z zunanje strani in visoko paropropustnostna z notranje strani.
2 The DELTA–LITE sheet provides double protection, in that it is waterproof from the outside and highly vapour permeable from the inside.

21. Večina rombov na mozaiku v prostoru P3 je zapolnjenih na enak način (opis v besedilu); redke izjeme so prikazane na sliki.
21. The majority of the rhombuses in room P3 are filled in the same way (description in the text); the few exceptions are shown in the figure.

22. Vidna drugačna struktura zapolnitve notranjosti lika (foto: Martina Lesar Kikelj)
22. Visibly different structure of the filling of the interior of the figure (photo: Martina Lesar Kikelj)



23. Shematski prikaz kombinirane metode dvigovanja mozaika v prostoru P4
23. Diagram illustrating the combined method of lifting the mosaic in room P4

24. Prikaz različnih poškodb (udrtine, dislocirane kockice itd.), ki smo jih med projektom uredili in stabilizirali (foto: Nataša Škrjanec)
24. Various types of damage (depressions, dislocated tesserae, etc.) that we rectified and stabilised during the project (photos: Nataša Škrjanec)

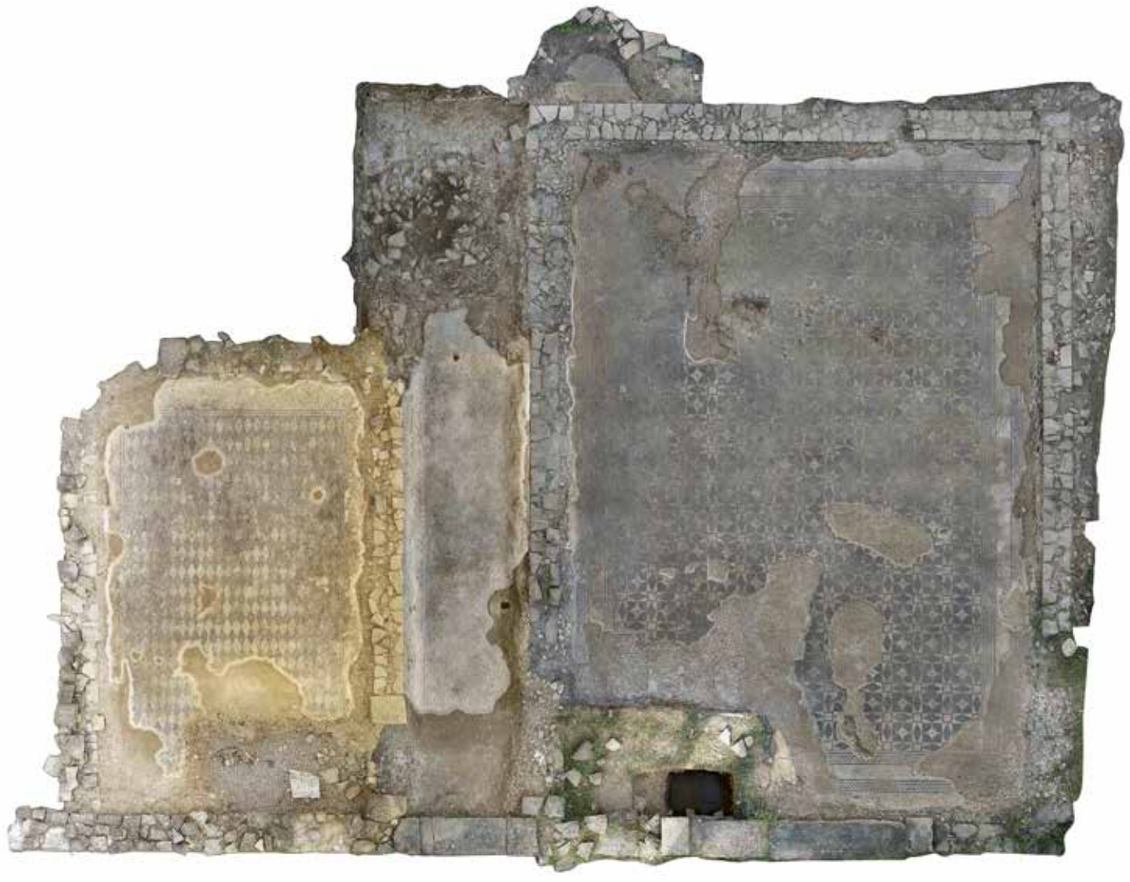
25. Dviganje mozaične površine v kosih v prostoru P3 (foto: Martina Lesar Kikelj)
25. Lifting the mosaic surface in pieces in room P3 (photo: Martina Lesar Kikelj)

26. Dviganje mozaične površine v prostoru P4; najprej so bili na predvidene kose dvignjeni neravni deli, nato je sledilo navijanje ravnega dela mozaika na valj. Dvignjeni kosi so bili pred transportom dobro zaščiteni (foto: Nataša Škrjanec).
26. Lifting the mosaic surface in room P4; first the non-level parts were lifted in the envisaged sections, after which the level part of the mosaic was rolled onto the roller. The lifted pieces were well protected before being transported (photos: Nataša Škrjanec).

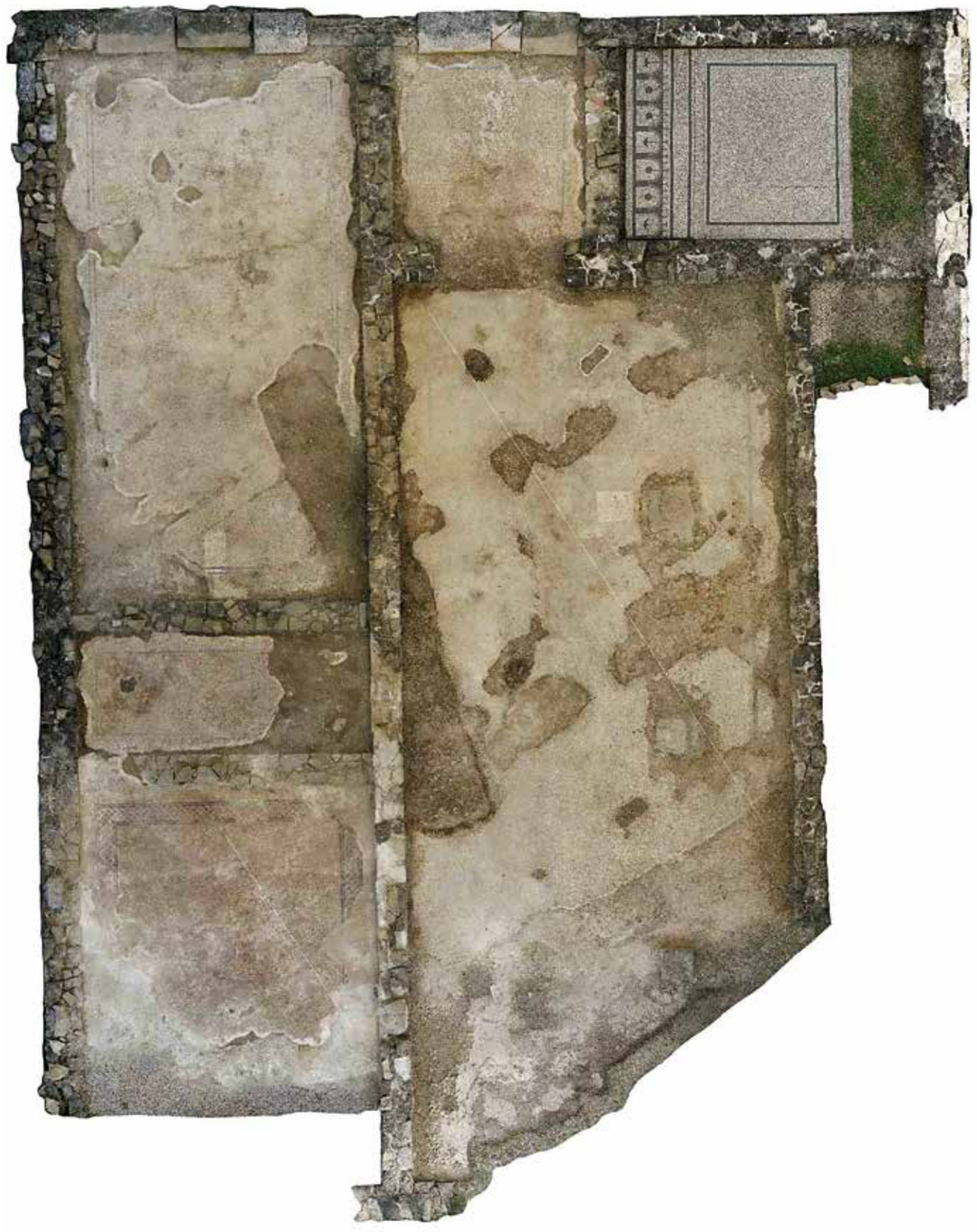
27. Mehansko odstranjevanje zemlje in propadle malte, popravljanje manjših nepravilnosti in lokalno ravnanje mozaičnih fragmentov (foto: Nataša Škrjanec)
27. Mechanical removal of soil and decayed mortar, repairing minor irregularities and local levelling of mosaic fragments (photo: Nataša Škrjanec)

28. Pripravljanje nove podlage za mozaike po vzoru originalnih podlag, po zorenju pa je sledil postopek vračanja, ki je vključeval tudi vrnitev premičnih fragmentov, izdelal se je dekorativni omet, ki se je obdelal na gladko z mat videzom, ter izvedlo se je zapolnjevanje s fugirno malto (foto: Nataša Škrjanec).
28. Preparing a new foundation for the mosaics on the model of the original foundations. After curing, the process of replacing the mosaics began. This included returning movable fragments, making a decorative plaster, which was worked until it had a smooth, matt appearance, and filling with pointing mortar (photo: Nataša Škrjanec).

29. Postopek vračanja očiščenih in utrjenih mozaičnih kosov je zajemal številna pripravljalna dela, kot so določevanje sredine posameznega prostora in preverjanje smeri sever (B), obrise celote in posameznih fragmentov, preverjanje višine in spojev med fragmenti, utrjevanje fragmentov z valjanjem obtežilnega valja (C), odstranjevanje lica (Č) (foto: Nataša Škrjanec).
29. The process of replacing cleaned and consolidated mosaic pieces included several preparatory operations such as determining the centre of an individual room and checking north orientation (B), outlines of the whole mosaic and individual fragments, checking the height and the joins between fragments, consolidation of fragments by rolling with a weighted roller (C), removal of facing (Č) (photos: Nataša Škrjanec).



30. Tridimenzionalni posnetek območja 2 (izdelava: Vektra, d. o. o.)
30. Three-dimensional image of Area 2 (made by Vektra d.o.o.)



30. Tridimenzionalni posnetek območja 1 (izdelava: Vektra, d. o. o.)
30. Three-dimensional image of Area 1 (made by Vektra d.o.o.)

31. Izris mozaika v prostoru P5 v merilu 1 : 10 in na folijo izrisan motiv v merilu 1 : 1 kot osnova za vračanje mozaičnih fragmentov (foto: Nataša Škrajnec)
31. Drawing of the mosaic in room P5 at a scale of 1 : 10 and a mosaic pattern drawn on a transparency at a scale of 1 : 1 as the basis for the replacement of the mosaic fragments. (photo: Nataša Škrjanec)

32. Pogled na območje 2, ki ga ščiti montažni šotor (foto: Nataša Škrjanec)
32. View of Area 2, protected by a prefabricated awning (photo: Nataša Škrjanec)

33. Pogled na območje 1, ki ga ščiti montažni šotor (foto: Marko Briesenhorn)
33. View of Area 1, protected by a prefabricated awning (photo: Marko Briesenhorn)

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Roman *villa maritima* in Simonov Zaliv, Izola (Slovenia): conservation-restoration interventions on mosaics and preliminary results of archaeological investigations in the context of the AS project (2015–2017)

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Abstract

Between 2015 and 2017 the Restoration Centre of the ZVKDS, as part of the project "AS – Archaeology for All. Revitalisation of the Simonov Zaliv Archaeological Park", which took place under the leadership of the University of Primorska, undertook conservation-restoration work on the mosaics, an essential segment of the archaeological and architectural remains, and the remains of the walls of the Roman *villa maritima* in Simonov Zaliv in Izola. We studied several possibilities for the presentation of the archaeological remains for Areas 1 and 2 of the archaeological site. The selected methodological approaches of the conservation-restoration interventions on the mosaics and walls were determined with regard to the state of the mosaics, the geological structure of the ground and the envisaged protective system (temporary roofing, drainage), which was considered most capable of coping with the unpredictable characteristics of the coastal climate in the Simonov Zaliv Archaeological Park in Izola. *In situ* restoration of the mosaics in Area 1 and lifting the mosaics in three of the rooms in Area 2 proved to be the optimal solutions within the scope of the envisaged project capacities. Within the scope of the project, the University of Primorska also conducted research in the form of archaeological excavation (in part of room P5) and regulated the drainage system infrastructure throughout Area 2. As part of the excavations in room P5, the chronological sequence of the collapse of the villa and later processes of soil deposition were documented. The excavations for drainage needs encroached on the foundations for the mosaics in rooms P3–P5, while mosaic pavements were uncovered in the area of the portico (P1) and room P6, and, in the drainage excavation, along with a continuation of the north wall of the portico running towards the west.

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Introduction

As the manager of the archaeological park and lead partner, the University of Primorska obtained grants under the EEA Financial Mechanism programme for 2009–2014 to co-fund the "AS – Archaeology for All. Revitalisation of the Simonov Zaliv Archaeological Park" project (also referred to as the AS project (Lazar 2016a, 2016b). The project consisted of the conservation and presentation of the remains of a Roman *villa maritima* (seaside villa) in Simonov Zaliv (St Simon's Bay) in Izola, including mosaics and walls. Awnings were erected to protect the presented remains and a drainage system was set up. An interpretation centre was also created at the site. In addition, Slovenia's first underwater archaeological park was designed in the area of the villa's harbour.

All this work took place in the area of the Simonov Zaliv archaeological site, a designated cultural monument of national importance (Heritage No 195). The site contains what are probably the best preserved and researched remains of a Roman *villa maritima* with harbour in Slovenia. The Simonov Zaliv archaeological and architectural complex lies in an area of five hectares and consists of the partly excavated residential part of the villa on a promontory (Rtič Korbat / Punta Corbato), an aqueduct or water supply, a harbour with a dock, jetty and breakwater, and a large area of storehouses or similar premises immediately below the hill known as Kane / Canè, where a stone hard or apron is still visible in the sea next to the harbour (Stokin, Zanier 2011).

On the Korbat promontory, where the area of the archaeological park is also delimited by a protective fence, only two parts of the larger residential building have been investigated and uncovered to date. These are referred to as Area 1 and Area 2 (Fig. 1). Numerous test trenches have been dug and excavations carried out in Area 1, the central part of the villa, in past years. Area 2, the southern portion of the villa by the portico, was for the most part excavated between 1986 and 1991 and, subsequently, in 2015 and 2016 as part of the AS project. On the basis of the results of more recent investigations, it appears that the rooms that form Area 1 represented the oldest nucleus of the villa, built in the last decades before Christ, while the rooms of Area 2 are part of an enlargement of the villa that began some decades later and ended during the reign of the Emperor Tiberius (AD 14–37) (Groh, Sedlmayer 2008; Groh et al. 2009; Groh, Sedlmayer 2009; Stokin, Zanier 2011[1]). The two areas also differ slightly in terms of the orientation of their walls, while there are considerable differences in the absolute height of the pavements or mosaics, which in Area 2 are on average 0.56 m lower than in Area 1.[2] The orientation of the more recent part of the villa (in Area 2) is rotated six degrees to the west in comparison to the northern, older part in Area 1.[3]

Since 2010 the area on the Korbat promontory has been designated the "Simonov Zaliv Archaeological Park", which is open to the public during the summer. The already uncovered very rich mosaics of the villa maritima were until recently covered by protective backfilling, which significantly reduced the archaeological park's informativeness and attractiveness. Under the AS project, the mosaics were given adequate protection and once again presented to the public. This was also one of the most important objectives of the project.

General issues regarding the presentation of mosaics

The villa in Simonov Zaliv is characterised by very extensive mosaic surfaces, with a total of 284 square metres of mosaic pavement documented to date. Archaeologists and conservator-restorers first addressed the question of the presentation of the mosaics several decades ago. Presentation was finally achieved and completed in 2017 as part of the AS project (Lesar Kikelj, 2016).

A conservation-restoration intervention was carried out in three rooms of the Roman villa in Area 2 in 1990. This intervention, led by Ivan Bogovčič, was limited to a partial lifting of the mosaic surface in room P5 and passage P4, which is connected to the likewise lifted threshold in the NW part of room P3 (Bogovčič, 1995, p. 13). As part of the *Programme for the presentation and protection of archaeological remains in Simonov Zaliv 1991* and within the financial constraints of that time, Marko Stokin envisaged a system of presentation whereby "the greater part is filled in again and the lifted sections are treated and presented on the surface" (Bogovčič, 1995, p. 14). The proposed system was not implemented at that time. The lifted fragments were initially stored in the premises of what was then the Cultural Heritage Protection Institute in Piran and later transported to the Restoration Centre in Ljubljana. In 2010, as part of the Archaeological Parks of the Northern Adriatic (PArSJAd) project (financed by the Slovenia–Italy Cross-Border Cooperation Programme 2007–2013), the mosaics were treated and prepared[4] for their return to their original location when a suitable occasion presented itself[5] (Dobrilovič, Lesar, 2011).

Also in 2010, conservation work was carried out across the whole of Area 1 (except the mosaic in room P17) and in Room 4 in Area 2, again as part of the PArSJAd project. Conservation-restoration of the mosaics took place in part in the context of a workshop organised by ZVKDS RC and Triptih d.o.o. (Bogovčič, 2011; Žagar, 2012). The workshop was the logical continuation of the international symposium *Mosaics of the Northern Adriatic* (Stokin, Kramar 2011), held in Ljubljana in 2010, at which in addition to an overview of the situation in the mosaics field in other countries, we were given a comprehensive insight into the current situation in Slovenia, which spoke in favour of the urgent evaluation and re-establishment of expert work in the mosaics field in this country.[6] The workshop and the continuation of conservation-restoration work in the Simonov Zaliv Archaeological Park also served as the impetus for the establishment of an international consultation team, in the context of which various solutions were proposed for the repair, presentation and maintenance of the mosaics. Those invited to join the team included Slovenian, Italian, Macedonian and, later, Croatian experts from various fields (conservation-restoration, archaeology, architecture, geology, history of art, etc.) and various institutions, who possessed theoretical and practical experience of cultural heritage of this type.

Using their experience, we wished to lay down optimal guidelines and define a methodology of work in Areas 1 and 2 using the mosaic in passage P4 (Area 2) as a sample. The proposals at that time were far-reaching because it was not yet known under what project the initiated interventions could be continued and perhaps even completed. A restoration idea was even formulated on the basis of the modular and gradual supplementation of the entire archaeological park.

When submitting the AS project it was necessary to define all procedures in detail and financially evaluate them, where only those solutions for the conservation of the mosaics in the Simonov Zaliv Archaeological Park for which it was possible to obtain all the necessary permits at the time of the application could be taken into account. For this reason the presentation solutions selected as part of the application and during the project itself were those that guaranteed the preservation of the remains and were at the same time financially sustainable and did not condition the obtaining of a construction permit (since this could not be obtained in the brief period of preparation of the application). The selected solutions are described below and are also connected to the complete uncovering of the mosaic in room P5.

Archaeological investigations in the area of the *villa maritima* as part of the AS project

The work packages of the AS project also defined the scope of archaeological investigations tied to the two main packages of implementation of works, i.e. conservation-restoration interventions in Areas 1 and 2, and constructi-

1 In a new, extensive publication on the Roman villa in Simonov Zaliv (Groh, Sedlmayer 2017, pp. 94–97, 221), construction of the central part of the villa or Area 1 is dated to the early Augustan period (30–15 BC), although it is believed that in this period the mosaics in this area had not yet been laid. The rooms in Area 2, with the exception of the portico, are believed to have been built in the middle or late Augustan period, between 15 BC and AD 15, which is also the period in which all the mosaics in Area 1 and 2 are believed to have been created. The exception is the portico P1, with its mosaic pavement, which is thought to have been added later, between AD 15 and AD 20. Area 1 is thought to have been abandoned in around AD 70, while ancillary structures were built in Area 2 to enable a different distribution and use of the premises.

2 The mosaics in Area 1 are at a height above sea level of between 2.01 and 2.13 metres (the average height of the walking surface is 2.09 metres above sea level), while in Area 2 the original level of the walking surface has been badly damaged by the processes of decay and fragmentation of the geological bedrock and is sinking both to the south and to the north, deepening above all in the area of room P5 – with the result that the level of the walking surface, measured as close to the walls as possible, ranges between 1.64 and 1.41 metres above sea level (the average height of the walking surface is 1.56 metres above sea level).

3 The deviation from north of the walls running in an east–west direction in Area 1 is thus 58 degrees towards the south, while the walls in Area 2 show a deviation of 52 degrees towards the south. Meanwhile the walls running in a north–south direction are rotated by 32 degrees towards the east in Area 1 and by 38 degrees in Area 2; the difference in both directions is therefore six degrees.

4 Reinforcement of the backs of the fragments was carried out during the PArSJAd project using mortar containing a natural hydraulic lime (NHL) binder. Later, however, because of the mould that was already present on the fragments from earlier, and the consequent crumbling of the mortar on the largest fragment (room P4/passage), the work was taken over by the restorer Dare Tratar, who carried out a procedure to reinforce the back of the fragment using a mixed cement and lime mortar. He therefore used a "traditional" conservation-restoration procedure from past years, which also included polishing the surface of the tesserae. This is a procedure that today we no longer use (photo-documentation ZVKDS RC archives). We decided to place the fragments of the mosaics in their original location, despite the use of cement-lime mortar and the polishing of the surface. In this way we illustrated different methodological approaches that have changed over the years. Monitoring also took place on site to observe the difference in the reaction to external factors and changes in individual fragments and the remainder of the mosaic, on which lime mortar (NHL and air lime) was used exclusively.

5 The pieces of mosaic were only returned to their original location in the context of the AS project.

6 Considerable time has passed since the last major conservation-restoration interventions on the mosaics and there is a need for a re-evaluation of the entire process of mosaics conservation. At archaeological sites discovered and investigated in the past, uncovered mosaics were restored *in situ*, presented in museums or placed in storage in their original, usually very poor condition, without the essential process of conservation. Decades have passed since the last archaeological discoveries and major restorations of mosaics in Slovenia, and in this period only a few conservation-restoration interventions have been carried out on mosaics that represented a modern approach to the conservation of heritage of this type at the time. Today, however, a handful of restorers who were involved in the restoration of mosaics in the past have realised that after so many years it is essential to re-establish a modern approach to the conservation and restoration of mosaics and, above all, to keep pace with developments in the field of the integrated conservation of mosaics around the world.

on, finishing and installation works for the creation of the drainage system, above all for the remediation of Area 2. Thus we also carried out archaeological investigation of the remaining part of room P5 (otherwise investigated in 1989–1994), documented the state of the mosaics in Areas 1 and 2 and intervened in the foundations and backfilling of Area 2, where in the course of building infrastructure we made new findings regarding the mosaics of the portico and room P6, and regarding the layout of the villa itself.
The investigated part of the villa can be placed within the existing chronology, which puts the creation of Area 2 in the period between 15 BC and AD 15 and places the end of more continuous habitation at around AD 50–70, although individual finds suggest the limited use of Area 2 until the fourth century AD (Stokin, Zanier, 2011: 49, Groh, Sedlmayer, 2017: 94–97, 221).

Archaeological excavations in the northern part of room P5

As part of the AS project we decided to proceed with excavations in room P5 for the purpose of the integrated presentation of the room. We placed the investigation in a grid of quadrants measuring 5 x 5 metres, which we based on the grid that already existed in past seasons (1989–1992), although we numbered the quadrants on an ongoing basis from 1 onwards (quad. 1/15–12/15).

At the start of the AS project the mosaics in Area 2 were protected in the field by a geotextile layer and filler material consisting of gravel, coarse sand and fine sand. After the backfill was removed it was revealed that a large part of room P5 had been excavated down to the mosaic during the seasons 1989–1994, while the northern part of the room had not yet been excavated, although we were able to define a stone structure in the profile of the excavation; this represented the demolished east wall of room P5 with ruins, part of the interior plaster of room P6 and the still well preserved interior plaster of room P5, both conserved *in situ* (Fig. 2).

Stratigraphy showed that the depositional sequence of the strata documented during excavation, from the mosaic pavement towards the turf cover, was as follows. Between the ruins of the brick roof of the building, consisting of *tegulae* and *imbrices*, and the mosaic pavement, we documented a soil stratum that may be placed chronologically in the period immediately following the collapse of the villa. In this stratum we were able to document a concentration of burnt clay and charcoal. A thin layer of soil was then deposited on the roof, dating from after the collapse of the building, probably as the result of soil creep (colluvium) or deposited from the nearby stream (alluvium). In the next phase, the wall of the building, complete with plasters, fell onto this stratum. This wall was documented as a whole in the SW part of the excavation field, while in the rest of the area the wall has survived as a ruin. In the N part of the dig site we also documented part of the remains of the north wall of room P5, on which a layer of soil has been deposited and covered by grass over time (Fig. 3).

The floor in room P5 was paved with mosaic tesserae that made up a complex decoration, with patterns of four-pointed stars and rhombuses in the inner field of the mosaic, set in a border consisting of a guilloche bounded by double lines. In this phase of our investigation, we documented some lines scored into the still damp nucleus. These served as guidelines for laying the tesserae and are a rarely documented phenomenon (Fig. 4).

On the walls, we identified several applications of interior plaster belonging to the wall of the neighbouring room (P6). After removal of the plaster layers we reached the stone wall that divided rooms P5 and P6 and in which a gambling token made of blue glass was found – evidently it was built into the wall during plastering. Proceeding in stages, the entire wall and interior plaster layers in room P5 were removed. Although the plaster was painted, the fine plaster bearing the wall paintings had fallen away before the collapse of the wall and was found in fragments beneath the ruins of the roof, meaning that in this phase we only documented coarse plaster on the wall (Fig. 5).

Beneath the collapsed wall containing the plaster, we documented a thin clayey layer of soil deposited in the period between the fall of the wall and the collapse of the roof. In this phase we began to conduct the excavation according to a system of microquadrants. We divided the entire excavation field into 37 microquadrants measuring 1 x 1 metres, which allows the spatial location and distribution of finds and construction material to be defined more accurately.
The ruins of the roof were well preserved, with individual sections where there were no roof tiles. The wooden roof structure had not survived (Fig. 6).

Following removal of the roof and part of the soil layer beneath it, we were able in several places to document the method by which the wall plasters were made in relation to the mosaic floors, the stratigraphy of the foundations for the mosaics and the drainage system next to the wall, above all at the contact of wall and pavement.
On the NW side it became apparent that part of the room had been damaged, since a cut was visible in the strata and the tesserae of the mosaic. Several pieces of wall paintings were found in the stratum below the roof, having fallen away earlier. These were painted with ochre, green, red and black pigments in various combinations of geometric patterns.
By the walled-in passage from room P5 to room P6, in which the mosaic pavement was different from those in rooms P5 and P6, we found several fragments of window glass, which is very interesting, especially as these were inner rooms of the villa.
This stratum also contains several larger pieces, most probably of ceiling plaster, relatively few finds (of glass, ceramic, iron and lead) and parts of various shells. In the soil layer immediately above the mosaics, we documented a burnt patch of earth and a large quantity of charcoal on the north side of the room. This could have represented a temporary fireplace. This could indicate the new use of individual rooms for a short period after the villa was abandoned, which concords with the interpretation of similar ancillary uses of rooms P1 and P3 (see Stokin, Zanier, 2011: 101; Groh, Sedlmayer, 2017: 48–49).

During the process of conserving and lifting the mosaics in room P4 (passage), we decided to uncover the part of room P4 already investigated in the past as far as the junction with passage P9, which runs round room P5 and, probably, room P6 on the north side. Thus our archaeological investigation of room P5 also took in the northern part of room P4, where, as well as more recent backfillings and ruins, we documented a major intervention in the mosaic and foundation of room P4 (Fig. 7). The intervention/trench, dug after the villa was abandoned, was filled with ruins and rubble and a small number of pieces of Roman pottery and building material. The trench also damaged the walls of the newly discovered room P23, which are partly indicated in the northern part of the excavation of room P3 and partly in the NW corner of the excavation of room P4. It is evident that room P23 also had a mosaic floor, since the foundation for it is visible in the W profile of the excavation field, along with individual tesserae. We concluded the excavation at this level and documented the situation. Because the mosaics did not continue towards the north, we covered the northern section of the passage with geotextile and sand.

This phase also included the cleaning of part of room P9, excavated in 1996, where we re-documented the already uncovered mosaic pavement.[7] We were able to observe that part of the mosaic had been subsequently repaired (though still in the Roman period) using tesserae of smaller dimensions (0.5 x 0.5 cm) and a different foundation or nucleus (Figs 7, 8, 9). We also conserved this mosaic *in situ* using a layer of geotextile and sand.

Archaeological investigation when implementing the drainage system in Area 2

The second major archaeological intervention within the scope of the project consisted of an archaeological investigation during the architectural arrangement of the park and the implementation of a drainage system for Area 2. During implementation of the drainage system, new discoveries were also made in room P1: a large fragment of mosaic was uncovered and cleaned in room P1 (the portico), in which only the mosaic pavement in the southern section had been documented in the past (Stokin, Zanier, 2011: 54–56; Groh, Sedlmayer, 2017: 44–46, Figs 44–54), while in a large part of the portico the mosaic had not survived. It is a simple mosaic on a light ground bordered by a single black line. In the newly uncovered segment of mosaic, we were able to observe the distinctive use of light (not only white) tesserae in very different shades of grey, green, pink and blue – something that does not appear in the other rooms of the villa.
In keeping with the content of this article, however, we will focus for the most part on the results of the interventions in the foundations for the mosaics in rooms P3–P5 as part of the implementation of the drainage system in Area 2.
The Implementation Project (Kleibencetl 2015, Folder 3.1) envisaged two sections of drainage ditches in the drainage system for the mosaics – a southern section on the north side of the portico (P1) and a northern section encompassing the three rooms P3–P5 in an arc and connecting to the drainage system from the portico outside the area of the mosaics. The drainage system of both sections then continued towards the outflow into the sea with a downwards gradient of 0.5%. Water drains gravitationally, while during high tides it is pumped into a shaft, from where it drains gravitationally when conditions are more favourable.
Following *in situ* conservation[8] and the lifting of the mosaics in the rooms of Area 2, we first documented the current state of the remaining foundations, i.e. beginning with the nucleus. This was followed by the systematic mechanical removal of the foundations for the mosaics – the *nucleus*, *rudus*, *statumen* and *solidum* – and the clayey lower strata to a depth of 0.55 metres or approximately 1 metre at the bottom of the drainage system excavation. It turned out that the structure of the foundations differs from room to room, where rooms P3 and P4 share similar characteristics, while the foundations in room P5 have a somewhat different structure.[9]

7 At the same time we discovered that the neighbouring room P10, to the north, had not yet been excavated (the opposite is incorrectly indicated in the monograph by Stokin and Zanier, 2011), or that past excavations had only uncovered the partition wall between rooms P9 and P10.

8 Before lifting, the mosaics were conserved and individual tesserae were replaced in their original position, so that the intervention could proceed without difficulties and losses of individual tesserae scattered around the room. See also: Kramar et al., in press.

9 The foundation for the mosaics was mortar made from lime and various types of aggregate grains (e.g. sand, charcoal, pebbles, brick), which we defined quantitatively – in terms of size and as percentages of the whole.

In room P3 we recorded the following sequence of foundation and filler layers:[10] *nucleus*, *rudus*, *statumen*, two layers of *solidum* and an underlying clay layer, already part of the geological base[11] (Fig. 11). In room P4 the sequence of foundation and filler layers is slightly different: *nucleus*, a mortar levelling layer on the surface of the rudus, *rudus*, *statumen*, two layers of *solidum* and an underlying clay layer[12] (Fig. 10).

In room P5 the sequence is once again different from that in rooms P3 and P4: *nucleus*, in places a mortar levelling layer, a covering layer, a second layer of nucleus (see note 11), a thin *rudus*, a *statumen*, a single layer of *solidum* and an underlying clay layer.[13]

The manner of subsidence of the mosaics, where a flat area has formed on the western side of the mosaic surface, could have indicated a more solid underlying foundation (perhaps an older wall), but excavations showed that there were no older architectural remains at this point and that the subsidence of the mosaic was to be attributed to the geological bedrock in Area 2, which in this case is flysch.

During the excavations we were surprised by the relatively large quantity of finds in the filler layers for the mosaics (*solidum*). Notable examples include part of a cup with the inscription AT HI from the Augustinian period (last decades of the first century BC and the early first century AD) and a fragment of the wall of an amphora with the graffito/inscription SPIIRATI (probably the name *Speratus*), scored into the amphora *post cocturam* (after firing).

10 The classical stratigraphy of mosaics according to Vitruvius: *tesserae* (*tesserulae*, *tesselae*) – these are the mosaic tiles; the levelling layer into which the tesserae are inserted, made of slaked lime and fine rock flour; the *nucleus* – a substrate of well-beaten lime mortar with fragments of crushed ceramic and/or brick (including fine brick flour); the *rudus* – well-beaten lime mortar with fragments of pebbles and crushed brick; the *statumen* – the foundation layer, a well-beaten layer of pebbles (stones up to the size of a fist); the *solidum* – dampened and well-beaten earth and/or waste material.

11 The *nucleus* was approximately 5 cm thick, where the upper part of the nucleus (2 cm thick) was distinguished from the lower part (3 cm); the upper part was more friable but had the same structure as the lower part. The mortar consisted of several pieces of brick measuring up to 1 cm (7%), several pieces of lime measuring up to 0.5 cm (5%) and black pebbles measuring up to 0.5 cm (2%). It was followed by the *rudus*, approximately 8 cm thick and consisting of pieces of brick measuring between 1 and 3 cm (20–40%; more brick was documented on the W side of the foundation), sandstone rocks measuring up to 2 cm (10%) and sandstones measuring up to 10 cm (20%), and pieces of lime measuring up to 1 cm (7%). Below the rudus, a *statumen* of a similar thickness (8 cm) was documented. It consisted of rocks measuring up to 20 x 25 cm (70%), pieces of brick measuring up to 2 cm (2%) and yellow clay as a binder. Next came the filler layers: two clayey layers of *solidum*, the upper with a greater proportion of ceramic material (up to 5%), with individual large stones measuring up to 10 x 15 cm (3%) and oxides (10%) in a thickness of approximately 17 cm and the lower with rocks up to 8 cm in size (7%), pieces of crushed brick measuring up to 5 cm (5%), oxides (3%) and rare finds (1%), in a thickness of up to 50 cm. A patch of burnt clay with ash of irregular shape was documented in the first layer of the solidum. At the bottom of the drainage excavation, we documented a grey-green clay layer that contained individual pieces of sandstone measuring up to 10 cm (3%).

12 The *nucleus*, approximately 3 cm thick or more, consisted of pieces of brick measuring up to 1 cm (7%), pieces of lime measuring up to 0.5 cm (5%), black pebbles measuring up to 0.5 cm (2%) and mortar. It was followed by a *rudus* of a thickness of between 12 and 20 cm (thicker in the S part of the room, where the upper part of the foundation was levelled with a mortar levelling layer between 2.5 and 3.5 cm thick, which probably served to level the coarser filling of the rudus and to prepare a flat surface for the finer preparatory layers (*nuclei*)). The levelling layer consists of mortar with pieces of brick measuring up to 0.5 cm (3%) and pebbles measuring up to 0.5 cm (2%). The *rudus* consisted of pieces of brick measuring between 1 and 2 cm (20–30%; more brick was documented on the W side of the room), sandstone rocks measuring up to 2 cm (7%) and sandstones measuring approximately 8 x 5 cm (30–40%) and pieces of lime measuring up to 1 cm (3%). A *statumen* of a thickness of 8 cm was documented below the rudus. It consisted of rocks measuring from 8 x 5 cm to 20 x 15 cm (40%) and yellow clay with oxides. Then came filler layers similar to those in room P3, a clay *solidum* with material in a thickness of between 14 and 18 cm and a *solidum* with crushed brick in a thickness of up to 50 cm.

13 The approximately 2.5 to 4.5 cm thick *nucleus* consisted of pieces of brick measuring up to 1 cm (7%), pieces of lime measuring up to 1 cm (5%), small sandstones measuring up to 0.5 cm (3%) and mortar. This was followed by a thin *rudus* layer which was concluded in places by a mortar levelling layer of a thickness of between 1.5 and 3 cm, while in some places the *rudus* was not even laid (e.g. in the central part of the room and along the east wall). The *rudus* consisted of pieces of brick measuring up to 1 cm (2%), pebbles measuring up to 2 cm (20%) and black pebbles measuring up to 1 cm (15%), pieces of lime measuring up to 1 cm (10%) and mortar. Only in room P5 did the rudus include the addition of pebbles. The levelling layer consisted of mortar with pieces of brick measuring up to 0.5 cm (1%) and pebbles measuring up to 0.5 cm (1%). A *statumen* of an approximate thickness of 15 cm was documented subsequently. In some places the *nucleus* was laid without a rudus directly onto a statumen consisting of rocks measuring between 5 x 8 cm (10%) and 20 x 15 cm (40%), pebbles measuring up to 8 cm (20%) and yellow clay with oxides. Only in room P5 did we document a relatively uniform *solidum*, which in terms of its composition was similar to the upper layer of the solidum in rooms P3 and P4. At the top of the solidum, which was similar to the foundations in rooms P3 and P4, we documented several patches of ash and burnt clay, which however lay below a thin layer of fine sand and yellow clay in which there were no finds. The thickness of the solidum thus ranged between 37 and 55 cm and was evidently also dependent on subsidence and the weathering/removal of material (the *solidum* was in fact thicker next to the walls, where there was least subsidence). There was no clay layer with crushed pieces of brick in room P5 (in rooms P3 and P4 it was present as a second layer of solidum). Beneath the solidum, a grey-green clay layer with rocks was documented at the bottom of the drainage excavation. This was apparently uniform in all three rooms and probably represents the weathered flysch geological base.

Notable features of the mosaics

The conservation-restoration intervention included repairs to the ancient mosaics and the walls of the northern (Area 1) and southern (Area 2) parts of the villa. Considerable emphasis was placed on the manner of presentation of the mosaics, since the different geological structure of the ground in the two areas dictated different conservation-restoration approaches. The final decisions were influenced above all by the height above sea level of the mosaics and the geological structure of the ground, both of which affect the state of conservation, and the permanent protection of the mosaics and walls from harmful external factors by means of a roof and a drainage system for rainwater, which were essentially envisaged in the site management plan (Lazar, Zanier, 2014).

A geological boundary between limestone and flysch areas runs close to the archaeological park (Fig. 12) (flysch consists of a sequence of breccias, sandstone and shale) (Pleničar et al., 1973). We anticipate[14] that the geological boundary is at the same time the boundary between Areas 1 and 2, since the consequences of the siting of the mosaics on different geological bases indicate this possibility. The remains in area 2 would thus lie on flysch or weathered flysch. The mosaics in this area were even to begin with at a level approximately 50 cm lower than the mosaics in Area 1,[15] while additionally the ground here has subsided unevenly (meaning that we are dealing with very considerable differences in level), while the sea level has risen over the past 2,000 years (Antonioli et al., 2007; Antonioli et al., 2008). The mosaics have thus arrived at a height above sea level that is extremely critical for them, with both areas very close to the sea. The effect of the tide is therefore stronger, while at the same time the impermeable clayey surface of the flysch results in standing rainwater and groundwater and the retention of sediments mixed with water in areas of concave subsidence (Fig. 13), which has led to a weakening of the foundations of the mosaics. Water on the surface has also frozen in winter.

14 At a workshop during the PArSJAd project in 2010, the geologist dr. Timotej Verbovšek of the Faculty of Natural Sciences and Engineering at the University of Ljubljana presented his findings regarding the geological structure of the ground below Izola and the surrounding area. The location of the two areas of the archaeological park was supported by a basic geological map (Pleničar et al., 1973) that describes the lithological and stratigraphic characteristics of the rocks that make up the territory of Slovenia, their relation to each other, their age and other important features. This map is the basis for understanding the geological structure of the area in question, which shows the boundary between flysch and limestone.

15 The difference in height can be up to 60 cm, while the smallest difference is 39 cm; this seems a lot and leads us to surmise that the entire southern part subsided, not only the mosaics. The height of the threshold between rooms P5 and P6, enclosed between the walls, is 1.64 m above sea level, for example, while to the north the closest is at 2.03 metres.

We already know from the findings of investigations in 1990 (Bogovčič, 1995) that the damage to the mosaics, including the specific problem of the separation of tesserae in the nucleus, is atypical. Separation of the calcareous strata has also occurred in the *rudus*. Investigations by Ivo Nemec have established that the horizontal cracks that are today filled with fine soil fractions are the consequence of freezing (Nemec, 1991). Thus a relatively thick layer of separated sediment/soil was more easily able to insinuate itself between the horizontal and vertical cracks and individual layers of mortar and separate them. The separation of the layers of the mosaic foundation has increased over the years, since during the AS project we noted a uniformly strong increase in soil intrusion in all the rooms. It was therefore decided, for this area, that the mosaics would be lifted,[16] levelled, subjected to conservation and restoration procedures and then returned to their original location, but with a new foundation.

The mosaics in Area 1 were conserved and partially restored *in situ*, since the base on which they lie consists of permeable limestone, which is a good and solid base that is able to resist harmful external factors. Despite the strong overgrowth of horsetail, a highly invasive plant that has integrated itself between the layers of tesserae and the nucleus, we decided to present and conserve the mosaics *in situ*. Before this, on the basis of consultations with experts from the University of Ljubljana Biotechnical Faculty and fellow restorers faced with similar issues, we obtained instructions for the gradual eradication of the horsetail.

Selection of the most suitable methodology of work and the method of presentation of the archaeological remains

From the point of view of the conservation-restoration profession, several methods exist for the conservation of mosaics, including a strict form of protection of remains with appropriate reburial and various methods of presentation of mosaic surfaces. Various possibilities had to be envisaged for each area separately, taking into account the condition and specific characteristics of the individual mosaics, which we had thoroughly studied before this. Decisions were taken at expert consultations in the field, to which experts from various disciplines were invited. Each adopted decision was confirmed by the responsible conservator,

16 The method of lifting was partly determined by the layer of soil that had intruded itself immediately below the tesserae and part of the levelling mortar (setting bed). The lifted fragments thus consisted of tesserae and crumbled levelling mortar.

Jaka Bizjak.[17]
For both areas it was necessary to study various proposals, which were adapted during implementation of the other work making up the overall project, with the best solution then being used. The proposal included six different solutions (Fig. 14):
A: lifting the mosaics, presentation via the insertion of piles and a levelled mosaic surface;
B: lifting the mosaics following prior documentation of irregularities using a mould, presentation via the insertion of piles and the deformed/actual mosaic surface;
C: lifting the mosaics, presentation via construction of a new foundation modelled on the original stratigraphic structure and a levelled mosaic surface at the original level of the mosaics;
Č: lifting the mosaics with prior documentation of irregularities with the help of moulds, presentation of the deformed/actual condition of the mosaic surface with construction of a new foundation modelled on the original stratigraphic structure;
D: conservation-restoration *in situ* and presentation of the deformed/actual state;
E: lifting the mosaics, presentation of the levelled mosaic surface on movable supports installed on a new foundation at the original level of the mosaics.

As explained below, the final decision was influenced by several factors. In the end proposal D (conservation-restoration *in situ* and presentation of the deformed/actual state) was selected for Area 1, while proposal C (lifting the mosaics, presentation via construction of a new foundation modelled on the original stratigraphic structure and a levelled mosaic surface at the original level of the mosaics) was selected for Area 2.
There were several reasons for this decision. For Area 1 the decision was only between proposals C and D, although without implementation of a drainage system. Because of the solid limestone bedrock, lifting the mosaic and construction of a new foundation did not appear to be urgent for this area for the time being. We therefore opted for proposal D, specifying that the eradication of horsetail and monitoring of weather conditions was necessary at least twice a year in order to prevent frost damage in early spring. Despite all these considerations, lifting the mosaics (proposal C) could nevertheless be worth taking into consideration in the future because of the very widespread root system of the horsetail between individual layers of the mosaic and the possible negative action of frost, which could cause additional separation of strata. Monitoring conducted one year after completion of the project will show whether lifting the mosaic will be necessary in the future, particularly in room P17.
Owing to the poor state of preservation and the low level of the mosaics themselves, *in situ* conservation and restoration of the actual state (proposal D) of the mosaics in Area 2 in the past had failed to produce satisfactory results, so lifting the mosaics and the implementation of new supports (piles) or bedding were considered to be of key importance for the further conservation and presentation of the mosaics in this area. Proposals A and B, with the proposed insertion of piles, were adopted for Area 2 on the basis of the starting points for the presentation of the mosaics (Bogovčič, 2000) which Ivan Bogovčič drew up after completion of the project to lift three fragments from rooms P3, P4 and P5, but which was not implemented at the time owing to a lack of funds. After consulting with the experts[18] who drew up the drainage plan, we later abandoned the idea of inserting piles, since careful inspection of the soil indicated that such piles would not be necessary to halt further subsidence. The drainage excavation already described was envisaged for this area, along with the preparation of supporting layers based on the ancient structure, which should offer the mosaics a sufficiently solid foundation.
A similar proposal for the mosaics in Area 2 – proposal Č – was abandoned for the following reasons. Presentation of the actual state of the mosaics with deformations and construction of a new foundation would require a series of extensive additional measures and the construction of enormous moulds in order to take impressions of irregularities. Surfaces presented in this way are also more sensitive to damage, mechanical loads (people walking on the mosaic surface during maintenance, for example) and maintenance itself, since soil sediments and dirt from the surrounding area collect in the sunken parts. This method of presentation does, however, ensure smaller interventions on the mosaic surfaces and, above all, presents them in the light of the action that 2,000 years of time has had upon them.
Presentation of the levelled surface likewise required a series of interventions such as reduction of the gaps formed as a result of foundation subsidence and correction in badly deformed sections of the mosaic. The key factor behind the final decision was that we wished to return the mosaics to a higher level, in other words to the level at which they were on their creation 2,000 years ago, while additionally this would slow their further decay.
Because of all the circumstances already described and those described below, and in view of the poor state of the mosaics, the decision to lift them was taken shortly after inspection of the condition of the mosaics, although because of the lack of clarity regarding the erection of roofs (i.e. whether this would be permanent or only temporary), we also considered the possibility of returning individual lifted fragments to the location on movable supports (proposal E). In this case the mosaics could be removed from the archaeological park during the winter and stored in a suitable location. In the end, the lack of suitable premises in which to store the fragments over the winter and the very visible gaps between individual fragments on movable supports, which is problematic from the aesthetic point of view, we opted for the permanent return of the mosaics to the site (proposal C) on a new foundation modelled on the ancient foundation, since this enables natural breathing and the passage of moisture through all the preparatory layers.
When selecting the most suitable form of presentation, the question was also raised of whether older archaeological remains perhaps lay below the mosaics. The mosaics in room P5 had in fact subsided in a highly unusual manner, which could have indicated the existence of older walls; later archaeological investigations during implementation of the drainage system disproved this possibility.

17 Those present at the meetings were the responsible officers from the Piran Regional Unit of the ZVKDS, as the lead partners of UP FHŠ, and representatives of the Restoration Centre of the ZVKDS with subcontractors and consultants. The basic strategy was laid down on submitting the project, after which we adapted minor deviations and adjustments of the methodology to conditions in the field so that the work could proceed in an optimal manner.

18 The consultations took place with the civil engineer Iztok Kleibencetl (ISAN 12, podjetje za gradnjo in vzdrževanje objektov d.o.o.).

Selection and preparation of mortar for the foundations of the mosaics

International interdisciplinary cooperation was of particular importance. This also includes the development of suitable compatible and reversible mortars with a natural hydraulic lime binder. Unlike the museum presentation of mosaics, *in situ* presentation requires consideration of unstable conditions that could affect the new foundation, and a guarantee of long-term conservation. The new mortar must be resistance to various weather conditions and must at the same time ensure compatibility and reversibility, along with simple handling of mosaic fragments in the case of movable supports. Following the successful use of a light aggregate mortar with a natural hydraulic lime binder for the museum presentation of the Aemona mosaic (Županek et al., 2016), we wished to study how various mineral additives affect the physical and mechanical properties of mortars and their durability. Natural hydraulic lime is one of the most promising binders used in conservation-restoration interventions, since it is chemically and mechanically compatible with ancient materials (Jorne, 2014) while also being easily removable when necessary. Unlike air lime, it binds and hardens both in the presence of water and in the air and is resistant in damp conditions.
In order to increase the compressive strength of the mortar with the hydraulic lime binder that we used in the museum presentation, we studied the effect of different mineral additives, specifically metakaolin and micro-silica, on the mechanical properties of light aggregate mortar. We also studied the frost resistance of these additives. Mineral additives are natural or synthetic materials that are mixed with a binder in order to improve desired properties or eliminate undesired properties. In antiquity, these mineral additives were volcanic ash and crushed brick; they were used to make mortar more durable or to give it greater strength than pure lime mortar, a result of a hydraulic reaction (with water) and/or a pozzolanic reaction (with $Ca(OH)_2$ on contact with water). The mineral additives most commonly used today are fly ash, granulated furnace slag, micro-silica and metakaolin. The last of these is a natural calcined pozzolan (mainly consisting of SiO_2 and $Al2O_3$) and is the product of calcined kaolinite clay, which on reacting with $CaOH_2$ forms hydration products from lime. Micro-silica is a synthetic pozzolan and industrial by-product consisting mainly of SiO_2. Detailed research results are given in the article *Mechanical and durability properties of lightweight mortars for the backing of ancient mosaics* (Kramar and Lesar Kikelj, 2016), while here we offer a summary of the findings.
The first set of investigations for the preparation of a suitable mortar for the mosaics in Simonov Zaliv consisted of studying the effects of mineral additives on the mechanical properties of mortar. We began with the formula that was selected for the presentation of the Aemona mosaic. We tested the effect of two different metakaolins (designated MK1 and MK2) and three different micro-silicas (MS1, MS2, MS3), which we added to mortar mixtures in varying proportions, substituting part of the binder with 10%, 20% or 30% of the mineral additive in question. To prepare the mortar, we used a light aggregate made of recycled glass of different grain sizes (Rondofil, Mikrosil), while for the binder we used natural hydraulic lime NHL 3.5. We also added polypropylene fibres. For each mortar mixture we determined the spread, the volumetric mass of fresh and solidified mortar and the compressive and flexural strength.

On the basis of the results, we established that mortar containing an additive of metakaolin scores lower compressive strength values after 28 days than mixtures containing micro-silica. Mortar containing an additive of grey KEMA micro-silica has the highest compressive strength, and at the same time a slightly lower dry volumetric mass. Increasing the mineral additive content increases the compressive strength of mortars, while in principle the volumetric mass of solidified mortar reduces. The volumetric mass of mortar containing metakaolin is in the region of 568 to 615 kg/m^3, while that of mortar containing micro-silica ranges from 553 to 580 kg/m^3.

For the tests of frost resistance, we selected mixtures of light mortars containing 20% mineral additive on the basis of previous investigations – two metakaolins and three

micro-silicas. We found that light mortar without mineral additives is most resistant to frost. The greatest loss of mass and biggest damage following exposure to a cycle of freezing and thawing is observed in mixtures containing micro-silica, while in mixtures containing metakaolin damage appears on a smaller scale (Fig. 15).

In the light of the results, we decided not to use air lime for the last layer/bedding on which we laid the mosaic fragments as dictated by the original structure of the ancient mosaic foundations, but instead a mortar with a binder of natural hydraulic lime NHL 3.5 without mineral additives and with calcite sand with a grain size of between 0.1 and 0.5 mm. We used a slightly coloured hydraulic lime and in this way obtained a mortar that best matched the existing mosaic surface. Our research confirmed that different additives do not essentially increase the durability and strength of a mortar to the extent that we would choose them, but they do mean that earlier strengths are achieved more rapidly, which in our case was not a major advantage. The rest of the foundation, on which we placed the selected final layer, was modelled on the original ancient foundation and is described in the following section.

Conservation-restoration interventions

This section describes the entire intervention on the mosaics and walls of the Roman *villa maritima* in both areas between 2015 and 2017, including preparatory work and all parallel work. Conservation-restoration interventions on the ancient mosaics were carried out in Area 1 in rooms P14, P15, P16, P17 and P20 and in Area 2 in rooms P3, P4 and P5. In 2010, as part of the PArSJAd project, all the mosaics except those in room P17 and part of the mosaic in room P5 were protected – following basic conservation-restoration interventions – by means of reburial, consisting of a textile layer (KORTEX GTPP, a woven geotextile made of high tenacity polypropylene (PP) tapes) to keep the mosaic separate from dust particles, expanded clay and a layer of sand (coarse sand and fine sand). At the start of the work these protective layers were carefully removed. Before proceeding with further work, we carefully documented the state of the mosaics, while all phases during and after the interventions were documented on an ongoing basis. During the work in 2010 and 2011, when the other mosaics were uncovered, conserved and protected by reburial, the mosaic in room P17 was left untouched.
In places along the edges, the mosaic was covered only by a layer of sand and soil. The greatest damage was caused by aggressive vegetation (horsetail), whose root system had spread over all the elements of the mosaic and caused separation and crumbling of the mortar, leading to movement of the tesserae. We undertook further conservation-restoration procedures to consolidate the mosaics to the point of adequate stability.
For most of the time, protective awnings made by the company Petre šotori d.o.o. were positioned over the mosaics in the archaeological park. These protected the mosaics from external factors such as direct sunlight and heat, heavy rainfall, frost and the powerful bora wind during the highly sensitive conservation-restoration interventions. It was not, however, possible to protect the mosaics entirely with the aid of awnings, so some interventions had to be repeated during the course of the work because of unsuitable external conditions. Protection by means of awnings was especially important during the lifting and re-laying of the mosaics, in particular while the newly laid lime foundations were curing.

Mosaics in Area 1

Description of mosaics and scientific investigation

In the course of the AS project we worked on black-and-white mosaics from five rooms in Area 1 (P14, P15, P16, P17 and P20). The mosaic in room P14 has a basis made of white tesserae laid diagonally and a frame with a white four-strand guilloche on a black background, which is a fairly widespread decorative motif in Roman mosaics.[19] On both sides, the border is delimited by a row of white tesserae, three rows of black tesserae and another three rows of white tesserae laid square. The mosaic is only partially preserved: the whole of the southern section is missing, while even in the preserved part there are several lacunae or large pits that probably formed after the villa was abandoned or as a consequence of modern agricultural activity that took place in this area until the discovery of the other archaeological remains in the first half of the twentieth century.
The threshold area in the doorway between rooms P14 and P15 is adorned by an almost square quadrilateral on a white base; it is bordered by two rows of black tesserae, laid square, while inside it is a circular decoration consisting of two black semicircles with a concave diameter enclosing a spindle.
The white mosaic in room P15 is indicated by a simple black band as a border.[20] In principle the tesserae are laid diagonally. The border consists of two rows of black tesserae laid square; it is enclosed on both sides by two rows of white tesserae, likewise laid square.
The basis of the mosaic in room P16 consists of white tesserae laid diagonally; the double black border consists of two bands each consisting of three rows of black tesserae, separated by four rows of white tesserae and delimited at the edges by three rows of white tesserae laid square;[21] on the surface of the nucleus we documented a preparatory engraving or scored line that indicated the border of the mosaic. There is a large rectangular pit in the SE part of the room. This is an archaeological test trench from the time of V. Šribar (Šribar 1958–1958, 276, and Appendix 1), which damaged the mosaic in room P16, the wall and the mosaic in the neighbouring room P17. Furrows are also visible in the southern part of room P16, the result of ploughing during the past agricultural use of the area.
The white mosaic in room P17 is surrounded by a frame consisting of a single black band. The tesserae in the large monochrome white part of the mosaic in room P17 are laid diagonally. The black band in the border consists of five rows of black tesserae, while three rows of white tesserae are laid square on either side of the black band. When structure 1 was last excavated in 1991, the southern part of room P17 remained unexcavated, which meant that its layout remained unclear, even taking into account the documentation produced by B. Tamaro in the 1920s: the border of the mosaic is limited in the southern corner of the room by a rectangular structure that could be a small separate room. Square masonry foundations (0.50 x 0.50 m) set 1.50 metres from the SE wall of the room are also visible on the floor surface. These were probably intended to support columns.
A mosaic with arcades[22] was located in the passage between rooms P17 and P20. This was lifted in 1925 and transferred first to the Ospizio Besenghi in Izola and then to the Koper Regional Museum, where it is still on display today (Stokin, Zanier, 2011: 71–74).
Room P20 contains a white mosaic with a simple black border. The tesserae in the monochrome white part of room P20 are laid diagonally. The black band of the border consists of three rows of black tesserae laid square, while on either side of the black band are three rows of white tesserae, also laid square.

The mosaic in room P14 contains approximately 85 tesserae per square decimetre, while the mosaic in room P15 contains approximately 60 tesserae per square decimetre. The mosaic in room P16 contains 95 tesserae per square decimetre, while those in rooms P17 and P20 contain 65 and 60 tesserae per square decimetre respectively. In all the mentioned mosaics, we are able to identify the classical sequence of preparatory layers – *statumen*, *rudus*, *nucleus* and bedding layer – where the last of these is for the most part weathered. The mortar[23] between the tesserae has not survived. In room P16 the *statumen* consists of bricks inserted diagonally into a clayey layer, without mortar; in the other rooms in Area 1 the *statumen* was only documented in small sections next to lacunae. Typically, the mortar from the nucleus and rudus of the mosaic in room P16 does not contain ceramic aggregate grains, since the majority of the aggregate consists of coarse-grained calcite. Coarse-grained ceramic aggregate is present, together with stone additives, in the mosaic foundations in rooms P14 and P15, but not the fine fraction of ceramic (which is part of the binder and reacts with lime). The mosaics in rooms P17 and P20 have grains of crushed ceramic in the rudus and nucleus, while the former also contains stone additives (white and grey stone, including mosaic tesserae). The bedding layer in all the rooms consists of fine-grained white lime mortar.[24]

Interventions

When manually removing the multiple layers of protection (geotextile, expanded clay, coarse sand and fine sand) (Fig. 16) from the mosaics in rooms P14, P15, P16 and P20, we also carefully removed all dirt from the surface of the tesserae. Removal of vegetation from the mosaics and walls took place in parallel with the consolidation and injection of unstable sections. Individual tesserae that had detached from the foundation were reconstructed or attached in their original position using lime mortar. Trials of mechanical and chemical cleaning of the surface of the tesserae were carried out and on this basis a methodology of work was determined for all the rooms mentioned in Area 1. For the removal of stubborn dirt – except in room P17, where we used only water and brushes – the most successful method turned out to be the use of ion-exchange resins (cation resins), while a test using ammonium carbonate compresses proved to be less successful[25] (Fig. 17). In some places the additional mechanical removal of stubborn dirt with the aid of scalpels was necessary. To eradicate the horsetail that grew back several times during our work, we applied a biocide preparation in pulp form to the plant. Since the last conservation-restoration intervention[26] it had become necessary to replace almost all of the edging mortar from

19 For the pattern see Rinaldi, 2007: 33–37.
20 For the distribution of mosaics with a simple border, see Rinaldi 2007: 70–71.
21 For the development from a single border to a double border in mosaics, see Morricone Matini, 1973: 504; Rinaldi 2007: 70–71.
22 For the arcade design see Donderer, 1989: 188–190; Vincenti, 2001; Rinaldi 2005; Rinaldi 2007: 46–47.
23 It is clear from microscopic analysis of samples that the tesserae were pressed into the bedding layer and then filled from above with fine-grained mortar (pointing mortar). This method of constructing mosaics has also been observed in samples from Mošnje and Aemona.
24 A detailed analysis of the foundations of the mosaics from the Roman villa in Simonov Zaliv and some other Roman-era buildings with mosaics in Slovenia is presented in an article by Kramar et al., in press.
25 Scientific analyses showed that the salt content in the mortars and tesserae is not high, so we abandoned the intervention with ammonium carbonate.
26 Sealing the mosaics was carried out at the time of the PArSJAd project in 2010 and 2011.

2010 with new mortar. The old lime-cement mortar was removed, the edges of the mosaics were levelled and re-consolidated and sealed with new hydraulic lime mortar.

The mosaic in room P17 was treated slightly differently from the other mosaics in the rooms of Area 1. To begin with we invested considerable effort in the very careful removal of the old felt laid in the 1990s, which over the years had adhered to the tesserae; these were in themselves highly unstable and poorly attached to the foundation. This phase was followed by removal of vegetation and soil and the temporary immobilisation of the outside edges of the mosaic using damp cotton wadding. Individual tesserae were reattached in their original position. Before this, all weathered and crumbled original mortar below and under the tesserae at the edges of the mosaic that could not be consolidated was removed. Horsetail roots were locally removed from under the tesserae at the most critical points across the entire surface, and these points were injected with lime mortar, which means that the tesserae were temporarily lifted, roots were cleared from the foundation and the tesserae were returned to their original position. Lime mortar was used to fix individual tesserae. Before applying mortar to the edges of the mosaic by way of a sealant, we made up several mortar mixtures containing hydraulic lime binder and various aggregates, which gave the mortar a suitable colour. We selected quartz sand, which coloured the mortar enough to give the best match with the mosaic as a whole. The surface of the mosaic was stabilised using rubber hammers. The reconstruction of specific sections of the mosaic surface using tesserae from the area around the damaged section took place simultaneously. During the horsetail growth season, we applied a biocide preparation in pulp form in order to prevent further growth, just as in all the other rooms and on the walls (Fig. 18). This was followed by consolidation of the surviving original layers of mortar with the carbonate consolidant CaLoSil E25. For the mosaic surface, we first used a system of dry cleaning by brushing, followed by cleaning of the surface with water, soft brushes and natural sponges. Although we thoroughly cleaned the surface with water, we subsequently carried out trials of chemical cleaning using ammonium carbonate pulp (10% solution) and ion-exchange resins (cation and anion). These trials did not bring additional improvements, as in the other rooms, and we therefore abandoned this intervention here.

With regard to the filling in of the larger lacunae in Area 1, we have left the question of final presentation open for the time being. In 2010, in the context of the PArSJAd project, all the lacunae in room P14 were filled. Unfortunately these did not withstand the winter frosts and show slight superficial separation (air lime mortar was used). Additionally, as part of the AS project, we carried out a trial filling of damaged sections in room P17 with reconstruction of the ancient rudus and nucleus layers using burnt lime. We made a test field of a layer of rudus in a small section of the SE part of the mosaic pavement of same thickness and at the same level as the original rudus layer. On this test field, which measured approximately 0.5 m^2, we then applied two types of nuclei, which were likewise of the same thickness, and completed them at the level of the original layer. We used hydraulic lime binder in one of the mixtures and air lime in the other (Fig. 19). No differences in strength and appearance could be observed a year later, while further observation/monitoring will indicate the most suitable method of conservation for the whole of Area 1.

As well as the mosaics, the walls were conserved. These were treated separately by the company Kapitel d.o.o. and a conservation plan for the walls based on lime mortars was drawn up by prior agreement with the responsible conservator from the ZVKDS. It should be underlined that the walls in Area 1 had already been partially reconstructed in past conservation-restoration interventions, since in some places they had also survived below the level of the mosaics (see Stokin, Zanier, pp. 68–74, Figs 66–76). Dilapidated or unstable sections of the walls were first removed and then re-consolidated using sandstone available on the site and natural hydraulic lime mortar with ceramic aggregate. The same mortar was used to point the other sections and, above all, the crowns of the walls, which represent the fundamental protection of the structures (Kapitel d.o.o., Vila Maritima – Simonov Zaliv, site book, Žminj, 2015). In the northern part of Area 1, in the light of the previous consolidation of the walls carried out in 1991, and following consultation with the responsible conservator, the locations of the thresholds in rooms P16 and P20 were also altered in order to move them as close as possible to the original position of the thresholds (Fig. 20).

Mosaics in Area 2

Description of mosaics and scientific investigation

We carried out conservation-restoration interventions on the mosaics in rooms P3, P4 and P5. Two mosaics with more complex designs survive in Area 2: the mosaic in room P3 has a large panel decorated with hanging black and white rhombuses[27] and surrounded by black and white bands consisting of tesserae laid square; the outer frame of the mosaic is white. The tesserae in the monochrome outer section of the mosaic are laid diagonally. Otherwise, the orientation of the tesserae in principle follows the decorative designs, although some differences in the laying of the tesserae may be observed: in some sections the border of the rhombuses was laid first, consisting of two rows of tesserae, after which the rhombuses were filled in with parallel rows of tesserae, the orientation of which differs from rhombus to rhombus. We did, however, come across individual exceptions in which the rhombuses were filled in as two separate triangles (Fig. 21).

27 For the pattern see Meder, 2003: 76; Rinaldi, 2007: 96.

At the passage from room P3 into inner corridor P4 there was a small partially preserved mosaic at the threshold measuring 1 x 1.15 metres with white octagonal patterns on a black base and a white and black border. The mosaic at the threshold was lifted back in 1990.
Corridor P4 contains a white mosaic with a simple black single border. The tesserae in the monochrome white section are laid diagonally. The border consists of two rows of black tesserae laid square; it is enclosed on both sides by two rows of white tesserae, likewise laid square. The fragment in the southern part of the room was lifted in 1990.
The modular scheme of the mosaic in room P5 consists of squares with stars, bordered by a grid consisting of rhombuses and smaller squares.[28] The largest squares, on a black base, are decorated with white four-pointed stars with concave edges and a central black point. The rhombuses are black on a white background and the smaller white squares have a double profile of black tesserae. This panel is surrounded by a broad frame with a white background of diagonally laid tesserae decorated by two white two-strand guilloches on a black base that are delimited on either side by two rows of white tesserae, two rows of black tesserae and two more rows of white tesserae. We were able to establish for the mosaic in room P5 that a similar solution to that used for the mosaic in room P3 was adopted for the laying of the tesserae forming the decorative designs: the outer edge of the key decorative designs is emphasised by two rows of tesserae, after which the interior of the design is filled with parallel rows of tesserae. A slightly different internal structure for the placing of the tesserae is only visible in a few places (Fig. 22).

The mosaics in rooms P3 and P5 contain approximately 80 tesserae per square decimetre, while the mosaic in room P4 only has approximately 65 tesserae per square decimetre. The mosaics in Area 2 also allow us to trace the sequence of the layers of the foundation. The *statumen* consists of small stone elements and contains a large quantity of mortar. The *rudus* of the mosaics in rooms P3 and P4 only contains ceramic aggregate, while a very thick *nucleus* layer is also characteristic. In room P3 this is implemented in places as a double layer (Kramar et al., in press). The difference in the foundation layers in comparison to room P5 is apparent in the relatively thick *nucleus* layer (of a similar thickness to that in room P3) and the thin *rudus* layer, which in places is even absent. The *rudus* and *statumen* also contain a greater percentage of pebbles than the foundations in rooms P3 and P4. A layer of fine sand has also found its way into the relatively uniform *solidum*. The lime mortar of the bedding layer in Area 2 also shows considerable signs of weathering. In several places we were able to identify layers of soil between individual layers of the foundation, probably the result of intrusion following separation of the layers caused by frost (Nemec, 1991).

28 For the decorative motifs see Rinaldi, 2007: 33–35, 153.

Intervention

The conditions faced by the mosaics in Area 2 dictated a different method of implementation of conservation-restoration work from that used on the mosaics in Area 1. To begin with we removed all the filling/protection manually. This gradual removal enabled us to avoid rapid changes of temperature and the too-fast evaporation of water from the mosaic surfaces.
We adapted all the work to the procedure of lifting the mosaics. Two different methods were employed: the sectional method and a method combining the rolling method and the sectional method. In rooms P3 and P5 we used the sectional method to lift the mosaics. This is a simpler and more common method that requires somewhat less preparation than the rolling method. Because the latter requires an absolutely flat mosaic surface, we were only able to use it in the central part of the mosaic in room P4, since only the sides of the mosaic had subsided steeply, while the middle of the room remained perfectly flat. We therefore used a combined method (Fig. 23), where we first lifted the non-level edges by sections up to the part where the mosaic became completely flat. Once the sides of the mosaic had been loosened/lifted at the junction between the diagonally laid tesserae and those laid in straight lines, which at the same time represents the border, we made all the necessary preparations for the rolling method. We built the roller on site according to a previously prepared plan.

We cleaned the surface of the mosaics of dust and dirt, removed all vegetation from them and from the section by the walls, and inserted individual tesserae into their original position. All loosened sections were consolidated (using soft hammers). This was followed by careful dry brushing and cleaning with water. In this way the mosaic was prepared for lifting from its original bed (Fig. 24).

All the necessary documentation was prepared before proceeding with lifting the mosaic. As well as terrestrial three-dimensional laser scanning we made traditional drawings on a transparency at a scale of 1 : 1 and on tracing paper at a scale of 1 : 10 (the documentation process is described in more detailed in the section Documentation).
Immediately before applying the facing protection of the surface, the mosaic was once again cleaned to remove surface dirt, since before awnings were erected for the lifting and replacing of the mosaics, it was constantly exposed

to unfavourable microclimatic conditions. The next phase was protection of the surface using two layers of cotton gauze and an acrylic adhesive (Vinavil 59, an aqueous dispersion of a vinyl acetate homopolymer with a high solids content). In room P4 we further reinforced the level central section, which we lifted using the rolling method, with a layer of jute. The next phase involves the careful cutting of the mosaic according to the previously drawn up plan, in which the large mosaic surfaces of individual rooms were divided into smaller fragments suitable for lifting (Fig. 25). We divided room P3 into 43 fragments, room P4 into 20 small fragments and one large fragment, and room P5 into 80 fragments (Fig. 26). The lifted sections were placed on pre-prepared panels and transported to workshop premises, where irregularities were levelled and intermediate soil buffers and weathered Roman-era mortar were cleaned from the back. The remaining original mortar was consolidated using the carbonate consolidant CaLoSil E25. After consolidation, the fragments were composed into a whole in the workshop and minor corrections were carried out on the back of the mosaic by reattaching tesserae and reducing the wide gaps that had formed as the result of soil subsidence (Fig. 27).

During the treatment of the back of the mosaic in the workshop, the planned drainage was implemented in Area 2, after which the lower part of the mosaic foundation was built according to the proposal of Kapitel d.o.o.,[29] on the model of the original/existing foundations in three layers (*statumen*, *rudus*, *nucleus*). The intervention included cleaning the remaining calcareous filling material that had remained in the location after the lifting of the mosaics,[30] the removal of the Roman-era foundations and fillings to the planned depth for the implementation of the drainage system, the filling of the area with drainage material, and levelling and consolidating the terrain. The next stage was the construction of a foundation on which to lay the mosaics[31] (Fig. 28). The newly made *statumen* contains pieces of lightly baked brick, which were manually put in position on the site – previously appropriately tamped down – to a height of up to 8 cm (*opus spicatum*). The next layer – the *rudus* – is a mixture of quicklime and stone aggregate of a thickness of up to 32 mm and lightly baked brick with added ash in the proportion 1 : 6 : 1. This layer was laid in a thickness of up to approx. 10 cm and after installation was tamped down a second time using a wooden mallet until the desired thickness was reached. The last layer – the *nucleus* – consists of a mortar with quicklime, stone aggregate of a thickness of up to 16 mm and lightly baked brick with added ash in the proportion 1 : 6 : 1. The nucleus was laid in a thickness of 3 cm and was likewise tamped down to the necessary height using a wooden mallet after being laid. Finally, the foundation was rolled and levelled. Because the work had to be completed by an agreed date, the conditions were not ideal when building the foundations, since this operation took place during the winter. Despite the areas being protected by awnings, the influences of external factors were quite aggressive: heavy rainfall that flooded the mosaic rooms, low temperatures, high humidity and the bora, which dried out the atmosphere too quickly, made the curing of the foundations more difficult. Before we continued with the replacement of the mosaic fragments, the mortar was left to cure for around a month. In the meantime we erected a smaller awning below the large one, and the sides of the large awning were closed. Parallel to this, we carried out monitoring and kept a close check on temperature and humidity fluctuations. When the atmosphere reached a constant temperature above 10 °C, we continued laying the top layer of mortar/bed, on which we then placed the mosaic fragments.

The levelling layer for the insertion of the mosaic tesserae/fragments extended to the height of the original level of the mosaic (proposal C). We then systematically laid the fragments from the centre towards the edges of the room. Before applying the mortar, we drew the shape of the fragment on the foundation and gradually applied the mortar to the traced section. We placed the fragment on the still fresh mortar, which enabled the exact positioning and adjustment of the individual fragments and any minor deviations of individual tesserae until the sides fitted together precisely. The height was monitored through constant use of a spirit level (Fig. 29).

The part of the room P4 mosaic that was lifted by the rolling method was then laid gradually. We applied mortar to the foundation in manageable quantities and slowly lowered the mosaic on the roller onto the drawn frame. Once the central part had been laid, we added the sides.

We then additionally levelled/pressed the fragments by rolling and carried out minor local corrections to the height using soft hammers. In this way we ensured that the fragments were well pressed into the mortar and that the latter filled the gaps between the tesserae. In some places, where the mortar did not reach the desired height, we additionally filled the gaps between the tesserae with mortar (pointing mortar) from above the mosaic, in order to achieve greater stability of the tesserae. We carried out this procedure across the entire surface in rooms P3 and P4 and locally in room P5. When the surface was still damp we gradually removed the protection ("facing") from the face of the mosaic using steam cleaners. We carried out this operation across the entire surface. We filled lacunae with the same mortar, levelled it a little below the level of the surface of the tesserae and worked the surface until it had a matt appearance. At the same time we laid the fragments lifted in 1990 on a consolidated layer of sand and installed them in the room, using a decorative mortar to connect them with the whole.

We used steam cleaners to remove the remains of adhesive from the surface and in some places reinserted unstable tesserae in the new mortar. We additionally filled the gaps between tesserae with a mortar based on a hydraulic lime binder.

In Area 2, just as in Area 1, we conserved the walls as well as the mosaics. These had not been the object of conservation-restoration interventions in the past. The western wall of room P3 had collapsed and was therefore dismantled and reassembled using the existing stone and a natural hydraulic lime mortar (NHL 3.5). The same mortar was used to carry out minimal consolidation of unstable parts of the wall mass. The top of the wall was finished as a cross-section of wall on an irregular level. The work was carried out by the Peterlin company in consultation with Kapitel d.o.o. and under the supervision of the responsible conservator. The thresholds between rooms P3 and P23, P4 and P5, and P5 and P6, which were damaged and did not have mosaic floors, were arranged and suitably indicated. The mosaic of the threshold below the walled-in passage in the NE corner of room P5 was conserved *in situ*.

Documentation

It is worth highlighting the successful cooperation of archaeologists and restorers on the project in the search for common points to establish a system of documentation, which is a key task of every intervention into archaeological remains.

The working methodology used to document archaeological investigations both in room P5 and in the architectural arrangement of the park and the establishment of the drainage system was derived, with the appropriate modifications, from the established field research methodology of the archaeological profession.

We adapted the excavation field to the progress of the work, where in the context of the excavations in room P5 we based the excavation field on the edge of the excavation field from seasons 1989–1992. In a similar way, we based the grid of quadrants on the existing grid; in the key phases of excavations in room P5, we further divided the grid into microquadrants measuring 1 x 1 metres. Excavations for the needs of construction, finishing and installation work were carried out in the planned excavation for drainage ditches and channels and the extension for shafts and the electricity supply.

We documented all structures and layers descriptively on forms and spatially located them in the Gauss-Krüger coordinate system. During the excavations we also took more than 100 samples of mortar and plaster, tesserae, lime and charcoal, and separately evaluated those finds that were typologically definable as special finds. We also documented situations, structures and layers photographically and, where necessary, made orthoimages of the surface using georeferenced photo sketches (vertical images in the case of ground plans and elevations/lateral views in the case of the faces of walls). We also photographed the ends of the excavation field or cross-sections over structures and layers as profiles (which are located in the space).

As part of the conservation-restoration work, we established a system of documentation based on the concept of micro-stratigraphy, which means that we numbered and evaluated all the preparatory layers of the mosaics and the layers of fine soil deposited between them, and also negative stratigraphic units or major lacunae and damage. We documented the units on forms and in photographs and systematically sampled them.[32] We also adapted the existing form *Report on conservation-restoration interventions on wall paintings and mosaics* for the needs of the comprehensive documentation of conservation-restoration interventions on mosaics on the basis of existing standards,[33] such as the Getty Illustrated Glossary (Getty Conservation Institute, Israel Antiquities Authority, 2003) and the online mosaics database of the international Centre for the Documentation of Mosaics in Ravenna.[34]

The intervention in the field was accompanied by terrestrial laser scanning[35] of the archaeological remains before and

29 Trial foundations modelled on the ancient foundations were made in Area 1 by Kapitel d.o.o.

30 This intervention was carried out by Adriaing d.o.o. of Koper when working on the drainage system.

31 The foundations in Area 2 were made by Peterlin according to precise instructions from Kapitel d.o.o.

32 The stratigraphic approach brought considerable benefits precisely in the area of taking samples, since the samples were uniformly connected to defined stratigraphic units. The stratigraphic approach is not something self-evident for restorers and major complications occurred in the past with the interpretation of samples precisely because only individual samples were numbered, while the origin of the samples was documented very generally, and therefore it is often difficult to connect the results of older scientific investigations of samples to a specific layer of a mosaic foundation.

33 Here we can highlight some more specific aspects that were included in our form, such as the field envisaged for collecting data on the number of tesserae per square decimetre. In the past it was mainly only the dimensions of individual tesserae that were recorded for mosaics. These could be highly variable within an individual mosaic, so we obtain unquestionably better information for eventual comparisons through data on the density of tesserae in a precisely defined area. The form also included data on the texture or orientation of tesserae, which is characteristic of an individual mosaic or can point, particularly in more complex mosaics, to specific methods and solutions used to make decorative patterns (see for example the mosaics in rooms P3 and P5).

34 See the website: http://www.mosaicocidm.it/Mosaico/Welcome.action.

35 Terrrestrial laser scanning (TLS) is an advanced technology for the comprehensive three-dimensional capture of spatial data. It works on the principle of laser beam deflection, which enables us to determine the shape, size and position of objects in a space. The emitted laser signal travels over the whole of the object under consideration and is deflected back to the instrument. The distance between the receiver and the scanned point is calculated on the basis of measurement of phase differences. The scanning result is a cloud

after the conservation-restoration interventions. Immediately after the archaeological excavations and the full uncovering of the mosaic in room P5, the Croatian company Vektra d.o.o. carried out geodesic measurements and terrestrial laser scanning (this is a method of rapid, extensive and very accurate collection of data in the field) and made a three-dimensional model in the form of a cloud of coloured points in which each point is determined in space with high accuracy and presented in a coordinate system (Fig. 30). The three-dimensional image shows the actual state of all the mosaics in buildings 1 and 2, with all the irregularities that have formed on the surface over the course of the millennia. The image provided high-quality data on the cross--section of the relief at every point of the mosaic surface for the case of lifting and handling the mosaics. A Z + F Imager 5010C was used to create the image. This model, which we can use to create an AutoCAD plan of the actual state for the requirements of the further conservation of a work of art, also guarantees a higher degree of geometric accuracy (1 mm) and the accuracy of the image of the terrain or structure. Detailed photography and photogrammetric treatment was also carried out of all fields of the mosaics to enable the elaboration of a high-resolution orthoimage to scale. For the planning of further procedures, we used an image at a scale of 1 : 10.

In addition to this modern method of documentation, we used the traditional graphical documentation approach. After all the archaeological investigations had been carried out and the mosaic in room P5 had been fully uncovered, we carefully copied all damage and outlines of decorative patterns onto a transparency by individual rooms, at a scale of 1 : 1. Despite the irregularities in the mosaics, we obtained sufficient accurate data which we were able to use in further conservation-restoration decisions. We used the transparency to divide the mosaics in individual rooms into smaller fragments. This served us both when returning the mosaics to their original locations and when assembling fragments in the workshop. The decorative pattern was also copied by hand onto tracing paper at a scale of 1 : 10[36] (Fig. 31). While the lacunae on the tracing paper were completely filled with the decorative pattern, a reconstruction *in situ* was not carried out, since we opted instead for the presentation of the actual state, including all damage. We only substituted individual missing tesserae to ensure greater stability of the mosaic surface.
Before lifting the mosaics it was necessary to determine orientation points for the return of the fragments to their original position. In order to ensure the accurate positioning of the mosaics, we used the mean value of the length and breadth of the room, and also its diagonals. For each fragment we also determined north using a compass. We recorded the coordinate points in the room using a laser theodolite. In the process of returning the mosaics to the site, we used transparencies to determine the exact position of individual fragments *in situ*. The starting point at which to begin laying the fragments was defined in the centre of the room, from where we laid the fragments outwards towards the edges.
Photographic and video documentation took place during implementation of all these procedures. In addition to photographs and short videos, we used a GoPro HD Hero camera to film the procedures and take stills. Audiovisual recordings were edited into short specialised films showing the majority of the conservation-restoration procedures implemented.

Conclusion

The design and implementation of coverings for the two areas of archaeological remains follows the guiding principle of the protection, above all, of the mosaics presented *in situ* from atmospheric influences.[37] The coverings over the mosaics are implemented in the form of protective prefabricated awnings of suitable height with regard to the configuration of the terrain and the possibility of drainage, with the best possible integrated presentation of the archaeological excavations. In accordance with ZVKDS project conditions, the envisaged protection is made from heavy--duty stretched canvas in a form that does not suggest a connection with the shape of the roof of the former Roman villa. The central and perimeter supports encroach as little as possible on the area of the archaeological remains and the mosaics and are implemented without foundations. The structure consists of a few wooden supports in the centre and a larger number around the perimeter. Guy ropes stabilise and stretch the canvas roof. The structure is secured without foundations by means of anchors/pegs.

Although the article only describes a small part of the whole AS project, the latter represents a highly complex and invaluable contribution to the conservation of cultural heritage. Conservation and restoration are more than just a physical intervention into the material substance of cultural heritage that is left to the mercy of time, they are also an attempt to consistently follow the highest standards of the discipline, regardless of opinions about the commercial value of an object of cultural heritage, and regardless of the circumstances that affect this object. There can be no compromises in this regard, although the extent of conservation-restoration work can sometimes be limited or adapted because it forms part of a larger structure or project.
In order to understand a 2,000-year-old mosaic – how it was made and the technology and materials used to make it – we had to return to the past. Over the course of thousands of years, the shattered tiles of mosaics have been exposed to aggressive vegetation, alluvial deposits, rainwater, frost and soluble salts. Through scientific research, participation in research projects and cooperation with institutions at home and abroad, we have tried to put them into some kind of order and restore to them, at least in part, the role they had when they were made.
We have followed the methodology of work that we determined at the outset and have brought our conservation--restoration work to the desired conclusions. The ongoing maintenance to which the mosaics in Simonov Zaliv have now been left continues to be of vital importance in the conservation of cultural heritage.

of points – a mass of spatial 3D points.

36 The drawing of the patterns of all the mosaics in structure 2 on tracing paper was prepared by the conservator-restorer Nikola Upevče.

37 Microclimatic conditions in Simonov Zaliv are characterised by extremely changeable weather and strong winds (tramontana, frost).

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Uvod v sistematiko upravljanja arheološke dediščine

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Izvleček

Razprava podaja teoretsko podlago za upravljanje na splošno kulturne in še posebej arheološke dediščine. Nastala je v okviru čezmejnega projekta Claustra – kamniti braniki rimskega imperija in zato upošteva razmere pri upravljanju dediščine v Sloveniji in na Hrvaškem. Na podlagi analize stanja so orisane ključne slabosti sedanjega načina upravljanja in oblikovan je sodoben sistemski pristop k temu vprašanju, ki upošteva standarde upravljanja kulturne dediščine dveh ključnih mednarodnih organizacij na področju varstva, to je Sveta Evrope in Unesca.

Uvod

V Sloveniji upravljanje objektov in območij kulturne dediščine razumemo kot zaključni del celostnega ohranjanja. Taka razmišljanja na Hrvaškem niso pravno formulirana, so pa v praksi vse bolj sprejeta in v uporabi. Sodobna teorija varstva razume upravljanje kot ciklični proces, katerega komponente so prisotne v celotnem življenjskem krogu dediščine in obsegajo različne vidike ukvarjanja z njo. Če smo danes v našem, slovenskem in hrvaškem sistemu varstva in tudi v varstveni praksi sorazmerno uspešni pri prepoznavanju dediščine, pri določanju varstvenih zahtev in izvajanju obnove izbranih primerkov dediščine, to je kulturnih spomenikov, pa upravljanje ostaja prepuščeno volji, sposobnosti in finančnim zmožnostim lastnikov. To delno zadostuje pri dediščini, ki ima enega samega lastnika – običajno so to stavbe in drugi objekti. Pri območjih, ki so po definiciji v lasti množice pravnih in fizičnih oseb, pa je problematika upravljanja bolj zapletena in jo je treba sistemsko reševati. To še posebej velja za arheološko dediščino – dokler je še ohranjena *in situ* (na kraju samem), so njeni premični deli potencialno last države,[1] medtem ko so zemljišča in nepremičnine, katerih del so arheološke ostaline, in z njimi povezane stvari last vsakokratnega zemljiškoknjižnega lastnika in pri arheoloških območjih je praviloma teh lastnikov veliko. Vendar je tudi pri nearheološki dediščini s sistemskega stališča jasno, da so dediščinske vrednote, to je nesnovni vidik vsake dediščine, ki določajo tudi družbeni, kulturni, simbolni in duhovni pomen dediščine, last celotne skupnosti, v nekaterih primerih celo last vsega človeštva.[2] Zato je prav, da ima vsaka demokratično izvoljena oblast, ki je določeno stvar prepoznala kot pomemben del dediščine s tem, ko jo je razglasila za kulturni spomenik, pravico in dolžnost sodelovati pri njenem upravljanju. Enako velja za dediščinsko skupnost,

1 ZVKD-1, prvi odstavek 6. člena.
2 Delovne smernice za izvajanje konvencije o svetovni dediščini govorijo o tem, da sta kulturna in naravna dediščina neprecenljiva in nenadomestljiva dobrina (asset), in to ne samo s stališča posameznih držav, ampak celotnega človeštva. To še posebej velja za dediščino, ki jo Unesco vpiše na svetovni seznam in s tem prizna njene izjemne univerzalne vrednote (Unesco, 2013, četrti in devetinštirideseti odstavek).

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ki to dediščino ceni in jo razume kot svojo. Pravico posameznikov in skupnosti, da sodelujejo v zadevah varstva, podpira vrsta mednarodnih dokumentov, med katerimi je najpomembnejša Okvirna konvencija Sveta Evrope o vrednosti kulturne dediščine za družbo (2005), ki jo je Slovenija ratificirala leta 2008. Konvencija dediščinsko skupnost opredeljuje z naslednjimi besedami: »/.../ dediščinsko skupnost sestavljajo ljudje, ki cenijo posamezne vidike kulturne dediščine ter jih želijo z javnim delovanjem ohranjati in prenašati prihodnjim rodovom.« (2.b člen) Pred kratkim je Svet Evropske unije sprejel sklepe z vrsto priporočil glede participativnega upravljanja kulturne dediščine. Države članice tako poziva, naj oblikujejo okvire upravljanja, ki vključujejo več ravni in različne deležnike in v katerih je kulturna dediščina priznana kot skupen vir, tako da se okrepijo povezave med lokalnimi, regionalnimi, nacionalnimi in evropskimi ravnmi upravljanja kulturne dediščine, da se na vseh ravneh predvidijo koristi za ljudi in spodbuja vključitev deležnikov ter da se zagotovi njihova udeležba na vseh ravneh procesa sprejemanja odločitev. Pomena participativnega upravljanja dediščine naša dediščinska praksa še ni ponotranjila in tudi usmerjanje takšnih procesov še ni postalo ustaljeni del nalog naše javne službe varstva.

Namen članka ni analizirati primere upravljanja arheološke dediščine v Sloveniji, še manj v drugih državah. Omemba posameznih primerov se naslanja na njihove objave v strokovnem tisku[3] in še posebej na raziskave, opravljene v okviru doktorskega študija, kar kaže na povečano zanimanje arheologov za tovrstno tematiko.[4] S člankom želimo predstaviti zakonske okvire upravljanja, tudi tiste, ki izhajajo iz mednarodnih dokumentov, in pregledati sistematiko upravljanja kulturne dediščine dveh ključnih mednarodnih organizacij na področju varstva, to je Sveta Evrope in Unesca, in to vse z namenom prispevati k čim hitrejši uveljavitvi sodobnih oblik upravljanja arheološke dediščine v našem varstvenem sistemu.

Zakonski okvir

Slovenski stvarnopravni zakonik posveča posebno pozornost upravljanju stvari, ki so v solastništvu,[5] ne ukvarja pa se z upravljanjem v primerih, ko je lastnik samo eden. Upravljanje je del razpolaganja, gospodarjenja z določeno stvarjo in upravljati pomeni predvsem stvar izkoriščati v korist lastnika. Hkrati to pomeni, da lastnik kot dober gospodar skrbi za to, da njegova lastnina pridobiva vrednost, ne pa je izgublja. Slovenska ustava v okviru ustavno zajamčene pravice do lastnine določa, da mora zakonodajalec poleg gospodarske funkcije lastnine zagotavljati tudi socialno in ekološko (67. člen Ustave RS). To je še posebej pomembno pri upravljanju dediščine in spomenikov, katerih ohranjanje je prav tako zagotovljeno z ustavo. Slovenski Zakon o varstvu kulturne dediščine zato za pomembnejše kulturne spomenike in za vsa spomeniška območja določa obveznost upravljanja. Kot glavni instrument za doseganje teh ciljev zakon uvaja sprejemanje in izvajanje načrtov upravljanja (60. člen). Upravljanje opredeljuje kot »izvajanje nalog, ki so potrebne za izpolnitev namena, zaradi katerega je bila stvar razglašena za spomenik, in obsega predvsem vodenje in organiziranje vzdrževanja, uporabe, dostopnosti, predstavitve javnosti in spremljanje stanja« (38. točka prvega odstavka 3. člena). Z drugimi besedami to pomeni, da upravljanje zagotavlja ne le preživetje zavarovane dediščine, to je kulturnega spomenika ali spomeniškega območja, temveč predvsem ohranjanje in razvijanje njene družbene (kulturne, izobraževalne, identifikacijske) vloge v širšem kulturnem in naravnem okolju.

Zakon sicer ne govori o oblikah upravljanja dediščine. Na podlagi znanih in doslej uporabljenih načinov upravljanja ter na podlagi mednarodne dobre prakse lahko izpostavimo naslednje oblike upravljanja območij dediščine:

- narodne, regijske in krajinske parke, ki po slovenskem Zakonu o ohranjanju narave sestavljajo tako imenovana širša zavarovana območja, po hrvaškem Zakonu o zaštiti prirode pa tako imenovane parke prirode, vendar so v skladu s kategorijami IUCN v številnih državah namenjeni skupnemu varstvu in upravljanju narave in kulturne dediščine;[6]
- muzeje na prostem, arheološke parke (Breznik, 2012), arboretume, botanične in druge vrtove in zgodovinske parke;
- interpretacijske centre;
- kulturne poti in
- ekomuzeje (Perko, 2014).

Zanimivo je, da arheološki parki niso kategorija mednarodnega varstva, in šele pred kratkim smo bili priče prvega poskusa oblikovanja trdnejših izhodišč (ICOMOS, 2015). Evropska konvencija o varstvu arheološke dediščine (1992) med arheološkimi varstvenimi kategorijami omenja samo arheološke rezervate, ki pa so namenjeni le najstrožjemu ohranjanju arheoloških ostalin in ne njihovi prezentaciji.[7] Pri nas kot arheološke parke razumemo bolj ali manj urejene prezentacije ruševinskih struktur določenega najdišča z nekaj interpretacijske infrastrukture, kulturne poti so v najboljšem primeru turistični produkti oziroma zbir destinacij, ki jih ponujajo obiskovalcem. Imamo nekaj zametkov ekomuzejev, kjer si lokalne skupnosti po najboljših močeh prizadevajo oživiti določene vidike dediščine in jih muzealizirati. Vendar vsem takšnim oblikam manjka razsežnost upravljanja dediščine vsaj v obsegu, določenem s slovensko zakonodajo. Zato naj poudarim le dve najpomembnejši razsežnosti sodobnih ekomuzejev, to je njihovo celostno obravnavo dediščine in upoštevanje dediščine kot vira za razvoj lokalne in širše skupnosti. V tem se ekomuzeji kot kategorija upravljanja tesno povezujejo z idejo dediščinskih skupnosti, kot jo definira Okvirna konvencija Sveta Evrope o vrednosti kulturne dediščine za družbo. Okvir za sodobno upravljanje dediščine je opredeljen v 11. členu konvencije:

Pri upravljanju kulturne dediščine se pogodbenice zavezujejo, da: a) spodbujajo celostno ravnanje javnih organov na vseh področjih in ravneh, ki temelji na poznavanju; b) razvijajo pravno, finančno in strokovno okolje, ki bo omogočalo skupno ukrepanje javnih organov, strokovnjakov, lastnikov, investitorjev, podjetij, nevladnih organizacij in civilne družbe; c) razvijajo inovativne načine, da bodo lahko javni organi sodelovali z drugimi dejavniki; d) spoštujejo in spodbujajo pobude prostovoljcev, ki dopolnjujejo vlogo javnih organov; e) spodbujajo nevladne organizacije, ki se ukvarjajo z ohranjanjem kulturne dediščine, da ravnajo v javno korist.

Zato je še toliko pomembnejše razpravljati o inovativnih načinih upravljanja. Rezultati projektov, kot je Claustra – kamniti braniki rimskega imperija,[8] so zato s stališča upravljanja kulturne dediščine izjemno pomembni, saj preko njih lahko artikuliramo in argumentiramo zahteve ter jih naslovimo na javne organe, da bi ti zagotovili ustrezno podporno okolje, in če je potrebno, tudi spremembo zakonodaje. Mednarodni standardi – in za naše področje jih določata predvsem Unesco in Svet Evrope – nakazujejo smeri uveljavljanja upravljanja na treh ravneh: na prvi s krepitvijo vloge samoupravnih lokalnih skupnosti, v našem primeru občin, na drugi ravni s sistematičnim podpiranjem partnerstev pri upravljanju dediščine in na tretji ravni z ustvarjanjem razmer, naklonjenih razvoju dediščinskih skupnosti kot »naravnih« soupravljavcev dediščinskih celot.

Spremembe v filozofiji varstva arheološke dediščine

Od leta 1990 do danes se je spremenil položaj varstva arheološke dediščine, s tem pa se je spremenila tudi njena vloga v družbi. To velja predvsem za evropske države in v tem okviru tudi za Slovenijo in Hrvaško. Na splošno lahko rečemo, da so bile glavni vzrok za spremembe spremenjene družbene okoliščine po padcu berlinskega zidu in pri nas po spremembi družbenega režima. Ta sprememba je pri nas od arheologov in predvsem od strokovnjakov, ki so delovali v javni službi varstva, zahtevala, naj se drugače organizirajo in spremenijo svoje dotlej utečene prakse ter se prilagodijo novemu razumevanju lastništva, upoštevajo pričakovanja javnosti in spoštujejo nova pravila pri urejanju prostora ter se na splošno prilagodijo novi vlogi javne uprave pri urejanju javnih zadev.

V Evropi in pri nas je bil eden od »naravnih« odzivov varstvenikov in še posebej arheologov na novi položaj v tem, da so sodelovali v širših forumih in spodbujali procese za uveljavitev novih mednarodnih standardov varstva v obliki mednarodnih konvencij, priporočil itd. Za Slovenijo in Hrvaško je bila med temi standardi najpomembnejša konvencija Sveta Evrope o varstvu arheološke dediščine, sprejeta na konferenci ministrov, pristojnih za kulturno dediščino, leta 1992 v La Valletti na Malti. Slovenija in Hrvaška takrat še nista bili sprejeti v Svet Evrope in zaradi tega formalnega razloga slovenski in hrvaški minister nista sodelovala na konferenci. Kljub temu je že dve leti po sprejetju Malteške konvencije takratnemu Zavodu RS za varstvo naravne in kulturne dediščine v pogajanjih z Družbo za avtoceste Slovenije uspelo, da so se pri izgradnji naših avtocest lahko uveljavili osnovni standardi preventivne arheologije, znani kot metodologija SAAS.

Vlada je leta 1996 Malteško konvencijo sicer podpisala, vendar se je ratifikacija v državnem zboru zavlekla do leta 1999.[9] V Zakonu o varstvu kulturne dediščine iz leta 1999, ki je bil sprejet nekaj mesecev pred ratifikacijo konvencije, določbe Malteške konvencije niso bile upoštevane. To se je zgodilo šele z Zakonom o varstvu kulturne dediščine iz leta 2008. Tako je bila šele dobro desetletje in pol po sprejetju

3 Slovensko arheološko društvo je leta 2014 organiziralo konferenco na temo kategorizacije arheoloških najdišč in upravljanja arheološke dediščine. Prispevki so objavljeni v reviji Arheo št. 31. Milan Sagadin je objavil kritično analizo prezentacije in upravljanja najdišč na Ajdni, Starem gradu v Kamniku in v mestnem jedru Kranja, Patricija Bratina pa najdišč na Tonocovem gradu nad Kobaridom, v Mostu na Soči, na Hrušici in v Ajdovščini.

4 Omeniti velja doktorske disertacije Andreje Breznik (Breznik, 2012), Ane Plestenjak (Plestenjak, 2013) in Sare Popović. Ana Plestenjak je opravila kritičen pregled stanja prezentirane arheološke dediščine v Ljubljani, Sara Popović pa sistem upravljanja območij kulturne krajine, vključno z arheološkimi območji na Hrvaškem.

5 Stvarnopravni zakonik, 67. člen.

6 Zakon o ohranjanju narave, šesti odstavek 53. člena. V zakonu so izpuščene vse navedbe iz kategorizacije zavarovanih območij IUCN, predvsem iz kategorij V in VI, to je regijskih in krajinskih parkov, ki se nanašajo na kulturne vrednote. Prim: http://www.iucn.org/about/work/programmes/gpap_home/gpap_quality/gpap_pacategories/.

7 Pojasnjevalno poročilo k Evropski konvenciji o varstvu arheološke dediščine pravi, da so arheološki rezervati »območja, na katerih veljajo določene omejitve, da bi se ohranila arheološka dediščina znotraj njihovih meja«. In naprej: »Praviloma pomeni rezervat samo to, da na njem ni mogoče dopuščati dejavnosti, ki bi posegale v tla, ali pa morajo to prej dovoliti pristojni organi.«

8 Projekt se je izvajal v obdobju od januarja 2014 do oktobra 2015 v okviru programa evropskega teritorialnega sodelovanja OP Slovenija–Hrvaška 2007–2013. Zavod za varstvo kulturne dediščine Slovenije je bil vodilni partner, v projektu so sodelovali še Restavratorski zavod Republike Hrvaške, Narodni muzej Slovenije, Primorsko-goranska županija in Društvo Žmergo.

9 V postopku sprejemanja je skupina poslancev županov zahtevala, naj se v zakon o ratifikaciji doda dopolnilo, da konvencija ne velja na območjih mest z arheološko dediščino. Na srečo takšno dopolnilo ni bilo sprejeto.

Malteške konvencije v Sloveniji mogoča sistemska sprememba varovanja. Na Hrvaškem je bila konvencija podpisana leta 2001 ter potrjena z zakonom leta 2004. Če je bilo arheološko konservatorstvo »pred Malto« osredotočeno na reševalna izkopavanja v fazi graditve, je »po Malti« postala najpomembnejša faza prostorskega načrtovanja, kjer mehanizmi preventivne arheologije omogočajo odvračanje posegov v arheološke ostaline.

Vrnimo se v čas po sprejetju Malteške konvencije. Posamezne države so iz notranjih potreb in zunanjih spodbud reformirale svoje sisteme varstva arheološke dediščine. Takšna primera sta Francija in Nizozemska. Slednja je že v devetdesetih letih prejšnjega stoletja v teoriji zastavila in nato postopno v praksi izpeljala sistem upravljanja arheoloških virov (arheološke dediščine), temelječ na sistematičnem vrednotenju arheoloških najdišč, omenjenem v naslednjem poglavju (Deeben et al., 1999). Francija pa je leta 2001 sprejela poseben zakon o preventivnih arheoloških raziskavah in ustanovila Nacionalni inštitut za tovrstne raziskave, ki še danes za mnoge države pomeni težko dosegljiv standard (Demoule, 2007). Osnovni namen francoske ureditve preventivne arheologije je, da se z avtoriteto države zagotovijo finančni in človeški viri za arheološke raziskave in s tem tudi visoki strokovni standardi pri njihovi izvedbi. Vendar upravljanje arheološke dediščine v Franciji ni v pristojnosti Nacionalnega inštituta, temveč je v večini primerov prepuščeno sprotnim upravljavskim aranžmajem na ravni regij in predvsem departmajev. Upravljanje najpomembnejših arheoloških spomenikov finančno podpira tudi država. Sedem arheoloških območij je v državni lasti in so zato podobno kot državni gradovi in drugi stavbni spomeniki v upravljanju državnega Centra nacionalnih spomenikov (Centre des Monuments Nationaux).

Arheološka dediščina je bila na prelomu iz drugega v tretje tisočletje kljub pozitivnemu razvoju v Evropi deležna novih pritiskov, predvsem zaradi interesov gradbenih investitorjev in potreb po izvedbi velikih infrastrukturnih projektov. Temu so se po letu 2008 pridružili še učinki gospodarske krize in posledičnega zmanjševanja pomena varstva. Tako v zadnjih letih zaznavamo postopno zniževanje sredstev za varstvo, zmanjšuje se število strokovnjakov, ki delajo z arheološko dediščino, mnoge visokošolske in raziskovalne ustanove v različnih evropskih državah imajo težave s financiranjem, in kar je še bolj zaskrbljujoče, priča smo zniževanju varstvenih standardov, vključno s tistimi, ki naj zagotavljajo učinkovit nadzor nad posegi v arheološko dediščino. Tudi aktivnosti za popularizacijo dediščine in njenega varstva zaradi zmanjševanja razpoložljivih virov ne morejo odtehtati slabitve varstvenih sistemov, in to velja tako za »manj razvite« države kot tudi za »razvite«.[10]

V Sloveniji so se širši standardi preventivne arheologije, kot jih je predpisal zakon iz leta 2008, začeli uveljavljati v času, ko je tudi pri nas nastopilo obdobje recesije. To je za varstvo arheološke dediščine po eni strani delovalo kot nekakšno olajšanje, saj se je zmanjšal obseg gradbenih posegov, po drugi strani pa je povzročilo tudi postopno zmanjševanje finančnih sredstev za delovanje Centra za preventivno arheologijo ZVKDS. V nekaterih evropskih državah je recesija, žal, precej negativno vplivala na arheološka podjetja in samostojne arheologe »na trgu«. Ta oblika dela arheologov se je v Sloveniji razvila v času največjih arheoloških raziskav ob gradnji avtocest in je tik pred krizo zaposlovala 25–30 odstotkov vseh arheologov (Novaković, 2015, str. 63). Ocena števila aktivnih arheologov tako v podjetjih kot v javnem sektorju v Sloveniji za obdobji 2006–2008 in 2012–2014 sicer dokazuje, da se je število zaposlitev lepo povečalo, in sicer s 175 na 257 (York Archaeological Trust, 2014). Ista raziskava vsebuje ocene o istočasnem drastičnem zniževanju števila arheologov na Irskem, v Veliki Britaniji, Španiji in v belgijski Flandriji. Za Slovenijo velja podatek, da je od skupnega števila arheologov le 40 odstotkov zaposlenih za nedoločen čas in 60 odstotkov za določen čas, ni pa podatka o deležu zaposlenih v arheoloških podjetjih oziroma samozaposlenih na eni strani in zaposlenih v javni službi varstva. Iz izkušenj vemo, da je v zadnjih letih v Sloveniji in na Hrvaškem število naročil zelo upadlo, da je konkurenca naredila svoje in da se kot posledica tega kažejo znaki zmanjševanja strokovnih standardov pri zasebnih arheoloških izvajalcih, ne le zato, ker pristajajo na nižanje cen svojih storitev, temveč tudi zaradi vse krajših rokov izvedbe raziskav in zaradi dela v neugodnih vremenskih razmerah. Pozitiven trend pa je, da se vse več »arheologov na trgu« ukvarja z nalogami na področju prezentacije in upravljanja arheološke dediščine predvsem s sodelovanjem v mednarodnih in čezmejnih projektih, financiranih iz evropskih sredstev. Na ta način pridobivamo izkušnje in razvijamo zavest o tem, da je za arheološko dediščino treba skrbeti ne samo z raziskavami in muzejskimi projekti, ampak tudi z upravljanjem »*in situ*«.

V slovenski in hrvaški javni službi varstva dediščine se na srečo v času krize standardi arheološkega konservatorstva niso bistveno znižali. Še najhujši problem so kadrovske omejitve, ki pestijo območne enote Zavoda za varstvo kulturne dediščine Slovenije oziroma konservatorske oddelke Ministrstva za kulturo RH in precej otežujejo nadzor nad izvajanjem arheoloških raziskav in praktično onemogočajo redno spremljanje stanja arheološke dediščine na terenu. Najpomembnejši vidik premagovanja krize je ohranjanje vseh možnosti zakonskega varstva in ohranjanje števila usposobljenih arheologov v telesih državne službe in nacionalnih institucij.

10 Leta 2010 so bili objavljeni rezultati evropskega projekta, posvečenega stanju arheologije in upravljanja arheološke dediščine v desetih evropskih državah od Velike Britanije in Irske do Poljske in Ruske federacije (Schlanger, Aitchison, 2010).

Naša ključna misel pa je, da je v času globalne krize še toliko pomembnejše, da spodbujamo javno razpravo o ogroženosti arheološke dediščine in s tem razvijamo pozitiven odnos javnosti do vprašanja njenega trajnostnega upravljanja.

Kaj je upravljanje arheološke dediščine, od kod izvira in kako se je uveljavilo

Upravljanje arheološke dediščine ima zaradi svojih specifičnih nalog posebno vlogo v splošnem okviru upravljanja kulturne dediščine. Najpomembnejša in najbolj specifična naloga je povezana s posebno naravo arheološke dediščine – arheološke ostaline so »/.../ vse stvari in vsakršni sledovi človekovega delovanja iz preteklih obdobij na površju, v zemlji in vodi, katerih ohranitev in preučevanje prispevata k odkrivanju zgodovinskega razvoja človeštva in njegove povezanosti z naravnim okoljem, za katere sta glavni vir informacij arheološko raziskovanje ali odkritja in za katere je mogoče domnevati, da so pod zemljo ali pod vodo vsaj 100 let /.../«. Arheološke ostaline lahko postanejo dediščina, ko so kot taka strokovno ovrednotene (3. točka 3. člena ZVKD-1). To pomeni, da arheološka dediščina na prvi pogled, to je brez uporabe arheoloških raziskovalnih metod, ni v celoti prepoznavna niti strokovnjakom, še manj širši javnosti, in je zato njeno ohranjanje in vključevanje v sodobno življenje še toliko zahtevnejše od ohranjanja in oživljanja drugih zvrsti dediščine. Druga specifična naloga izhaja iz osnovnega namena Lozanske listine IOCOMA iz leta 1990 in še posebej iz Evropske konvencije o varstvu arheološke dediščine iz leta 1992, to je ohranjanje te dediščine »*in situ*«.[11] Ta zahteva je skoraj samoumevna pri stavbni dediščini, medtem ko je za arheološko dediščino dolgo veljalo, da jo je mogoče trajno ohranjati le z znanstvenimi oziroma zaščitnimi izkopavanji in jo nato predstavljati javnosti v muzejih.

Pri nas se je upravljanje območij dediščine le stežka uveljavljalo. Pri arheološki dediščini se še največ srečujemo s tako imenovanimi arheološkimi parki, s katerimi na poljuden način označujejo prezentacijo tovrstne dediščine. Breznikova (Breznik, 2012) je v svojo študijo vključila 44 takšnih arheoloških parkov, med katerimi sta upravljavca v času raziskave očitno imela le dva parka, to sta Antična nekropola v Šempetru in Simonov zaliv v Izoli.[12] Poleg njiju je bilo še deset parkov pod ključem, kar pomeni, da je bilo zanje vsaj minimalno poskrbljeno. Velika večina, to je 32 arheoloških najdišč, ki so bila v preteklosti deležna določene prezentacije, pa je bila bolj ali manj prepuščena sama sebi. Če upoštevamo novejše projekte, namenjene ureditvi arheoloških lokacij na Hrušici (Breznik, 2015), na Piramidi v Mariboru in v Pošteli,[13] se je po letu 2012 to stanje verjetno nekoliko izboljšalo. Vendar sama ureditev in prezentacija arheoloških ostalin za obiskovalce še ne pomeni, da je njihovo upravljanje urejeno. Težava pri projektih arheoloških prezentacij je ravno v tem, da po zaključku projekta ni poskrbljeno še za stalno obliko upravljanja prezentirane dediščine.

Zaradi potreb po upravljanju kulturne dediščine, ki so se v svetu uveljavile kot splošen standard varstva vsaj od devetdesetih let prejšnjega stoletja, in zaradi navedenih specifik varstva arheološke dediščine je toliko pomembnejše, da tudi pri nas preidemo od načelnih ugotovitev k praktičnemu izvajanju upravljanja. Če to storimo na primeru čezmejne arheološke dediščine, kot je Claustra, ki ima povrhu potencial, da postane del svetovne dediščine, so naša prizadevanja še toliko bolj na mestu. Vzporedno s tem projektom je nastala študija s pomenljivim naslovom Claustra Alpium Iuliarum: med raziskovanjem in upravljanjem (Kusetič, 2014), ki kaže na spremembo pogleda arheologov na arheološko dediščino.

Zato ni odveč, če na kratko predstavim širši pojem upravljanja in opišem, kako se je postopoma uveljavljal tudi na našem področju. Res pa je, da zgodovinski pregled upravljanja ni moja osrednja tema, zato bo ta predstavitev precej zgoščena.

Povezava med prostorskim načrtovanjem oziroma vrednotenjem dediščine in upravljanjem

Na splošni ravni opredeljevanja in izvajanja politike upravljanja je izjemno pomembno, da sistem zagotavlja pravočasno in vsebinsko vključevanje dediščinskih vidikov v strateške in nato podrobne prostorske akte in še posebej

11 Mednarodna listina o ohranjanju in upravljanju arheološke dediščine, 6. člen: »Splošen namen upravljanja arheološke dediščine je ohranjanje spomenikov in najdišč na mestu samem (*in situ*) /.../ Kakršenkoli prenos delov arheološke dediščine na novo lokacijo pomeni kršenje osnovnih načel ohranjanja.« (ICOMOS, 2003: 48) Evropska konvencija o varstvu arheološke dediščine (spremenjena): »Vsaka pogodbenica se zavezuje, da bo uresničevala ukrepe za fizično zavarovanje arheološke dediščine, in če okoliščine to zahtevajo, zagotovila, da /.../ je arheološka dediščina zavarovana in vzdrževana, in to, če je le mogoče, tam, kjer je (*in situ*).« (4. člen)

12 Breznikova je v svojo disertacijo vključila podrobnejšo analizo obeh parkov (Breznik, 2014: 165–174).

13 Glej članek: Poštela – igrišče napredne arheologije: arheologi z geologi aktivno preučujejo gomile v Pivoli, ki bodo povezane v arheološki park kot dodatek botaničnemu vrtu Univerze v Mariboru, Večer, 28. 10. 2015, str. 19.

v sektorske razvojne strategije in načrte. Slabost našega upravljanja na izvedbeni ravni je prav v tem, da cilji upravljanja niso vzajemno usklajeni s prioritetami in ukrepi na drugih področjih in imajo upravljavci zato že v izhodišču omejene možnosti ukrepanja. Če k temu dodamo še za Slovenijo značilno prenormiranost, potem je v praksi smotrno in gospodarno upravljanje skoraj misija nemogoče. Z načinom reševanja problemov prenormiranosti se na tem mestu ne bom ukvarjala, za neusklajenost med prioritetami posameznih sektorskih politik pa obstaja učinkovit mehanizem, in to je dosledno horizontalno načrtovanje in usklajevanje.

Pri varstvu dediščine in njenem upravljanju mora biti naše izhodišče predvsem vrednotenje dediščine in njenih razvojnih potencialov na eni strani ter spremljanje učinkov posameznih ukrepov in aktivnosti na drugi strani. Glede vrednotenja naj na tem mestu poudarimo le to, da tudi pri nas vse bolj spoznavamo, da je dobro argumentirano in sistematično izvedeno vrednotenje eden od ključnih načinov, s katerimi lahko širšo skupnost prepričamo o vlogi in pomenu dediščine za družbo. Naši varstveni stroki še ni uspelo oblikovati in javnosti predstaviti celovitega sistema vrednotenja dediščine, in to še posebej velja za arheološko dediščino – pač zaradi njene specifičnosti, na katero smo opozorili uvodoma. Kot primer uspešnega sistema vrednotenja arheološke dediščine lahko navedemo nizozemski sistem (Groenewoudt at al., 2006). Podobna ugotovitev velja za sistem v Angliji[14] ali v Združenih državah.[15]
Manj je znano, da tudi v Sloveniji obstaja standard vrednotenja arheološke dediščine, in sicer kot del navodila Ministrstva za kulturo, namenjenega vrednotenju arheoloških ostalin, za katere država ob dovoljenju za odstranitev predpiše izravnalni ukrep.[16] Načeloma se pri kulturni dediščini kot splošni kategoriji in tudi pri arheološki dediščini uporabljajo enaka merila in metode vrednotenja v vseh fazah varstva in upravljanja. To velja tudi za dediščino, vpisano na Unescov seznam svetovne dediščine.[17] Tako kot v večini držav so tudi pri nas arheologi v preteklosti največkrat svoje vrednotenje utemeljevali na znanstveni vrednosti in vrednosti informativnega potenciala najdišč,[18] kar je povezano z razumevanjem ostalin kot arheološkega vira (resursa) (Djurić, 2014: 165). Vloga arheološke dediščine naj bi tako bila v tem, da se z njo ohranjajo viri, pomembni za razumevanje razvoja človeštva in njegovega odnosa do narave. Če se omejujemo na ta vidik vrednotenja, ki upošteva predvsem vrednost arheološke dediščine za arheološko znanost, zanemarjamo širši pomen arheološke dediščine za sodobno družbo. Zato je toliko pomembnejše, da že v začetnih fazah vrednotenja upoštevamo tudi merila in metode, ki omogočajo kontekstualizacijo arheološke dediščine na način, da jo lahko razumejo in sprejmejo za svojo tudi lokalna skupnost in drugi deležniki, pomembni za dolgoročno ohranjanje arheološke dediščine *in situ*.
Tema vrednotenja arheološke dediščine sicer zahteva širšo razpravo, kot jo dopušča uvod v tematiko upravljanja. Zato naj zaključimo s sklepom, da je kljub logični zahtevi po bolj dorečeni metodi vrednotenja v posameznih fazah ukvarjanja z arheološko dediščino vendarle treba upoštevati, kako podrobno naj vrednotenje poteka in kakšen je namen tega postopka v konkretni fazi, saj metoda vrednotenja tudi določa način, kako vrednotenje »prevedemo« v primerne zaključke. Tako ima »izdelek«, ki sledi splošnemu vrednotenju na ravni ocene arheološkega potenciala širšega prostora, obliko predloga za vpis prepoznanih novih najdišč v register kulturne dediščine. »Izdelek«, ki sledi vrednotenju kot podlagi za določanje vsebine in obsega najdišča, ima obliko ali načrta raziskave za sprostitev zemljišča, ali odločbe o arheološkem najdišču ali celo predloga za razglasitev najdišča za kulturni spomenik. »Izdelek« vrednotenja za potrebe priprave načrta upravljanja pa ima obliko konservatorskega načrta za ureditev najdišča oziroma načrta prezentacije in interpretacije najdišča. Za vsako od treh navedenih faz pa velja, da se od ostalih razlikuje po podrobnosti vrednotenja, po tem, kako širok krog zajema primerjalna analiza in kako širok kontekst pri tem upoštevamo. Za vse faze naj bi načeloma uporabljali enake atribute (fizične komponente in lastnosti), ki so predmet vrednotenja, in enake vrednostne stopnje (nedediščina, dediščina, spomenik lokalnega pomena, spomenik državnega pomena).

Glede vključevanja arheološke dediščine v prostorsko načrtovanje je pomemben napredek zagotovil pravni red Evropske unije. Direktiva Sveta 85/337/EEC o oceni vplivov določenih javnih in zasebnih projektov na okolje predpisuje obveznost presoje vplivov na kulturno dediščino v postopkih priprave izvedbenih projektov. Za potrebe tega pravnega akta pojem kulturna dediščina obsega arheološko in stavbno dediščino ter kulturno krajino, opozarja pa tudi na pomen odnosov med dediščino in preostalimi okoljskimi dejavniki. Pravni red Evropske unije je leta 2001 še razširil zahteve glede presoj vplivov na okolje, tudi na kulturno dediščino, in to na obveznost priprave takšnih presoj v okviru strateškega načrtovanja, in ne le kot del izvedbenih projektov.

14 https://www.gov.uk/government/publications/scheduled-monuments-policy-statement.
15 http://www.cr.nps.gov/local-law/arch_stnds_3.htm.
16 Navodilo za določitev in izvedbo izravnalnega ukrepa pri odstranitvi arheoloških ostalin: http://www.mk.gov.si/si/storitve/postopki/varstvo_kulturne_dediscine/izravnalni_ukrep_pri_odstranitvi_arheoloskih_ostalin/. Predpisana metodologija povzema nizozemski model, hkrati pa nadgrajuje več kot dve desetletji star, a še vedno veljaven Pravilnik o metodologiji za ocenjevanje kulturnih spomenikov in naravnih znamenitosti (1992), pri pripravi katerega je sodelovala avtorica te raziskave.
17 Operational guidelines 2013, sedeminsedemdeseti odstavek.
18 Podroben pregled pogledov na koncept znanstvene vrednosti arheološke dediščine je podala Filomena Sirovica v svojem doktoratu (Sirovica, 42–46).

Evropska unija je, kot je splošno znano, z Rimsko pogodbo iz leta 1986 zadeve s področja kulture pustila v pristojnosti posameznih držav. Na enak način so tudi zadeve s področja urejanja prostora ostale v pristojnosti držav. Prav nasprotno pa je v skladu z Amsterdamsko pogodbo iz leta 1997 varstvo okolja postalo eno od ključnih področij za države članice obvezujoče pravne ureditve. S tem je Evropska unija formalno potrdila pripravljenost za izpolnjevanje okoljskih zahtev, med katerimi je za arheološko dediščino pomembna prav (celostna) presoja vplivov nanjo, kar je pred vstopom v Evropsko unijo v naš pravni red vključil Zakon o varstvu okolja.[19] Zakon o varstvu kulturne dediščine je to še nadgradil z ureditvijo, da je celotna registrirana arheološka dediščina obvezna sestavina prostorskih aktov in kot taka deležna pravnega varstva pred posegi, ki zahtevajo gradbeno dovoljenje.

Vključevanje javnosti v upravljanje

Vključevanje javnosti v upravljanje v širšem pomenu je tema, ki danes zaposluje mnoge teoretike in praktike varstva dediščine. V tem besedilu bom na kratko omenila le nekaj iztočnic. Mednarodni pravni okvir za vključevanje javnosti v zadeve s področja varstva okolja daje tako imenovana Aarhuška konvencija (1998), sprejeta v okviru Združenih narodov. Celoten naslov tega mednarodnega akta, to je *Konvencija o dostopu do okoljskih informacij, udeležbi javnosti pri okoljskem odločanju in dostopu do pravice pri okoljskih zadevah*, sporoča glavno vsebino akta. Pri tem moram opozoriti na naslednji pomembni dejstvi: prvo je, da konvencija kot del okolja šteje tudi kulturno dediščino, čeprav ne uporablja takšne terminologije, temveč govori o »krajini« in »kulturnih znamenitostih« oziroma o prvinah okolja, za katere velja obveznost priprave presoje vplivov na okolje. Drugo dejstvo je, da je h konvenciji pristopila tudi Evropska unija in je s tem ta mednarodni akt pridobil status akta notranjega prava Evropske unije. To pomeni, da določbe te konvencije veljajo za vse države članice EU ne glede na to, ali so jo posamič ratificirale (Slovenija jo je še pred pristopom k EU, prav tako tudi Hrvaška). Podpisnice konvencije so se obvezale, da posameznikom in civilni družbi omogočajo dostop do informacij in da uresničujejo njihovo pravico do sodelovanja v postopkih odločanja. Država mora zagotoviti udeležbo javnosti že na začetku odločanja, ko so še vse možnosti odprte in lahko javnost učinkovito sodeluje pri odločanju. To seveda velja tudi za postopke sprejemanja predpisov, strategij in načrtov, ki pomembno vplivajo na kulturno dediščino.

Pri načrtovanju in izvajanju upravljanja v ožjem pomenu velja opozoriti na naslednje elemente sodelovanja javnosti. V teh aktivnostih ravno tako veljajo načela Aarhuške konvencije – v postopkih lahko sodelujejo posamezniki in skupine ne glede na njihov pravni interes. Nosilec upravljanja mora še bolj skrbno in s primernimi aktivnostmi k sodelovanju pritegniti vse, ki imajo kakršenkoli neposreden interes pri upravljanju – v tem primeru govorimo o tako imenovanih deležnikih (v angl. stakeholders). Deležniki so običajno lokalni prebivalci, društva in druge nevladne organizacije, še posebej s področja kulture, turizma, okolja in varstva narave, izobraževalne in raziskovalne ustanove, gospodarski subjekti, ki že delujejo na območju obravnave in imajo za to potencial ali interes, različni strokovnjaki, ljubitelji in podobno.

Aktivnosti z deležniki lahko razdelimo na naslednje faze:
1. *identificiranje deležnikov:*
- kontakti z lokalnimi skupnostmi in potencialnimi deležniki,
- pripravljalno delo z deležniki na terenu, pri katerem je naš cilj olajšati njihovo aktivno vključevanje v pripravo, odločanje in izvajanje upravljanja;
2. *vključevanje deležnikov* v postopek razumevanja dediščine in njenih vrednot, in to predvsem v obliki:
- skupnega vrednotenja dediščinskih značilnosti (v prostoru, tradiciji), pomembnih s stališča deležnikov,
- identificiranja potreb, pričakovanj, zadržkov in predsodkov, ki jih imajo deležniki v zvezi z dediščino in njenim upravljanjem,
- soočanja in preseganja nasprotujočih si interesov in identificiranja priložnosti za razvoj na podlagi aktivacije in ponovne uporabe dediščine. Ta aktivnost pomeni povezavo z naslednjo, ključno fazo načrtovanja upravljanja;
3. *vključevanje deležnikov* v odločanje o prioritetah in vsebini upravljanja in še posebej v odločanje o upravljavski strukturi in načrtovanju dejavnosti;
4. *vključevanje deležnikov v izvedbo upravljanja, kar obsega najmanj:*
- udeležbo predstavnikov deležnikov v organih upravljanja,
- ustanovitev lokalnih odborov kot dela upravljavske strukture,
- udeležbo predstavnikov deležnikov v telesih, pristojnih za monitoring.

Za uspešno delo z deležniki in posledično tudi za uspešno upravljanje imamo na razpolago različna komunikacijska sredstva, kot so sestanki, delavnice ali okrogle mize, ankete, spletne klepetalnice in podobno (lahko tudi v obliki »svetovne kavarne« – »world caffe«). Ta sredstva so primerna predvsem za spodbuditev aktivnega sodelovanja čim širšega in čim bolj reprezentativnega kroga deležnikov. Z njimi lahko predstavimo primere dobre prakse, različne razvojne scenarije, možne vizije in cilje, predvsem pa namenimo veliko časa razpravi in povezovalnim aktivnostim, kot so na primer zaznavanje skupnih vrednot in ranljivosti dediščine, potreb, pričakovanj, zadržkov in pred-

19 Uradni list RS, št. 22/03.

sodkov, pridobivanje mnenj z vprašalniki ali v odprti pisni obliki … Primer izhodišč za pripravo in vodenje delavnic z deležniki je v diagramski obliki predstavljen na sliki 1.
Pomembno je, da zagotovimo možnosti vplivanja deležnikov na načrtovanje in izvedbo upravljanja, in to predvsem s tem, da omogočimo dostop do gradiv in dajanje pripomb v čim zgodnjejših fazah, da se dogovorimo o načinu posredovanja pripomb in se kot nosilci upravljanja zavežemo, da bodo predlagatelji dobili povratno informacijo o upoštevanju določenega predloga in o razlogih za morebitno neupoštevanje. Pravočasno se je treba dogovoriti tudi o načinu razreševanja morebitnih nesporazumov ali nasprotovanj, na primer s pomočjo mediatorjev, nepristranskih tretjih oseb in podobnega.

Upravljanje (arheološke) dediščine za 21. stoletje

Uvodoma sem navedla definicijo upravljanja, kot jo podaja Zakon o varstvu kulturne dediščine. Takšna definicija obsega tisti pomen upravljanja, katerega predmet so posamezni spomeniki in območja. Poleg takšnega pogleda na upravljanje poznamo v varstveni teoriji in praksi še definicije, v katerih je upravljanje pojmovano mnogo širše. Torej obstajata dve definiciji in obe sta hkrati relevantni. Širši koncept upravljanja arheološke dediščine predstavlja to, kar pri nas običajno imenujejo sistem varstva. Tako je na primer eno od uvodnih stališč Listine iz Burre, da je ohranjanje del upravljanja kulturne (in s tem tudi arheološke) dediščine in ne obratno (Avstralski ICOMOS, 2). Darvill gre še dlje in pravi, da je »/…/ upravljanje arheoloških virov del arheologije, znan tudi kot arheologija za javnost, ki se ukvarja s prepoznavanjem, določanjem, evidentiranjem, vrednotenjem in dokumentiranjem arheoloških najdišč in predmetov na različnih ravneh z namenom prispevati k njihovemu ohranjanju, varstvu, zaščiti, prezentaciji in uporabi s pomočjo učinkovitih omilitvenih strategij, z izkopavanji in nedestruktivnimi raziskavami. Ključni vidiki tega dela so: izvajanje predpisov v zvezi z arheološkimi ostalinami, priprava strokovnih podlag za postopke sprejemanja odločitev, ki zadevajo morebitne vplive posegov na arheološke ostaline, izdajanje dovoljenj, izvajanje nadzora nad arheološkimi raziskavami, oblikovanje in izvajanje politike raziskav in razvoj javnih izobraževalnih programov.« (Darvill, 2012) Na podlagi Gettijeve bibliografije arheološkega varstva in upravljanja pa slednje obsega predvsem sprejemanje predpisov in skrb za njihovo izvajanje, raziskovanje arheološke dediščine, zbiranje podatkov in njihovo upravljanje ter gospodarjenje z dediščino in njeno vključevanje v urejanje prostora.[20]

Dvojno naravo upravljanja dediščine predstavlja tudi priročnik za upravljanje svetovne kulturne dediščine. Priročnik so skupaj pripravili strokovnjaki treh organizacij, to so ICCROM, ICOMOS in UNESCO Center za svetovno dediščino (ICCROM et al., 2013). Priročnik tako govori o sistemih upravljanja kulturne dediščine in o upravljanju posameznih dediščinskih območij. V dodatku tudi definira merila za ocenjevanje uspešnosti sistemov upravljanja in konkretnih upravljavskih praks v postopkih ocenjevanja nominacij in periodičnega poročanja o dediščini, ki je že vpisana na seznam svetovne dediščine. Pri razlagi pojma sistem upravljanja priročnik pod črto podaja tudi zanimivo etimologijo angleške in francoske besede »management«: beseda izvira iz italijanske besede »maneggiare« v pomenu ‚rokovati', ‚urejati', ‚pritiskati', ‚ravnati', in sicer ima korenine v latinski besedi »manus« – ‚roka'. Starofrancoska beseda »mesmanegement«, ki je pomenila ‚šolanje konj', se je v angleščini preoblikovala v »management« (ICCROM et al., 2013: 25). Torej imata besedi maneža kot prostor za urjenje v jahanju in menedžment kot vodenje podjetij (obe razlagi po SSKJ) isti etimološki izvor.

Kot vidimo, se je beseda upravljanje ali s tujko menedžment v sodobnem pomenu najprej uveljavila v poslovnem svetu (SSKJ to celo imenuje kapitalistična ekonomika). Po klasifikaciji raziskovalnih področij sodi menedžment med poslovnoekonomske vede.[21] Ne da bi se spuščala v povezmanje teorije in zgodovine menedžmenta, lahko omenim le eno značilnost, in sicer razlikovanje med usmerjevalno in izvršilno vlogo menedžmenta. Naši poslovnoekonomski strokovnjaki zato zagovarjajo uporabo dveh pojmov, in sicer upravljanje in menedžment. Naloga prvega je, da sprejema strateške odločitve in določa okvir za politiko podjetja oziroma gospodarske družbe (običajno ima to vlogo upravni odbor), pri drugem pa gre za izvajanje različnih operativnih vodstvenih nalog in pristojnosti. Nekoliko nerodno poimenovanje slednjega je poslovodenje. V angleščini se velikokrat za prvo funkcijo uporablja termin »governance«, za drugo pa »management«. Naj povzamem še definicijo menedžmenta, zapisano v enem izmed slovenskih priročnikov, in sicer: »Management je omogočanje in zagotavljanje smotrnega delovanja združb (organizacij) in v njih delujočih posameznikov, predvsem v smislu usklajevanja dela in odločanja o najpomembnejših zadevah.« (Rozman, Kovač, 2012: 32)

Takšno dvojno razumevanje vloge upravljanja lahko preslikamo tudi na področje upravljanja kulturne dediščine v Sloveniji in na Hrvaškem. Tudi pri nas obstajata dve ravni upravljanja – prva je tista, kjer se v okviru priprave politike varstva določa tudi sistemski okvir upravljanja dediščine, se sprejemajo standardi upravljanja in se na splošni ravni preverja upoštevanje standardov. Pri nas se sistem upravljanja dediščine – torej upravljanje v širšem pomenu – še vedno razume kot način sprejemanja in izvajanja politike varstva. Vendar je tudi ta del v smislu zahodnoevropske »public policy« napačno in predvsem preozko razumljen, in to predvsem v smislu dodeljevanja finančnih sredstev za delovanje varstvenih institucij in nekaj malega za subvencioniranje projektov obnove kulturnih spomenikov. Sistem varstva in upravljanja dediščine, ki so ga mnoge države uveljavile že v sedemdesetih do osemdesetih letih prejšnjega stoletja, je predstavljen na sliki 2.

Ugotovimo lahko, da je pri nas še danes uveljavljena predvsem vertikalna os (na sliki označeno z modrimi puščicami) od državne ravni, kjer se sprejemajo sistemske odločitve in se določata obseg in vsebina financiranja, preko javne službe, ki je odgovorna za kakovost varstvenih posegov s tem, da določa varstvene zahteve in izvaja strokovni nadzor nad posegi v dediščino, do izvedbene ravni, kjer pa se izvedba razume predvsem kot obnova in vzdrževanje dediščine. Deloma je razvito še vodenje projektov in še to bolj po zaslugi zahtev, ki jih pred Slovenijo in Hrvaško postavljajo pravila sodelovanja v programih Evropske unije. Vendar tako pri prvi, vertikalni osi kot tudi pri drugi, stranski osi niso zagotovljeni redni postopki, ki bi zagotavljali izboljševanje sistema od spodaj navzgor. Skoraj v celoti pa je pri nas umanjkal del sistema, ki zagotavlja upravljanje dediščine v ožjem pomenu. V tem vidimo veliko sistemsko pomanjkljivost in nedoslednost izvajanja mednarodnih standardov in zakonskih zahtev. Edina izjema so območja kulturne dediščine, ki so vpisana na seznam svetovne dediščine Unesca. Da pa tudi pri tem nismo zelo uspešni, dokazujejo težave pri zagotavljanju upravljanja svetovne dediščine prazgodovinskih kolišč na Ljubljanskem barju in še večje težave pri upravljanju dediščine živega srebra v Idriji ali na Hrvaškem primer Trogirja. Ker pri dediščini živega srebra v Idriji ne gre za vprašanje varstva arheološke dediščine, lahko predstavitev tega problema prepustimo drugi priložnosti. Za upravljanje dediščine prazgodovinskih kolišč na Ljubljanskem barju pa osnovni problem izvira iz težavnega medresorskega sodelovanja med ministrstvom, pristojnim za varstvo kulturne dediščine, ki je vodilo postopek vpisa Barja na seznam svetovne dediščine, in ministrstvom, pristojnim za ohranjanje narave, ki se strogo drži namena, s katerim je država ustanovila Javni zavod Ljubljansko barje na podlagi Zakona o ohranjanju narave. Slednji predvideva upravljanje le zavarovanih območij narave. Zato je tudi zagotavljanje javnih sredstev in kadrov za upravljanje območja pod zaščito Unesca prepuščeno vsakoletnim usklajevanjem ob pripravi državnega proračuna. Rešitev obstaja v tem, da vlada dopolni akt o zavarovanju Regijskega parka Ljubljansko barje, kot dopušča 15. člen ZVKD-1, ki govori o skupnem zavarovanju kulturnih spomenikov in širših zavarovanih območjih narave. Na tej podlagi lahko vlada sprejme še skupen načrt upravljanja v smislu 61. člena ZVKDS-1. Tako lahko pride do ureditve, ki velja za Škocjanske jame, kjer je bilo upravljanje parka o Regijskem parku Škocjanske jame na srečo določeno v času, ko varstvo naravne in kulturne dediščine še ni bilo urejeno na podlagi dveh med seboj neusklajenih zakonov.[22]

V nasprotju z našimi razmerami so se drugod, kot rečeno, uveljavljali celovitejši načini upravljanja dediščine, pri čemer se kot pomembna referenca velikokrat omenja Listina iz Burre, ki na več mestih opredeljuje vlogo in pomen upravljanja.[23] Najnovejši pregled daje že omenjeni priročnik za upravljanje svetovne kulturne dediščine iz leta 2013, iz katerega povzemamo diagram na sliki 3 (ICCROM et al., 2013: 114).

Enajst komponent sistema upravljanja so: predpisi, viri, institucije kot deli politike; načrtovanje, izvajanje, monitoring kot upravljavski procesi ter izidi, vplivi in izboljšave kot rezultati upravljanja. Med vsemi komponentami morajo biti vzpostavljene povratne zveze, ki omogočajo optimalen način delovanja sistema.

Priročnik izhaja iz prepričanja, da je napočil čas, ko je treba do sedaj veljavni koncept upravljanja, kot ga predstavlja Beneška listina in ga nadgrajuje Listina iz Burre, nadomestiti s konceptom, ki temelji na cikličnem procesu od načrtovanja preko izvedbe do spremljanja upravljanja. To velja tako za raven politike upravljanja kot tudi za izvedbeno raven. Na ravni politike je treba poleg zagotovitve pravnega in finančnega okvira, ki omogoča upravljanje, sprejeti strategijo varstva. Na izvedbeni ravni, to je pri upravljanju konkretnih dediščinskih območij, pa je treba pripraviti načrte upravljanja. V Sloveniji o načrtih upravljanja govori članek, objavljen v Varstvu spomenikov (Plestenjak, 2014). Pri pripravi načrta upravljanja je treba v prvi fazi k upravljanju pritegniti deležnike in skupaj z njimi opredeliti predvsem operativne cilje upravljanja, na tej podlagi določiti nabor kazalnikov ter opredeliti akcijski načrt, ki vsebuje potrebne ukrepe in aktivnosti ter določa nosilce in časovne okvire izvedbe. V fazi izvedbe se ob posameznih aktivnostih zbirajo (dokumentirajo) vse relevantne informacije. Na tej podlagi in na podlagi analize kazalnikov se v fazi spremljanja (monitoringa) ocenjuje, ali so bili operativni cilji doseženi. Ciklični proces mora prav tako zagotoviti možnost prilagajanja upravljanja v smeri boljšega doseganja zastavljenih ciljev. Na splošni ravni pa se tudi spremlja in ocenjuje, ali je izvedba načrta upravljanja prispevala k doseganju širših učinkov politike varstva, kot jih določa strategija.

20 Getty Conservation Institute, 2003.

21 https://www.arrs.gov.si/sl/gradivo/sifranti/inc/Preslikava_ARRS_VPP_FOS_WOS.pdf.

22 Zakon o Regijskem parku Škocjanske jame, Uradni list RS, št. 57/96.

23 Listina daje ključne usmeritve glede vsebine upravljanja, priprave načrta upravljanja, sodelovanja javnosti, sprejemanja odločitev in podobno. Avstralski ICOMOS, 2., 6., 12., 26., 27. in 29. člen.

Za naše razmere razumljivejši prikaz celovitega sistema upravljanja podajam na sliki 4.

Modri kvadrat obkroža polje, ki predstavlja javnost oziroma opozarja na pomen vključevanja javnosti v sistem upravljanja. Tretjine modrega kvadrata predstavljajo pravni in institucionalni okvir ter okvir, s katerim so določeni kadrovski ter finančni viri in znanje. V preseku teh okvirov so trije krogi, ki ponazarjajo tri procese upravljanja: načrtovanje, izvajanje in monitoring. Velikost krogov nakazuje obseg posameznih delov procesa upravljanja. Pri načrtovanju in izvajanju upravljanja so grafično prikazani še deležniki upravljanja, saj je njihovo sodelovanje pri obeh procesih odločilno. Na preseku treh procesov so dediščinske vrednote – če je upravljanje pravilno zastavljeno in kakovostno izvajano, se dediščinske vrednote povečujejo, kar je nakazano z zvezdastimi izrastki notranjega preseka. Puščice v diagramu nakazujejo povratne zveze – v oranžni barvi znotraj upravljanja v ožjem pomenu, in to v smeri prilagajanja izvedbe in po potrebi tudi načrta upravljanja novim okoliščinam. Puščice v vijolični barvi opozarjajo na povratne zveze med ožjim in širšim sistemom upravljanja. Dodaten element, vključen v diagram, je prostorsko načrtovanje in njegova povezava z načrtovanjem upravljanja in še posebej z načrtovanjem rezultatov, kar prispeva k doseganju pričakovanih izidov in vplivov upravljanja na širšo skupnost.

Sklepne ugotovitve

Za konec naj predstavim pregledno tabelo, v kateri povzemam ključne značilnosti »tradicionalnega« in »sodobnega« sistema upravljanja. V tabelarični obliki so vzporedno predstavljene vsebine iz prvega in tretjega diagrama (torej iz slik 2 in 4). Ugotovim lahko, da je sistem upravljanja, ki je v svetu veljal še v prejšnjem stoletju (in ki je pri nas še vedno razumljen kot idealen), pomanjkljiv predvsem zato, ker ne posveča ustrezne skrbi doseganju rezultatov (na kar se velja pripraviti že v fazi načrtovanja z določanjem uresničljivih ciljev in kazalnikov za spremljanje rezultatov), kar zmanjšuje njegovo moč in dolgoročno povzroča zmanjševanje razvojnega potenciala dediščine.
Sklep naše analize tako je, da je treba linearni način upravljanja nadomestiti s cikličnim, oziroma z drugimi besedami hierarhičnega z relacijskim. Če je pri nas v zvezi z upravljanjem glavni cilj sprejetje načrta upravljanja kot posebnega dokumenta in glavni dosežek zagotovitev upravljavske strukture in njenega financiranja (in še to s posebnimi napori le na letni ravni), bi moral biti glavni cilj usmerjenost k rezultatom in razumevanje upravljanja kot vložka v dogovorjene rezultate vsaj na srednjeročni, če ne na dolgoročni ravni. To seveda zahteva, da so že v fazi načrtovanja postavljene prave prioritete, ustrezni kazalniki in je zagotovljen monitoring. Za dobro ali slabo upravljanje pa morajo ne nazadnje nositi odgovornost ne le izvajalci (in deležniki) upravljanja, ampak tudi tisti, ki na splošni ravni sprejemajo politiko varstva. Na politični ravni se namreč sprejemajo odločitve o tem, kakšne upravljavske mehanizme, vključno z nadzorom in monitoringom, imamo na razpolago in kako so organizacijsko, kadrovsko in finančno podprti. Od teh odločitev in podpore je odvisno, ali je okolje bolj ali manj naklonjeno neposrednemu upravljanju kulturne dediščine.

Sestavine procesa upravljanja	Upravljanje do konca 20. stoletja	Upravljanje za 21. stoletje
Kontekst	politika varstva in upravljanja	zakonodajni okvir
	uveljavljanje standardov in skrb za kakovost	institucionalni okvir
		kadrovski, finančni viri in znanje
Procesi	strategija varstva	načrtovanje upravljanja
	določanje varstvenih zahtev	načrtovanje (na izvedbeni ravni)
	upravljanje objektov in območij	izvajanje (načrta) upravljanja
	vodenje projektov	
	nadzor	monitoring
Rezultati	spremljanje rezultatov je le implicitno prisotno (s povratnimi informacijami, če sistem to omogoča)	predvidljivi in merljivi izročki (izdelki in storitve) in izidi
	le deloma upoštevani – s povratnimi informacijami o spremljanju, če sistem to omogoča	(širši) vplivi na družbo
	ni vključeno v sistem	izboljšave

Preglednica: Primerjava tradicionalnega in sodobnega sistema upravljanja (Vir: ICCROM, 2013).

Povzetek

Ključni namen razprave je oblikovati teoretsko izhodišče za udejanjanje sodobnejšega, bolj celovitega sistema upravljanja nepremične kulturne dediščine in še posebej arheološke dediščine, v katerem je upoštevana osnovna zahteva preventivne arheologije po ohranjanju arheološke dediščine *in situ*. Razprava na podlagi analize virov in literature opisuje spremembe v filozofiji varstva arheološke dediščine in izzive, ki jih pred arheologe postavljata globalizacija in gospodarska recesija. Osrednji del razprave je namenjen utemeljevanju posebnosti varstva in upravljanja arheološke dediščine ter predstavitvi povezave med prostorskim načrtovanjem, vrednotenjem in upravljanjem tovrstne dediščine. Razprava tudi podaja izhodišča za vključevanje javnosti v upravljanje in kot osrednji del predstavi model sodobnega celostnega upravljanja. Mednarodni standardi – in za naše področje jih določata predvsem Unesco in Svet Evrope – nakazujejo smeri uveljavljanja upravljanja na treh ravneh: na prvi s krepitvijo vloge samoupravnih lokalnih skupnosti, v našem primeru občin, na drugi ravni s sistematičnim podpiranjem partnerstev pri upravljanju dediščine in na tretji ravni z ustvarjanjem razmer, naklonjenih razvoju dediščinskih skupnosti kot »naravnih« soupravljavcev dediščinskih celot. Načrtovanje in izvajanje upravljavskih nalog v ožjem pomenu pa je postavljeno kot ciklična naloga z jasno opredeljenimi cilji, kazalniki, ukrepi in monitoringom. Dokaz o tem, kako kakovosten je sistem upravljanja v določenem okolju, je, da ima širše, pozitivne vplive na družbo in da so vanj vgrajeni mehanizmi za prilagajanje spremenjenim okoliščinam in za izboljšave upravljavskih postopkov.

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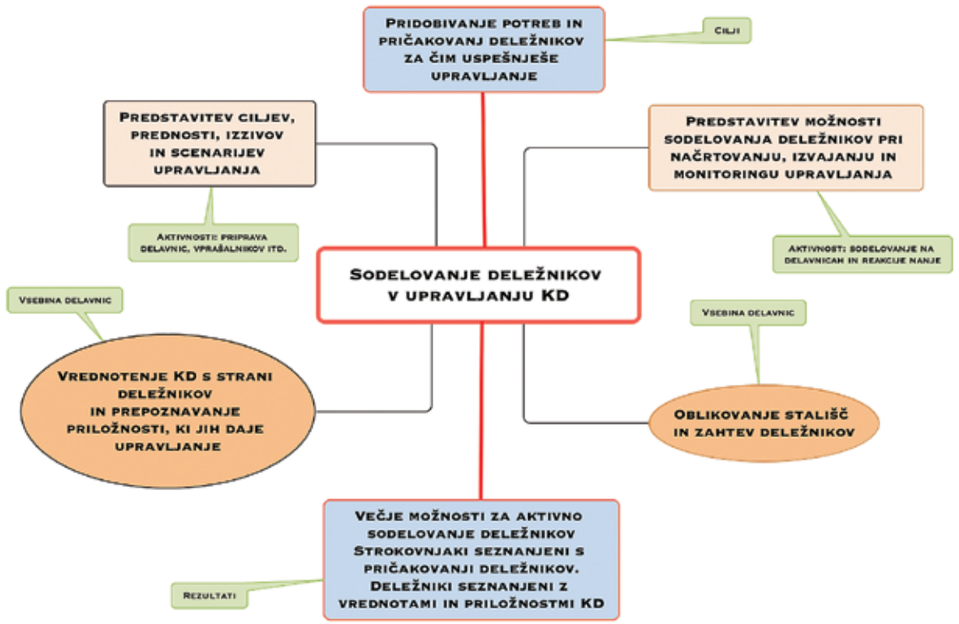
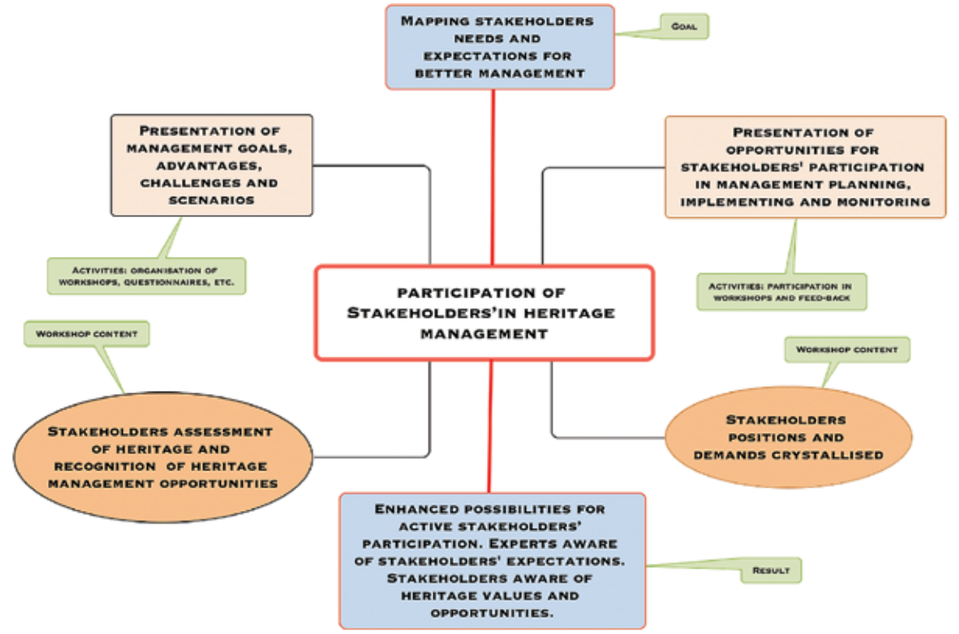
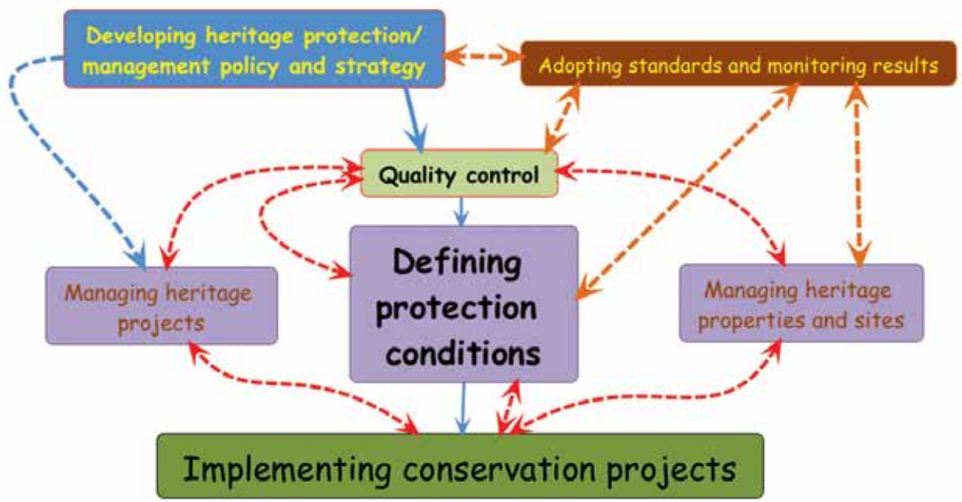


1. Diagram vključevanja deležnikov v upravljanje arheološke dediščine (Jelka Pirkovič)

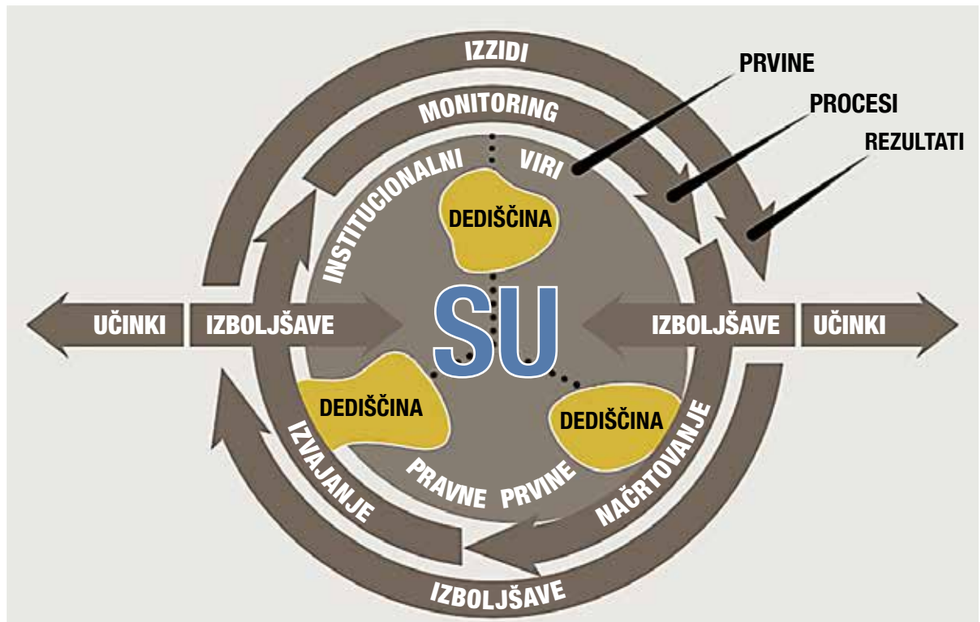


1. Diagram of participation of stakeholders in archaeological heritage management (Jelka Pirkovič)

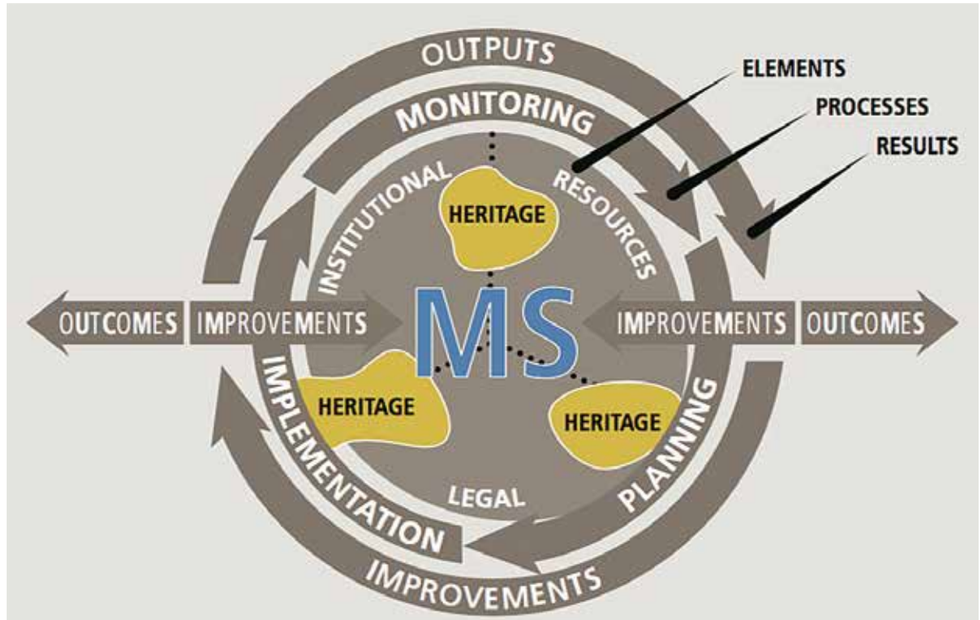
2. Sistem upravljanja kulturne dediščine s konca 20. stoletja (COTAC Newsletter, št. 11, 1997)



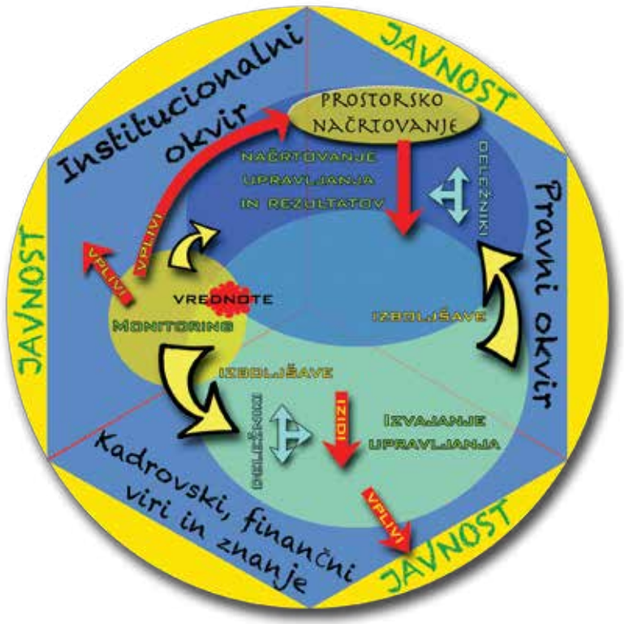
2. The system of cultural heritage management in the late 20th century (COTAC Newsletter, No 11, 1997)



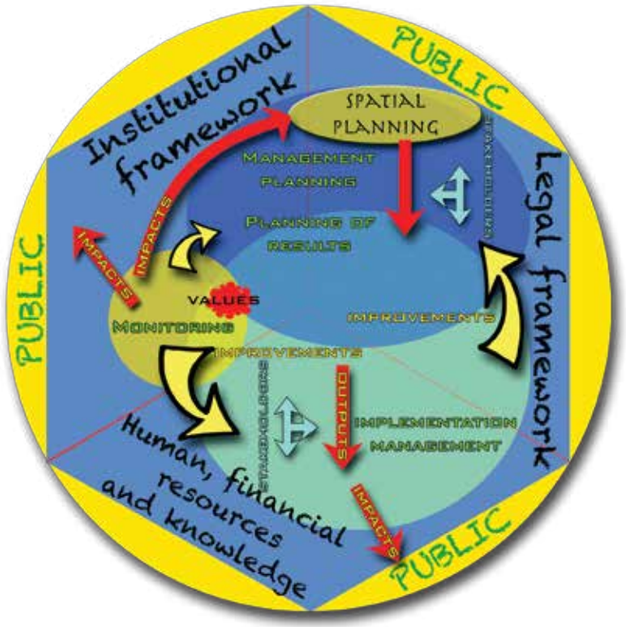
3. »Celovit« sistem upravljanja z enajstimi komponentami, kot ga priporoča Unesco (ICCROM et al., 2013)



3. An "integrated" management system with eleven components, as recommended by UNESCO (ICCROM et al., 2013)



4. »Sodoben« diagram upravljanja arheološke in druge dediščine (Jelka Pirkovič)



4. A "modern" diagram of the management of archaeological and other heritage (Jelka Pirkovič)

Jelka Pirkovič

Introduction to the archaeological heritage management system

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Abstract

The paper sets out the theoretical basis for the management of cultural heritage in general and archaeological heritage in particular. It came into being in the context of the cross-border project "Claustra – The Stone Ramparts of the Roman Empire" and therefore takes into account conditions in heritage management in both Slovenia and Croatia. On the basis of an analysis of the situation, the key weaknesses of the present method of management are set out, and a modern systemic approach to the issue is formulated, taking into account the standards of cultural heritage management adopted by two key international organisations in the conservation field, namely the Council of Europe and UNESCO.

Introduction

In Slovenia, the management of cultural heritage properties and areas is understood as the final stage of integrated conservation. Such considerations have not been legally formulated in Croatia, but are increasingly accepted and applied in practice. Modern protection theory understands management as a cyclical process, the components of which are present throughout the heritage life cycle of heritage and encompass various aspects of dealing with it. If within heritage protection system in place in Slovenia and Croatia today, and also within protection practice, we are relatively successful at identifying heritage, when it comes to determining protection conditions and restoring selected specimens of heritage, i.e. cultural properties, heritage management is still left to the will, capabilities and financial possibilities of heritage owners. This is partially sufficient in the case of heritage that has a single owner – usually buildings and other structures. In the case of areas that are, by definition, the property of a large number of legal entities and natural persons, however, the issue of management is more complex and needs to be addressed systemically. This applies in particular to archaeological heritage – as long as it is conserved *in situ*, its movable components are potentially the property of the state,[1] while the land and the immovable property of which the archaeological remains form a part, and all that is related to them, are the property, in each case, of the owner whose name appears in the land register. In the case of archaeological areas, this usually means multiple owners. Yet even in the case of non-archaeological heritage, it is evident from the systemic point of view that heritage values (the intangible aspect of all heritage) that also determine the social, cultural, symbolic and spiritual significance of heritage are the property of the community as a whole, and in some cases even of the whole of humanity.[2] It is therefore right that every democratically

1 ZVKD-1, Article 6, first paragraph.
2 The Operational Guidelines for the Implementation of the World Heritage Convention state that cultural and natural heritage is among the priceless and irreplaceable assets, not only of each nation, but of humanity as a whole. This applies in particular to heritage which UNESCO inscribes on the World Heritage List, in this way recognising its Outstanding Universal Value (UNESCO, 2017, paragraphs 4 and 49).

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elected authority that has recognised a specific property as an important part of heritage by proclaiming it a cultural monument should also have the right and the duty to participate in its management. The same applies to a heritage community that values this heritage and understands it as its own. The right of individuals and communities to participate in protection matters is supported by a series of international documents, the most important of which is the Council of Europe Framework Convention on the Value of Cultural Heritage for Society (2005), which Slovenia ratified in 2008. The Convention defines a heritage community as follows: "[...] a heritage community consists of people who value specific aspects of cultural heritage which they wish, within the framework of public action, to sustain and transmit to future generations" (Article 2b). The Council of the European Union has recently adopted conclusions and recommendations on participatory governance of cultural heritage. It calls on member states to formulate management frameworks that include multiple levels and different stakeholders, and in which cultural heritage is recognised as a common resource, in such a way as to strengthen connections between the local, regional, national and European levels of cultural heritage management, so that benefits are envisaged at all levels, the inclusion of stakeholders is encouraged, and their participation at all levels of the decision-making process is guaranteed. Our heritage practice has not yet internalised the importance of the participatory governance of heritage, and directing such processes has yet to become an established part of the tasks of our public heritage protection service.

It is not the purpose of this article to analyse cases of archaeological heritage management in Slovenia, still less in other countries. Mentions of individual cases relate to their publication in the specialised press[3] and in particular to research carried out in the context of a doctoral study, which indicates the increased interest of archaeologists in such topics.[4] The article aims to present the legal frameworks of heritage management, including those that derive from international documents, and to review the systems of cultural heritage management employed by two key international organisations in the heritage protection field, namely the Council of Europe and UNESCO, for the purpose of contributing to the establishment of modern forms of archaeological heritage management within our heritage protection system in the shortest possible time frame.

Legal framework

Slovenia's property law code devotes special attention to the management of co-owned property,[5] but does not cover management in cases where there is just one owner. Management is part of possessing and controlling a specific property. To manage a property means above all to exploit it for the benefit of the owner. At the same time this means that the owner, as a good manager, ensures that his property gains value instead of losing it. In connection with the constitutionally guaranteed right to property, Slovenia's Constitution provides that the law must ensure not only the economic function of property but also its social and environmental function (Constitution of the Republic of Slovenia, Article 67). This is particularly important in the case of the management of heritage and monuments, whose conservation is likewise guaranteed by the Constitution. For this reason, Slovenia's Cultural Heritage Protection Act (*Zakon o varstvu kulturne dediščine*; ZVKD) lays down an obligation of management for important cultural monuments and all protected heritage sites. The Act introduces the adoption and implementation of management plans (Article 60) as the main instrument for the achievement of these objectives. It defines management as "the implementation of tasks necessary for meeting the purpose on the basis of which the property was designated a monument, and shall include in particular management and organisation of maintenance, use, accessibility, public presentation and monitoring of its physical condition" (Article 3, first paragraph, point 38). In other words, this means that management guarantees not only the survival of protected heritage, i.e. a cultural monument or site, but above all the preservation and development of its social (cultural, educational, identity-related) role in the wider cultural and natural environment.

The Act does not, however, talk about specific forms of heritage management. On the basis of management methods known and used to date and international good practice, we are able to highlight the following forms of management of heritage areas:

- national parks, regional parks and nature parks/protected landscapes, which under Slovenia's Nature Conservation Act (*Zakon o ohranjanju narave*) constitute "wider protected areas" and under Croatia's Nature Protection Act (*Zakon o zaštiti prirode*) "nature parks", but which in many countries are covered by the joint protection/conservation and management of natural and cultural heritage, in accordance with IUCN categories;[6]
- open-air museums, archaeological parks (Breznik, 2012), arboretums, botanical and other gardens, and historical parks;
- interpretation centres;
- cultural routes;
- eco-museums (Perko, 2014).

Interestingly, archaeological parks are not an international protection category, and it is only recently that we have seen a first attempt to formulate more solid starting points (ICOMOS, 2015). The only archaeological protection category mentioned in the European Convention on the Protection of the Archaeological Heritage (1992) is that of archaeological reserves, which however are reserved for the strictest conservation of archaeological remains, and not for their presentation.[7] In Slovenia we understand archaeological parks as being the more or less regulated presentation of the ruined structures of a given site, with some interpretation of the structure. Cultural routes are, in the best case, tourism products or a set of destinations offered to visitors. We also have some embryonic eco-museums, where local communities are endeavouring to the best of their ability to regenerate specific aspects of heritage and "musealise" them. Yet all these forms lack the dimension of heritage management, at least in the extent defined by Slovenian legislation. Allow me, then, to emphasise just two of the most important dimensions of modern eco-museums: their integrated treatment of heritage, and their consideration of heritage as a resource for the development of the local and wider community. In this sense, eco-museums as a heritage management category are closely linked to the idea of heritage communities as defined by the Council of Europe Framework Convention on the Value of Cultural Heritage for Society. The framework for modern heritage management is set out in Article 11 of the Convention:

In the management of the cultural heritage, the Parties undertake to: a) promote an integrated and well-informed approach by public authorities in all sectors and at all levels; b) develop the legal, financial and professional frameworks which make possible joint action by public authorities, experts, owners, investors, businesses, non-governmental organisations and civil society; c) develop innovative ways for public authorities to cooperate with other actors; d) respect and encourage voluntary initiatives which complement the roles of public authorities; e) encourage non-governmental organisations concerned with heritage conservation to act in the public interest.

It is thus all the more important to discuss innovative approaches to management. From the point of view of cultural heritage management, the results of projects such as Claustra[8] are extremely important, because it is via them that we are able to articulate and argue our requirements and address them to public authorities so that they can ensure an adequate supporting environment and, if necessary, amend legislation. International standards – and for our field these are laid down above all by UNESCO and the Council of Europe – indicate the directions for establishing governance at three levels: at the first level, by strengthening the role of local communities, in our case municipalities; at the second level by systematically supporting partnerships within the governance of heritage; and at the third level by creating conditions favourable to the development of heritage communities as the "natural" co-managers of heritage entities.

Changes in the philosophy of archaeological heritage protection

Between 1990 and the present day, the position of archaeological heritage protection has changed, and with it its role in society. This applies above all to countries in Europe, which includes Slovenia and Croatia. In general terms we can say that the main cause of the changes has been the changed social circumstances since the fall of the Berlin Wall and, in our case, the change in the social order. In our countries, this change has required archaeologists and, in particular, experts working in the public heritage protection service to organise themselves differently, change their hitherto established practices and adapt to a new understanding of ownership, take into account the expectations of the public and respect new rules regarding spatial planning, and in general adapt to the new role of the public administration in regulating public matters.

3 In 2014, the Slovenian Archaeological Society organised a conference on the categorisation of archaeological sites and archaeological heritage management. Papers from the conference are published in issue 31 of the journal Arheo. Milan Sagadin published a critical analysis of the presentation and management of sites in Ajdna, Stari Grad above Kamnik and in the centre of Kranj; Patricija Bratina analysed sites at Tonocov Grad above Kobarid and in Most na Soči, Hrušica and Ajdovščina.

4 Worth mentioning here are the doctoral dissertations by Andreja Breznik (Breznik, 2012), Ana Plestenjak (Plestenjak, 2013) and Sara Popović. Ana Plestenjak carried out a critical review of the state of presented archaeological heritage in Ljubljana; Sara Popović looked at the system of management of cultural landscape areas, including archaeological areas in Croatia.

5 Law of Property Code, Article 67.

6 Nature Conservation Act, Article 53, sixth paragraph. The Act omits all references from the categorisation of IUCN protected areas, particularly categories V and VI (regional parks and protected landscapes/seascapes) relating to cultural value. Cf.: http://www.iucn.org/about/work/programmes/gpap_home/gpap_quality/gpap_pacategories/.

7 The Explanatory Report to the European Convention on the Protection of the Archaeological Heritage states that archaeological reserves are "areas of land subject to certain restrictions in order to preserve the archaeological heritage contained within their borders." Further on, it states: "Normally, it means that operations which disturb the soil cannot be allowed, or must first be cleared by the relevant authorities."

8 The project ran between January 2014 and October 2015 as part of the European territorial cooperation programme OP Slovenia–Croatia 2007–2013. The ZVKDS (Institute for the protection of cultural heritage of Slovenia) was the lead partner. The other project partners were the Restoration Institute of the Republic of Croatia, the National Museum of Slovenia, Primorje-Gorski Kotar County and the Association Žmergo.

In Europe and in our countries, one of the "natural" responses of those concerned with conservation, and archaeologists in particular, to the new situation has been their participation in broader forums and their encouragement of processes aimed at introducing new international standards of protection in the form of international conventions, recommendations, etc. The most important of these standards for Slovenia and Croatia has been the European Convention on the Protection of the Archaeological Heritage, adopted at the Conference of Ministers Responsible for Cultural Heritage in Valletta (Malta) in 1992. At that time, Slovenia and Croatia were not yet members of the Council of Europe, and for this purely formal reason, the Slovenian and Croatian ministers did not attend the conference. Even so, a mere two years after the adoption of the Malta Convention, the Institute of the Republic of Slovenia for the Protection of the Natural and Cultural Heritage (as it was then) was able to ensure, through negotiations with DARS (the public enterprise responsible for the national motorway construction programme), that basic standards of preventive archaeology (known as the "SAAS methodology", after the Slovene acronym for the Slovenian Motorway Archaeology Group) would be applied during the construction of Slovenia's motorway network.

Although the government signed the Malta Convention in 1996, its ratification by the National Assembly dragged on until 1999.[9] The provisions of the Malta Convention were not taken into account in the 1999 Cultural Heritage Protection Act, which was adopted a few months before ratification of the Convention. This would not happen until the adoption of a new Cultural Heritage Protection Act in 2008, meaning that it was not until a decade and a half after the adoption of the Malta Convention that a systemic change to the heritage policy was possible in Slovenia. In Croatia, the Convention was signed in 2001 and confirmed by law in 2004. If "pre-Malta" archaeological conservation was focused on rescue excavations during the construction phase, the most important "post-Malta" phase was spatial planning, where the mechanisms of preventive archaeology made it possible to deter developments that could affect archaeological remains.

But let us return to the period following adoption of the Malta Convention. Individual countries now began reforming their own systems of archaeological heritage protection, both to meet internal needs and as the result of external promptings. Two examples of this are France and the Netherlands. In the 1990s the latter conceptualised in theory and then gradually implemented in practice a system of management of archaeological resources (archaeological heritage) based on the systematic valuation of archaeological sites, as described in the next section (Deeben et al., 1999). France, meanwhile, passed a special Act on preventive archaeological research in 2001, an effect of which was the creation of the National Institute for Preventive Archaeological Research (INRAP), which even today represents a standard that many countries struggle to reach (Demoule, 2007). The basic purpose of the French system of preventive archaeology is to provide, with the authority of the state, the necessary financial and human resources for archaeological research and to ensure high professional standards in its implementation. Archaeological heritage management in France does not, however, fall within the competence of the INRAP. In the majority of cases it is left to ongoing management arrangements at the level of regions and, above all, départements. Management of the most important archaeological monuments also receives financial support from the state. There are seven state-owned archaeological areas which, like state-owned castles and other architectural monuments, are managed by a state body, the Centre des Monuments Nationaux.

At the turn of the third millennium archaeological heritage in Europe was, despite positive development, facing new pressures, above all because of the interests of property developers and the need to implement major infrastructure projects. After 2008 these pressures were joined by the effects of the economic crisis and the consequent reduction in the importance of protection. In recent years we have witnessed a gradual fall in the resources available for protection. The number of experts working with archaeological heritage is declining, and many higher education and research institutions in various European countries are facing problems with funding. Even more worrying, we are seeing a fall in protection standards, including those that are supposed to guarantee effective supervision of developments affecting archaeological heritage. The reduction in available resources means that not even activities designed to popularise heritage and its protection are able to compensate for the weakening of protection systems. This applies both to "less developed" countries and to "developed" countries.[10]

In Slovenia, broader standards of preventive archaeology, as prescribed by the 2008 Act, began to be put into effect at a time when the recession was also making itself felt here. On the one hand this acted as a kind of relief for the protection of archaeological heritage, since there was a slowdown in construction projects. On the other, however, it also caused a gradual reduction in the financial resources available for the work of the Centre for Preventive Archaeology at the ZVKDS. In some European countries the recession unfortunately had quite a negative impact on archaeology firms and freelance archaeologists "on the market". This form of work for archaeologists had developed in Slovenia during the period that saw the biggest archaeological investigations, i.e. the period of motorway construction, and on the eve of the financial crisis employed between 25% and 30% of all archaeologists in the country (Novaković, 2015: 63). An estimate of the number of active archaeologists in the private and public sectors in Slovenia in the periods 2006–2008 and 2012–2014 shows that there was a notable increase in their number: from 175 to 257 (York Archaeological Trust, 2014). The same study includes estimates of the simultaneous drastic reduction in the number of archaeologists in Ireland, the United Kingdom, Spain and Flanders (Belgium). In Slovenia just 40% of all archaeologists are on permanent contracts, while 60% are on fixed-term contracts. No figures are available for the percentages of those employed by archaeology firms or self-employed on the one hand and those employed by the public protection service on the other. We know from experience that in recent years the number of commissions has fallen steeply in Slovenia and Croatia, that competition has played its part, and that, consequently, signs are appearing of a fall in professional standards among private providers of archaeological services, not only because they are agreeing to lower prices for their services, but also because of increasingly short deadlines for the completion of research and because they are compelled to work in unfavourable weather conditions. A positive trend, on the other hand, is that an increasing number of "archaeologists on the market" are involved with tasks in the field of the presentation and management of archaeological heritage, above all through participation in international and cross-border projects financed with European funds. In this way we are gaining experience and developing awareness of the fact that archaeological heritage needs to be cared for not only by research and museum projects, but also by management *in situ*.

Fortunately, archaeological conservation standards in the Slovenian and Croatian public heritage protection services have not fallen significantly during the crisis period. The worst problem continues to be the staffing limitations that affect the regional units of the ZVKDS in Slovenia and the conservation departments of the Ministry of Culture in Croatia, making it considerably more difficult to supervise the implementation of archaeological research and rendering the regular monitoring of the state of archaeological heritage on the ground practically impossible. Ensuring that all legal protection options are maintained, while also maintaining the number of trained archaeologists within the bodies of the state service and national institutions, is the most important factor in overcoming the crisis.

Our key consideration is that it is all the more important at a time of global crisis to encourage public discussion of the threats facing archaeological heritage and at the same time foster a positive attitude with regard to its sustainable management among the general public.

What is archaeological heritage management, where does it come from and how has it been established?

Owing to the specific tasks involved, archaeological heritage management plays a special role within the general context of cultural heritage management. The most important and most specific task relates to the special nature of archaeological heritage – archaeological remains are "[...] all objects and any traces of past human activity on the surface, underground, or in water, the preservation and study of which would enhance existing knowledge of the history of mankind in relation with the natural environment, for which the main sources of information are archaeological excavations or discoveries, and which may be assumed to have been underground or under water for at least 100 years [...]." Professionally identified and registered archaeological remains shall become heritage (ZVKD-1, Article 3, point 3). This means that archaeological heritage is not fully identifiable at first glance, in other words without the use of archaeological research methods, even to experts – and far less so to the general public. Its preservation and integration into modern life is therefore far more complex than the conservation and restoration of other types of heritage. The second specific task derives from the basic purpose of the 1990 Lausanne Charter of the International Committee for the Management of Archaeological Heritage and, in particular, from the 1992 European Convention on the Protection of the Archaeological Heritage, i.e. the preservation of this heritage *in situ*.[11] This requirement is almost self-evident in the case of architectural heritage, while for archaeological heritage it has long been held that the only way to conserve it permanently is through scientific or rescue

9 During the adoption process, a group of MPs who were also mayors requested that an amendment stating that the Convention does not apply to areas of towns with archaeological heritage be inserted in the Act of ratification. Fortunately the amendment was not accepted.

10 The results of a European project focusing on the state of archaeology and archaeological heritage management in ten European countries from the United Kingdom and Ireland to Poland and the Russian Federation were published in 2010 (Schlanger, Aitchison, 2010).

11 International Charter for the Protection and Management of the Archaeological Heritage (Lausanne Charter), Article 6: "The overall objective of archaeological heritage management should be the preservation of monuments and sites *in situ* [...] Any transfer of elements of the heritage to new locations represents a violation of the principle of preserving the heritage in its original context." (ICOMOS, 2003: 48). European Convention on the Protection of the Archaeological Heritage (Revised): "Each Party undertakes to implement measures for the physical protection of the archaeological heritage, making provision, as circumstances demand: [...] for the conservation and maintenance of the archaeological heritage, preferably *in situ*." (Article 4)

excavations followed by public presentation in museums. In Slovenia, the management of heritage areas has only been established with difficulty. In the case of archaeological heritage, we still most frequently encounter so-called archaeological parks, meaning places where heritage of this type is presented in an accessible manner to the general public. Breznik (2012) included 44 such archaeological parks in her study, only two of which clearly had managers at the time of her research. These were the Ancient Necropolis in Šempeter and the Simonov Zaliv ("Simon's Bay") archaeological park in Izola.[12] A further ten parks were fenced and locked, which means that they were at least minimally protected. The great majority, i.e. 32 archaeological sites where there had been a certain amount of presentation in the past, were more or less left without supervision. If we take into account more recent projects involving the arrangement of archaeological locations in Hrušica (Breznik, 2015), on Piramida (a hill in Maribor) and at Poštela,[13] the situation has presumably improved slightly since 2012. However, the mere arrangement and presentation of archaeological remains for visitors does not in itself mean that their management has been properly organised. The difficulty with archaeological presentation projects lies in the fact that no provision is made for a permanent form of management of the presented heritage once the project has been completed.

Given the cultural heritage management requirements that have been recognised around the world as a general standard of protection since at least the 1990s, and given the specific characteristics of the protection of archaeological heritage that we have already mentioned, it is all the more important that we too should shift our focus from general consideration to the practical implementation of management. If we do this in the case of cross-border archaeological heritage such as Claustra, which moreover has the potential to become part of world heritage, our efforts are all the more appropriate. Parallel with this project, a study has appeared with the significant title *Claustra Alpium Iuliarum: between research and management* (Kusetič, 2014), which points to a change in the way that archaeologists view archaeological heritage.

It is perhaps therefore appropriate for me to briefly introduce the broader concept of management and describe how it has gradually established itself in our region too. It is, however, true that a historical overview of management is not my central theme, so this introduction will be fairly condensed.

12 Breznik included detailed analysis of both parks in her dissertation (Breznik, 2014: 165–174).

13 See the article: Poštela – igrišče napredne arheologije: arheologi z geologi aktivno preučujejo gomile v Pivoli, ki bodo povezane v arheološki park kot dodatek botaničnemu vrtu Univerze v Mariboru, Večer, 28 October 2015, p. 19.

The link between spatial planning or heritage valuation and management

At the general level of defining and implementing management policy, it is extremely important for the system to guarantee the timely and substantive inclusion of heritage aspects in strategic planning documents and detailed spatial plans, and in particular in sectoral development strategies and plans. The weakness of our management system of management at the implementation level lies in the fact that the objectives of heritage management are not mutually consistent with priorities and measures in other fields, and managers therefore have limited scope for action from the outset. If we add to this the typical over-regulation we are faced with in Slovenia, then in practice wise and careful management is practically "mission impossible". This is not the place to discuss ways of resolving the problem of over-regulation, but as regards the lack of consistency between the priorities of individual sectoral policies, an effective mechanism already exists, namely consistent horizontal planning and coordination.

When it comes to the protection of heritage and its management, our starting point must above all be defining heritage value and assessing its development potentials on the one hand, and monitoring the outcomes of individual measures and activities on the other. Regarding heritage valuation, we need merely underline that in Slovenia too we are increasingly realising that well-argued and systematically conducted valuation is one of the key ways in which we are able to persuade the general public of the role and importance of heritage for society. Our conservation profession has not yet succeeded in formulating and presenting to the public an integrated system of heritage valuation, and this applies in particular to archaeological heritage – precisely because of its specific nature, as we pointed out in the introduction. One example of a successful system of archaeological heritage valuation is the system in place in the Netherlands (Groenewoudt et al., 2006). A similar finding applies to the systems in place in the United Kingdom[14] and the United States.[15]

Less well known is the fact that a standard for archaeological heritage valuation exists in Slovenia too, namely as part of the Ministry of Culture instruction regarding the valuation of archaeological remains for which the state prescribes a compensatory measure when issuing authorisation for removal.[16] In principle the same criteria and valuation methods are used, both for cultural heritage as a general category and for archaeological heritage, in all phases of protection and management. This also applies to heritage inscribed on the UNESCO World Heritage List.[17] In the past, archaeologists in Slovenia, like those in the majority of countries, based their valuation for the most part on the scientific value and informative potential of sites,[18] which is linked to the understanding of remains as an archaeological resource (Djurić, 165). The role of archaeological heritage was thus held to lie in the fact that, through it, resources important for the understanding of the history of mankind and its relation to nature are conserved. If we limit ourselves to this aspect of valuation, which takes into account above all the value of archaeological heritage for archaeological science, we neglect the broader importance of archaeological heritage for modern society. It is therefore all the more important to take into account, in the initial phases of valuation, those criteria and methods that enable the contextualisation of archaeological heritage in a such a way that it can be understood and accepted as their own by the local community and other stakeholders important for the long-term preservation of archaeological heritage *in situ*. The subject of archaeological heritage valuation requires broader discussion than is permitted by an introduction to the topic of management. Let us end, then, with the conclusion that despite the logical demand for a more elaborated valuation method in the individual phases of dealing with archaeological heritage, it is nevertheless necessary to consider how detailed a valuation needs to be and what the purpose of this procedure is in the specific phase in question, since the valuation method also determines the way in which we "translate" values defined into suitable conclusions. Thus the "output" that follows a general appraisal at the level of archaeological potential assessment of a wider area takes the form of a proposal to enter newly identified sites in the cultural heritage register. The "output" that follows valuation as the basis for determining the content and size of a site takes the form of either an archaeological research plan for the release of the site (i.e. for construction), or a decision on archaeological site or even a proposal for designating a protected area or a cultural monument. The "output" of valuation for the needs of a management plan takes the form of a conservation plan or a plan for the presentation and interpretation of the site. Each of these three phases differs from the others in how the valuation is detailed, how wide the circle of comparative analysis is and how broad is the context that we take into account. In principle, all phases should use the same attributes (physical components and characteristics), which are the subject of valuation, and the same gradation of value (not heritage, heritage, monument of local importance, monument of national importance).

In terms of the protection of archaeological heritage through spatial planning, important progress has been provided by EU law. Council Directive 85/337/EEC on the assessment of the impact of certain public and private projects on the environment introduces the obligation to assess impact on cultural heritage in procedures regarding the preparation of development projects. For the purposes of this Directive, "cultural heritage" includes archaeological and architectural heritage and the cultural landscape, while it also draws attention to the importance of relationships between heritage and other environmental factors. In 2001 EU law extended requirements regarding environmental impact assessments to cultural heritage, specifically to the obligation to prepare such assessments as part of strategic planning, and not merely as part of development projects.

As we know, the European Union left competences in cultural matters to individual member states with the 1986 Treaty of Rome. In the same way, matters in the field of land-use planning have remained within the competence of member states. With the 1997 Treaty of Amsterdam, by contrast, environmental protection became one of the key areas of legal regulation to be binding on member states. In this way the European Union formally confirmed its willingness to meet environmental requirements, including a requirement that is important for archaeological heritage, namely the (integrated) assessment of impacts on it, which Slovenia incorporated into its legal system with the Environmental Protection Act before joining the EU.[19] The Cultural Heritage Protection Act took this even further by laying down that the whole of registered archaeological heritage is a compulsory element of spatial planning documents and, as such, entitled to legal protection against developments for which a construction permit is required.

14 https://www.gov.uk/government/publications/scheduled-monuments-policy-statement.

15 http://www.cr.nps.gov/local-law/arch_stnds_3.htm.

16 Instruction for the determination and implementation of a compensatory measure in the case of removal of archaeological remains: http://www.mk.gov.si/si/storitve/postopki/varstvo_kulturne_dediscine/izravnalni_ukrep_pri_odstranitvi_arheoloskih_ostalin/. The prescribed methodology summarises the Dutch model and at the same time builds on the Rules (more than two decades old but still valid) on the methodology of assessment of cultural monuments and natural sights of interest (1992), in the preparation of which the author of this paper participated.

17 Operational Guidelines 2017, paragraph 77.

18 A detailed survey of views on the concept of the scientific value of archaeological heritage was provided by Filomena Sirovica in her doctoral dissertation (Sirovica, 42–46).

19 *Uradni list Republike Slovenije* [UL RS], 22/03.

Public participation in management

Public participation in management in the broad sense is a topic that today occupies great numbers of theorists and practitioners of heritage protection. Here I shall merely briefly mention just a few of the more important aspects. The international legal framework for public participation in environmental matters is provided by the so-called Aarhus Convention (1998), adopted by the United Nations. The full title of this international document – *Convention on access to information, public participation in decision-making and access to justice in environmental matters* – tells us what its main content is. At this point I should draw attention to the following important facts: first, that the Convention includes cultural heritage as part of the environment, although it does not use this terminology but instead talks about the "landscape" and "cultural sites", in other words about elements of the environment to which the obligation to prepare an environmental impact assessment applies. The second fact is that the Convention has also been signed by the European Union, which means that it has gained the status of a binding EU legislation. Accordingly, the provisions of this Convention apply to all EU member states, regardless of whether they have ratified it singly (Slovenia did so before joining the EU, as did Croatia). The signatories to the Convention have undertaken to facilitate access to information to individuals and civil society and enable them to exercise their right to participate in decision-making procedures. The state must guarantee public participation at the start of decision-making, when all options are still open and the public can participate effectively in the process. This naturally also applies to procedures for the adoption of regulations, strategies and plans with a significant impact on cultural heritage.

Regarding the planning and implementation of management in the narrowest sense, it is worth drawing attention to the following elements of public participation. The principles of the Aarhus Convention likewise apply in these activities – individuals and groups may participate in procedures irrespective of their legal interest. The body responsible for management must take even greater care, via appropriate activities, to ensure the participation of all who have any kind of direct interest in management – in other words "stakeholders". Stakeholders are usually local residents, associations and other non-governmental organisations, particularly those in the fields of culture, tourism, environment and nature conservation, educational and research institutions, economic operators already active in the area under consideration with the potential or interest for this, various experts, amateurs, and so on.

Activities involving stakeholders can be divided into the following phases:

1. *identification of stakeholders:*
- contacts with local communities and potential stakeholders,
- preparatory work with stakeholders in the field, where our objective is to facilitate their active involvement in preparation, decision-making and implementation of management;

2. *inclusion of stakeholders* in the process of understanding the heritage and its values, above all in the form of:
- joint assessment of heritage characteristics (in the area, in traditional culture) important from the point of view of stakeholders,
- mapping stakeholders' needs, expectations, reservations and prejudices in connection with the heritage and its management,
- addressing and overcoming opposing interests and identification of opportunities for development on the basis of the activation and re-use of heritage. This activity means a connection with the next, key phase of management planning;

3. *inclusion of stakeholders* in decisions on the priorities and content of management and, in particular, in decisions on the management structure and the planning of activities;
4. *inclusion of stakeholders in the implementation of management*, which includes at least:
- participation of stakeholder representatives in management bodies,
- establishment of local committees as part of the management structure,
- participation of stakeholder representatives in bodies responsible for monitoring.

We have various channels of communication at our disposal for successful work with stakeholders and, consequently, for successful management. These include meetings, workshops and round-table discussions, surveys, online forums and so on ("world café" events could also be a possibility). These channels are suitable above all for encouraging the active cooperation of the widest and most representative circle of stakeholders possible. Through them, we can present examples of good practice, a range of development scenarios, possible visions and goals, and above all devote a lot of time to discussion and connecting activities such as mapping common values and vulnerabilities of heritage, needs, expectations, reservations and prejudices, obtaining opinions through questionnaires or in open written form, and so on. An example of starting points for the preparation and running of workshops with stakeholders is given in the form of a diagram in Figure 1.
It is important that we provide opportunities for stakeholders to influence the planning and implementation of management, above all by giving them access to materials and allowing them to make comments in the earliest possible phases, by agreeing on the method by which comments can be submitted, and by committing ourselves, as those responsible for management, to providing proposers with feedback on the consideration of a specific proposal and the reasons why a proposal might not be considered. It is also necessary to agree in good time on the method of resolving any disagreements or opposition, for example with the help of mediators, impartial third parties, and so on.

Management of (archaeological) heritage for the 21st century

At the beginning of this article I quoted the definition of management given by Slovenia's Cultural Heritage Protection Act. This definition covers that meaning of management whose subject is individual monuments and heritage areas. Alongside this view of management, conservation theory and practice also contain definitions in which management is understood far more broadly. Two definitions thus exist, and both are equally relevant. The broader concept of archaeological heritage management represents what we usually refer to as heritage policy. Thus, for example, one of the introductory principles of the Burra Charter is that conservation is an integral part of the management of cultural (and thus also archaeological) heritage, and not the other way round (Australia ICOMOS, 2). Darvill goes even further and says that "[...] archaeological resource management is a branch of archaeology, also known as public archaeology, that is concerned with the identification, mapping, recording, assessment, evaluation and documentation of archaeological sites and objects at all scales in order to assist in their conservation, protection, presentation and exploitation through effective mitigation strategies, excavation and non-destructive study. Major aspects of this work involve: the administration of legislation that bears on archaeological remains, informing the decision-making process as it applies to the potential impacts of development on archaeological remains, issuing permits and licences, monitoring and managing contract archaeology; the definition and application of research policies, and the development of public education programmes" (Darvill, 2012). According to the Getty Conservation and Management of Archaeological Sites Bibliography, management consists above all of adopting and implementing legislation, researching archaeological heritage, collecting and managing data, managing heritage and incorporating it into land-use planning.[20]

The dual nature of heritage management is also present in the Managing World Cultural Heritage Manual jointly prepared by experts from three organisations – ICCROM, ICOMOS and the UNESCO World Heritage Centre (ICCROM et al., 2013). The manual talks both about cultural heritage management systems and about the management of individual heritage areas. An appendix to the manual also defines criteria for assessing the effectiveness of management systems and specific management practices in processes for assessing nominations and periodic reporting on heritage that has already been inscribed on the World Heritage List. When explaining the term "management system", the manual provides an interesting footnote on the etymology of the English and French word "management": "The verb manage is thought to come from the Italian *maneggiare* – to handle, manage, touch, treat – which in turn derives from the Latin *manus* (hand). The old French word *mesnagement* – the handling or training of horses – influenced the development in meaning of the English word management" (ICCROM et al., 2013: 25). Thus the words "manège", meaning an area in which horses and riders are trained, and "management" in the sense of running a company both have the same etymological origin.

As we can see, the word "management" in the modern sense first established itself in the world of business (or the "capitalist economy"). In terms of the classification of research fields, management is a discipline within business and economics.[21] Without going into the theory and history of management, I would like to mention just one characteristic of management, namely the differentiation between a guidance role and an executive role. This has led some experts to advocate the use of two different terms: "governance" and "management". The task of the former is to adopt strategic decisions and determine the framework for company policy (this role is usually played by the board), while the latter involves a range of operational management tasks and competences. The term "governance" is frequently used for the former function, while the term "management" is reserved for the latter. Allow me also to offer the definition of management contained in a Slovene business manual: "Management means enabling and ensuring the proper functioning of organisations and individuals who work in them, above all in the sense of coordinating work and the process of making decisions on the most important matters." (Rozman, Kovač, 2012: 32)

We can also apply this dual understanding of the role of management to the field of cultural heritage in Slovenia and Croatia. Here, too, there are two levels of management – the former being the level where, in the context of developing heritage policy, the systemic framework of heritage management is defined, management standards are

20 Getty Conservation Institute, 2003.

21 https://www.arrs.gov.si/sl/gradivo/sifranti/inc/Preslikava_ARRS_VPP_FOS_WOS.pdf.

adopted and the observance of standards is verified at the general level. The heritage management system – in other words management in the broader sense – is still understood as a way of adopting and implementing heritage policy. Yet even this part is erroneously and, above all, too narrowly understood in the sense of Western European "public policy", in particular in the sense of allocating financial resources for the operation of heritage protection institutions and a small amount to subsidise the conservation of cultural monuments. The system of heritage protection and management that many countries put into place between 1970s and 1980s is presented in Figure 2.

We are able to see that in our case there is still, above all, a vertical axis (indicated by blue arrows in the diagram) running from the national level, where systemic decisions are made and the amount and content of financing are determined, via the public service, which is responsible for the quality of protection interventions in that it lays down protection conditions and proves expert monitoring of developments affecting heritage, to the implementing level, where implementation is understood above all as the restoration and maintenance of heritage. There is also a partial development of project management, although this is more thanks to the requirements imposed on Slovenia and Croatia by the rules of participation in European Union programmes. Yet neither on the first, vertical axis nor on the second, lateral axis are regular procedures put in place that would ensure an improvement of the system from the bottom up. The part of the system supporting heritage management in the narrower sense is almost entirely lacking. This can be seen as a major systemic shortcoming and an inconsistency in the implementation of international standards and legal requirements. The only exceptions are cultural heritage sites inscribed on the UNESCO World Heritage List, although the fact that we are not very successful even here is demonstrated by the difficulties experienced in ensuring the management of the World Heritage Site consisting of prehistoric pile-dwellings in the Ljubljansko Barje wetland, and the even greater difficulties surrounding the management of mercury heritage in Idrija or, in the case of Croatia, the city of Trogir. Since mercury heritage in Idrija does not involve the issue of the protection of archaeological heritage, we can leave the presentation of this problem for another opportunity. Regarding the management of the prehistoric pile-dwellings in the Ljubljansko Barje wetland, the basic problem derives from the problematic interdepartmental cooperation between the ministry responsible for the protection of cultural heritage, which conducted the procedure for the inscription of the Barje on the World Heritage List, and the ministry responsible for nature conservation, which keeps strictly to the purpose for which the state established the Ljubljansko Barje Public Agency (*Javni zavod Ljubljansko barje*) pursuant to the Nature Conservation Act. The latter only envisages the management of protected areas of nature. As a result, the provision of public funds and human resources to manage areas under UNESCO protection is left to annual coordination during drafting of the national budget. A solution exists in the amendment, on the part of the government, of the Act governing the protection of the Ljubljansko Barje Regional Park, as permitted by Article 15 ZVKD-1, which refers to the joint protection of cultural monuments and wider protected areas of nature. On this basis the government could also adopt a joint management plan within the meaning of Article 61 ZVKD-1. This could lead to an arrangement like that applying to the Škocjan Caves, where management of the Škocjan Caves Regional Park was fortunately defined at a time when the protection of natural and cultural heritage was not yet regulated on the basis of two separate and non-harmonised Acts.[22]

In contrast to conditions here, other countries, as we have already pointed out, have developed more integrated methods of heritage management, where the Burra Charter, with its repeated definition of the role and importance of management, is frequently mentioned as an important reference.[23] The most recent overview is provided by the already mentioned Managing World Cultural Heritage Manual from 2013, from which we have taken the diagram in Figure 3 (ICCROM et al., 2013: 114).

The eleven components of the management system are: regulations, resources, institutions as policy elements; planning, implementation, monitoring as management processes; and outcomes, impact and improvements as management results. Feedback must be established between all components in order to enable the optimal functioning of the system.

The manual proceeds from the belief that the time has come to replace the management concept that has applied to date, as represented by the Venice Charter and upgraded by the Burra Charter, with a concept based on a cyclical process from planning via implementation to monitoring of management. This applies both to the management policy level and to the implementing level. At the policy level, as well as providing a legal and financial framework that enables management, it is necessary to adopt a heritage strategy. At the implementing level, in other words in the management of specific heritage areas, management plans need to be prepared. In the Slovenian context, management plans have been discussed in an article in *Varstvo spomenikov* (Plestenjak 2014). When preparing a management plan, stakeholders should be included already in the first phase. Operational management goals, in particular, should be defined in conjunction with stakeholders and, on this basis, a range of indicators determined and an action plan containing the necessary measures and activities defined. Responsible entities and time frames should also be determined. In the implementation phase, all relevant information is collected during individual activities (documentation). On this basis, and on the basis of analysis of indicators, an evaluation is made during the monitoring phase of whether the operational goals have been achieved. A cyclical process must likewise ensure the possibility of adapting management in the direction of the better achievement of the goals set. At the general level, it should also involve monitoring and evaluation of whether implementation of the management plan has contributed to the achievement of the broader outcomes of heritage policy, as defined by the strategy.

A representation of an integrated management system that is more relevant to our conditions is provided in Figure 4.

The blue square surrounds a field that represents the public, or rather draws attention to the importance of including the public in a management system. The individual thirds of the blue square represent the legal and institutional frameworks and the framework by which human and financial resources and know-how are defined. At the intersection of these frameworks are three circles illustrating the three processes of management: planning, implementation and monitoring. The size of the circles indicates the scope of the individual parts of the management process. Stakeholders are also shown in the circles relating to the planning and implementation of management, since their participation in both processes is decisive. Heritage values are shown at the intersection of the three processes – if management is correctly planned and well implemented, heritage values increase, as represented by the star-shaped elements of the internal section. The arrows in the diagram indicate feedback – within management in the narrow sense, these arrows are orange and represent feedback in the direction of adapting implementation and, if necessary, the management plan to new circumstances. The purple arrows draw attention to feedback between the narrow and broad systems of management. An additional element included in the diagram is spatial planning and its connection with the planning of management and, in particular, the planning of results, which contributes to the achievement of the expected outcomes and impacts of management on the wider community.

Conclusions

To end with, I offer a table summarising the key characteristics of the "traditional" and "modern" systems of management. The contents of the first and third diagrams (i.e.

Components of the management process	Management to the end of 20th century	Management for the 21st century
Context	protection and management policy	legislative framework
	establishment of standards and attention to quality	institutional framework
		human and financial resources and know-how
Processes	heritage strategy	management planning
	determination of protection conditions	planning (at the implementing level)
	management of properties and sites	implementation of management (plan)
	project management	
	supervision	monitoring
Results	monitoring of results is only implicitly present (with feedback if the system enables this)	predictable and measurable outputs (products and services) and outcomes
	only partially taken into account – through feedback on monitoring, if the system enables this	(broader) impacts on society
	not included in the system	improvements

Table: Comparison of traditional and modern systems of management (Source: ICCROM, 2013).

22 Škocjan Caves Regional Park Act, UL RS 57/96.

23 The Charter sets out key guidelines regarding the content of management, the preparation of a management plan, public participation, the adoption of decisions and so on. Australia ICOMOS, Articles 2, 6, 12, 26, 27 and 29.

from Figures 2 and 4) are presented side by side in tabular form. The system of management that still applied around the world in the last century (and is still understood as ideal in this country) is defective above all because it does not devote adequate attention to the achievement of results (for which it is worth preparing in the planning phase by determining achievable goals and indicators for monitoring results). This reduces its power and in the long term causes a reduction of the development potential of heritage.

The conclusion of our analysis, then, is that the linear method of management needs to be replaced by a cyclical method, or, in other words, that the hierarchical method should give way to a relational method. If the main aim in relation to management in this country is the adoption of a management plan as a special document, and the main achievement is the provision of a management structure and its financing (and even this with special effort and only at the annual level), the main aim should be a focus on results and an understanding of management as an investment in agreed results at least in the medium term, if not in the long term. This naturally requires the setting of the correct priorities at the planning stage, along with adequate indicators and the provision of monitoring. The responsibility for good or bad management cannot in the end be borne only by management providers (and stakeholders), it must be shared by those who adopt heritage policy at the general level. At the political level, decisions are made about what kind of management mechanisms, including supervision and monitoring, we have at our disposal, and how they are supported in terms of organisation, human resources and funding. Whether circumstances are more or less favourable for the direct management of cultural heritage depends on these decisions and this support.

Abstract

The key purpose of this paper is to formulate a theoretical starting point for the realisation of a more modern, more integrated system of management of immovable cultural heritage, and in particular of archaeological heritage, in which the essential requirement of preventive archaeology to preserve archaeological heritage *in situ* is taken into account. On the basis of analysis of sources and literature, the paper describes changes in the philosophy of archaeological heritage protection and the challenges posed to archaeologists by globalisation and economic recession. The central part of the paper underlines the specific aspects of the protection and management of archaeological heritage and presents the connections between spatial planning and the valuation and management of this type of heritage. The paper also offers starting points for public participation in management and presents a model of modern integrated management. International standards – and for our field these are laid down above all by UNESCO and the Council of Europe – indicate the directions for establishing governance at three levels: at the first level, by strengthening the role of local communities, in our case municipalities; at the second level by systematically supporting partnerships within the governance of heritage; and at the third level by creating conditions favourable to the development of heritage communities as the "natural" co-managers of heritage entities. The planning and implementation of management functions in the narrow sense is presented as a cyclical task with clearly defined goals, indicators, measures and monitoring. Proof of the quality of a management system in a given environment is that it has broader, positive impacts on society and incorporates built-in mechanisms for adaptation to changed circumstances and for improving management process.

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Marvy Lah

Kulturna krajina znotraj sistema varstva kulturne dediščine

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Povzetek

V družbeni zavesti Slovencev je krajina vrednota. Vzrok za to je zagotovo tudi, da imamo na razmeroma majhni površini državnega ozemlja več različnih in pestrih krajinskih sistemov: sredozemskega, predalpskega, alpskega, dinarskega in panonskega.

Krajinski sistemi so pri nas večinoma ohranili historično strukturo prostora. To se je zgodilo zaradi specifičnega družbenega sistema po vojni, ko je bilo kmetijstvo samo dopolnilna dejavnost delavskega razreda in se zaradi tega kmetijska proizvodnja tudi ni modernizirala. Historična struktura prostora se izkazuje v dokaj ohranjenih skladnih razmerjih med obdelovalnimi površinami, poselitvijo in gozdom. Ohranjene so tudi številne ostaline: historični poselitveni modeli, značilni za posamezne sisteme, kontinuiteta kmetijske rabe, marsikje so ohranjeni značilna drobna parcelacija, mreže komunikacij, številni objekti kulturne dediščine itd.

V prispevku predstavljamo predlog metode vrednotenja kulturnih krajin v sistemu varstva kulturne dediščine, ki doslej še ni bila izdelana. Neenoten način vrednotenja kulturnih krajin je morda vzrok za tako veliko število evidentiranih krajin v Registru kulturne dediščine. Enotna metoda vrednotenja kulturnih krajin v sistemu varstva kulturne dediščine je pomembna, ker bo pokazala realno stanje. Z njo bi se sedanje stanje zagotovo spremenilo, in sicer tako, da bi bilo zavarovanih krajin manj, obenem pa bi bile te bolj enakomerno porazdeljene po nacionalnem prostoru. Z merili vrednotenja bi bilo mogoče strokovno in lažje identificirati dediščinske krajine ter jih, kar je najpomembnejše, argumentirano zavarovati oziroma izbrisati iz Registra kulturne dediščine tiste, ki nimajo spomeniških lastnosti.

Prepoznani in ohranjeni elementi historične strukture in spomeniških prvin, ki jih prepoznava in vrednoti služba varstva kulturne dediščine, pa so zlasti pomembni v kontekstu prostorskega načrtovanja in upravljanja krajin. Premišljen koncept ohranjanja teh prvin in njihovo ustrezno vključevanje v sodobne rabe bosta pripomogla k ohranjanju kulturnih krajin in lokalnih tradicij ter s tem k manjši uniformiranosti krajin.

Uvod

Poslanstvo službe varstva kulturne dediščine je ohranjanje nepremične kulturne dediščine za bodoče rodove in posredovanje vedenja o naši preteklosti. Obenem služba razpolaga s pomembnimi podatki in spoznanji o kakovosti bivanja v preteklosti in s tem prispeva k spoznanju pomena podedovanega. Obvladuje vrednotenje kulturnih vrednosti in metode prenove, s katerimi se objektom vrača izvirna podoba (npr. stavbi iz pomembnega, historičnega obdobja), ali strokovno izbiranje tistega, kar je najprimernejše z vidika ohranjanja kulturne dediščine in nove rabe.

mag. Marvy Lah, Zavod za varstvo kulturne dediščine Slovenije

V nasprotju z ostalo kulturno dediščino je krajina dinamičen in kompleksen sistem, zato je večinoma ni mogoče konservirati, prenavljati ali rekonstruirati. Kontinuirano spreminjanje, ki opredeljuje vse kulturne krajine, vključno s historičnimi, je v diametralnem nasprotju z vsebino in načinom obvladovanja ostale kulturne dediščine. Znotraj varstva kulturne dediščine je kulturna krajina specifična. Zaradi tega je tudi ne moremo vrednotiti po splošnih merilih vrednotenja, uveljavljenih v službi varstva kulturne dediščine. Gradniki historične kulturne krajine se razlikujejo od tistih, ki jih identificiramo pri vrednotenju grajene kulturne dediščine, skupno obema dediščinama pa je to, da ima tudi kulturna krajina strukturo in ohranjene spomeniške ostaline. Prepoznavanje in vrednotenje obojega je mogoče z ustrezno metodo vrednotenja.

Kulturna dediščina in kulturna krajina

Kulturna dediščina so v aktualnem Zakonu o varstvu kulturne dediščine (2008) dobrine, podedovane iz preteklosti, ki jih Slovenke in Slovenci, pripadnice in pripadniki italijanske in madžarske narodne skupnosti in romske skupnosti ter drugi državljanke in državljani Republike Slovenije opredeljujejo kot odsev in izraz svojih vrednot, identitet, verskih in drugih prepričanj, znanj in tradicij. Dediščina vključuje vidike okolja, ki izhajajo iz medsebojnega vplivanja med ljudmi in prostorom skozi čas. Dediščina se deli na materialno in živo dediščino. Materialno dediščino sestavljata premična in nepremična dediščina. Celostno ohranjanje dediščine se uresničuje v razvojnem načrtovanju in ukrepih države, pokrajin in občin tako, da dediščino ob spoštovanju njene posebne narave in družbenega pomena vključujejo v trajnostni razvoj.

V 3. členu Zakona o varstvu kulturne dediščine (2008) (definicije) je **kulturna krajina** kot zvrst kulturne dediščine opredeljena kot nepremična dediščina, ki je odprt prostor z naravnimi in ustvarjenimi sestavinami, katerega strukturo, razvoj in uporabo pretežno določajo človekovi posegi in dejavnost. V 134. členu (varstveni režim obstoječih nepremičnih spomenikov) pa je določen varstveni režim za zavarovano kulturno krajino: varujejo se značilna raba zemljišč, parcelacija, značilna vegetacija, prostorske dominante, odnos med poselitvijo in odprtim prostorom, kraji spomina in značilna topografska imena.

Kulturna krajina je v Strategiji prostorskega razvoja Slovenije (Strategija ..., 2004) opredeljena kot posledica sprememb, ki se dogajajo v prostoru zaradi uresničevanja družbenih potreb. Izkazuje se v obliki poselitve, kmetijske izrabe, gozdarjenja, urejanja voda, umeščanja infrastrukturnih objektov. Kulturna krajina kot dinamična prvina človekovega delovanja v prostoru se danes zaradi globalizacije in vedno novih razvojnih potreb družbe spreminja hitreje kot v preteklosti.

Dediščinska kulturna krajina (Strategija ..., 2004) pa je opredeljena kot kontinuirana kmetijska raba zemljišč ali materialne ostaline, ki odražajo preteklo rabo zemljišč, dejavnosti, spretnosti in tradicijo. Dediščinska kulturna krajina je pogosto zgodovinsko ali funkcionalno povezana z drugimi zvrstmi kulturne dediščine.

Vrednotenje

Vrednotenje je znotraj dejavnosti varstva kulturne dediščine najpomembnejši strokovni proces, s katerim konservatorji prepoznavajo kulturne vrednosti območja ali objekta. Za vsako vrednotenje so pomembna merila. Dobro postavljena merila vrednotenja definirajo vsebino varstva. Služba varstva kulturne dediščine je v več kot 100 letih svojega obstoja razvila ustrezna merila vrednotenja za kulturno dediščino, ki pa jih ni moč direktno aplicirati za vrednotenje kulturne krajine. Osnovna merila vrednotenja kulturne dediščine, ki jih je doslej dokaj sistematično predstavila Jelka Pirkovič (Pirkovič, 1987), so:

- starost,
- avtentičnost (izvirnost),
- avtorstvo,
- razvoj,
- tipologija,
- zgodovinskost (pričevalnost),
- kulturnost in civilizacijskost,
- prostorskost.

Bistveni sestavini kulturne krajine sta naravno okolje, ki se spreminja, in grajeno okolje, ki se spreminja počasneje. Kulturna krajina se spreminja zaradi naravnih ciklov in zaradi človekovega poseganja vanjo. Sestavine krajine so torej mrtve in žive v nasprotju z večino ostalih zvrsti kulturne dediščine, katerih sestavine niso žive.

Najpomembnejša dejavnika krajine sta klima in relief. Skladno s temi naravnimi danostmi se oblikuje rastlinski pokrov, ki je najbolj viden element krajine poleg grajenih struktur. Naravnim danostim se prilagaja tudi človek, obenem pa jih s svojim delovanjem preoblikuje za svoje potrebe, in to počne že tisočletja. Ti posegi se kažejo v novih oblikah poselitve, pridelavi hrane, obvladovanju ovir v naravi. Spremembe v krajini danes potekajo hitro in odtisi prejšnjih obdobij izginjajo. Manj hitro pa spremembe potekajo v razmerah in predelih, ki jih ni dosegel tehnološki napredek in kjer se krajina zato ohranja. Naravne danosti, kot npr. klima, ekološko stanje, geomorfologija in drugo, nimajo tako pomembnega

MERILA VREDNOTENJA ZA KD
IN POSKUS NJIHOVE APLIKACIJE PRI VREDNOTENJU KK

KULTURNA DEDIŠČINA		KULTURNA KRAJINA
Starost	?	Večinoma ni določljiva
Avtentičnost - izvirnost	?	Kaj je lahko avtentično v krajini?
Avtorsko merilo	/	/
Tipološko merilo	da	Izraženost tipologije /njivske krajine, krajine travnatega sveta, krajine trajnih nasadov, poseljene krajine, solinske krajine, krajine z izjemno naravno zgradbo, zgodovinske krajine, krajine z izrazitimi ustvarjenimi vegetacijskimi členi/
Razvojno merilo /se uporablja za tiste objekte oziroma prostorske sklope, ki so pomembni zato, ker so vplivali na nastanek in razvoj določene vrste spomenikov oziroma slogovnih značilnosti in razvitosti prostorske zasnove/	?	Večino krajin nastane z referenco na prejšnjo krajino in je obenem že referenca za naslednjo pri tem pa se prvine, ki jo gradijo spreminjajo. Ta moment je vgrajen v vsaki ohranjeni kulturni krajini.
Zgodovinsko pričevalno merilo, /se uporablja za oceno fizičnih ostalin, ki so povezani z pomembnimi dogodki, gre za zg. spomin/	?	
Kulturno-civilizacijsko merilo /se uporablja ko gre za način življenja in zgodovino določene dejavnosti za naselbinsko KD/	?	Vsaka kulturna krajina je posledica novih /danes tudi znanstvenih/ spoznanj, ki presegajo prejšnja. Ta moment je vgrajen v vsaki ohranjeni krajini.
Prostorsko merilo	da	Stopnja pomena: lokalni, državni, svetovni

Preglednica 1: Aplikacije splošnih meril vrednotenja kulturne dediščine za vrednotenje kulturne krajine (vir: Lah, 2016)

vpliva na ostalo grajeno kulturno dediščino kot prav na kulturno krajino. Zato se objekti in območja kulturne dediščine večinoma niso spreminjali, medtem ko se je spreminjala krajina v njihovi neposredni okolici. Nespremenjene podobe današnjih gradov in sakralnih objektov lahko v dokumentih in v likovnih delih sledimo več stoletij, tudi tisoč let. Isti dokumenti pa običajno ne prikazujejo spremembe okolice teh objektov. Zaradi bistvenih razlik med kulturno dediščino in kulturno krajino so obstoječa merila vrednotenja za kulturno dediščino skoraj v celoti neuporabna.

Merila in postopek vrednotenja kulturnih krajin

Vse krajine so nastale v preteklosti in živijo v sedanjosti, zato se historične prvine težje ohranjajo. Znotraj funkcionalne kulturne krajine je težko prepoznavati in potem varovati vsebino, ki jo opredeljuje prav kontinuirano spreminjanje. Ob razumevanju njenega spreminjanja je treba identificirati prvine, ki so avtentične in kulturno-civilizacijsko pomembne ter jih je vredno ohranjati kot kulturno dediščino. Z ohranjanjem identificiranih historičnih prvin ni mišljeno njihovo konserviranje, kot je to pri grajeni kulturni dediščini, ampak njihovo tvorno in kreativno vključevanje v razvojne namere območja.

Vse zvrsti kulturne dediščine je mogoče obravnavati z vidika njihove strukture in ohranjenosti materialnih ostalin oziroma spomeniške substance. Gre za prepoznavnost oziroma preverjanje ohranjenosti posameznih prvin, ki kulturno dediščino opredeljujejo. Pri tem je treba preučiti vse razpoložljive vire. Brez virov bi se ocena nanašala na dejansko stanje, kar pa ni predmet varstva kulturne dediščine. Tudi pri vrednotenju kulturne krajine je možno odčitati strukturo in spomeniške ostaline. Viri, s katerimi si pri tem pomagamo, so enako pomembni kot pri ostali kulturni dediščini. Kulturna krajina je vizualna kategorija, zato so pomembni tisti viri, ki nam povedo čim več o njeni podobi v času. Pri tem gre predvsem za prepoznavnost ohranjenih prvin v krajini, ki se izkazujejo bodisi v strukturi ali v spomeniških ostalinah. Velikokrat gre za avtentične elemente, zlasti v primeru ostalin, velikokrat pa gre za prvine, ki se kontinuirano ponavljajo. Gre za kontinuirano kmetijsko rabo, ponavljanje enake kulture in enake oblike vzgoje.

Arheološki viri govorijo o kontinuiteti prisotnosti človeka v prostoru, vse več pa s sodobnimi metodami lahko povedo tudi o njegovi dejavnost. Pisni viri, urbarji in drugi teksti podatke potrjujejo ali ovržejo in jih diferencirajo po vsebini. Vedutisti in slikarji krajinarji nam podajajo podobo krajine v nekem časovnem obdobju, vendar moramo pri rabi teh virov upoštevati umetniško svobodo avtorjev. Izpričano je, da so nekateri avtorji olepševali dejansko stanje. Večine historičnih vedut danes ni več. Zaradi intenzivne pozidave v zadnjem stoletju te vedute težko primerjamo z današnjim stanjem v prostoru. Uporabnejše so za preučevanje naselbinske in stavbe dediščine kot pa kulturne krajine.

Vrednotenje kulturne krajine se začne najprej kabinetno s preučevanjem vseh razpoložljivih virov, zlasti franciscejskega katastra, preučiti je treba letalske posnetke, s terenskim pregledom preverimo stanje v prostoru. Krajinski arhitekti konservatorji ugotavljajo, da je za prepoznavanje prvin v krajini najpomembnejši vir franciscejski kataster z grafičnimi listi in protokoli. Grafični listi veliko povedo o strukturi prostora, z njihovo pomočjo lahko verificiramo ohranjene spomeniške ostaline. Sklepamo lahko tudi o podobah krajine. Vsi ostali viri so posredni, le dopolnitev in potrditev franciscejskega katastra. Število uporabljenih virov pri vrednotenju verificira vrednotenje. Strukturo kulturne krajine določa razporeditev prvin. Vsako strukturo lahko abstrahiramo v osnovne geometrijske prvine:

- **linije**: meje, poti, robovi, meje med posameznimi prvinami, reke, kanali ...
- **ploskve**: kmetijske površine, poselitev, parcelacija, jezera, gozd ...
- **volumni**: reliefne prvine, gozd, strnjena poselitev ...
- **točke**: posamezni objekti kulturne dediščine, posamezna drevesa kot akcent, značilni kmetijski objekti, druge grajene arhitekturne strukture ...

Ohranjenost materialnih ostalin

Ohranjene materialne ostaline ali spomeniška substanca nadgrajujejo historično strukturo obravnavanega območja oziroma kulturne krajine. Gre za avtentične materialne ostanke posameznih prvin, ki so določale in še določajo obravnavano kulturno krajino. Te prvine se v času niso spreminjale ali nadomeščale. Pri kulturni krajini je to, znotraj ohranjene strukture, lahko ohranjena kontinuiteta kmetijske rabe ali kontinuiteta kulture, vinska trata, kot je npr. trta refošk za vino teran na Krasu. V tem primeru ne gre za klasično avtentičnost, saj je znano, da se vinogradi prenavljajo vsakih 30–40 let. Opraviti imamo z vzdrževanjem in vzpostavljanjem enake rabe. Po navadi gre za zamenjavo s kvalitetnejšo različico trte iste sorte, kar je posledica izkušenj, agrarnih znanosti in drugih sprememb, ki jih prinaša čas. Lahko so ohranjeni posamezni primerki tipičnih gospodarskih objektov, vodnih ureditev, namakalnih kanalov, teras, zidov, starih dreves. Objekti kulturne dediščine vseh obdobij in zvrsti so pomembni posredni podatki o kulturni krajini. Ohranjena tipologija poselitve in stavbnega tipa govori o razvoju ali nerazvoju območja.

Evidenca degradacij

Degradacije so posledica človekovih posegov bodisi v strukturo, materialne ostaline ali v obe prvini hkrati. Običajno gre za spremembe, ki posegajo v že oblikovan prostor, ki niso v dialogu s kontinuiteto rabe in ki niso v funkcijski povezavi z obstoječimi prvinami, ki jih vrednotimo. Zato jih je treba evidentirati in oceniti njihov pomen znotraj območja kulturne krajine, ki je vrednotena. Tudi če niso izpostavljene, pomenijo razvrednotenje prvin, ki jih opredeljujejo. Pri presoji degradacije je pomembno, ali je ta uničujoča za vrednoteno kulturno krajino oziroma ali jo je možno sanirati. Ocena torej sloni na potencialu in možnostih sanacije. Vse degradacije, ki so evidentirane, je treba upoštevati pri ocenjevanju vseh ohranjenih prvin kulturne krajine.

Preizkus vrednotenja na izbrani kulturni krajini Strmca pri Postojni

Območje kulturne krajine Strmca je v Občini Postojna in je v pristojnosti Zavoda za varstvo kulturne dediščine Slovenije, OE Nova Gorica. Območje nima statusa historične kulturne krajine, prisotnih pa je nekaj objektov in območij kulturne dediščine. Obstoječe degradacije so na območju že več kot 30 let. Za preizkus metode je bilo izbrano prav območje kulturne krajine Strmca, ker je strukturno pestra, ima ohranjene materialne prvine, prisotne so tudi degradacije. Območje meri okrog 70 ha, kar je primerna velikost za prikaz metode vrednotenja. Območje je poznano in večkrat upodobljeno v različnih publikacijah kot primer atraktivne krajine.

Izvedba vrednotenja

Za vse obravnavane prvine, ki jih je treba vrednotiti, je izdelana mreža s štirimi okni. Dve okni sta izpolnjeni v vseh enotah enako, to je s franciscejskim katastrom in letalskim

posnetkom območja. Tretje okno je namenjeno ohranjeni prvini, ki je povzeta iz franciscejskega katastra ali drugega vira in je posebej izrisana. Večina obravnavanih prvin je v primeru Strmce vidna tudi na letalskem posnetku. Na ta način je možna primerjava ohranjenosti in kontinuitete elementov, ki opredeljujejo strukturo prostora in spomeniške ostaline. V četrtem oknu so fotografije obstoječega stanja s terena ali pa podatki, ki so pomembni za vrednotenje kulturne krajine. Na enak način so obravnavani tudi novejši posegi – degradacije, le da teh ne sledimo v historičnih dokumentih. Večinoma gre za degradacije, ki so nastale v zadnjih 40–50 letih.

Primer prikaza virov, ki so bili uporabljeni pri vrednotenju kulturne krajine Strmca pri Postojni

- Prometna povezava obstaja že iz rimskega obdobja. Rimska cesta Aqvilea–Emona naj bi imela dvojno traso (ena naj bi potekala na območju Strmce), a za to ni materialnih dokazov. Domnevno je bila podlaga za poznejše furmanske poti, ki so vodile proti Trstu.
- Strmca se omenja že leta 1162 kot del posesti cistercijanskega samostana v Stični, ki je od leta 1265 imel tudi sodno oblast nad podložniki. Strmca je takrat skupaj z vasema Studeno in Strane obsegala 12 kmetij.
- Arhiv republike Slovenije (ARS), franciscejski kataster, AS 176, A 185.
- Drugi viri (pogovor z domačini, z odgovornimi konservatorji območja obravnave ZVKDS, OE Nova Gorica).

Struktura prostora

Struktura prostora Strmca pri Postojni je prepoznavna, jasna in berljiva. Osnovni elementi so med seboj jasno ločeni in ločljivi in ne prehajajo drug v drugega. Ohranjene so linije komunikacij, ohranjen je volumen gozda, ki ga je danes več kot v 19. stoletju, zarasle so se skupne pašne površine po sosednjih hribih, ploskev kmetijskih površin zaseda skoraj enako površino, kot je prikazano v franciscejskem katastru.

Območje vasi se obravnava kot volumen, ki obvladuje območje kulturne krajine, ohranjena je meja poselitve, to je urbanizem oziroma rurizem, ki se ni spreminjal, če odštejemo nekaj novih objektov na zahodni strani vasi, ob glavni cesti. Pomembnih točkovnih elementov, ki bi pomembno vplivali na strukturo prostora, ni. Izjema je cerkev Marije Snežne na robu gozda.

Materialne ostaline – spomeniška substanca

Kmetijska raba na območju se v virih omenja že v 12. stoletju. Parcelacijo potrjuje franciscejski kataster od začetka 19. stoletja. Spreminjala se je poljedelska kultura znotraj obstoječe parcelacije, in sicer na račun travnikov. Zlasti v zadnjem obdobju je manj njivskih površin. Ohranjen je historični model obcestne poselitve z nekaj manjšimi degradacijami. Stavbna tipologija, to je notranjski stavbni tip, izginja. Slabše so ohranjene tipične ohišnice, to je gospodarski vrt, v nadaljevanju sadovnjak, neposredno ob stanovanjskih objektih. Enako je s skupnimi pašnimi površinami, ki so zaraščene in jih ni več. Gozd sega do kmetijskih površin. V celoti so ohranjeni avtentična mreža komunikacij ter dokaj jasna meja in obseg kmetijskih površin, še primerljivi s franciscejskim katastrom. Na območju je sedem objektov in območij kulturne dediščine. Gre za visoko stopnjo ohranjenosti materialnih prvin oziroma spomeniških ostalin.

Degradacije

Na južnem delu območja kulturne krajine Strmca teče 400-kilovoltni daljnovod Divača–Beričevo, katerega najizrazitejša prvina so mogočni kovinski stebri. Prav ti stebri so pomembna vizualna degradacija, ki sicer ne posega bistveno v strukturo ali materialno substanco kulturne krajine. Tako velikih struktur v tej krajini ni mogoče spregledati. Prestavitev daljnovoda trenutno ni možna. Naslednja degradacija se nanaša na pozidavo, in sicer stanovanjskih objektov ob cesti na zahodnem delu vasi. Stanovanjska pozidava sledi obcestnemu modelu poselitve, kar pomeni manjšo degradacijo spomeniških prvin. Sanacija ni potrebna. Zagotoviti pa je treba, da se pozidava ne nadaljuje. Pozidava več gospodarskih objektov na gozdnem robu pomeni pomembno degradacijo strukture in substance. Sanacija je možna, in sicer z odstranitvijo objektov, zlasti če niso več v uporabi, lahko pa tudi z vzpostavitvijo oziroma zasaditvijo novega gozdnega roba, s čimer bi objekte zakrili.

Numerična tabela vrednotenja za kulturno krajino

Vse obravnavane prvine so ocenjene v numerični tabeli vrednotenja, ki je izdelana posebej za vrednotenje kulturnih krajin v sistemu varstva kulturne dediščine. Numerična tabela za vrednotenje kulturne krajine je pomembna, ker prispeva k objektivizaciji vrednotenja. S to tabelo so strokovno in preverljivo ovrednotene vse prvine, ki opredeljujejo kulturno krajino, kar zmanjša stopnjo subjektivnosti ocenjevalca, predvsem pa omogoča transparentnost, ponovljivost in objektivnost konservatorjeve ocene. Na osnovi tako pridobljene ocene je lažje utemeljiti in sprejeti ustrezno odločitev o statusu ali varstvu obravnavane kulturne krajine.

V tabeli so vse pomembne prvine območja ocenjene na enak način. Ocena sloni na oceni stanja ohranjenosti prvine oziroma njeni degradaciji. Zato ni možno, da bi zaradi ene same ohranjene prvine krajina dosegla visoko oceno in se tako uvrstila v Register kulturne dediščine.

SKLOPI OBRAVNAVE	PRVINE OBDELAVE	OHRANJENOST PRVIN	OCENA
Struktura prostora	Prepoznavnost strukture	- ploskve - linije - točke - volumen	5 5 3 5 **90%**
	Funkcije enote strukture	- kmetijske površine - poselitev - gozd - komunikacije, robovi	5 4 5 5 **95%**
Spomeniške ostaline	Prevladajoči krajinski tip 1. Tipološko enovite kulturne krajine - njivske krajine, prehaja v krajine travnatega sveta	- parcelacija - komunikacije - poselitev - ohišnica - robovi - kontinuiteta kmetijske rabe - sprememba kulture - KD - skupne pašne površine	5 5 4 2 3 5 3 3 0 **66%**
PREPOZNAVNOST STRUKTURE IN SPOMENIŠKIH PRVIN			**83%**

Preglednica 2: Numerična tabela vrednotenja kulturne krajine Strmca pri Postojni (vir: Lah, 2016)

Predlog ocen

Stopnja ohranjenosti prvin	Ocena ohranjenosti
dobra ohranjenost (75–100 %)	5–4
delna ohranjenost (50–75 %)	3–2
slaba ohranjenost (manj od 50 %)	1

Krajina je kompleksna kulturna dediščina, zato mora njeno spomeniško in kulturno vrednost določati vsaj 60–75 % ohranjenih prvin. Morda se zdi zahtevani odstotek ohranjenosti visok. To je zato, ker se s kulturno krajino ne ukvarjamo kot z grajeno dediščino, ki jo obnavljamo in kasneje vzdržujemo ter za katero skrbimo, da ohranja historično podobo. Historične krajine, ki dosežejo ustrezno oceno, so se običajno ohranile zaradi kontinuitete rabe, ne pa zato, ker bi jih ohranjali za nas, bodoče generacije. Zaradi kontinuitete rabe se bodo krajine ohranjale tudi v prihodnje. Krajine z nižjo doseženo oceno kažejo na izgubo prvin in na spremembe, ki so z vidika varstva kulturne dediščine pomembne in pri katerih je npr. prvotna, tradicionalna raba opuščena ali v opuščanju, spomeniške prvine pa so degradirane. Pri krajinah gre vedno za nepovratne spremembe, kar pomeni, da krajina verjetno ne bo nikoli več ocenjena višje, seveda z vidika varstva kulturne dediščine.

Struktura prostora

Berljivost strukture je jasna. Ugotovljeni sta prisotnost štirih prvin in odsotnost pomembnejših točkovnih prvin. Strukturne enote so tudi dobro definirane. Manjša je degradacija pri poselitvenem modelu in na gozdnem robu.

Spomeniške ostaline

Prevladujoči krajinski tip njivske krajine prehaja zaradi opuščanja v travniško krajino. Pri tem se ohranja parcelacija, meje med parcelami so zaradi predhodne obdelave njiv še vidne.

Ohranjenost prvin in ocene

- Parcelacija in komunikacije so ohranjene: 5.
- Manjša degradacija poselitvenega obcestnega modela poselitve, novi objekti ob cesti. Sanacija ni potrebna, pozidava se ne sme nadaljevati: 4.
- Ohišnica je slabo ohranjena, ohranjen je samo segment sadovnjakov, in še ta slabo: 2.
- Robovi med kmetijskimi površinami in sedanjim gozdom so večinoma dobro ohranjeni razen na območju hlevov na zahodu območja. Sanacija je možna z vzpostavitvijo nove-

ga roba: 3.
- Kontinuiteta kmetijske rabe: 5.
- Sprememba kulture iz njivske v travniško pomeni manjšo strukturiranost in večje poenotenje, monotonost. Prisotnost degradacije, daljnovod: 3.
- Od 7 enot kulturne dediščine sta samo 2 pomembnejši (vas in cerkev sta kulturna spomenika): 3.
- Odsotnost skupnih pašnih površin: 0.

V zvezi z daljnovodom je treba omeniti, da je sanacija načeloma možna, saj ga je mogoče prestaviti. Na strukturo nima vpliva, na ostale spomeniške prvine, se pravi na rabo in parcelacijo, pa vpliva le minimalno s temelji stebrov. Daljnovod prav tako nima pomembnega vpliva na kulturno krajino Strmca pri Postojni z vidika historične kulturne krajine.

Predlog za vpisa krajine Strmca pri Postojni v Register kulturne dediščine (RKD)

Kulturna krajina Strmca pri Postojni je pri numeričnem vrednotenju dosegla 83 % ohranjenosti, kar pomeni, da je dosegla vrednost, ki predvideva vpis v Register kulturne dediščine.

Besedilo, katerega obseg je določen v pravilniku o Registru kulturne dediščine

Poseljena njivska kulturna krajina, ki prehaja v travniško, z dobro ohranjeno strukturo. Ohranjene spomeniške prvine so parcelacija, historični model obcestne poselitve, z avtentično mrežo poti, območje leži znotraj gozdnega prostora, od njega je ločeno z jasnim robom. Skupne pašne površine so zaraščene. Kontinuiteta kmetijske rabe je od 12. stoletja izpričana v virih.

Zaris za Register kulturne dediščine

Zaris območja varovanja v RKD je treba pripraviti na parcelno mejo natančno. V primeru Strmce sta dve možnosti. Zaradi dobro ohranjene meje med kmetijskimi in gozdnimi površinami se kot optimalna meja za zaris ponuja meja med gozdom in kmetijskimi površinami.

1. Manjše območje zavarovanja, zajema samo kmetijske površine, ki obdajajo vas Strmca.

Pri vrisu objekta ali območja se vedno postavlja vprašanje, kako določiti območje varovanja z vidika varstva kulturne krajine, ki bo prostorsko in historično utemeljeno. Pomembno je, da območje ni preobsežno, zlasti ko ohranjenost prvin morda dosega mejne vrednosti.

Po preučitvi pisnih in grafičnih virov je bilo ugotovljeno, da so v preteklosti obstajale skupne pašne površine, vzpostavljene s čiščenjem in vzdrževane s pašo, sledile so obdelanim kmetijskim površinam. Danes so te pašne površine zaraščene in pomenijo odsotnost ene od strukturnih prvin. Prve degradacije so nastale na današnjem gozdnem robu z gradnjo živinorejskih hal, ki so danes opuščene. Ohranjena linija roba med kmetijskimi površinami in gozdom je visoko ocenjena prvina, obenem pa privlačna za različne dejavnosti. Z vidika varstva kulturne krajine je smiselno mejo varovanja umestiti tako, da je linija roba med kmetijskimi površinami in gozdom znotraj varovanega območja. S tem ima služba varstva dediščine lahko nadzor nad posegi, ki bi krajino lahko degradirali. Odločitev za širše območje varovanja izhaja iz dejstva, da je kulturna krajina na območju predvidenega varovanja imela še eno strukturirano obliko kulturne krajine, ki je sicer zaraščena in zaradi tega izgubljena, lahko pa služi kot utemeljitev širšega območja varovanja, vendar ne zato, da bi jo ponovno vzpostavili ali kakorkoli drugače vplivali na obstoječe stanje, ampak da ohranimo informacijo o obsegu kulturne krajine v preteklosti. Ni pa mogoče povzeti meje pašnih površin v celoti in slediti pravilniku (Pravilnik ..., 1995), ki določa način vrisa območij v Register kulturne dediščine na parcelno mejo natančno.

Glede na specifičnost kulturne krajine znotraj varstva kulturne dediščine bi bilo smiselno za vpis krajin v RKD izdelati posebne strokovne podlage, v katerih bi prikazali vse pomembne prvine vrednotene kulturne krajine. Strokovne podlage za vpis kulturne krajine v RKD bi vsebovale prikaz vrednotenja, vključno z grafičnim prikazom in numerično oceno ohranjenosti. Konservatorji bi tako lažje utemeljevali svojo strokovno odločitev tako znotraj ZVKDS kot tudi zunanjim zainteresiranim.

Interpretacija in vrednotenje rezultatov

Ta metoda vrednotenja se naslanja na standardne pristope službe varstva kulturne dediščine pri vrednotenju kulturne dediščine, ki izhajajo iz ohranjenosti in prepoznavnosti prvin. Glavni merili, ki sta pomembni za vrednotenje kulturne krajine, sta prepoznavna struktura kulturne krajine in ohranjene materialne ostaline. Ugotovitve in dognanja potrjuje metoda z obstoječimi zgodovinskimi viri, zato so rezultati utemeljeni in dokazljivi. Ugotavlja avtentično stanje krajine v segmentu strukture ali materialnih ostalin, ki je razvidno iz ostalin in virov. Avtentičnost v primeru vrednotenja kulturne krajine znotraj sistema varstva kulturne dediščine je specifična, a sloni tudi na virih. Ohranjenost posameznih prvin, ki jih lahko vrednotimo in numerično ocenimo, kulturno krajino določa kot samostojno zvrst kulturne dediščine in jo s tem izenači z njenimi drugimi zvrstmi.

Slabost metode je, da je pred odhodom na teren in vrednotenjem potrebna kabinetna priprava. Vrednotenje samo z numerično tabelo na terenu, brez predpriprave, se je izkazalo za neustrezno. Vrednotenje temelji torej na fizičnem pregledu gradiva, kar je dolgotrajno, in na večkratnem terenskem preverjanju, a vse to je značilno za službo varstva kulturne dediščine. Napake so možne, pri čemer bi se lahko postopek izboljšal z računalniško tehnologijo tako pri virih kot tudi pri grafičnem gradivu, in sicer na način, da bi bili posamezni koraki enostavnejši in ocene natančnejše, predvsem pa bi bil ves postopek hitrejši.

Razprava

Razglasitev kulturne krajine za kulturni spomenik, ki bi bil v privatni lasti in sredstvo preživetja številnih družin, še ni bila izvedena. Stanje v posameznih lokalnih skupnostih danes ni naklonjeno razglašanju kulturne dediščine. Zahteve, ki bi jih lahko postavila klasična razglasitev visoko ocenjene kulturne krajine, zagotovo ne bi bile sprejete. Verjetno ne bi pomagale niti subvencije države za lastnike, če bi obstajale. Slovenci kot posamezniki se težko odpovedo svojim posebnim interesom do rabe prostora, na »svoji zemlji« nočejo nikakršnih omejitev, ki ne vključujejo tudi znatnih ugodnosti.

Samo dve kulturni krajini sta razglašeni za spomenik državnega pomena, to je najvišji status, ki ga lahko doseže varovani objekt. Tako razglasitev izvede država. To je danes skoraj edina pot za dosego varstva kulturnih krajin. Upravlja pa jih javni zavod. Gre za izjemno pomembni območji Kobilarne Lipica. Poudariti je treba, da je v kobilarni z osnovno dejavnostjo, to je reja plemenitih konj, zagotovljena ustrezna raba in da dejavnost subvencionira država. Več kot 400-letna tradicija vzgoje konj, ki je bila vedno subvencionirana, vzdržuje kulturno krajino, kar je edina sprejemljiva oblika varstva krajine. Za kulturno krajino v kobilarni vedno ustrezno skrbi upravljavec, ker je bistvena za osnovno dejavnost. Kobilarna Lipica se tudi razvija, tradicionalna dejavnost vzreje plemenitih konj vključuje tudi nove vsebine, ki jih zahtevata znanost in razvoj, kot so npr. čistilna naprava, porodnišnica za konje, lastna drevesnica za nadomeščanje dreves tako v drevoredih kot na pašnikih.

Prav s Kobilarno Lipica je prišlo spoznanje, da je edino možno varstvo kulturne krajine ustrezna raba in dejavnost, ki dediščino ohranja in vzdržuje obenem. Kulturna krajina v Kobilarni Lipica in njeno zavarovanje sta seveda specifičen primer, ne samo v Sloveniji, ampak tudi v širšem prostoru, in zato nista primerljiva s katerokoli drugo krajino. Z vrednotenjem zato ni bilo treba ničesar posebej dokazovati. Vrednotenje doslej še ni bilo izvedeno. Ob ugledni količini različnih virov, ob podpori države, javnosti in strokovne javnosti se vrednotenje na način, kot je prikazano v tem prispevku, ni zdela primarna potreba. Odgovorna konservatorka za območje Kobilarne Lipica pa ni pripravila predlogov za razglasitev nobene krajine več, saj takih izjemnih krajin z ustrezno rabo in tako močno podporo na vseh ravneh preprosto ni.

V Registru kulturne dediščine je trenutno več kot 300 kakorkoli vrednotenih in opredeljenih kulturnih krajin, ki imajo najnižji status kulturne dediščine. Kakršnakoli dejavnost v teh krajinah ali njihova raba se lahko spremenita, s čimer se lahko degradirajo ovrednotene prvine. V okviru veljavne zakonodaje Zavod za varstvo kulturne dediščine Slovenije (ZVKDS) lahko nadzoruje samo gradnje kmetijskih objektov znotraj varovanih območij kulturne krajine. Vsi drugi posegi se dogajajo mimo ZVKDS. Kmetijstvo svoje dejavnosti še ne načrtuje s sektorskimi načrti, kar pomeni, da kot glavni soustvarjalec kulturne krajine ni vključeno v prostorsko načrtovanje na način, ki bi še kateremukoli deležniku v prostoru omogočal bistveno vplivanje na spremembe, ki jih povzroča v krajini. Spremembe rabe, kulture, parcelacije, zaraščanje itd. so odvisne predvsem od odločitev lastnikov posesti. Na zavarovanih območjih kulturne krajine je znan samo en primer, ko se je lastnik ob spremembi kulture obrnil na ZVKDS.

Vsa ovrednotena kulturna dediščina, ki je vpisana v RKD, je varovana z varstvenimi režimi, ki se nanašajo na posamezno zvrst. Tudi za kulturno krajino je določen varstveni režim, ki pa še ni bil preizkušen, kar pomeni, da ga ni moč komentirati. Postavlja se vprašanje, ali lahko z varstvenim režimom oziroma normativno varujemo vsebino, katere bistvena lastnost je kontinuirano spreminjanje.

Francoski vinarji na območju Lyona ugotavljajo, da zaradi skrajnih vremenskih pojavov, kot so vročinski vali, ki jim sledijo nalivi in toča, ter zime in noči, ki so vse bolj mile, rastline nikoli ne počivajo, kar prinaša spremembe v kulturni krajini. Sosledje zorenja naj bi se podrlo, sladkor prezgodaj doseže previsoko raven, takrat, ko jagode še niso zrele. Težko je določiti termin trgatve. Pridelek je zato lahko manj kakovosten. Trenutno vidijo vinarji rešitev v zamenjavi sorte vinske trte, dolgoročno, v naslednjem stoletju, če se bodo temperature še višale, pa napovedujejo, da se bo trta selila na severnejša območja, omenjata se npr. Poljska in Anglija. S tem bo izginila vinogradniška kulturna krajina, izginile bodo tudi kulturna dediščina pridelave vina, znane francoske blagovne znamke, kultura pitja vina, specifična kulinarika ... Tudi če bi nas lastnik kulturne krajine obvestil o spremembah na svoji posesti, kakšni so lahko argumenti službe varstva kulturne dediščine za vztrajanje pri historičnih rabah ali predpisovanje novih rab, vrst kultur itd.? Zato se danes opravičeno postavlja vprašanje smiselnosti varovanja kulturnih krajin znotraj varstva kulturne dediščine na normativen način. ZVKDS lahko

obvladuje samo en segment kulturne krajine, to je historičnega, ki je sicer pomemben, a ob odsotnosti obravnave tudi drugih sestavin krajine lahko pripelje do degradacij ali celo opustitve rabe.

Velika posestva so spremenila lastniško strukturo, dediči so se razselili v bolj ali manj oddaljene kraje. Želijo obdelovati svojo družinsko dediščino, to pa je danes zaradi drugačnega načina življenja bolj zahtevno, kot je bilo včasih. Veliko jih zaradi oddaljenosti od posesti potrebuje kmetijski objekt za spravilo orodja in drugih potrebščin, ki jih ne morejo prevažati sem in tja ali jih puščati na prostem. Apriorna normativna prepoved takih gradenj ne pomeni varstva kulturne krajine.

V nekaterih krajinah se je zdela sprejemljivo, da bi vendarle zadovoljili potrebe lastnikov z vkopavanjem objektov ter iskanjem oblik in lokacij, ki niso izpostavljene, ki ne motijo vedut, ki so skrite. Toda po drugi strani je »skrivanje« novih vsebin v okviru varstva kulturne dediščine in enako kulturne krajine konservatorsko nesprejemljiv pristop. Nove vsebine in s tem običajno tudi nove oblike je treba jasno umeščati v prostor, z zavedanjem, da je ta že oblikovan, in na način, da se vzpostavi dialog med obstoječim in novim.

Kmetijski pomožni objekti so včasih imeli značilno tipologijo po regijah, po tipih krajin. Izkazovala se je v gabaritu, v rabi avtohtonih materialov in v funkcionalnosti. Danes poustvarjanje takih objektov, tudi v izkazani historični krajini, ni smiselno. Taki objekti danes verjetno v večini primerov ne bi zadovoljili potreb sodobnega kmeta – lastnika; samo kot primer naj navedemo historične vinogradniške hiške v Vipavski dolini velikosti 3 x 3 m, 2 x 2 m, tudi manjših dimenzij, grajene v suhozidni tehniki. Taki objekti ne bi bili odraz današnjega družbenega razvoja in potreb kmetijske dejavnosti, ampak oblika »ponaredka« v krajini oziroma eksponat, če bi šlo za prenovo.

Razmislek o sodobnih kmetijskih pomožnih objektih še ni bil narejen. Zagotovo to ni naloga spomeniške službe, ki predvsem obnavlja objekte na osnovi virov in v osnovi ni pristojna za oblikovanje novih, sodobnih objektov. Služba za varstvo kulturne dediščine bi lahko na osnovi virov, ki jih ima, in poznavanja tematike za kmetijske objekte v krajini zagotavljala npr. podatke o značilnih materialih, gabaritih, kritinah in osnovnih funkcijah, ki so lahko koristni za projektante. Danes ti objekti ne morejo biti proizvod ljudske tvornosti v etnološkem smislu, ampak so lahko le rezultat načrtovanja, arhitekture in sodobne funkcije. Problem pomožnih kmetijskih objektov znotraj kulturne krajine se po regijah ali po območjih posameznih OE ZVKDS različno izkazuje. Največji problem znotraj ZVKDS so zagotovo pritiski za vsakovrstne gradnje v Primorju, morda tudi zato, ker je tam veliko zavarovanih kulturnih krajin. Ustaljena tendenca investitorjev, ki prihajajo iz vse Slovenije, pa je, da se ti objekti sčasoma prekvalificirajo v počitniške objekte. Veliko je tudi nedovoljenih gradenj, kar pa kaže na znan problem neučinkovitosti inšpekcij.

Na vprašanje, kako ravnati s kulturno krajino, odgovarja tudi prof. Ogrin v Strategiji varstva krajine v Sloveniji (Ogrin, 1996). Opozarja na neprimernost konservativne obravnave in vrednotenja krajine: »*... prizadevanje za varstvo obstoječe ruralne krajine je pravzaprav pojav vrednostne regresije, ki se kaže kot odraz družbene nostalgije. Morda celo odraz strahu izgube znane vrednosti v dobi prevladujočih profitno tehnoloških motivacij, ki obetajo malo ali celo nič tega, kar bi lahko zadovoljilo vse bolj razdvojenega sodobnega človeka družbenega izobilja, navajenega, da mu spremembe prinašajo predvsem razvrednotenje okolja. Ne glede na vprašljivost takšne socialno-psihološke podstati pa je tudi res, da se tukaj srečujemo s povečano globalno družbeno dojemljivostjo za krajinsko dediščino in da je treba s temi prizadevanji resno računati ter jim z ustreznimi spoznanji in neposrednimi ukrepi iti nasproti. Na sam začetek takšne dejavnosti pa sodi pridobivanje vednosti o nacionalnem krajinskem skladu in o njegovi notranji vrednosti.*«

Zaključek

Z normativnim varovanjem znotraj kateregakoli resorja krajini odrekamo njeno edino jasno stalnico, to je dinamiko spreminjanja. Vse krajine so tudi kategorija sedanjosti, imajo lastnike, določeno rabo, prisotni so številni naravni procesi, nenehno se dogajajo spremembe tako v prostoru kot v družbi, na vse to se krajina tudi historična odziva. Normativno varovanje je v nasprotju z vsem naštetim.

Ohranjene kulturne krajine so posledica ravnotežja oziroma sonaravnega gospodarjenja, ki se je vzpostavljalo z izkušnjo življenja in z delovanjem človeka v prostoru skozi stoletja. Nihče jih ni varoval zaradi nas, ker niso bile predvidljive naše potrebe in niti naš razvoj. S tako veliko stopnjo negotovosti, kot je danes na vseh področjih, tudi mi ne moremo veliko predvideti.

Vse kulturne krajine so hkrati pečat naše generacije, ki s prostorom govori o nas samih, ga ureja na nam lasten način, ki odseva naš čas, naše probleme in sposobnost, da jih rešujemo z znanjem, ki ga imamo. Prav vse krajine so preplet sedanjosti in preteklosti. Odnos sedanje generacije do preteklosti in dosežkov naših prednikov je pomemben, ker govori o njeni kulturnosti.

Nekateri menijo, da je odsotnost mehanizmov za uresničevanje ukrepov varstva kulturne krajine in odsotnost dialoga z drugimi sektorji, npr. varstvom narave, kmetijstvom in gozdarstvom, vzrok, da kulturna krajina ni ustrezno varovana. Nobeden od naštetih sektorjev ne more obvladovati kulturne krajine sam in ne more voditi dialoga, lahko le prispeva svoje strokovno vedenje, iz svojega segmenta obravnave kulturne krajine. Kulturna krajina se lahko obravnava samo nadsektorsko. Varstvo krajine s toliko deležniki, ki prakticirajo predvsem normativno varstvo, je za krajino uničujoče. Vsi sektorji bi morali sodelovati pri upravljanju krajine. Upravljanje pa se lahko začne samo z ustvarjalnim dialogom znotraj prostorskega načrtovanja. Vedenje o historičnih krajinah je bistveni podatek pri prostorskem načrtovanju. Ta podatek pa lahko zagotovi samo služba varstva kulturne dediščine in tako s svojim specifičnim znanjem in metodami tvorno prispeva k prostorskemu načrtovanju oziroma upravljanju krajin.

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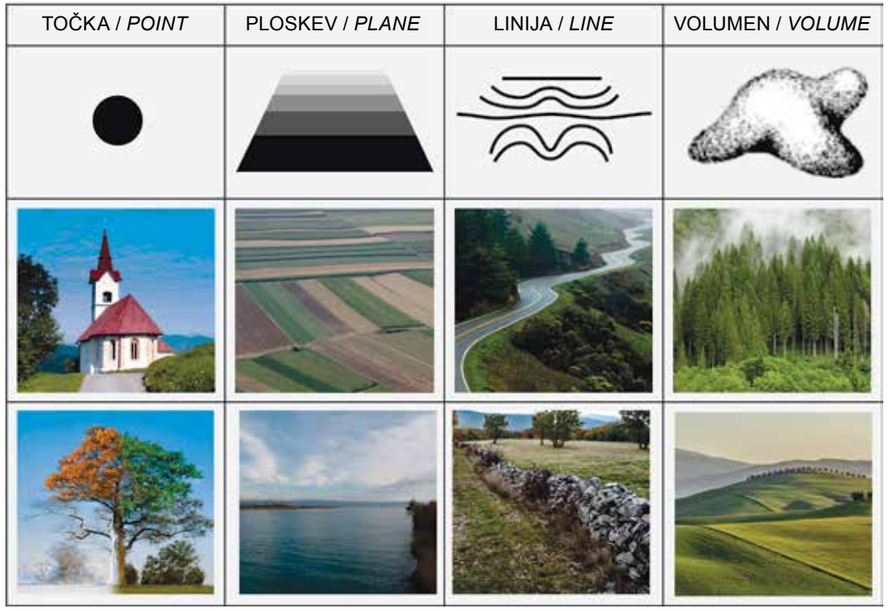
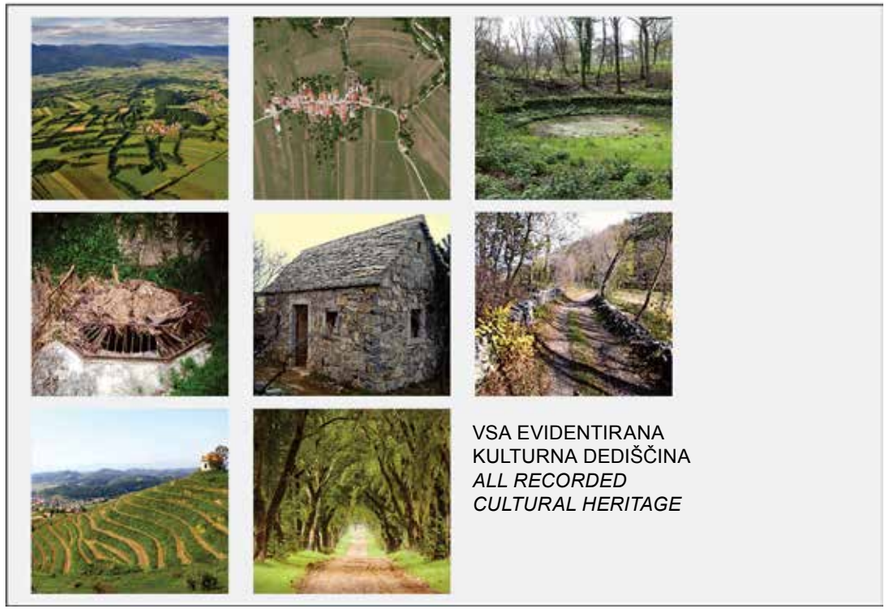
STRUKTURA PROSTORA / *STRUCTURE OF AREA*



1. Prikaz elementov, ki so lahko gradniki strukture prostora (vir: Lah, 2016)
1. Elements that can be building blocks of the structure of an area (source: Lah, 2016)

OSTALINE V PROSTORU / *REMAINS IN AREA*



2. Prikaz nekaterih ostalin v krajini (vir: Lah, 2016)
2. Some remains in the landscape (source: Lah, 2016)

DEGRADACIJE / *DEGRADATION*

Največjo degradacijo v krajini lahko predstavlja poselitev. Tipologija posameznih domačij in vil, degradirana s stihijsko pozidavo. / *The biggest degradation in a landscape can be represented by settlement. Typology of individual farmhouses and country houses degraded by uncontrolled building.*

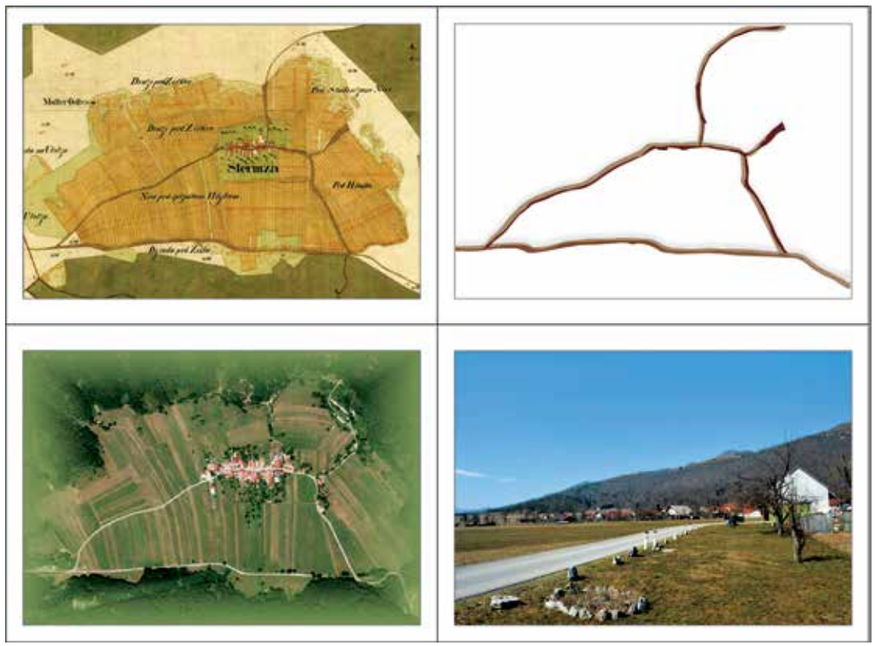
Linijski infrastrukturni objekti prečkajo krajine
Linear infrastructure crosses landscapes

Uniformno umeščanje infrastrukturnih objektov večinoma nepovratno spreminja krajine
Uniform siting of infrastructure in most cases irrevocably changes landscapes

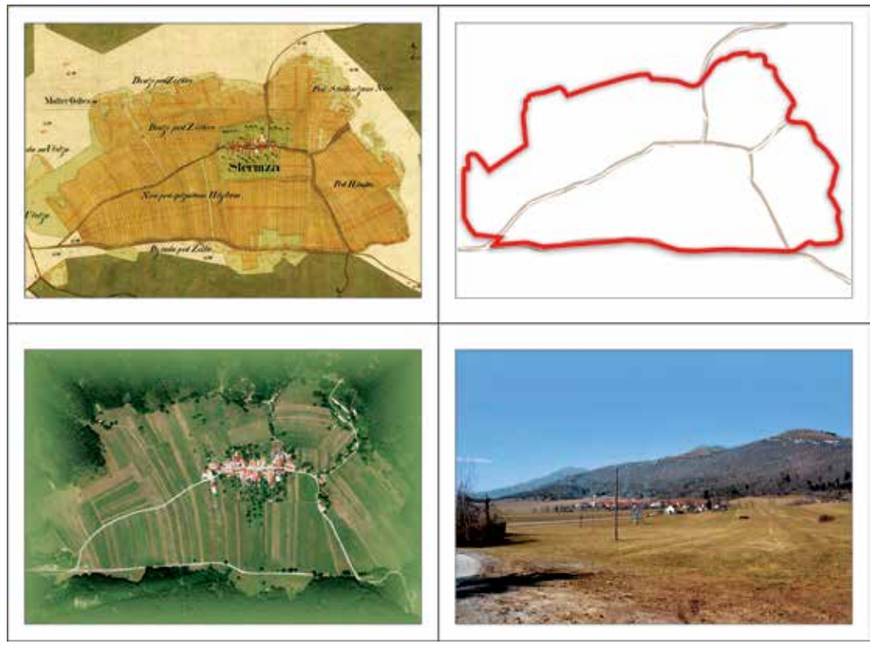
3. Prikaz nekaterih degradacij v krajini (vir: Lah, 2016)
3. Examples of degradation in a landscape (source: Lah, 2016)

 Franciscejski kataster / *Franciscan cadastral survey*	Obravnavana prvina *Element considered*
Letalski posnetek območja stanja s terena *Aerial photograph of the area* 	Fotografija terena, kjer je to možno *Photograph of the terrain where possible*

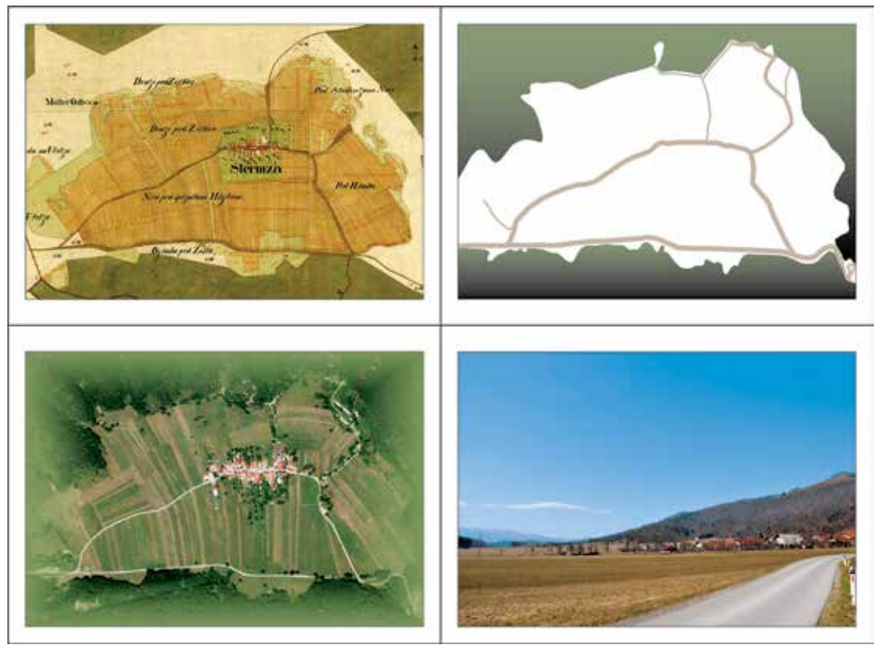
4. Model preglednice za izvedbo vrednotenja (vir: Lah, 2016)
4. Model evaluation table (source: Lah, 2016)



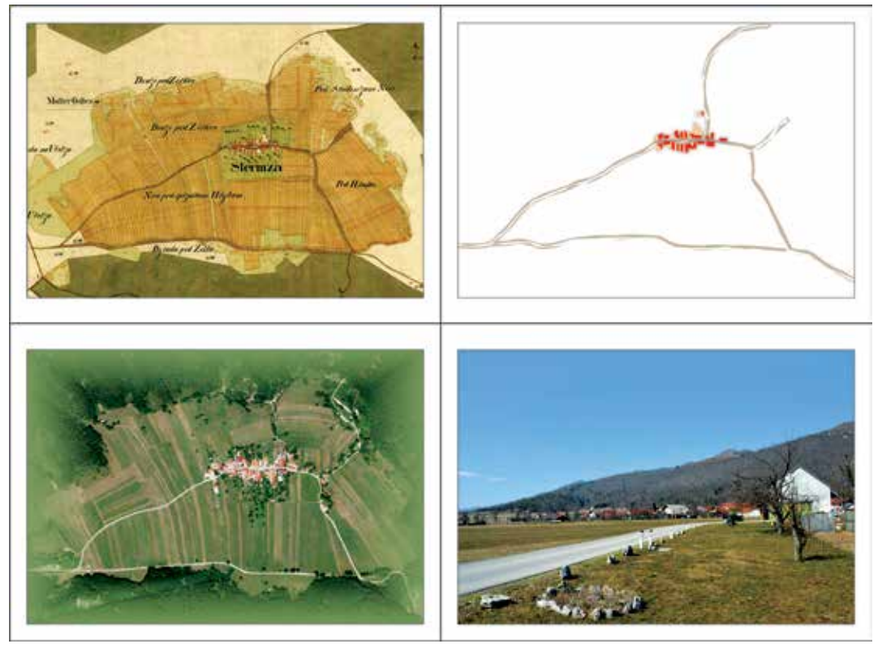
5. Prikaz nekaterih ostalin v krajini (vir: Lah, 2016)
5. Some remains in the landscape (source: Lah, 2016)



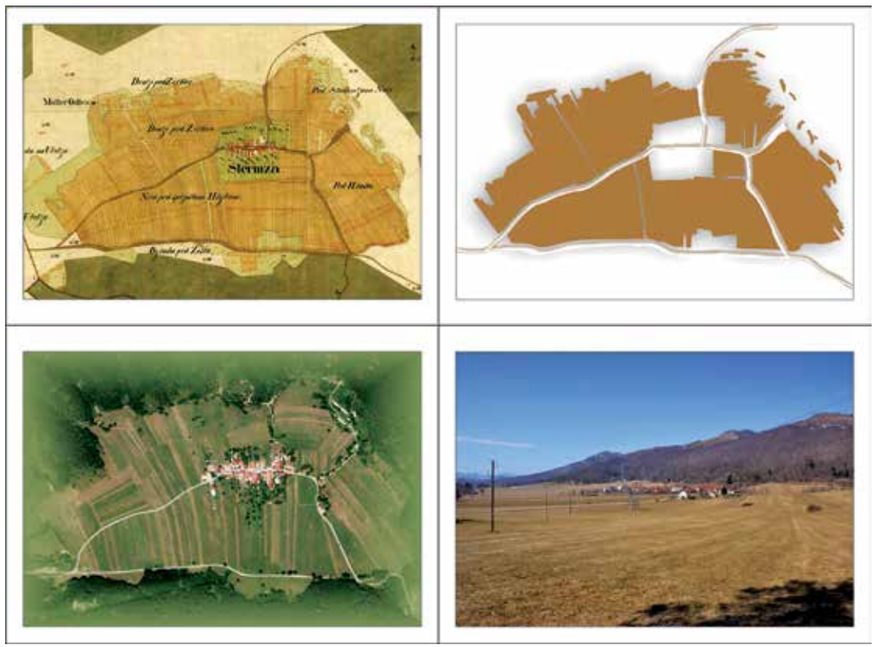
6. Strukturni element: linije – rob, meja območja (vir: Lah, 2016)
6. Structural element: lines – edge, area boundary (source: Lah, 2016)



7. Strukturni element: volumen – gozd (vir: Lah, 2016)
7. Structural element: volume – forest (source: Lah, 2016)



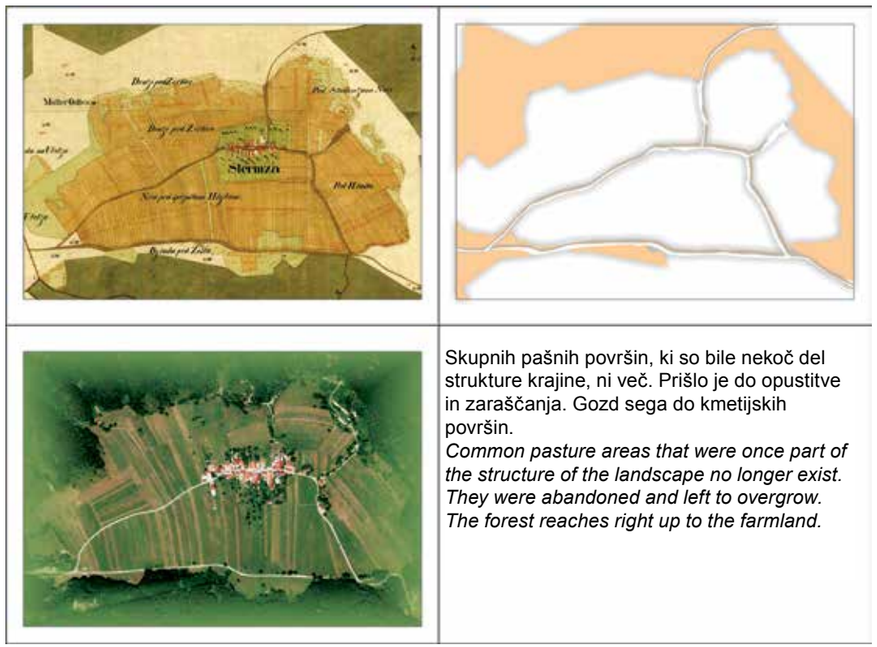
8. Strukturni element: volumen – naselje Strmca (vir: Lah, 2016)
8. Structural element: volume – Strmca settlement (source: Lah, 2016)



9. Strukturni element: ploskev – kmetijske površine (vir: Lah, 2016)
9. Structural element: plane – farmland (source: Lah, 2016)

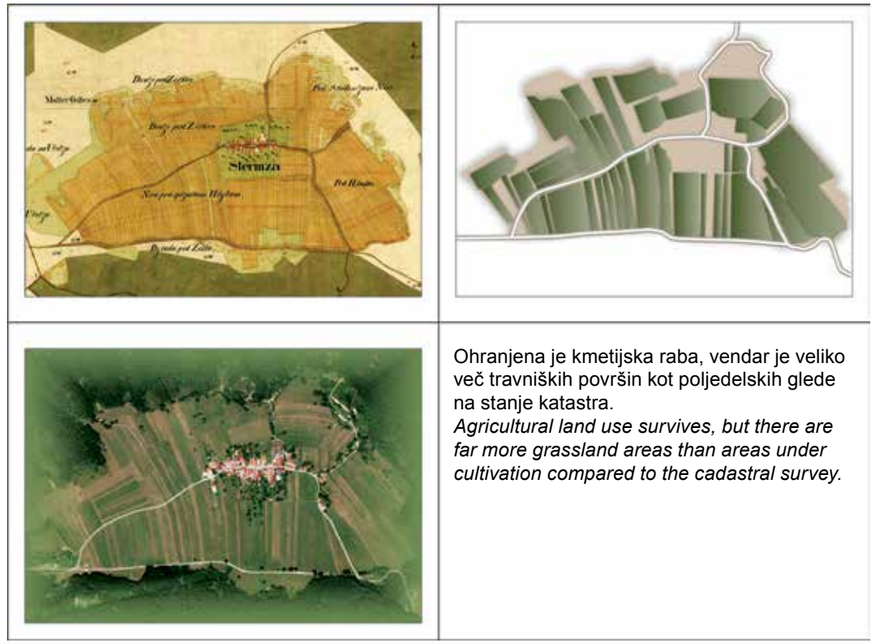
Cerkev Marije Snežne na robu gozda / *Our Lady of the Snows Church at the edge of the forest*

10. Strukturni element: točka – sakralni objekt (vir: Lah, 2016)
10. Structural element: point – religious building (source: Lah, 2016)



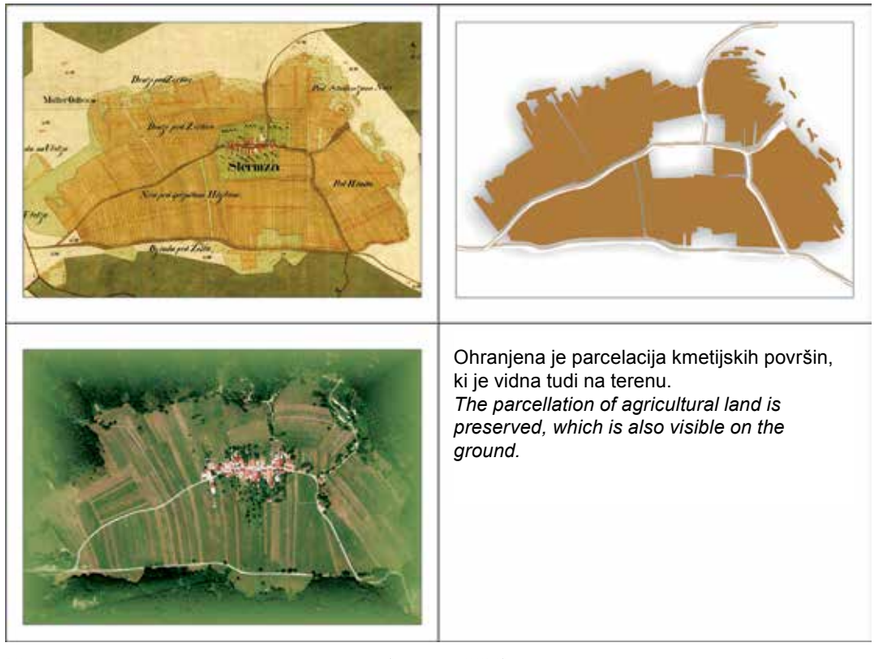
Skupnih pašnih površin, ki so bile nekoč del strukture krajine, ni več. Prišlo je do opustitve in zaraščanja. Gozd sega do kmetijskih površin.
Common pasture areas that were once part of the structure of the landscape no longer exist. They were abandoned and left to overgrow. The forest reaches right up to the farmland.

11. Skupne pašne površine, ki jih ni več (vir: Lah, 2016)
11. Common pastureland no longer existing (source: Lah, 2016)



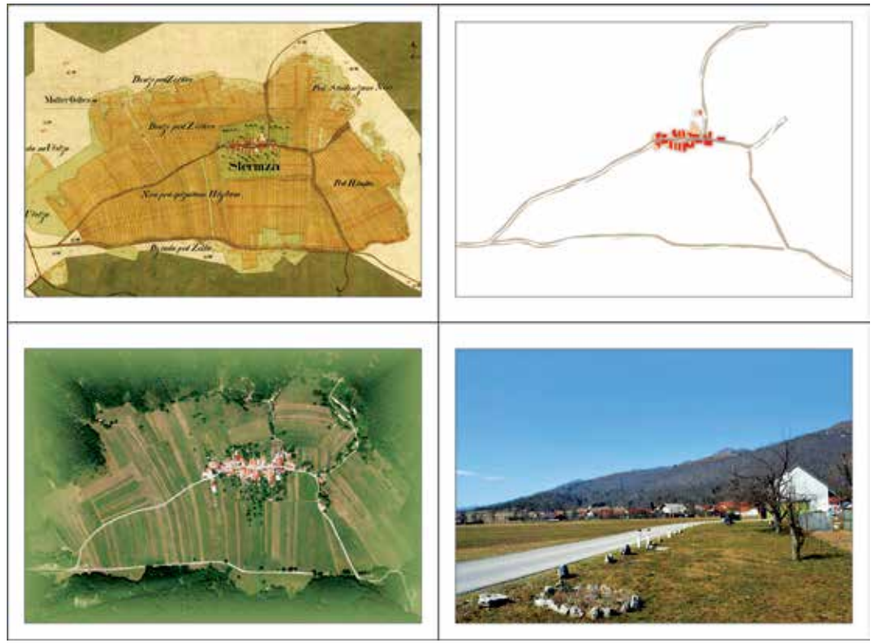
Ohranjena je kmetijska raba, vendar je veliko več travniških površin kot poljedelskih glede na stanje katastra.
Agricultural land use survives, but there are far more grassland areas than areas under cultivation compared to the cadastral survey.

12. Materialna ostalina: ohranjena kontinuiteta kmetijske rabe (vir: Lah, 2016)
12. Material remains: preserved continuity of agricultural use (source: Lah, 2016)

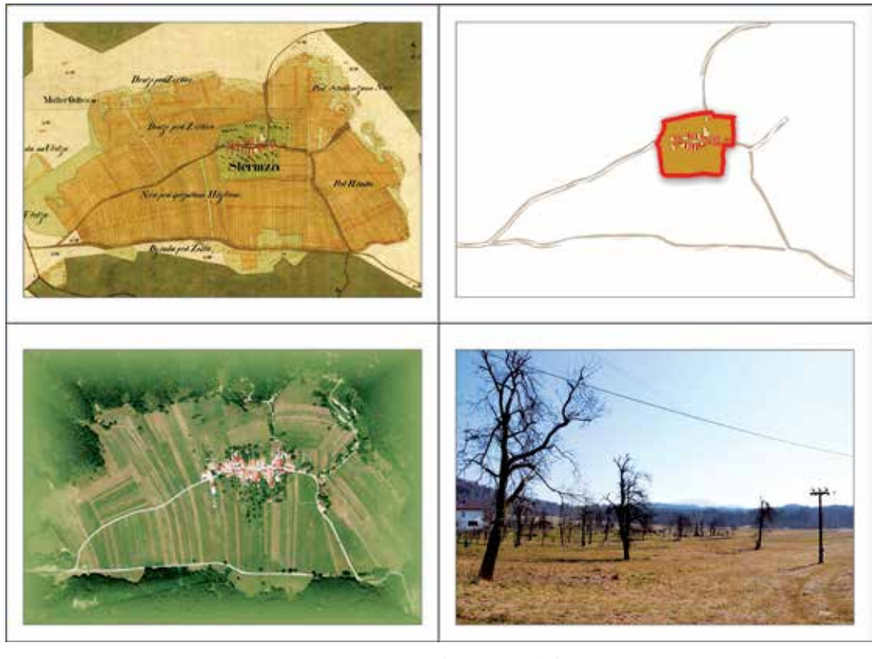


Ohranjena je parcelacija kmetijskih površin, ki je vidna tudi na terenu.
The parcellation of agricultural land is preserved, which is also visible on the ground.

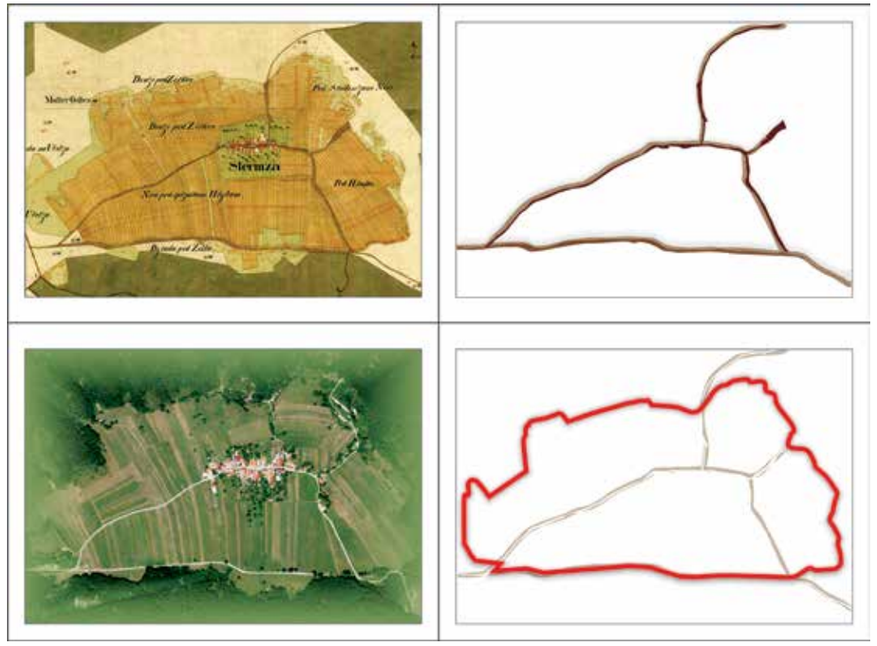
13. Materialna ostalina: ohranjena parcelacija (vir: Lah, 2016)
13. Material remains: preserved parcellation (source: Lah, 2016)



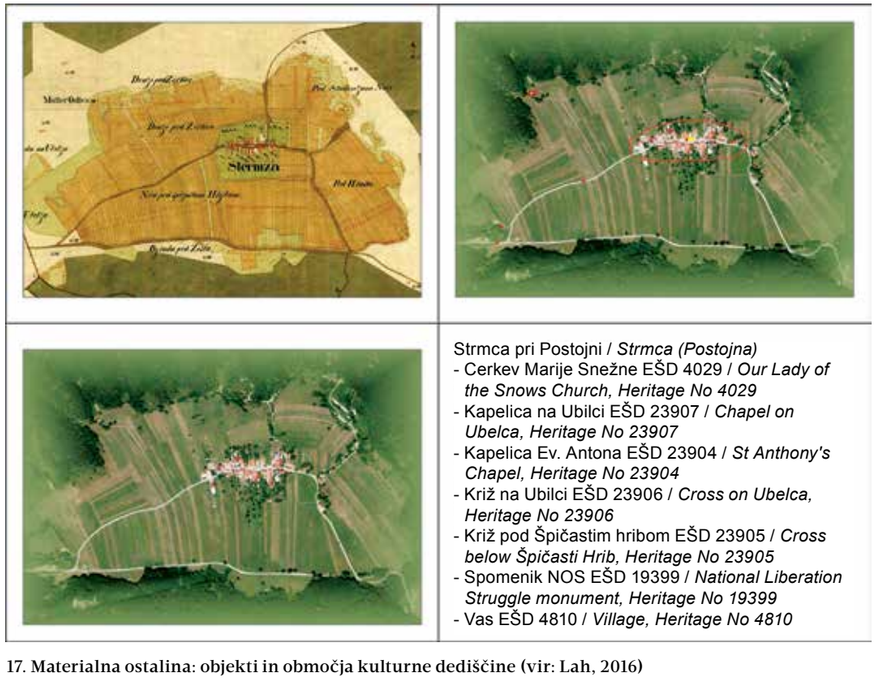
14. Materialna ostalina: ohranjen historični model obcestne poselitve (vir: Lah, 2016)
14 .Material remains: preserved historical model of roadside settlement (source: Lah, 2016)



15. Materialna ostalina: ohranjene ohišnice ob hišah (vir: Lah, 2016)
15. Material remains: preserved fruit and vegetable gardens next to houses (source: Lah, 2016)

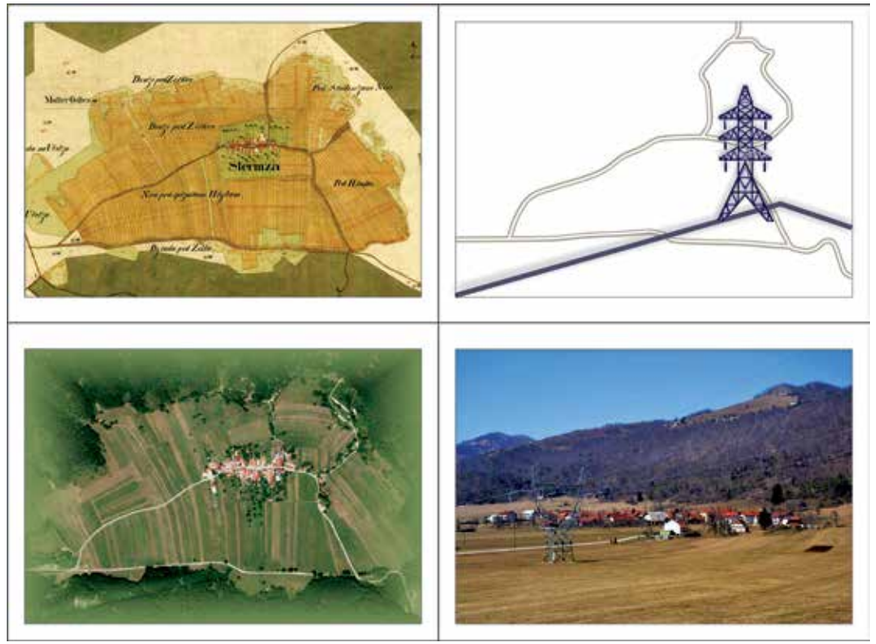


16. Materialna ostalina: ohranjena avtentična mreža komunikacij, meja med gozdom in kmetijskimi površinami (vir: Lah, 2016)
16. Material remains: preserved authentic communications network, boundary between forest and farmland (source: Lah, 2016)

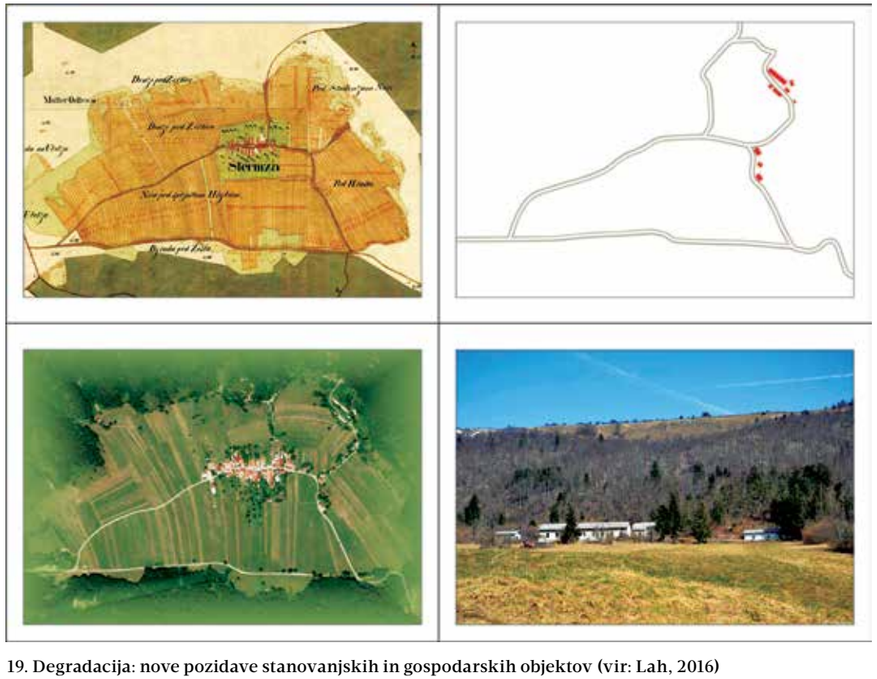


Strmca pri Postojni / *Strmca (Postojna)*
- Cerkev Marije Snežne EŠD 4029 / *Our Lady of the Snows Church, Heritage No 4029*
- Kapelica na Ubilci EŠD 23907 / *Chapel on Ubelca, Heritage No 23907*
- Kapelica Ev. Antona EŠD 23904 / *St Anthony's Chapel, Heritage No 23904*
- Križ na Ubilci EŠD 23906 / *Cross on Ubelca, Heritage No 23906*
- Križ pod Špičastim hribom EŠD 23905 / *Cross below Špičasti Hrib, Heritage No 23905*
- Spomenik NOS EŠD 19399 / *National Liberation Struggle monument, Heritage No 19399*
- Vas EŠD 4810 / *Village, Heritage No 4810*

17. Materialna ostalina: objekti in območja kulturne dediščine (vir: Lah, 2016)
17. Material remains: cultural heritage structures and areas (source: Lah, 2016)

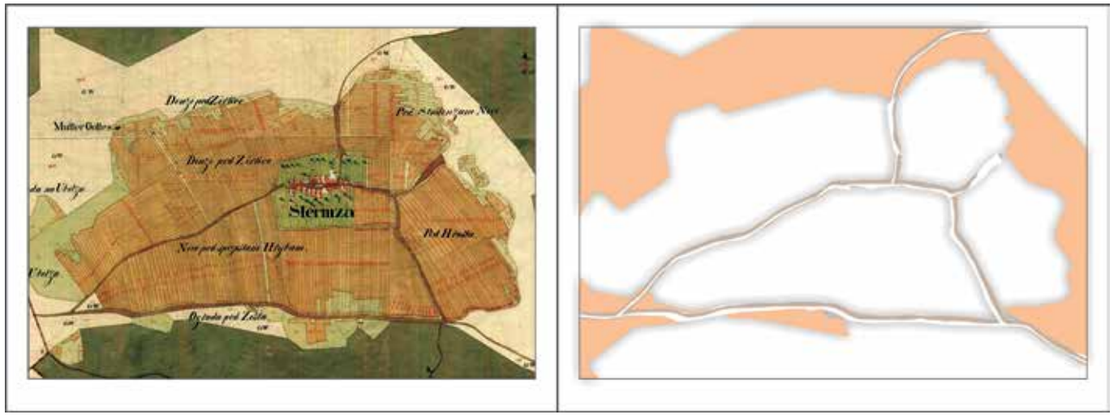


18. Degradacija: daljnovod (vir: Lah, 2016)
18. Degradation: overhead transmission line (source: Lah, 2016)

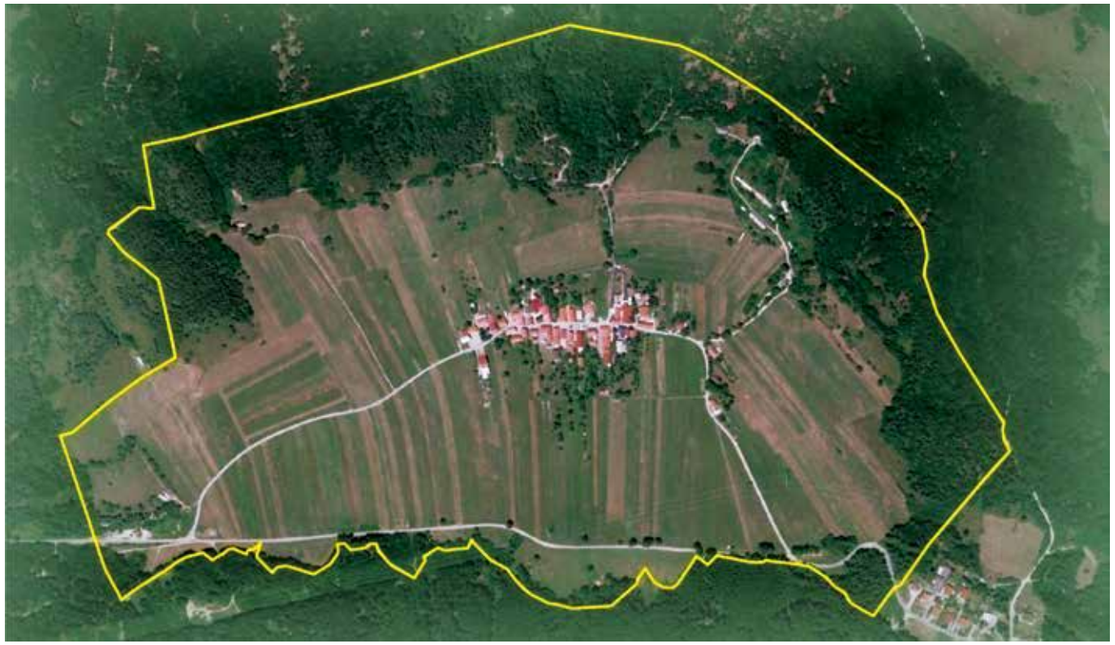


19. Degradacija: nove pozidave stanovanjskih in gospodarskih objektov (vir: Lah, 2016)
19. Degradation: new construction of dwellings and farm buildings (source: Lah, 2016)

20. Prvi predlog zarisa območja v RKD (vir: Lah, 2016)
20. First proposed delineation of the area in the Cultural Heritage Register (source: Lah, 2016)



21. Franciscejski kataster in skupne pašne površine, ki se niso ohranile (vir: Lah, 2016)
21. Franciscan cadastral survey and common pastureland that is not preserved (source: Lah, 2016)



22. Drugi predlog zarisa območja v RKD (vir: Lah, 2016)
22. Second proposed delineation of the area in the Cultural Heritage Register (source: Lah, 2016)

Marvy Lah

Cultural landscapes within the cultural heritage protection system

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Summary

In the social conscience of Slovenes, the landscape is something valuable. This is undoubtedly in part because within the relatively small area that makes up the national territory, we have several different and diverse landscape systems: Mediterranean, Prealpine, Alpine, Dinaric and Pannonian.

Landscape systems in Slovenia have for the most part preserved the historical structure of the territory. This occurred as a result of the specific social system after the Second World War, when agriculture was merely a supplementary activity of the working class, for which reason agricultural production failed to modernise The historical structure of the landscape is evident in relatively well preserved harmonious relationships between farmland, settlement and forest. Numerous remains of the past have been preserved, including historical settlement models characteristic of individual systems and continuity of agricultural use, while other features that still survive in many areas include the typical division of the land into small parcels, road and path networks, numerous cultural heritage properties, and so on.

This article presents a proposal for a method of evaluating cultural landscapes within the system of cultural heritage protection – something that has not been elaborated until now. The lack of uniformity in the way in which cultural landscapes are evaluated is perhaps the reason that such a large number of landscapes are recorded in the Cultural Heritage Register. A uniform method of evaluation of cultural landscapes within the system of cultural heritage protection is important because it will show the real situation. It would almost certainly lead to a change in the present situation, in that there would be fewer protected landscapes, while at the same time these would be more evenly distributed across the national territory. Evaluation criteria would make it easier to identify heritage landscapes accurately and, most important, enable experts to present arguments for their protection or for the removal from the Cultural Heritage Register of those that do not have the characteristics of monuments.

Identified and preserved elements of historical structure and monumental elements that are identified and evaluated by the cultural heritage protection service are particularly important in the context of spatial planning and landscape management. A carefully considered concept of preservation of these elements and their adequate incorporation into modern uses will contribute to the preservation of cultural landscapes and local traditions and in this way help reduce landscape uniformity.

Introduction

The mission of the cultural heritage protection service is to preserve immovable cultural heritage for future generations and provide us with knowledge about our past. At the same time the service has access to important data and

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knowledge about how people lived in the past, and in this way is able to contribute to our understanding of the significance of what we have inherited from the past. It is proficient in the evaluation of elements of cultural heritage and the methods of restoration by which structures (for example a building from an important historical period), are returned to their original appearance, and is able to apply expert criteria to the selection of the most suitable solution from the point of view of the preservation of cultural heritage and the new uses to which it is put.

Unlike other parts of cultural heritage, the landscape is a dynamic and complex system and therefore in most cases cannot be preserved, restored or reconstructed. The continuous change that defines all cultural landscapes, including historical ones, is diametrically opposed to the content and method of management of other cultural heritage. The cultural landscape is a specific category within cultural heritage protection. For this reason we cannot evaluate it using the general evaluation criteria established within the cultural heritage protection service. The building blocks of a historic cultural landscape differ from those we identify when evaluating built cultural heritage, but common to both types of heritage is the fact that both have a structure and surviving monumental remains. The identification and evaluation of both is possible using an appropriate evaluation method.

Cultural heritage and cultural landscape

Cultural heritage is defined in the current Cultural Heritage Protection Act (2008) as resources inherited from the past which Slovenes, members of the Italian and Hungarian national minorities and the Roma community, and other citizens of the Republic of Slovenia define as a reflection and expression of their values, identities, religious and other beliefs, knowledge and traditions. Heritage includes aspects of the environment that derive from the interaction of people and space over time. Heritage is divided into tangible heritage and living heritage. Tangible heritage consists of movable heritage and immovable heritage. An integrated approach to the preservation of heritage is implemented in development planning and other measures at the national, regional and municipal levels through the incorporation of heritage into sustainable development while paying due regard to its special nature and social significance.

Article 3 of the Cultural Heritage Protection Act (2008) (definitions) defines a **cultural landscape** as a type of immovable heritage that is an open space comprising natural and man-made elements, the structure, development and use of which are chiefly determined by human intervention and activity. Article 134 of the same Act (protection regime of existing immovable monuments) lays down the protection regime for a protected cultural landscape: the characteristic use of land, parcellation, characteristic vegetation, spatial dominants, the relationship between settlement and open space, places of memory and characteristic topographical names.

A **cultural landscape** is defined by the Spatial Development Strategy of Slovenia (2004) as the consequences of changes that occur in the physical environment as a result of the implementation of social needs. It is apparent in the form of settlement, agricultural use, forestry, regulation of waters and the siting of infrastructure. As a dynamic element of human activity in the environment, cultural landscapes are changing more rapidly today than in the past, as a result of globalisation and the constant new development needs of society.

A **heritage cultural landscape** is defined by the Spatial Development Strategy of Slovenia (2004) as the continuous agricultural use of land or material remains reflecting past land use, activities, skills and tradition. A heritage cultural landscape is frequently historically or functionally connected to other types of cultural landscape.

Evaluation

Within the activity of cultural heritage protection, evaluation is the most important expert process, through which conservators identify the cultural value of an area or building. Criteria are important for every evaluation. Accurately set evaluation criteria define the content of protection. Over the course of its more than 100 years of activity, the cultural heritage protection service has developed adequate evaluation criteria for cultural heritage, which, however, cannot be directly applied to the evaluation of a cultural landscape. The basic evaluation criteria for cultural heritage, already presented in systematic form by Jelka Pirkovič (1987), are:

- age,
- authenticity (originality),
- authorship,
- development,
- typology,
- historical context (testimonial value),
- cultural/civilisational context,
- spatial context.

The two fundamental components of a cultural landscape are the natural environment, which changes, and the built environment, which changes more slowly. A cultural landscape changes as the result of natural cycles and human intervention. The components of the landscape are therefore both inanimate and animate or living, in contrast to the majority of other types of cultural heritage, the components of which are not living.

The two most important factors in a landscape are climate and relief. It is in accordance with these natural characteristics that plant cover forms – the most visible element of a landscape besides built structures. Human beings also adapt to natural characteristics while transforming them through their activity for their own needs, and have been doing so for millennia. Such interventions are evident in new forms of settlement, food production, and the overcoming of natural obstacles. These days changes in the landscape occur rapidly and the impressions of past periods are disappearing. On the other hand, changes occur less quickly in conditions and areas not touched by technological progress, where the landscape is therefore preserved. The impact of natural characteristics such as climate, ecological state, geomorphology, etc. on other built cultural heritage is not as significant as it is on the cultural landscape. As a result, buildings and cultural heritage areas have for the most part remained unchanged, while the landscape of their direct surroundings has changed. The unchanged appearances of today's castles and religious buildings may be traced in documents and works of art over the course of several centuries, or even for a thousand years. Usually, however, the same documents do not show the change in the area around these buildings. In view of the significant differences between cultural heritage and cultural landscapes, existing evaluation criteria for cultural heritage are almost entirely useless.

CULTURAL HERITAGE EVALUATION CRITERIA AND THEIR APPLICATION IN CULTURAL LANDSCAPE EVALUATION

CULTURAL HERITAGE		CULTURAL LANDSCAPE
Age	?	Not usually determinable
Authenticity/originality	?	What can be authentic in a landscape?
Authorship criterion	/	/
Typological criterion	yes	Typological distinctness /field landscapes, grassland landscapes, landscapes characterised by permanent crops, settled landscapes, landscapes with salt evaporation ponds, landscapes with exceptional natural structure, historical landscapes, landscapes with distinctive elements of created vegetation/
Developmental criterion /applied to those structures or spatial units that are important because they have influenced the creation and development of a specific type of monument or stylistic characteristics and the maturity of a spatial concept/	?	The majority of landscapes are formed with reference to a previous landscape and are at the same time a reference for the next, while the elements that compose them change. This factor is built into every preserved cultural landscape.
Historical testimony criterion /used to evaluate physical remains linked to important events (historical memory)/	?	
Cultural/civilisational criterion /applied in cases involving a way of life and the history of a specific activity in relation to settlement cultural heritage/	?	Every cultural landscape is the consequence of new knowledge /today also scientific/ that goes beyond previous knowledge. This factor is built into every preserved landscape.
Spatial criterion	yes	Level of importance: local, national, global

Table 1: Application of general cultural heritage evaluation criteria to the evaluation of a cultural landscape (source: Lah, 2016)

Criteria and procedure for the evaluation of cultural landscapes

All landscapes formed in the past and live in the present, so it is difficult for their historical elements to survive. Within a functional cultural landscape, it is difficult to identify and, subsequently, protect content that is defined by continuous change. As well as understanding its change, it is necessary to identify those elements that are authentic and of cultural/civilisational significance and worth preserving as cultural heritage. The preservation of identified

historical elements does not mean conservation in the way that this applies to built cultural heritage, but rather their creative incorporation into the developmental intentions of the area.

All types of cultural heritage can be considered from the point of view of their structure and the state of preservation of material (tangible) remains or monumental substance. This is a matter of identifying or verifying the state of preservation of the individual elements that define cultural heritage. In this process, all available sources must be studied. Without sources, any assessment would only relate to the current state or condition, which however is not the subject of cultural heritage protection. Even when evaluating a cultural landscape, it is possible to identify structure and monumental remains. The sources we use to do this are just as important as in the case of other types of cultural heritage. A cultural landscape is a visual category, so sources that tell us as much as possible about its appearance over time are important. Above all it is a matter of the identifiability of surviving elements in the landscape that are apparent either in its structure or in monumental remains. Often these are authentic elements, particularly in the case of remains, while at other times they are elements that are repeated continuously, for example continuous agricultural use, the repetition of the same crop and the same forms of farming.

Archaeological sources speak of a continuity of human presence in an area, while thanks to modern methods they are also able to tell us more and more about human activity. Written sources, land registers and other texts confirm or refute data and differentiate them by content. Landscape artists and painters of *vedute* offer us an image of a landscape in a given period, although when using such sources we must take artistic licence into account, since well-attested examples exist of artists embellishing reality in their works. The majority of historical *vedute* no longer exist. Intensive building over the course of the last century means that it is difficult to compare these views from the past with the present situation in the environment. They are more useful for the study of settlement and architectural heritage than for the study of cultural landscapes.

The evaluation of the cultural landscape begins behind a desk with the study of all available sources, in particular the Franciscan cadastral survey (the land survey conducted during the reign of Francis I as Holy Roman Emperor). Aerial photographs must also be studied, and the situation on the ground verified by means of a field inspection. Landscape architects/conservators say that the most important source for the identification of elements in the landscape is the Franciscan cadastral survey, with its graphic material (maps, plans, etc.) and protocols. Graphic material tells us a lot about the structure of the territory, and with its help we can verify surviving monument remains. We can also make conclusions about appearances of the landscape. All other sources are indirect and merely complement and confirm the Franciscan cadastral survey. The number of sources used in evaluation verifies the evaluation. The structure of a cultural landscape is determined by the distribution of elements within it. Every structure can be abstracted to basic geometrical elements:

- **lines**: boundaries, paths, edges, boundaries between individual elements, rivers, canals, etc.
- **planes**: farmland, settlement, parcellation, lakes, forest, etc.
- **volumes**: relief elements, forests, compact settlement, etc.
- **points**: individual cultural heritage structures, individual trees as a landscape accent, typical agricultural buildings, other built architectural structures, etc.

State of preservation of material remains

Surviving material remains or monumental substance enhance the historical structure of the area of the cultural landscape under consideration. These are authentic material remains of the individual elements that determined and still determine the cultural landscape in question. These elements have not changed or been replaced over time. In the case of a cultural landscape this can be, within a preserved structure, a continuity of agricultural use or continuity of crops – for example a grapevine like the Refosco vine grown for Teran wine in the Karst region. This last example is not evidence of authenticity in the traditional sense, since it is well known that vineyards are renewed every 30–40 years. Rather, this is a situation of the maintenance and establishment of the same type of land use. Traditionally, this involves replacement with a better quality vine of the same variety, which is the consequence of experience, agrarian science and other changes brought by the passage of time. Material remains can also be surviving individual examples of typical farm buildings, waterway regulation, irrigation channels, terraces, walls, old trees, and so on. Cultural heritage structures from all periods and of all types provide important indirect information on the cultural landscape. A preserved typology of settlement and building type tells of the development or lack of development in the area.

Degradation record

Degradation is the result of human intervention into the structure of a cultural landscape, into material remains contained in it, or into both elements simultaneously. Degradation usually involves changes that affect an already formed space, that are not in dialogue with continuity of use, and that are not functionally connected to the existing elements that we are evaluating. It is therefore necessary to record them and assess their significance within the area of the cultural landscape that is being evaluated. Even if they are not highlighted, they represent a devaluation of the elements they define. When assessing degradation it is important to consider whether it is destructive to the evaluated cultural landscape or can be remediated. Assessment is therefore based on the potential for and possibilities of remediation. All degradation that is recorded must be taken into account when assessing all surviving elements of a cultural landscape.

Trial evaluation in a selected cultural landscape: Strmca near Postojna

The cultural landscape of Strmca lies within the Municipality of Postojna and comes under the authority of the Nova Gorica Regional Unit of the Institute for the Protection of Cultural Heritage of Slovenia (ZVKDS). The area does not have the status of a historical cultural landscape, but a number of cultural heritage structures and areas are present. Existing examples of degradation have been present in the area for more than 30 years. The Strmca cultural landscape was selected to test the method because it is structurally diverse, contains surviving material elements and includes examples of degradation. The area measures around 70 hectares, which is a suitable size for an illustration of the evaluation method. The area is well known and frequently depicted in various publications as an example of an attractive landscape.

Implementation of evaluation

For all elements that need to be evaluated, a four-window grid is prepared. Two windows have the same content in all units, i.e. the relevant section of the Franciscan cadastral survey and an aerial photograph of the area. The third window is reserved for a surviving element that is taken from the Franciscan cadastral survey or other source and is drawn separately. In the case of Strmca the majority of elements in question are also visible from the aerial photograph. In this way it is possible to make a comparison of the state of preservation and continuity of the elements that define the structure of the area and the monumental remains. The fourth window contains photographs of the existing state on the ground, or other data important for evaluation of the cultural landscape. More recent interventions/degradation are treated in the same way, except that these are not found in historical documents. In most cases this means degradation that has occurred in the last 40–50 years.

Example of description of sources used in evaluation of the cultural landscape of Strmca near Postojna

- The road connection exists since the Roman period. The Roman road between Aquileia and Aemona (present-day Ljubljana) is believed to have followed two routes (one of which is believed to have crossed the Strmca area), although no tangible evidence of this exists. It is assumed to have been the basis for later carriers' routes towards Trieste.
- Strmca is mentioned in written records in as early as 1162 as part of the possessions of the Cistercian monastery at Stična, which from 1265 onwards also had judicial authority over the local serfs. At that time Strmca, together with the villages of Studeno and Strane, consisted of 12 farms.
- Archives of the Republic of Slovenia (ARS), Franciscan Cadastral Survey, AS 176, A 185.
- Other sources (conversations with local inhabitants and interviews with conservators responsible for the area in question from the Nova Gorica Regional Unit of the ZVKDS).

Structure of the area

The structure of the Strmca landscape is recognisable, clear and legible. The basic elements are clearly separated and separable and there is no transition from one to another. The "lines" of communications are preserved, as is the "volume" of the forest, of which there is more today than in the nineteenth century, in that the common pasture areas on the surrounding hills are now covered by woodland. The farmland "plane" occupies almost the same area shown in the Franciscan cadastral survey.

The area of the village is treated as a volume that commands the area of the cultural landscape. The boundary of settlement has been preserved, in other words the urban (or rural) layout has not changed, if we exclude a few new buildings on the western side of the village, by the main road. There are no significant point elements with an important impact on the structure of the landscape. The one exception is the church dedicated to Our Lady of the Snows on the edge of the forest.

Material remains – monumental substance

Agricultural land use in the area is attested in written sources in as early as the twelfth century. Parcel boundaries are confirmed by the Franciscan cadastral survey from the early nineteenth century. Agricultural cultivation within the existing parcel boundaries has changed in favour of grassland. The area of tilled ground has decreased, particularly in recent times. The historical model of roadside settlement has survived with some minor degradation. The building typology, consisting of a building type characteristic of the No-

tranjska region of SW Slovenia, is disappearing. The typical fruit and vegetable gardens, transitioning to orchards, in the direct vicinity of dwellings, are poorly preserved. A similar situation may be seen with areas of common pastureland, which have been overgrown by trees and no longer exist. The forest reaches right up to the farmland. The authentic communications network (paths, roads) is fully preserved and the relatively clear boundary and extent of the farmland are still comparable with the Franciscan cadastral survey. There are seven cultural heritage structures and areas within the area in question. This corresponds to a high degree of preservation of material elements or monumental remains.

Degradation

The 400 kV Divača–Beričevo overhead transmission line runs across the southern part of the Strmca cultural landscape. Towering steel pylons constitute its most visible element. Though these pylons represent a significant visual degradation, they do not fundamentally affect the structure or material substance of the cultural landscape. Such large structures in this landscape cannot be overlooked. Relocating the transmission line is not currently possible. The next degradation relates to construction, specifically the residential buildings by the road in the western part of the village. These residential buildings follow the roadside settlement model, which means a minor degradation of fundamental elements. Remediation is not necessary. It is, however, necessary to ensure that construction does not continue. The construction of several farm buildings at the edge of the forest represents a significant degradation of structure and substance. Remediation is possible, through removal of the buildings, particularly if they are no longer in use. It could also be achieved through the establishment or planting of a new forest edge that would cover the buildings.

Numerical table for the evaluation of a cultural landscape

All the elements covered are assessed in a numerical evaluation table prepared specifically for the evaluation of cultural landscapes within the cultural heritage protection system. The numerical table for the evaluation of a cultural landscape is important because it contributes to ensuring the objectiveness of evaluation. Using this table, all the elements that define a cultural landscape are evaluated in an expert and verifiable manner. This reduces the degree of subjectivity of the person carrying out the evaluation and, above all, facilitates the transparency, repeatability and objectivity of the conservator's assessment. On the basis of an assessment obtained in this way, it is easier to justify and adopt an appropriate decision on the status or protection of the cultural landscape in question.
In the table, all the important elements of the area are assessed in the same way. The assessment is based on an assessment of the state of preservation of the element or its degradation. This means that it is not possible for a landscape to achieve a high score and thus be placed in the Cultural Heritage Register on the basis of a single preserved element.

Proposed scores

Degree of preservation of elements	Assessment of state of preservation
well preserved (75%–100%)	5–4
partially preserved (50%–75%)	3–2
poorly preserved (less than 50%)	1

A landscape is a complex piece of cultural heritage, so its monumental and cultural value must be determined by at least 60–75% of preserved elements. The required percentage may appear high but this is because we do not deal with cultural landscapes in the same way as with built heritage, which we restore and later maintain and care for so that it preserves its historical appearance. Historical landscapes that achieve an adequate score have usually survived as a result of continuity of use, not because someone has preserved them for us as future generations. Thanks to continuity of use, landscapes will also continue to be preserved in the future. Landscapes that receive lower scores indicate a loss of elements and changes that are significant from the point of view of cultural heritage protection, where for example the original, traditional land use has been abandoned or is in the process of being abandoned, and monumental elements are degraded. In the case of landscapes these are irreversible changes, which means that the landscape will probably never again receive a higher score, at least from the point of view of cultural heritage protection.

Structure of the area

The legibility of the structure is clear. The presence of four elements and the absence of significant point elements have been identified. Structural units are also well defined. There is minor degradation in the settlement model and at the forest edge.

Monumental remains

The prevailing cropland landscape type is transitioning to grassland as a result of abandonment. Parcellation is preserved and parcel boundaries are still visible owing to the previous cultivation of the fields.

State of preservation of elements and scores

- Parcellation and communications are preserved: 5.
- Minor degradation of the roadside settlement model, new buildings by the road. Remediation not necessary, construction must not continue: 4.
- Fruit and vegetable gardens poorly preserved, with only a segment of orchards preserved (also poorly): 2.
- Margins between farmland and present forest for the most part well preserved except in the area of the barns in the western part of the area. Remediation possible through the establishment of a new forest edge: 3.
- Continuity of agricultural use: 5.
- Change in land use from cropland to grassland means a less structured system and greater uniformity and monotony. Presence of degradation, overhead transmission line: 3.
- Of seven units of cultural heritage, only two are significant (the village and the church are cultural monuments): 3.
- Absence of common pastureland: 0.

With regard to the overhead transmission line, it should be mentioned that remediation is in principle possible, since the line could in theory be relocated. It does not affect the structure, and its impact on the other monumental elements, i.e. land use and parcellation, is minimal (foundations of pylons). Similarly, the overhead transmission line does not have a significant impact on the cultural landscape of Strmca from the point of view of the historical cultural landscape.

CATEGORIES CONSIDERED	ELEMENTS STUDIED	STATE OF PRESERVATION OF ELEMENTS	SCORE
Structure of area	Identifiability of structure	- planes - lines - points - volume	5 5 3 5 **90%**
	Functions of unit of structure	- agricultural land - settlement - forest - communications, margins	5 4 5 5 **95%**
Monumental remains	Prevailing landscape type 1. Typologically uniform landscapes – field landscapes, transition to grassland	- parcellation - communications - settlement - fruit and vegetable garden - margins - continuity of agricultural use - change in land use - cultural heritage - common pasture areas	5 5 4 2 3 5 3 3 0 **66%**
IDENTIFIABILITY OF STRUCTURE AND MONUMENTAL ELEMENTS			**83%**

Table 2: Numerical table for evaluation of the cultural landscape of Strmca near Postojna (source: Lah, 2016)

Proposal to enter the landscape of Strmca near Postojna in the Cultural Heritage Register

The cultural landscape of Strmca near Postojna achieved a state of preservation score of 83% in numerical evaluation, in others words it reaches the value at which entry in the Cultural Heritage Register is envisaged.

Text whose scope is determined in the Rules on the Cultural Heritage Register

Settled cultural landscape of cropland transitioning to grassland with well-preserved structure. The preserved monumental elements are parcellation and a historical model of roadside settlement, with an authentic paths/roads network; the area lies inside a forest area and is separated from it by a clear forest edge. Common pasture areas are overgrown. Continuity of agricultural use attested in sources since the twelfth century.

Delineation for the Cultural Heritage Register

Delineation of the area for protection in the Cultural Heritage Register must follow parcel boundaries. In the case of Strmca there are two possibilities. Thanks to the well-

-preserved boundary between farmland and forest areas, the boundary between the forest and farmland offers itself as the optimal boundary for delineation.

1. Smaller protected area, only covers the farmland surrounding the village of Strmca.

When delineating a structure or area, the question always raises itself of how to determine an area of protection from the point of view of protection of the cultural landscape that will be spatially and historically justified. It is important that the area is not too extensive, especially when the state of preservation of elements is perhaps borderline.

After studying written and graphic sources it was established that common pastureland existed in the past, established through forest clearance and maintained through grazing. This was followed by tilled farmland. Today this pastureland is overgrown and represents the absence of one of the structural elements of the landscape. The first degradation occurred at the present-day forest edge with the construction of livestock barns, which are today abandoned. The preserved line of the boundary between farmland and forest is a highly rated element and at the same time attractive for a range of activities. From the point of view of the protection of the cultural landscape, it is logical to establish a boundary of protection in such a way that the line of the boundary between farmland and forest falls within the protected area. In this way the heritage protection service can oversee interventions or developments that could degrade the landscape. The decision in favour of a wider area of protection derives from the fact that in the envisaged protection area the cultural landscape had one more structured form of cultural landscape, which, though overgrown and therefore lost, could serve as a justification for a wider area of protection, not in order to re-establish it or affect the existing state in any other way, but in order to preserve information about the extent of the cultural landscape in the past. It is not, however, possible to recreate the boundaries of the pastureland in full while following the Rules on the Cultural Heritage Register (1995), which provide that the entry of areas into the Cultural Heritage Register must follow the parcel boundary exactly.

In view of the specific nature of cultural landscapes within the protection of cultural heritage, it would be logical to prepare special background documentation for the entry of landscapes in the Cultural Heritage Register, in which all important elements of an evaluated cultural landscape would be shown. Background documentation for the entry of a cultural landscape in the Cultural Heritage Register would contain an account of the evaluation, including a graphic representation and numerical assessment of the state of preservation. This would make it easier for conservators to justify their expert decision both within the ZVKDS and to external interested parties.

Interpretation and evaluation of results

This method of evaluation is based on the standard approaches used by the cultural heritage protection service when evaluating cultural heritage and derives from the state of preservation and identifiability of elements. The two main criteria important for the evaluation of a cultural landscape are a recognisable structure and preserved material remains. Findings and discoveries are confirmed using existing historical sources, so results are substantiated and provable. The authentic state of the landscape is established in the segment of structure or material remains, which is evident from the remains and sources. In the case of the evaluation of a cultural landscape within the cultural heritage protection system, authenticity is specific but is also based on sources. The state of preservation of individual elements, which can be evaluated and numerically rated, defines the cultural landscape as an autonomous type of cultural heritage and in this way equates it with other types.

The weakness of the method is that preparatory work is necessary before field inspection and evaluation can take place. Evaluation in the field purely on the basis of the numerical table, without preparation, has proved to be inadequate. Evaluation is therefore based on physical examination of material, which is a lengthy process, and on multiple verifications in the field, but all this is characteristic of the work of the cultural heritage protection service. Mistakes are possible, and the process could be improved by means of computer technology, both in the case of sources and with graphic material, in a way that would make the individual steps simpler and assessments more precise and, above all, would make the whole process faster.

Discussion

The proclamation of a cultural landscape as a cultural monument that is in private ownership and provides a livelihood for numerous families has never taken place. The situation in individual local communities today does not favour the proclamation of cultural heritage. The requirements that could be imposed by the straightforward proclamation of a highly valued cultural landscape would certainly not be accepted. It is probable that not even state subsidies for the owners, were they to exist, would help. Slovenes as individuals are reluctant to renounce their particular interests regarding the use of the territory and do not want any kind of restrictions on "their land" that do not also include significant benefits.

Only two cultural landscapes have been proclaimed monuments of national importance, which is the highest status that a protected monument can achieve. This proclamation is made by the state. Today this is practically the only route by which the protection of cultural landscapes can be achieved. These landscapes, which are managed by a public institution, are two extremely important areas of the Lipica stud farm. It should be emphasised that appropriate use is guaranteed on the stud farm by its core activity – the breeding of thoroughbred horses – and that the activity is subsidised by the state. The more than 400-year tradition of horse breeding, which has always been subsidised, maintains the cultural landscape, which is the only acceptable form of protection of the landscape. The cultural landscape of the stud farm has always been carefully looked after by the stud farm's management, since it is essential for the farm's core activity. The Lipica stud farm is also developing. The traditional activity of breeding thoroughbred horses also includes new contents required by science and development, such as a treatment plant, a foaling facility and a tree nursery to supply trees for the avenues and pastures.

The example of Lipica has in fact led to the realisation that the only possible protection of a cultural landscape is appropriate use and an activity that simultaneously preserves and maintains its heritage. The cultural landscape of the Lipica stud farm and its protection are, of course, a specific case, not only in Slovenia but also more widely, and are therefore not comparable to any other landscape. For this reason there was no need to prove anything specific through evaluation, and in fact no evaluation has been carried out to date. Given the notable quantity of different sources and the support of the state, the public and experts, evaluation in the manner described in this article did not appear to be a primary need. The responsible conservator for the area in which the Lipica stud farm is located has not prepared proposals for the proclamation of any other landscape, since other such remarkable landscapes with adequate use and such powerful support at all levels simply do not exist.

The Cultural Heritage Register currently contains more than 300 evaluated and defined cultural landscapes with the lowest cultural heritage status. Any activity in these landscapes can be changed, as can their use, which means that their evaluated elements could experience degradation. Under current legislation, the ZVKDS can only oversee the construction of farm buildings within the protected areas of a cultural landscape. All other developments or interventions take place without the involvement of the ZVKDS. The farming sector does not plan its activities in accordance with sectoral plans, which means that the principal co-creator of a cultural landscape is not included in the spatial planning process in a way that would allow any stakeholder in the area to significantly influence the changes it causes in the landscape. Changes in land use, crops, parcel boundaries, overgrowth, etc. are dependent above all on the decisions of the landowners. Only one case is known of an owner applying to the ZVKDS with regard to a change of crop within the protected areas of a cultural landscape.

All evaluated cultural heritage entered in the Cultural Heritage Register is protected by the protection regimes applying to an individual type of cultural heritage. A protection regime is also laid down for cultural landscapes, but since this has not yet been tested, it cannot be commented on. The question that naturally raises itself is whether a protection regime or normative protection enables us to protect content whose essential characteristic is continuous change.

French winemakers in the Lyon region are noting that as a result of extreme weather phenomena such as heatwaves followed by heavy rain and hail, and winters and nights that are increasingly mild, their grapevines never have the chance to rest. This is bringing changes to the cultural landscape. They say that the ripening sequence has been broken, with the sugar content reaching too high a level too early, when the grapes are not yet ripe. It is difficult to set a time for harvesting. As a result, the crop can be of lower quality. Winemakers currently see the solution in changing grape varieties, but in the long term, in the next century, if temperatures continue to rise, they predict a migration of grapevines further north, for example to Poland and England. The result of this would be the disappearance of the cultural landscape based on vineyards, and with it the cultural heritage of winemaking, famous French wine labels, the culture of drinking wine, a specific cuisine, and so on. Even if the owners of a cultural landscape were to inform us about changes on their land, what arguments could the cultural heritage protection service offer in favour of maintaining historical land uses or prescribing new uses, crop types, etc.? This is why we are justified today in questioning the logic of protecting cultural landscapes within the protection of cultural heritage at the normative level. The ZVKDS can only control one segment of the cultural landscape – the historical one – but while this segment is important, the absence of treatment of the other components of the landscape can lead to degradation or even to abandonment of use.

Large estates have changed their ownership structure and the heirs to the land have settled elsewhere, sometimes a considerable distance away. They would like to farm the land inherited from their family, but because of their different way of life this is more difficult today than it once was. Because they live at a distance from their land, they need a farm building in which to keep tools and other equipment that they cannot transport back and forth or leave outdoors. An *a priori* normative ban on such buildings does not represent protection of the cultural landscape.

In some landscapes it has seemed acceptable to satisfy the needs of the owners by allowing the construction of sunken structures and seeking forms and locations that are not exposed, that do not disturb views, that are hidden. On the other hand, "hiding" new contents in the context of the protection of cultural heritage and cultural landscapes is an unacceptable approach from the point of view of conservation. New contents, which usually also means new forms, must be clearly sited in the environment, with the awareness that this environment has already been formed, and in a manner that establishes a dialogue between the existing and the new.

Ancillary farm buildings once had a characteristic typology that varied from region to region and from landscape type to landscape type. This was evident in their dimensions, in their use of local materials and in their functionality. Reproducing such buildings today, even in a proven historical landscape, would not be logical. In the majority of cases such buildings would probably not meet the needs of the modern farmer or owner. One example would be the historical vineyard cottages in the Vipava Valley, built using the drystone technique and measuring 3 x 3 m, 2 x 2 metres or less. Such buildings would not be a reflection of today's social development and the needs of farmers, but a form of "fake" in the landscape – or an exhibit in the case of a restoration.

A reflection on modern ancillary farm buildings has yet to be undertaken. This is certainly not the task of a monument protection service, which mainly restores structures on the basis of sources and is essentially not competent to design new, modern structures. On the other hand, on the basis of the sources in its possession and its knowledge of issues regarding agricultural structures in the landscape in question, it could provide information on typical materials, dimensions, roof coverings and basic functions that might be useful to planners. These days such structures cannot be the product of folk creativity in the ethnological sense but can only be the result of planning, architecture and modern function. The problem of ancillary farm buildings within a cultural landscape manifests itself in different ways in the different regions or areas that fall within the competence of the individual regional units of the ZVKDS. The biggest problem within the ZVKDS is without a doubt the pressures for construction of every type in the coastal Primorska region, perhaps in part because the region has a large number of protected cultural landscapes. The established tendency of developers, who come from all over Slovenia, is to recategorise such structures over time as holiday properties. There are also many cases of illegal construction, which points to the well-known problem of ineffective inspection services.

One answer to the question of how to manage cultural landscapes is provided by Dušan Ogrin in *Strategija varstva krajine v Sloveniji* [Landscape Protection Strategy in Slovenia] (Ogrin, 1996). Professor Ogrin draws attention to the unsuitability of conservative treatment and evaluation of the landscape: "[...] *efforts to protect the existing rural landscape are actually a regressive phenomenon that appears as a reflection of social nostalgia. Perhaps even a reflection of the fear of the loss of known value in an age dominated by motivations of profit and technology that promise little or nothing to satisfy the increasingly conflicted modern human being in a society of plenty, used to the idea that changes bring, above all, a devaluation of the environment. Leaving aside the questionability of such a socio-psychological basis, it is also true that we are faced here with an increased global social sensitivity to landscape heritage, and that it is necessary to take such efforts seriously and counter them with relevant findings and direct actions. Such activity begins with the acquisition of knowledge about the national landscape fund and its inherent value.*"

Conclusion

Through normative protection within any field of competence, we deprive landscape of its only clear constant, namely the dynamics of change. All landscapes are also a category of the present time, they have owners and a specific use, numerous natural processes are present in them, changes are constantly taking place both in the environment and in society, and the landscape, even a historical landscape, responds to all this. Normative protection runs counter to all such considerations.

Preserved cultural landscapes are the consequence of balance or sustainable management that has established itself through the experience of life and human activity in the environment over the course of centuries. No one has protected them for our sake, because neither needs nor our development were predictable. With such a high degree of uncertainty present in all areas of life today, we are not able to predict much either.

All cultural landscapes at the same time bear the stamp of our generation, which through the environment says something about us, which regulates the environment in a manner that is peculiar to us, which reflects our time, our problems and our ability to resolve them using the knowledge we possess. All landscapes are a blend of present and past. The attitude of the present generation to the past and the achievements of our ancestors is important because it tells us about the level of culture of our generation.

Some people believe that the absence of mechanisms to implement measures for the protection of cultural landscapes and the absence of dialogue with other sectors, for example nature conservation, agriculture and forestry, are the reason why cultural landscapes are not adequately protected. None of these sectors can manage a cultural landscape by itself, nor can it lead dialogue. It can only contribute its expert knowledge, from its segment of the treatment of a cultural landscape. A cultural landscape can only be dealt with in a supra-sectoral manner. Landscape protection in which so many stakeholders practise predominantly normative protection is destructive for a landscape. All sectors should cooperate in landscape management. But management can only begin with creative dialogue within spatial planning. Knowledge about historical landscapes represents significant information in spatial planning. This information can only be provided by the cultural heritage protection service, which through its specific knowledge and methods contributes creatively to spatial planning or landscape management.

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Zasnova programa integriranih raziskav in izhodišč za pripravo načrta upravljanja podvodne kulturne dediščine slovenskega morja

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Izvleček

Namen prispevka je poudariti družbeni pomen kulturne dediščine na morskem dnu in v priobalju slovenskega dela Tržaškega zaliva, potrebo po njenem ohranjanju v javno korist, razvojne priložnosti na znanstvenem, kulturnem, izobraževalnem in turističnem področju ter možnosti za njeno vključitev v celostno upravljanje morskega okolja. Posebna pozornost je namenjena vključevanju rezultatov raziskav v programe in projekte za ozaveščanje o pomenu podvodne kulturne dediščine in njeno promocijo, zagotovitev njene dostopnosti in predstavitev (interpretacijo) v okviru možnosti in omejitev vzgojno-izobraževalne in turistične rabe ter uveljavljanju participatornega pristopa in spodbujanja partnerstev pri upravljanju.
V uvodnem delu prispevka je orisano obstoječe stanje upravljanja podvodne kulturne dediščine ter podana ocena njene ranljivosti in ogroženosti. Nadaljevanje prinaša izhodišča, znanstvenoraziskovalne izzive in zasnovo integriranih raziskav te dediščine v slovenskem morju s priobaljem s poudarkom na čezsektorskih vidikih in razvojnih ciljih raziskav. Predstavitvi meril in kriterijev za vrednotenje pomena in ogroženosti kot podlage za določitev prioritetnih ukrepov varstva (fizična zaščita, stabilizacija in omilitveni ukrepi, rezervatno varstvo) sledijo oris smernic za izkoriščanja razvojnega potenciala najdišč (podvodni muzeji, parki in steze) ter možnosti in primeri praks za trajnostno upravljanje (sistem koncesij za organizirano potapljanje na zaščitene lokacije ali območja v primerjavi s sistemom licenciranja vodnikov za zavarovane lokacije). V sklepu so predstavljeni izhodišča in različni vidiki mreženja in promocije podvodne kulturne dediščine.

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Uvod

Ocena stanja in razvojni cilji za arheološko dediščino na območju slovenskega morja in obale

Na območju notranjih morskih voda in teritorialnega morja Republike Slovenije leži devetinštirideset registriranih arheoloških najdišč (slika 1), arheološki potencial območja morja izven registriranih najdišč pa še ni bil sistematično ocenjen. Na celotnem območju morja obstaja možnost odkritja arheoloških ostalin pomorskega značaja, tj. ladijskih razbitin – brodolomov, ostankov tovora in opreme plovil iz različnih obdobij ter ostankov letal, na celotnem območju slovenskega morja pa zaradi postopnega dviga morske gladine v obdobju po zadnjem poledenitvenem višku, ki je do začetka 1. stoletja v Tržaškem zalivu dosegla koto okoli –1,6 ± 0,6 m pod današnjo gladino, obstaja možnost odkritja planih najdišč iz kamene dobe in mlajših obdobij prazgodovine.
Izmed devetinštiridesetih registriranih arheoloških najdišč na območju morja je šestintrideset v celoti podvodnih, pri šestnajstih od teh gre za brodolome, pri enem za potopljene ostaline hidroplana, devetnajst pa jih je bilo identificiranih na podlagi ugotovljenih morfoloških anomalij morskega dna pri batimetričnih raziskavah; njihova sestava, obseg in datacija zaradi odsotnosti nadaljevanja raziskav niso znani. Med brodolomi prevladujejo plovila iz 19. in 20. stoletja različnih velikosti in konstrukcijskih značilnosti ter različnih materialov (npr. ostaline okoli 40 m dolge lesene trijambornice tipa bark, 33 m dolgega lesenega vojaškega parnika, 270 m dolge čezoceanske potniške ladje Rex, 45 m dolgega desantno-transportnega plovila). Ostaline dveh potopljenih plovil izvirajo iz srednjeveškega oz. zgodnjenovoveškega obdobja, po starosti pa izstopajo ostanki rimskodobnega plovila, radiokarbonsko datiranega v 1. stoletje n. št.
Arheološke ostaline na vseh šestintridesetih podvodnih arheoloških najdiščih ležijo izpostavljene na morskem dnu ali plitvo ugreznjene v vrhnje sloje morskih sedimentov. So fizično nezaščitene, v večini primerov nezadostno raziskane in dokumentirane; sistematično strokovno spremljanje in nadzorovanje njihovega stanja se ne izvaja. Njihovo pravno varstvo je zagotovljeno zgolj v postopkih sprejemanja prostorskih aktov, v primerih poseganja vanje pa še ni bilo uveljavljeno.
Nobeno izmed podvodnih arheoloških najdišč na morskem dnu stran od obale ni razglašeno za kulturni spomenik, njihov obstoj pa močno ogrožajo dejavnosti pomorskega gospodarstva. Največji pritisk na arheološko dediščino v morskem okolju povzroča tovorni pomorski promet, ki je vezan na koprsko in tržaško pristanišče in v sklopu katerega prihaja do obsežnega poseganja v morsko dno (gradnja pristaniške infrastrukture, poglabljanje plovnih poti, sidranje tovornih ladij). Velik pritisk na arheološko dediščino povzroča tudi ribolov z uporabo pridnenih mrež. Naštete dejavnosti povzročajo nenadzorovano uničevanje in odstranjevanje arheoloških ostalin ter s tem nepovratno izginjanje podvodne arheološke dediščine. V manjši meri potopljeno arheološko dediščino ogrožajo sidranje manjših plovil, posegi za vzpostavitev objektov marikulture, plenjenje arheoloških ostalin in naravni okoljski dejavniki.
Med devetinštiridesetimi registriranimi arheološkimi najdišči v slovenskem morju jih je trinajst delno podvodnih, saj ležijo na morskem obrežju tako, da je del najdišča v morju, del pa na kopnem. Pri šestih od teh najdišč podvodni del sestavljajo ostaline pristaniških struktur (pomolov, valobranov, ploščadi) in gospodarskih objektov (ribogojnic), ki so pripadali rimskodobnim obmorskim vilam ali naselbinam, katerih ostaline ležijo na kopnem delu najdišč. Pri preostalih sedmih najdiščih na podvodnem delu stopnja raziskanosti še ne omogoča zaključkov o sestavi in obsegu arheoloških ostalin, ki domnevno ustrezajo rimskodobnim, srednjeveškim in novoveškim ostalinam naselbinskega značaja s kopnih delov najdišč.
Arheološke ostaline na trinajstih delno podvodnih arheoloških najdiščih ležijo izpostavljene na morskem dnu ali prekrite z različno debelimi sloji morskih sedimentov. Izpostavljene ostaline so fizično nezaščitene. Stopnja raziskanosti in dokumentiranosti podvodnih ostalin je ustrezna pri približno tretjini najdišč, sistematično strokovno spremljanje in nadzorovanje stanja ostalin se ne izvajata na nobenem najdišču.
Pravno varstvo delno podvodnih arheoloških najdišč je vzpostavljeno v postopkih sprejemanja prostorskih aktov in v primerih poseganja vanje. Stopnja ogroženosti podvodnih ostalin je visoka na urbaniziranih, pristaniških ali turistično razvitih območjih, kjer legalni posegi povzročajo nadzorovano, nelegalni posegi pa nenadzorovano odstranjevanje arheoloških ostalin. V manjši meri vsa delno podvodna arheološka najdišča ogrožajo tudi plenjenje arheoloških ostalin in naravni okoljski dejavniki. Tri izmed delno podvodnih arheoloških najdišč so razglašena za kulturni spomenik lokalnega pomena, najdišče Izola – arheološko najdišče Simonov zaliv (EŠD 195) pa je razglašeno za kulturni spomenik državnega pomena. Navedeno najdišče, ki obsega obsežne in bogate arhitekturne ostaline rimske obmorske vile s pripadajočim pristaniščem, je izmed devetinštiridesetih podvodnih in delno podvodnih najdišč v slovenskem morju edino, ki ima določenega upravljavca, sprejet načrt upravljanja in predvideno izvedbo prezentacije arheoloških ostalin javnosti (od leta 2015 je v okviru projekta AS, ki se sofinancira iz Programa Norveškega finančnega mehanizma 2009–2014 in Programa Finančnega mehanizma EGP 2009–2014, v teku vzpostavljanje arheološkega parka s prezentiranimi arheološkimi ostalinami in spremljajočo interpretacijsko infrastrukturo).
Podvodna arheološka dediščina v slovenskem morju ima velik kulturni, vzgojni, razvojni, simbolni, identifikacijski in znanstveni potencial ter s tem velik družbeni pomen,

zato je njeno celostno ohranjanje v javno korist in v sklopu upravljanja morskega okolja razvojni cilj. K celostnemu ohranjanju podvodne arheološke dediščine Republiko Slovenijo zavezuje Konvencija o varovanju podvodne kulturne dediščine (Uradni list RS – Mednarodne pogodbe, št. 1/08), ki tovrstni dediščini priznava pomen kot integralnemu delu kulturne dediščine človeštva in kot posebno pomembnemu elementu v zgodovini ljudstev, narodov in njihovih medsebojnih odnosov v zvezi z njihovo skupno dediščino. Države pogodbenice so zavezane k ohranjanju podvodne kulturne dediščine in k uporabi najboljših sredstev, ki jih imajo na voljo, da bi preprečile ali ublažile neugodne učinke, ki bi lahko izvirali iz dejavnosti iz njene jurisdikcije in bi slučajno prizadeli podvodno kulturno dediščino. Skladno z Zakonom o varstvu kulturne dediščine (Uradni list RS, št. 16/08, 123/08, 8/11, 30/11 – Odl. US, 90/12, 111/13 in 32/16) se celostno ohranjanje kulturne dediščine, ne glede na to, ali je ta pod vodo ali na suhem, uresničuje v razvojnem načrtovanju in ukrepih države, pokrajin in občin tako, da se dediščina ob spoštovanju njene posebne narave in družbenega pomena vključuje v trajnostni razvoj.

Povečanje gospodarske rabe morskega prostora, ki se pričakuje v naslednjih desetletjih, zahteva oceno neposrednih in posrednih vplivov/posledic na podvodno kulturno dediščino ter izvedbo ukrepov v obojestransko korist, kjerkoli je to mogoče. V strokovnih podlagah za pripravo izhodišč za opredelitev vizije in ciljev razvoja kulturne dediščine na območju morja in obale, ki jih je izdelal ZVKDS, OE Piran (št. 6201-0002/2016/2 z dne 10. 6. 2016), so med ukrepi, ki jih treba zasnovati in izvesti z namenom zagotovitve celostnega ohranjanja podvodne arheološke dediščine, našteti:

- pri upravljanju morskega okolja je treba podvodno arheološko dediščino obravnavati kot neobnovljivo antropogeno prvino morskega okolja in del ekosistemskih storitev morskega okolja;
- gospodarske subjekte, ki s svojo dejavnostjo ogrožajo obstoj podvodne kulturne dediščine, je treba vključevati v proces ohranjanja in upravljanja podvodne dediščine na podlagi načela »onesnaževalec plača«;
- z izvedbo sistematičnih predhodnih arheoloških raziskav za določitev sestave in obsega arheoloških ostalin je treba opraviti vrednotenje vseh registriranih arheoloških najdišč na območju morja. Na podlagi rezultatov vrednotenja se za posamezna najdišča oblikujejo varstveni režimi in po potrebi določijo varstveni ukrepi za fizično zaščito in prezentacijo arheoloških ostalin;
- najvišje ovrednotena registrirana arheološka najdišča je treba razglasiti za kulturne spomenike ter s tem v kratkoročnem obdobju vzpostaviti pravne režime varstva za posege v ta najdišča;
- skladno s področno zakonodajo je treba v postopkih sprejemanja pomorskih prostorskih aktov zagotoviti upoštevanje vseh registriranih arheoloških najdišč in izvajanje predhodnih arheoloških raziskav za oceno arheološkega potenciala na območjih izven registriranih najdišč ter s tem v dolgoročnem obdobju vzpostaviti pravne režime varstva za posege v vsa registrirana najdišča na območju morja;
- skladno s področno zakonodajo je treba za podvodno arheološko dediščino s statusom kulturnega spomenika določiti upravljavca/upravljavce ter vzpostaviti monitoring nad njenim stanjem in spoštovanjem pravnih režimov varstva;
- z izvedbo arheoloških raziskav in izvedbo prezentacij posameznih najviše ovrednotenih arheoloških najdišč ter z vzpostavitvijo interpretacijske infrastrukture za predstavljanje podvodne dediščine kot celote je treba zagotoviti predstavljanje podvodne arheološke dediščine strokovni in laični javnosti ter tako prispevati k ozaveščanju o njenem pomenu.

Zasnova programa integriranih raziskav podvodne kulturne dediščine

Izhodišča

Dosedanje raziskave slovenskega dela morja in priobalja Tržaškega zaliva so opozorile na velik potencial potopljenih arheoloških najdišč za poznavanje sprememb okolja in klime v holocenu (relativni dvig morske gladine kot rezultat izostatičnih/evstatičnih in tektonskih sprememb ter spremembe obalne črte), plovnih sredstev, pristanišč in drugih pomorskih objektov ter medkulturnih povezav in stikov v prazgodovini, antiki in mlajših obdobjih. Vedenje o teh vprašanjih je omejeno na začetna evidentiranja posameznih delov arheološke dediščine na sedimentnem delu morskega dna (plovila s tovorom, deli tovora ali ladijske opreme, prazgodovinska plana najdišča), prepoznanih ob batimetričnem snemanju ali sporočenih od drugih uporabnikov morja, ter opravljena osnovna dokumentiranja in maloštevilna testna sondiranja potopljenih ostalin rimskih pristanišč in ribogojniških naprav v priobalnem pasu.

Glede na omenjeno so raziskave podvodne kulturne dediščine dolgoročna, integrirana raziskovalna dejavnost, ki rezultate ustvarja/prinaša počasi in stalno, njihova nadgraditev pa je odvisna od sposobnosti povezovanja podatkov več disciplin. Predlagane raziskave so zato zasnovane interdisciplinarno in se na eni strani usmerjajo v integrirano vrednotenje oblikovanosti in sestave dna s posebnim poudarkom na razumevanju naravnih in antropogenih sprememb, ki vplivajo na vidnost in ohranjenost arheološkega zapisa, na drugi strani pa so usmerjene v točkovno usmerjeno gostitev podatkov o prej omenjenih procesih in najdiščih.

Izhodišča programa raziskav temeljijo na premisah in priporočilih izvedenih projektov in pobud na evropski ravni (MACHU, SPLACHOS, SASMAP …) glede vloge in pomena vključevanja varstva podvodne kulturne dediščine v integrirano pomorsko prostorsko načrtovanje na nacionalnih ravneh ter nujnosti medinstitucionalnega povezovanja pri združevanju raziskovalne infrastrukture in delitvi dostopa do tehnologije in izmenjave podatkov. Študije poudarjajo veliko dodano vrednost sodelovanja med gospodarskimi uporabniki morja in znanostjo pri razvoju tehnologije in tehnik zlasti na področju dokumentiranja (vizualizacija – imaging in spremljava – monitoring), povečanja resolucije snemanj (razvoj podpovršinske detekcije manjših predmetov), izboljšav v obdelavi in združevanju podatkov za rekonstrukcijo paleopokrajin in okolja, napredka v napovednem modeliranju arheološkega potenciala oziroma pojavnosti, ohranjenosti in projekcij degradacije najdišč, razvoja ROV/UAV za prepoznavanje in kartiranje najdišč ter razvoja izkopavalne tehnologije za preučevanje stratigrafije podvodnih najdišč.

Med ključnimi priložnostmi povezovanja deležnikov, ki izhajajo iz omenjenih projektov in jih je mogoče prenesti tudi v regionalni kontekst, poudarjamo:

- izboljšano sodelovanje med deležniki gospodarske rabe morskega okolja in raziskovalno skupnostjo lahko zmanjša stroške posegov v prostor ter oskrbi znanost z dragocenimi priložnostmi in podatki;
- prispevek k evropskim pomorskim politikam z zagotavljanjem pomembnih podatkov za trajnostno izkoriščanje/rabo morskega dna;
- zgodnja integracija ekosistemskih podatkov s podatki o podvodni kulturni dediščini omogoča izognitev dodatnim stroškom.

Predlagani koncept projekta se naslanja na primere dobre prakse za metodologije/pristop k oceni arheološkega potenciala (od splošnih pregledov/snemanj do lokalizacije majhnih tarč na različnih tipih morskega dna) kot dela ocene vplivov na okolje. Eno od izhodišč in ciljev projekta je tudi povečanje števila metodološko napovedanih/predvidenih najdb v primerjavi z naključnimi odkritji z izboljšavo tehnologije daljinskega zaznavanja (npr. učinkovita potrditev najdišča z večsnopnim sonarjem ter video in večslikovnim fotogrametričnim 3D-modeliranjem) brez neposrednega vizualnega pregleda dna in velikopoteznega terenskega vzorčenja, ki je osnova za načrtovanje terenskih pregledov.

Predvideni postopki vključujejo:

- obdelavo in interpretacijo podatkov že izvedenih in načrtovanih batigrafskih snemanj in 3D-fotodokumentacije morskega dna ter lidarskih in ortofoto snemanj obalnega in priobalnega dela površja;
- izvedbo večdisciplinarnih podvodnih raziskav (ekstenzivni in intenzivni pregledi, testna izkopavanja, monitoringi/spremljava) z geološko in biološko tipizacijo/karakterizacijo morskega dna in podpovršja, vzorčenjem za potrebe geoloških, radiokarbonskih, dendrokronoloških, paleofavnističnih in paleobotaničnih analiz struktur in depozitov ter spremljave degradacije ostalin, s poudarkom na (1) rekonstrukciji razvoja površja v času transgresije morja na območju Tržaškega zaliva po 10.000 BP ter pojavnosti prazgodovinskih arheoloških najdišč, (2) odkrivanju, dokumentiranju in oceni potenciala lokacij z ostanki ladij in/ali njihovega tovora in opreme, (3) rimski in srednjeveški ter zgodnjenovoveški pomorski infrastrukturi;
- tipološko, kronološko in funkcionalno opredelitev dokumentiranih objektov/struktur in artefaktnih zbirov z morskega dna in obale ter priobalnih depozitov;
- obdelavo in preučevanje arhivskih podatkov o potopljenih plovilih in podvodni dediščini, zlasti izvedbo kabinetne študije gradiva o havarijah/nesrečah na morju (omembe v listinah, zavarovalne pogodbe za plovila in/ali tovor, ex voto, marinistično slikarstvo) in izdelavo baze brodolomov (tip in ime ladje; datum, približna lokacija in vzrok nesreče; lastnik, posadka in tovor; viri) ter primerjalne analize z dokumentiranimi ostalinami/najdišči na morskem dnu;
- izvedbo strukturnega pregleda grajenih objektov in naprav v plitvem delu priobalnega morja v bibavičnem pasu ali tik pod njim, s predhodno kabinetno analizo arhivskega gradiva (15.–19. stoletje) ter arhivskih in sodobnih aeroposnetkov o historičnih pomorskih gradnjah na slovenski obali (pomoli, mandrači …);
- izdelavo registra arheoloških najdišč (združevanje obstoječih zbirk podatkov muzejev, ZVKDS in Uprave RS za zaščito in reševanje (kataster NUS) ter drugih deležnikov (rekreativni in profesionalni potapljači, zbiralci, arheologi, ribiči in drugi potencialni najditelji arheološkega in ostalega kulturnozgodovinskega gradiva z morskega dna) v enotno Arches (GIS) bazo po vzoru MACHU);
- ugotovitev stopnje ogroženosti najdišč, ki bo temeljila na predhodnih podvodnih raziskavah in bo vodilo za nadaljnje postopke varstva in upravljanja;
- valorizacijo podvodne kulturne dediščine kot osnovo za določitev varstvenih območij dediščine in razglasitev kulturnih spomenikov državnega pomena, pripravo načrta upravljanja in sprejetje ukrepov za zaščito najpomembnejših in najbolj ogroženih spomenikov;
- zasnovo in izvedbo različnih oblik promocije pomena podvodne kulturne dediščine (npr. promocija odgovornega ravnanja ob odkritju ali obisku podvodne kulturne dediščine po vzoru priporočil UNESCA, konsolidiran pristop k ozaveščanju rekreativnih potapljačev v okviru vzpostavitve sodelovanja z lokalnimi potapljaškimi društvi, potapljaškimi centri in krovno organizacijo (Slovensko potapljaško zvezo)) ter pristopov in načinov k interpretaciji in prezentaciji podvodne kulturne dediščine (publikacije, muzejske predstavitve, delavnice/okrogle mize, ankete o občutjih in pričakovanjih različnih deležnikov iz lokalne skupnosti).

Čezsektorski vidiki in cilji raziskav

Poleg pridobivanja novih podatkov o arheologiji in kulturni dediščini v notranjih vodah in teritorialnem morju RS se cilji programa osredotočajo na zasnovo znanstveno utemeljenih pristopov k varovanju in ohranjanju podvodne kulturne dediščine ter njenega vključevanja v oblikovanje mikro- in makroregionalnih strategij varstva in upravljanja morskega okolja v okviru pomorskega prostorskega načrtovanja in celostnega upravljanja obalnega območja, kot jih opredeljuje 13. člen Protokola o celovitem upravljanju obalnih območij v Sredozemlju – ICZM (Uradni list RS, št. 84/09; *pogodbenice posamezno ali skupaj sprejmejo vse ustrezne ukrepe za ohranjanje ali varovanje kulturne dediščine obalnih območij, še posebej arheološke in zgodovinske, pa tudi podvodne kulturne dediščine, v skladu z veljavnimi notranjimi in mednarodnimi akti*) s poudarkom na integralni obravnavi njegovih naravnih in antropogenih prvin, in sicer s:

- presojo primernosti različnih ukrepov za odvračanje oziroma omilitev škodljivih vplivov na kulturno in naravno dediščino ter možnosti določitve območij skupnih rezervatov (varstvenih območij) naravne in kulturne dediščine s skupnimi oz. dopolnjujočimi se varstvenimi režimi;
- podporo medresorskemu sodelovanju pri umeščanju plovnih koridorjev in sidrišč, načrtovanju plovnih kanalov in druge gospodarske rabe morja (ribištvo, marikultura, gradnja obalne infrastrukture) ter potreb zaščite in reševanja (območja, predvidena za odlaganje oz. detoniranje neeksplodiranih ubojnih sredstev) z zagotovitvijo dostopnosti georeferenciranih podatkov o stanju raziskanosti/degradiranosti morskega prostora za pripravljavce prostorskih aktov in investitorje (npr. ažurnost ocen o potrebnosti izvedbe predhodnih arheoloških raziskav in njihove stroškovne intenzivnosti ter projekcije obveznosti ohranjanja ostalin *in situ*; sprostitev vplovnih poti v Luko Koper, možnost vrisa območij PKD v pomorske karte za preprečitev poškodb zaradi ribolova in sidranja ter nevarnosti, ki jo PKD predstavlja za globinske mreže);
- pripravo načrta ukrepov varstva najpomembnejših registriranih najdišč, začenši s kontinuirano spremljavo fizične in biološke/kemične degradacije ostalin (namestitev markerjev, odvzemanje in analize vzorcev lesa in kovin), ki usmerja k nadaljnjim odločitvam (npr. stabilizacija s prekritjem z geotekstilom/juto/zatravitvijo, izkopavanje/nadzorovana razgradnja ali prestavitev (v primeru nezmožnosti kompromisa oz. prevlade enega javnega interesa nad drugim), namestitev sidrnih betonskih blokov/signalnih boj za preusmerjanje ribolova s pridneno mrežo) itd.);
- povezovanjem znanstvenoraziskovalnih ustanov in ustanov s področja varstva naravne in kulturne dediščine za pripravo skupnega načrta in metod spremljave lokacij/najdišč z namenom integralnega pristopa k izdelavi in hranjenju dokumentacije stanja najdišča (npr. večdisciplinarno potrjena uporabnost in primernost fotogrametrije za dokumentiranje sprememb opazovanih območij v okviru določenega časovnega intervala).

Še pomembnejše je vključevanje rezultatov raziskav v programe in projekte za ozaveščanje o pomenu podvodne kulturne dediščine in njeno promocijo, zagotovitev njene dostopnosti in predstavitev (interpretacijo) v okviru možnosti in omejitev vzgojno-izobraževalne in turistične rabe ter uveljavljanje participatornega pristopa in spodbujanja partnerstev pri upravljanju podvodne kulturne dediščine, v skladu z načeli Okvirne konvencije Sveta Evrope o vrednosti kulturne dediščine za družbo (CETS št. 199; podpisani v Faru 27. 10. 2005) in s smernicami Evropske strategije kulturne dediščine za 21. stoletje (Priporočila Odbora ministrov za države članice o Evropski strategiji kulturne dediščine za 21. stoletje CM/Rec (2017).

Ob upoštevanju omejitev za organiziran potapljaški turizem, ki možnosti za vodene oziroma nadzorovane obiske usmerjajo na plitvo potopljeno rimsko pomorsko infrastrukturo ter potencialno nekaj atraktivnejših razbitin plovil in letal na odprtem morju, se ta del projekta osredotoča na prednosti sodobnih načinov virtualne in snovne prezentacije izvrednotene in interpretirane terenske dokumentacije in rekonstrukcij, pa tudi rešitve za *in situ* predstavitve in nadgraditev obstoječih muzejskih predstavitev (Pomorski muzej »Sergej Mašera« Piran, Pokrajinski muzej Koper, Muzej podvodnih dejavnosti).

Podvodni turizem je brez dvoma naraščajoča dejavnost, vendar je slaba raziskanost trenutno velika ovira pri udejanjenju konkretnih projektov v tej smeri, saj znani podatki večinoma niso dovolj za oblikovanje privlačne interpretacije oziroma zgodb(e) o posameznih najdiščih kakor tudi za oceno tveganja ob povečanju obiska. Na tem področju nekoliko izstopata Simonov zaliv in Rex, ki že sedaj omogočata celovitejšo prezentacijo. Vodilo ob razvoju dejavnosti podvodnega turizma so vsekakor čezsektorsko sodelovanje in usklajevanje ter učinkovito vzpostavljanje sinergij s področjem podvodne naravne dediščine in biodiverzitete.

Možnosti za okrepitev ponudbe v okviru kulturnega turizma se zarisujejo zlasti v povezovanju prezentacij obeh ravni podvodne/pomorske kulturne dediščine, *in situ* predstavitve in muzejske, celostne, interaktivne predstavitve posameznih lokacij ali atraktivnejših tematik, npr.:

- razvoj pomorske krajine v pleistocenu in holocenu (potopljene rečne doline in spremembe obalne črte od starejše prazgodovine naprej, kazalniki relativnega dviga morske gladine in klimatske spremembe, potopljeni ostanki prazgodovinske poselitve: Sermin, Piran ...);
- pomorski gospodarski objekti in pristanišča obmorskih vil in naselbin rimskega in srednjeveškega obdobja (ribogojnice in soline kot eden glavnih gospodarskih temeljev območja in fenomen antične Istre, geografska pomorska umestitev, zasnova in gradbene značilnosti pristanišč in bazenov v povezavi z obalno infrastrukturo, vrste izdelkov in načini predelave ter embalaža);
- ostanki ladij iz obdobja med prazgodovino in zgodnjim novim vekom (razvoj ladjedelniških tehnologij, ladje z opremo in tovorom kot časovne kapsule: npr. rimska ladja Aura, rt Savudrija, Barka Brajde, Stojanov bark ...) z navezavo na potencialno identifikacijo mlajših razbitin v arhivskih in drugih dokumentarnih virih; povezava med vetrovi oziroma vremensko potencialno nevarnimi območji in lokacijami razbitin (sektor severno od Savudrije);
- razbitine kot habitati ogroženih živalskih in rastlinskih vrst (s povezavo na arhivske vire o prisotnosti zanimivejših vrst morskih živali v preteklosti (npr. viri o sredozemskem tjulnju na Debelem rtiču, kitih, morskih volkovih ...));
- dediščina pristanišč in mandračev srednjega in zgodnjega novega veka;
- kartografski prikazi istrske obale skozi čas;
- letališče v Fizinah ter zgodbe potopljenih ostalin prve in druge svetovne vojne (ladje, letala, podmornice, izvor/vrste morskih min, torpedov in letalskih bomb, letalski napadi) in obdobja hladne vojne;
- materialna dediščina tradicionalnega slovenskega pomorstva, ladjedelništva (tipi plovil in škveri), ribištva (čupe in tunolov) in potapljaštva;
- slovenski pomorščaki v avstrijski in avstro-ogrski mornarici ter arheologija bitk na Jadranu (viška bitka, ladja Szent Istvan ...).

Znanstvenoraziskovalni izzivi

Sedimentni del dna

- izvedba batigrafskih snemanj (MBES) v ločljivosti, večji od obstoječe (ob ustrezni modifikaciji razpoložljive opreme: konstrukcija ali rover), usmerjenih v odkrivanje novih najdišč na globlje ležečih delih morskega dna, dodatnih snemanj s podpovršinskim sonarjem (sub-bottom profiler) ter izdelave večslikovnih fotogrametričnih 3D-modelov (za potrebe analitike, interpretacije in prezentacije/promocije); prioriteta: sipine severno od Savudrije;
- izvedba večdisciplinarnih podvodnih terenskih pregledov za identifikacijo/valorizacijo/spremljavo najdišč ter karakterizacijo (bentoške združbe, koraligene formacije, sipine ...) in vzorčenje dna (ročni odvzem vzorcev; gravitacijski jedrnik do 0,5 m, vibracijski jedrnik in/ali water jet probing); prioriteta: obrežje paleostrug, skupina (rimskega?) balastnega kamenja pred Strunjanom);
- kabinetne in laboratorijske analize za rekonstrukcijo paleopovršja pred transgresijo morja ter izdelava simulacij razvoja krajine in napovednih mehanizmov/modelov za odkrivanje novih najdišč na podlagi oblikovanosti morskega dna (obrežni nasipi paleostrug z okolico, vzpetine, prelomi) ter podatkov o sestavi površja in podpovršja (pridobljenih s snemanji, podvodnimi pregledi in jedrnimi vrtanji);
- izvedba vzorčnega primera poglabljanja plovnega kanala Luke Koper z oceno potenciala (podpovršinski sonar v kombinaciji z vrtanjem) in usmerjenim izkopom/bagranjem z natančnim prostorskim umeščanjem ter arheološka spremljava običajnega poglabljanja;
- izvedba dokumentiranja trenutnega stanja najdišč (visokoresolucijska večslikovna 3D-fotogrametrija) s postavitvijo markerjev za nadaljnjo spremljavo, določitev mikroreferenčnih območij za opazovanje zaraščanja in sprememb v sedimentaciji/eroziji ter izvedba neinvazivnih in šibkoinvazivnih raziskav za oceno stanja notranje strukture najdišča;
- izvedba podvodnih testnih izkopavanj/dokumentiranj ostalin/lokacij z večjim potencialom z namenom ugotovitve obsega in sestave ter ohranjenosti najdišča za potrebe priprave načrta ukrepov in rešitev za trajno ohranitev/upravljanje *in situ* v skladu priporočili priročnika k Pravilom v zvezi z dejavnostmi, usmerjenimi na podvodno kulturno dediščino iz priloge h Konvenciji UNESCA o varovanju podvodne kulturne dediščine;
- izdelava projektnega načrta za celovito raziskavo, dvig/prestavitev, konservatorsko-restavratorske posege in predstavitev rimske ladje Aura in drugih razbitin, potrebnih prioritetne obravnave, pri katerih zaradi objektivnih okoliščin ni mogoče zagotoviti dolgoročne ohranitve *in situ*.

Priobalni del dna

- izvedba usmerjenih večdisciplinarnih podvodnih pregledov morskega dna v globinah med 4 in 15 m za identifikacijo ter potencialnih srednje- in poznoholocenskih najdišč/po 7500 BP (prioritete: 1. območje eocenskih apnencev v podmorju izolskega otoka/sladkovodni izviri/brakična močvirja/izolske jame in brezna/plimna zajeda; 2. piranska Punta; 3. apnenčast izdanek pred Rtičem Ronek) ter pregledov območij robov/vznožij abrazijskih teras v flišu za identifikacijo arheoloških najdišč, pomembnih za razumevanje časovne dinamike umika/sprememb obalne črte (vključno z analitiko abradiranosti keramičnih najdb kot kazalnika oddaljenosti od mest originalnih depozitov/odlaganja; prioriteti: 1. okolica vhoda v piransko pristanišče; 2. Fizine);
- nadaljevanje večdisciplinarnih raziskav antične/srednjeveške/zgodnjenovoveške pristaniške in druge grajene pomorske infrastrukture (ribogojnice, soline, škveri) z obalno arhitekturo in pripadajočimi depoziti (prioritete: 1. Zaliv. sv. Jerneja/rimsko obdobje; 2. Ankaran – sv. Katarina/ rimsko obdobje; 3. Strunjan – San Basso/ rimsko obdobje; 4. Bernardin – Fizine/rimsko obdobje; 5. Seča/rimsko obdobje), vključno s preverjanjem vseh doslej neevidentiranih pomorskih gradenj, prepoznanih na historičnih načrtih in aeroposnetkih, s sonarskimi snemanji ali ob potapljanju v plitvem priobalnem morju;
- izvedba dokumentiranja trenutnega stanja najdišč (visokoresolucijska večslikovna 3D-fotogrametrija) s postavitvijo markerjev za nadaljnjo spremljavo, določitev/umestitev mikroreferenčnih območij za opazovanje zaraščanja in sprememb v sedimentaciji/eroziji ter izvedba neinvazivnih in šibkoinvazivnih raziskav za oceno stanja notranje strukture najdišča;

- izvedba podvodnih testnih izkopavanj/dokumentiranj ostalin/lokacij z večjim potencialom z namenom ugotovitve obsega in sestave ter ohranjenosti najdišča za potrebe priprave načrta ukrepov in rešitev za trajno ohranitev/upravljanje *in situ*.;
- izvedba kabinetne študije predmodernih in sodobnih aeroposnetkov ter batimetrije z namenom identifikacije doslej zapostavljenih grajenih struktur na plitvo potopljenem delu morskega dna ter njihovo terensko preverjanje, strukturni pregled in valorizacija z vidika razvoja obalne črte ter dediščinskega potenciala.

Obala
- revizija podatkov in rezultatov izkopavanj in sondiranj pra- in protozgodovinskih najdišč v priobalnem/bibavičnem pasu (prioritete: 1. Sermin – zahodno vznožje/neolitik ter bronasta in železna doba; 2. Izola – Manziolijeva palača/rimsko obdobje, Marija Alietska/pozna antika, zgodnji in visoki srednji vek; 3. Piran – Trg 1. maja (Židovski kare)/bronasta in železna doba; 4. Fornače/pozna prazgodovina in rimsko obdobje) s posebnim poudarkom na absolutnih višinah kronološko opredeljivih depozitov;
- izvedba kabinetne študije arhivskega gradiva (karte, načrti, fotografije) o historičnih (15.–19. stoletje) pomorskih gradnjah (npr. v Archivio di Stato di Trieste, Governo marittimo, 1851–1923, costruzioni portuali, b. 563–623 ...), izvedba predmodernih in sodobnih aeroposnetkov;
- izvedba nedestruktivnih in šibkoinvazivnih raziskav (georadar, jedrno vrtanje, strukturni pregled, testna izkopavanja) starih mandračev (1. Izola – sv. Marija Alietska/Stari trg; 2. Piran/Tartinijev trg) in pomolov/valobranov (npr. Piran – temeljenje glavnega valobrana in pomola s potopljenimi beneškimi ladjami) ter doslej zapostavljenih struktur/naprav z značajem dediščine.

Izhodišča za pripravo načrta upravljanja podvodne kulturne dediščine

Vrednotenje pomena in ogroženosti ostalin

Ocena pomena podvodne kulturne dediščine, na podlagi katere se odloča o upravljanju, posegih in varstvu ter ima učinek na vse nadaljnje odločitve,

(1) določa, ali gre pri najdišču za:
- arheološko ostalino,
- enoto, ki se vpiše v register kulturne dediščine,
- območje, ki se razglasi za varstveno območje dediščine,
- spomenik, ki se razglasi za spomenik državnega pomena;

(2) predvidi:
- raziskovalna vprašanja, ki se odpirajo v zvezi z ostalino/najdiščem,
- raziskovalna vprašanja, za katere se ostalina/najdišče ocenjuje kot relevantno,
- družbeni in ekonomski pomen ostalin/najdišča;

(3) vpliva na načrtovanje in ublažitev/odvračanje škodljivih vplivov;

(4) prinaša vsebino v razpravo o:
- ukrepih varstva, posebej tistih za ranljive in ogrožene ostaline/najdišča,
- tem, ali se mora ostalina/najdišče ohraniti *in situ*,
- tem, ali se lahko ostalina/najdišče kontrolirano razgradi ali prestavi v okviru raziskave in prostorskega razvoja;
- tem, ali je primerno/koristno prezentirati ostalino/najdišče.

Varovanje in upravljanje

V okviru tehničnega varovanja zaščitenega najdišča/varstvenega območja/spomenika so mogoče naslednje rešitve ali njihove kombinacije, pri čemer se odločitve sprejemajo v koordinaciji z drugimi resorji.

Fizična zaščita/stabilizacija/omilitveni ukrepi
- *Umetni grebeni*; podvodna kulturna dediščina slovenskega dela Tržaškega zaliva najbolj agresivno, vendar nehote ogroža promet tovornih ladij, ki se je v zadnjem desetletju podvojil (gre za okoli 15.000 ladij, daljših od 100 m na leto). S povečevanjem zmogljivosti luk Koper in Trst (drugi tir) bo promet zelo verjetno že v naslednjem desetletju še močno narasel. Neposredno škodo (poleg turbulenc ladijskih propelerjev in thrusterjev pri manevriranju) povzročajo večtonska sidra in verige, proti katerim uveljavljeno prekrivanje oz. zasipavanje ne more zagotavljati zadovoljive zaščite. Poleg raziskave in dviga bi bilo tako mogoče najdragocenejše razbitine zavarovati le z masivnejšimi umetnimi grebeni.
- *Zasutje* ostalin s peskom, vrečami s peskom in z dodatno plastjo peščenega zasutja in/ali s prevlekami in mrežami iz polietilena ali geotekstila, ki delujejo kot bariera med ostanki in naslednjimi plastmi zasutja in se jih zasidra z betonskimi bloki ali klini. Pri zasutju ali prekrivanju najdišč gre za učinkovito in finančno ugodno zaščito pred škodo, ki jo povzročajo naravna erozija, sidra, kočarjenje in deloma tudi plenjenje; pri zaščiti lesenih ostankov je učinkovita uporaba geotekstila, ki prepreči naselitev bakterij in ksilofagov (organizmov, ki se hranijo z lesom) ter umetno travo; korozijo kovinskih razbitin, ki jo upočasnjuje priraščanje morskih konkrecij, je mogoče omiliti z oblaganjem z vrečami peska, uspešna pa je bila tudi uporaba blokov motorjev iz aluminijastih zlitin, ki položeni ob ostanke delujejo kot anode in pritegujejo kloridne soli.

KATEGORIJE	ELEMENTI	KRITERIJI
ZNANSTVENI POMEN	CELOVITOST	• obstoj najdišča oz. ostalin v izvirnem položaju oz. na prvotni lokaciji • ostabilnost naravnega okolja • celovitost ostalin in prostorska celovitost • stopnja stratigrafske intaktnosti
	KAKOVOST	• topografski in geomorfološki kontekst najdišča • stratificiranost/strukturiranost in kompleksnost najdišča • berljivost arheološke stratifikacije • ohranjenost prostorskih odnosov med premičnimi najdbami ter depoziti, strukturami in drugimi arheološkimi pojavi • ocena raznolikosti in količine premičnih najdb • ocena ohranjenosti originalnih materialov/struktur, predmetov, organskega materiala • prisotnost kronološko občutljivega arheološkega gradiva in gradivo, primerno za absolutno datiranje • prisotnost eksotičnih predmetov in gradiva • značilni favnistični in botanični material
	INFORMACIJSKI POTENCIAL	• možnost sklepanja o značaju/vrsti najdišča • prepoznavnost kulturnih značilnosti struktur in fenomenov ter predmetnih zbirov • možnost razumevanja značaja in procesov odlaganja/depozicije in (pre)oblikovanja • prepoznavnost/razločnost območij dejavnosti znotraj najdišča • predmeti in strukture, značilni za družbenoekonomsko dejavnost • zanimivost in/ali potencial najdišča za druge znanstvene discipline
	INTERPRETACIJSKI POTENCIAL	• možnost ustvarjanja novega znanja • možnost zapolnjevanja praznin v trenutnih spoznanjih • primerljivost z novejšimi raziskavami podobnih vrst arheoloških ostalin • primerljivost z novejšimi raziskavami regije in obdobja
SPLOŠNI POMEN	REDKOST/IZJEMNOST	• število primerljivih, arheološko dokumentiranih sočasnih in dobro ohranjenih najdišč v isti arheološki mikroregiji • enako, pričakovano na podlagi napovednega modeliranja enako, na regionalni, nacionalni in mednarodni ravni • lastnosti, ki najdišče opredeljujejo kot edino ali vsaj izjemno pričevanje določenega arheološkega fenomena, oblike in načina izrabe prostora, vzorca poselitve ali kulturne značilnosti na nacionalni in mednarodni ravni
	PRIMERJALNA POMEMBNOST	• sinhroni kontekst: z vidika celovito ali delno raziskanih sočasnih najdišč v isti arheološki mikroregiji • diahroni kontekst: z vidika celovito ali delno raziskanih najdišč iz različnih obdobij v isti arheološki mikroregiji • geografski kontekst (fizična in historičnogeografska celovitost pokrajine) in paleookoljski kontekst
	TIPIČNOST/ REPREZENTATIVNOST	• število arheološko izpričanih primerljivih, sočasnih in dobro ohranjenih najdišč v isti arheološki mikroregiji • enako, pričakovano na podlagi usmerjenega napovednega modeliranja • stopnja ohranjenosti fizičnih ostankov
DRUŽBENI POMEN	ESTETSKA/ IZKUSTVENA VREDNOST	• vidnost/opaznost kot zmožnost vplivanja na doživljanje kraja in prostora • prepoznavnost v prostoru in ohranjenost zunanjih fizičnih lastnosti (stanje, oblika in tekstura) • razmerje z okolico in njenimi nearheološkimi prvinami (npr. lega najdišča na območju geomorfoloških pojavov, ekosistemov in drugih naravnih vrednot)
	ZGODOVINSKA POMEMBNOST TER PRIPISANE LASTNOSTI IN POMEN	• povezanost z ljudmi ali skupinami ljudi, dogodki, dejavnostmi, kraji ali tematikami v lokalni, regionalni, nacionalni ali mednarodni zgodovini • prispevek k interpretaciji in reinterpretaciji ostalin/najdišča • prispevek k zavedanju kontinuitete ali identitete, bodisi samostojno ali v povezavi z drugimi ostalinami/najdišči • etnografska ali etnohistorična povezava, z ostalinami/najdiščem povezana živa tradicija in kulturna kontinuiteta, komemorativni ali religiozni/duhovni pomen za posamezno skupino ljudi ali skupnost ali drugačna vloga v človeškem dojemanju morske pokrajine
	EKONOMSKA VREDNOST	• gospodarske priložnosti in sposobnost ustvarjanja neposrednega in posrednega dohodka • združljivost z okoliškimi varstvenimi režimi in izrabo morskega dna • dostopnost za javnost in možnost upravljanja • ekonomska in tehnična/inženirska izvedljivost prezentacije in vzdrževanja • možnosti za varovanje/ukrepe proti vandalizmu in drugim oblikam namernega poškodovanja • zmožnost vključitve v druge segmente družbenega in ekonomskega življenja kot prispevek izobraževalnemu, rekreacijskemu in estetskemu pomenu prostora • odnos lokalne skupnosti do ohranjanja najdišča, prostorskega razvoja ali uničenja

Preglednica 1: Kriteriji in merila z elementi vrednotenja za določitev pomena ostaline/najdišča

ZNAČAJ	• viri/vzroki sprememb • ali so vplivi v prid/v škodo ostalinam ali so do njih nevtralni • značaj procesov sprememb in njihov posredni/neposredni vpliv
OBSEG	• obseg pričakovanih fizičnih sprememb ali uničenja • prostorska razprostranjenost vpliva, bodisi splošna ali specifična najdišču
TRAJANJE	• časovno obdobje trajanja vpliva (vplivi imajo lahko kratkotrajne ali začasne učinke, pa tudi trajnejše, dolgoročne učinke na arheološke ostaline/najdišče)
STOPNJA SPREMINJANJA	• stopnja, do katere bo vpliv spremenil celovitost ali fizično stanje arheoloških ostalin/najdišča
RAZNOLIKOST	• število različnih dejavnosti, ki bodo pričakovano vplivale na arheološke ostaline/najdišče
POGOSTOST	• število oz. ponavljanje pričakovanih vplivov (vplivi spremenljive velikosti in resnosti so lahko enkratni, takšni kot npr. ribolov s pridneno mrežo, sidranje in turistični obisk pa so lahko ponavljajoči se ali stalni)
KUMULATIVNI UČINEK	• progresivno spreminjanje ali uničevanje ostalin/najdišč zaradi ponavljajoče se narave enega ali več vplivov

Preglednica 2: Kazalniki za oceno vplivov na arheološke ostaline/najdišča

- *Zaščitne plošče* iz steklenih vlaken ali kovine, ki so nameščene na okvirjih nad ostanki in dodatno zaščitene z mrežo in peščenim nasutjem; ta rešitev je primerna zlasti za najdišča med raziskovanjem.
- *Kovinske mreže* (in kletke), ki se na dno sidrajo z betonskimi utežmi ali klini; postavitev kletk, po izkušnjah iz Republike Hrvaške je postavitev kletk učinkovita rešitev za zaščito ogroženih najdišč. Kletke so izdelane iz zvarjenih železnih palic, cevnega ogrodja in okovja ter dodatno obtežene s 1000-kilogramskimi betonskimi bloki. Opremljene so z dvojimi vrati na ključavnico, ki omogočajo neposredni obisk. Kletka je visoka okoli 2 m nad morskim dnom, kar zagotavlja varno potapljanje znotraj kletke. Odprtine med palicami omogočajo opazovanje tudi od zunaj.
- *Betonske piramide* ali/in štirinogi s signalno bojo ali brez nje za preprečevanje poškodb, ki nastajajo z ribolovom s pridneno mrežo. Ribiči položaje »tenud« že sedaj dobro poznajo in se jim ogibajo, saj jim razbitine in druge ovire trgajo mreže, vendar bi bloki ob obvestilu (ali vzpostavitvi sistema senzorjev, ki bi na posameznih lokacijah oddajali signal) posadkam kočaric dokončno preprečili uničevalno vleko.

Rezervatno varstvo – ukrepi – sredstva nadzora

- *Signalne boje* s sidrom in podaljšano verigo za označitev položaja, opozorilo na nevarnost ali oznaka plovnega koridorja; na bojah so lahko nameščene informacijske table z opozorili; ob vplutju ladje v določeno območje senzorji sprožijo alarm in odziv pristojnih organov.
- *Nadzor* luške kapitanije in pomorske policije, ki izvaja kontrolo potapljanja in drugih dejavnosti na zavarovanih lokacijah (ob že vzpostavljenih sistemih nadzora dejavnosti na morju: kamere in termovizija, radar).
- *Periodična spremljava (monitoring)* najdišč: metrična spremljava sprememb na najdišču na podlagi predhodno postavljenih geomarkerjev in/ali opazovanja referenčnih mikroobmočij. Redni monitoring je osnova za sprotno ugotavljanje ogroženosti najdišča in pravočasno odzivanje z morebitnimi spremembami/prilagoditvami varstvenega režima/načrta upravljanja. Monitoring je treba vzpostaviti na vseh najdiščih, ne glede na stopnjo ogroženosti.

Podvodni muzeji, parki in steze

Povečano zanimanje za podvodno kulturno dediščino, ki vlada v zadnjem času ne samo med strokovnjaki in potapljači, temveč tudi v širši javnosti, ter uveljavljanje načela o čim večji stopnji ohranjanja ostalin *in situ* utemeljujeta razmeroma novo zvrst kulturnega turizma v obliki podvodnih muzejev, parkov in stez. Že izvedene (glej tudi primere dobre prakse na unesco.org) oz. načrtovane praktične rešitve vključujejo:

- *virtualni muzej* podvodne kulturne dediščine; podlaga za Augmented Reality predstavitev sta batimetrični načrt morskega dna in lidarski posnetek obale. Z novimi raziskavami se dodajajo dokumentacija in 3D-posnetki, rekonstrukcije in podrobnejše razlage. V virtualni muzej bi lahko bili vključeni tudi vsi relevantni znanstveni podatki ostalih ved o morju (geologija, sedimentologija, biologija ihtiologija, ekologija itd.);
- *informacijske točke* s taktilnimi modeli (3D-tisk) morskega dna in posameznih ostalin (npr. brodolomi, negativ Rexa) ali rekonstrukcij za slepe in slabovidne ter druge ranljive skupine;
- *dvig ostalin in njihovo prezentacijo* v akvariju (npr. razbitina ladje Nanhai-1) ali naravnem okolju; ogled *in situ* čez potopljene pohodne cevi (npr. aleksandrijsko pristanišče in napisi v reki Jangcekjang pri Baiheliangu);
- *potapljaške lokacije s stezami*, označenimi z vrvmi in vodoodpornimi razlagalnimi tablami ali prenosnimi zemljevidi (npr. antični ostanki pri Punta Gavazzi na otoku Ustica v Tirenskem morju in Baia pri Neaplju, pristanišče antične Cezareje Maritime);
- *podvodne parke* z več razbitinami (npr. Florida Keys National Marine Sanctuary); upravljanje arheoloških parkov predvideva konstantno vzdrževanje in konservacijo, v nekaterih primerih tudi stabilizacijo in restavriranje ogroženih ostalin;
- *lokacije, zaščitene z mrežami in kletkami* (npr. Zambratija, Cavtat, Lastovnjaci);
- *ustvarjanje umetnih najdišč* z redepozicijo v preteklosti dvignjenih in analiziranih premičnih ostalin (npr. namestitev amfor z razbitine Grand Congloué pri pečinah Debie in Niollon pri Frioulu na globini 13–15 m ali železnih sider iz 18. stoletja pri Anse du Stole v Bretanji).

Ena od možnih rešitev za trajnostno upravljanje so koncesije za organizirano potapljanje na zaščitene lokacije ali območja, ki se dodelijo z javnim razpisom in jih uspešno uporablja Hrvaška. Gre za koncesije, izdane izbranim potapljaškim centrom, ki imajo izključno pravico do podvodnega vodenja obiskovalcev po osmih podvodnih arheoloških najdiščih, zaščitenih s kletko (Cavtat, Mljet, Žirje, Pag, Rab, Zambratija), ki nosijo ime Podmorski muzeji. Na podoben način se trenutno upravlja dvaintrideset podvodnih lokacij, vključenih v program Ministrstva za kulturo Republike Hrvaške za obdobje 2014–2018, saj je samostojno potapljanje na območjih podvodne kulturne dediščine na Hrvaškem prepovedano. Prednost imajo pravne osebe, ki ob izpolnjevanju zahtevanih pogojev ponudijo večje denarno nadomestilo, so aktivno sodelovale pri zaščiti kulturne dediščine, so bliže zaščiteni lokaciji in zaposlujejo lokalne prebivalce. Sredstva, ki se zberejo na račun letnih nadomestil, se namensko porabljajo za investicije v varovanje podvodne kulturne dediščine. Tako se dostopnost do te dediščine zagotavlja na najugodnejši način: koncesijska odškodnina je prihodek državnega proračuna, iz katerega se lahko financira ohranjanje podvodne dediščine, medtem ko so izvajalci spodbujeni nadzorovati območja in izvajati storitve učinkovito in kakovostno ter ob upoštevanju pogojev uporabe, kot so definirani v koncesijski pogodbi. S soglasjem pristojnih služb in organov se lahko dovoli tudi enkraten obisk ogleda, promocijskega, spominskega ali izobraževalnega značaja.

Režim pri potapljanju na zaščitene lokacije ali območja imetnika dovoljenja zavezuje k primernemu odnosu do kulturne dobrine, kar vključuje (1), prepoved poškodovanja kulturnih dobrin in dviganje predmetov (2), obvezo o sporočanju nedovoljenih dejavnosti na zaščitenem območju (3), obvezo o sporočanju kakršnihkoli poškodb ali uničenj na zaščitenem območju (4), obvezo o sporočanju morebitnih odkritij arheoloških najdb (5), obvezo o pošiljanju dnevnika potopa pred vsakim obiskom poslan pristojnim službam, ki izvajajo nadzor.

Morebitna vpeljava podobnega sistema v Sloveniji bi zahtevala izvedbo predhodne študije z anketiranjem potencialno zainteresiranih deležnikov. Ključni momenti, ki jih velja upoštevati, so majhno število potapljaških centrov na slovenski obali in omejeno število uporabnikov njihovih storitev, prost režim potapljanja (skoraj na celotnem območju) teritorialnega morja in notranjih vod ter zgoščanje obiska na dve lokaciji (tečaji v Fiesi in na piranski Punti) in neseznanjenost potapljaške skupnosti z ostalimi zanimivostmi. Ob upoštevanju navedenega, zlasti pa majhnega prometa centrov bi lahko bil koncesionarski sistem za centre sicer tržno zanimiv, vendar le pod pogojem, da se uveljavlja na (estetsko in vsebinsko zanimivih) lokacijah (na odprtem morju) z reguliranim pristopom. Taka ureditev bi pomenila pomemben odklon od veljavnega prostega režima potapljanja, zato se kot možna in družbeno sprejemljivejša alternativa kaže vzpostavitev sistema licenciranja vodnikov za zavarovane lokacije. Ta bi imela trajnejši učinek kot podelitev koncesij, ki pri prometu, ki ga dosegajo slovenski potapljaški centri, proračunu oziroma posebnemu skladu, namenjenemu financiranju ukrepov varstva podvodne kulturne dediščine, ne bi prinesla znatnega zneska. Poleg tega logika zaklepanja najdišča za najvišjega ponudnika vzpostavlja monopolni položaj izvajalca, ki sam po sebi ne vsebuje razvojnega dejavnika, medtem ko mehanizem podeljevanja licence tistim, ki izkažejo zahtevano vedenje o najdišču in pristopih vodenja, prinaša na znanju utemeljeno konkurenco med ponudniki in z znanjem povezano rast splošnega zavedanja o pomenu ohranjanja podvodne kulturne dediščine.

Mreženje in promocija

Ključni dejavnik prizadevanj za povečanje ozaveščenosti o pomenu varstva in razvojnih priložnosti upravljanja podvodne kulturne dediščine sta povezovanje javnih institucij z nevladnimi organizacijami, ki delujejo na področju raziskovanja in promocije podvodne kulturne dediščine, in vključevanje najširše potapljaške javnosti ter potapljaških klubov in centrov. Iz tega izhaja, da je treba pri upravljanju podvodne kulturne dediščine razviti enotne, participativne dejavnosti, zlasti usposabljanja in programe za promocijo. Potrebna je vzpostavitev prepoznavnega komunikacijskega kanala za podajanje informacij o podvodni kulturni dediščini v enotni zasnovi, ki povezuje tri ključne vidike upravljanja: mreženje deležnikov, izobraževanje in popularizacijo.

Mreženje

Predlog pilotnega projekta za promocijo potapljanja na zanimivejših lokacijah predvideva izdelavo ličnih in poljudno napisanih informacijskih paketov o posameznih najdiščih (z enotnim oblikovanjem in blagovno znamko podvodne kulturne dediščine), ki se predajo v uporabo potapljaškim centrom in klubom, in sicer v povezavi s predavanji za voditelje potopov, ki jih velja organizirati v okviru Slovenske potapljaške zveze. Predstavljene informacije o najdiščih predstavljajo širši kulturnozgodovinski in prostorski kontekst, ki povezuje turistično ponudbo obale z morjem.

Paketi s tem postanejo temelj standardizacije znanja in turistične ponudbe, povezane s podvodno dediščino, ki se letno lahko dopolnjuje s ciljano organiziranimi dogodki (npr. podvodne raziskave, dan potapljačev, podvodne čistilne akcije, posebna vodstva, razstave, konference, prireditve, kot so Dnevi evropske kulturne dediščine, pomorski krst, tradicionalno romanje z barkami ipd.).
Nadaljevanje komunikacije z najširšo potapljaško javnostjo predvideva razvoj enotne, participativne spletne platforme za združevanje obstoječih zbirk podatkov muzejev in ZVKDS ter drugih deležnikov, ki predstavlja tudi izhodišče za enotno promocijo podvodne dediščine in za bodoče nadgradnje prezentacije v virtualnem okolju. Ena od možnosti je oblikovanje mobilne 3D-aplikacije po vzoru italijanskega projekta VISAS (*Valorizzazione integrata dei siti archeologici sommersi*), ki se lahko uporablja v povezavi s podvodno računalniško tablico – ta omogoča akustično geolociranje obiskovalca, sprejem ustreznih informacij in slikovnih gradiv o podvodni dediščini in nalaganje lastnih geolociranih fotografskih posnetkov. Sistem, ki je za zdaj še precej drag in temelji na dokaj nepraktični tehnologiji, je lahko torej tudi sredstvo za (participativni) monitoring, ki ga je zaradi obsežnosti naloge treba oblikovati in izvajati z učinkovitimi rešitvami. Druga možnost v smislu participativne spletne platforme je nadgraditev podvodnega atlasa Slovenije, ki nastaja pri Slovenski potapljaški zvezi in je odlično sredstvo promocije in izbire podvodnih izletov v Sloveniji. Obenem je točka, na kateri se lahko ažurno opozarja na morebitne spremembe v varstvenem režimu, stanju najdišča ali aktualne (avtorizirane) dejavnosti.

Izobraževanje

Izobraževanje o podvodni kulturni dediščini je treba zagotoviti na treh ravneh: na ravni formalne (univerzitetni) izobrazbe, na ravni neformalne izobrazbe (specialistični tečaji po veljavnih shemah) ter s ciljanimi predstavitvenimi programi. Trenutno sta podvodna dediščina in arheologija v sedanjem univerzitetnem izobraževanju na slovenskih univerzah zapostavljeni, zato je nujno treba obogatiti obstoječa kurikula z vsebinami s tega področja. Neformalno izobraževanje s področja podvodne kulturne dediščine vključuje rekreativne specialistične tečaje podvodne arheologije (npr. Nautical Archaeological Society), ki so odličen vzvod za informiranje javnosti o podvodnih arheoloških raziskavah in njihovi pomembnosti. Predlog tretje osi izobraževanja je usmerjen v vzpostavitev sistema licenciranja vodnikov za lokacije, ki zagotavlja ciljano informiranje potapljačev in širjenje vedenja o podvodni kulturni dediščino. Poleg tega je treba posredovati informacije o možnostih za potope in ponudbi potapljanja ter o ostalih dogodkih, povezanih s podvodno kulturno dediščino, pri turističnoinformacijskih točkah centrih ipd.

Popularizacija

Trajnejše učinke popularizacije podvodne kulturne dediščine je mogoče doseči le s približevanjem podvodnega okolja najširši javnosti, torej z boljšo dostopnostjo podvodnih najdišč. Prvi pristop je ureditev arheoloških parkov, s čimer se poveča dostopnost do podvodnega spomenika, park se umesti v turistično ponudbo območja in razvijejo se programske dejavnosti. Druga raven so akcije, vezane na živo arheologijo, v katerih se na neposrednem izkustvenem nivoju jasno in oprijemljivo razlagata zgodovina ter življenje v preteklosti. Temu sledi izraba vseh spletnih platform ali socialnih omrežij ali zgoraj omenjene spletne zbirke lokacij z opisi.
Pri upravljanju podvodne kulturne dediščine sta morda najpomembnejša končna faza razvoja promocije, tj. diseminacija, in povezovanje z najširšo javnostjo. Danes imamo na voljo pestro paleto tehnoloških rešitev ter dobrih praks iz tujine in pri nas, ki se lahko z vrhunskimi arheološkimi lokacijami razvije v opazen in pomemben turistični kapital. Vse naštete dejavnosti obenem celovito povezujejo zelo različne deležnike: znanost, varstvo dediščine, turizem, gospodarstvo, izobraževanje in lokalno skupnost.

Dodatek: akcijski načrt prioritetnih raziskav

Predložen program raziskav izhaja iz neizogibnega spoznanja, da razpoložljivi podatki o kulturni dediščini na morskem dnu slovenskega dela Tržaškega zaliva ne omogočajo celovitega vrednotenja pomena in ogroženosti registriranih podvodnih najdišč, saj je trenutno poznavanje večjega dela enot za ta namen bistveno preskromno. Določitev raziskovalnih prioritet je zato utemeljena na nujni potrebi po zgostitvi podatkov o arheološkem potencialu antropogenih in naravnih fenomenov na prostorsko (in logistično) zaključenih območjih odprtega morja, začenši s slabo poznanim sektorjem severno od Savudrije, nadalje na posegih za določitev ukrepov varstva močno ogrožene razbitine rimske ladje pred Debelim rtičem ter na pregledu doslej zapostavljenih priobalnih delov morskega dna na območjih z večjim potencialom za odkritje potopljenih prazgodovinskih ostalin in antične arhitekture.

1. prioriteta

Rekognosciranje in šibkoinvazivne raziskave za določitev arheološkega potenciala dokumentiranih razbitin in anomalij, zaznanih z batimetrijo v sektorju severno od Savudrije

Barka Punta Piran – EŠD 29400
Barka N III. – EŠD 29404
Barka N II. – EŠD 29405
Barka N I. – EŠD 29406
Barka Brajde Piran – EŠD 29409

Raziskava vključuje rekognosciranje in oceno arheološkega potenciala slabo poznanega sektorja podmorskih sipin severno od Savudrije, kjer je ena največjih zgostitev razbitin in potencialnih razbitin iz arheoloških in zgodovinskih obdobij. Obenem je to prostor, od koder bi po podatkih italijanskih kolegov, posredovanih leta 2005, lahko izvirala serija celih rimskih amfor, ki so se prodajale na črnem trgu (Gradež). Ti indici bi lahko skupaj s potrjenimi ostanki poznosrednjeveškega brodoloma potrjevali domnevo o pokopališču ladij, katerega lokacija je morda pogojena s prekrivanjem plovnih poti in območjem nevihtnih obratov juga v močan severozahodnik in nato v severovzhodno burjo (ti. škontradura).

Predvidena dela
- identifikacija in strukturni pregled anomalije ter dokumentiranje trenutnega stanja ostalin/struktur z visokoresolucijsko večslikovno 3D-fotogrametrijo;
- vzorčenje za potrebe izvedbe ocene arheološkega potenciala najdišča (radiokarbonsko datiranje/dendrokronologija; vzorčenje premičnih arheoloških najdb) ter biološke (bentoške združbe) in geološke karakterizacije (značilnosti dna in dinamike sprememb) območja anomalije;
- določitev mikroreferenčnih območij za opazovanje zaraščanja in sprememb v sedimentaciji/eroziji ter postavitev markerjev za nadaljnjo spremljavo;
- ekstenzivni pregled neposredne okolice anomalije: pribl. 100 x 100 m;
- izdelava poročila s predlogi nadaljnjih raziskav in ukrepov varstva.

2. prioriteta

Testno izkopavanje močno ogrožene razbitine lesenega plovila iz 1. stoletja n. št.

Barka Aura – EŠD 27900

Raziskava predvideva testno izkopavanje barke Aura, ki je trenutno edina znana razbitina antičnega plovila v slovenskem morju. Oblika koraligene formacije nad ostanki lesene strukture nakazuje, da gre za okoli 14 m dolgo ladjo, ki jo radiokarbonska analiza umešča v sredino 1. stoletja n. št. Nujna je takojšnja raziskava za potrditev pomena ostalin in njihovo prestavitev/dvig, saj je lokacija na robu območja sidrišča Luke Koper in je izpostavljena nevarnosti popolnega uničenja.

Predvidena dela
- dokumentiranje trenutnega stanja formacije z visokoresolucijsko večslikovno 3D-fotogrametrijo;
- testni izkop prečne sonde pravokotno na daljšo os strukture/objekta za dokončno opredelitev fizičnih lastnosti in ohranjenosti ostalin ter nadaljnjih ukrepov varstva, vključno z:
- vzorčenjem in segmentno odstranitvijo koraligene formacije do ostankov strukture;
- celostnim dokumentiranjem strukture ter vzorčenjem za potrebe datiranja in določitve vrste uporabljenih materialov;
- vzorčenjem premičnih najdb v notranjosti/zunanjosti strukture;
- poglobitvijo testnega izkopa na eni strani strukture za potrebe ugotovitve arheoloških/bioloških/geoloških lastnosti stratifikacije pod strukturo in izdelave načrta dviga.

3. prioriteta

Šibkoinvazivne raziskave za določitev arheološkega potenciala morskega dna v priobalju

Namen bloka raziskav sta rekognosciranje priobalnega dela dna ob izolskem (pol)otoku, kjer je mogoče na podlagi apnenčaste podlage in izvirov sladke vode domnevati potencialni obstoj sledov prazgodovinske obljudenosti iz zgodnjega in srednjega holocena, ter izvedba ekstenzivnih in intenzivnih pregledov morskega dna na območju treh rimskih obalnih naselbin.

Izola (Delamaris – Punta)
Seča – Vila marittima Rt Seča – EŠD 26281
Ankaran – sv. Katarina – EŠD 29698
Strunjan – San Basso – EŠD 7201

Predvidena dela
- ekstenzivni pregled (v prečnicah);
- intenzivni/strukturni pregled območja z odkritimi (arhitekturnimi) ostanki/geomarkerji in koncentracijami premičnih najdb (v kvadrantih);
- prostorsko in večslikovno 3D-fotogrametrično dokumentiranje situacij, vključno s potencialnimi geološkimi markerji relativnega dviga morske gladine;
- vzorčenje za potrebe izvedbe ocene arheološkega potenciala najdišča (radiokarbonsko datiranje/dendrokronologija; vzorčenje premičnih arheoloških najdb) ter biološke (bentoške združbe) in geološke karakterizacije (značilnosti dna in dinamike sprememb) območja;
- določitev mikroreferenčnih območij za opazovanje zaraščanja in sprememb v sedimentaciji/eroziji in postavitev markerjev za nadaljnjo spremljavo;
- izdelava poročila s predlogi nadaljnjih raziskav ter ukrepov varstva.

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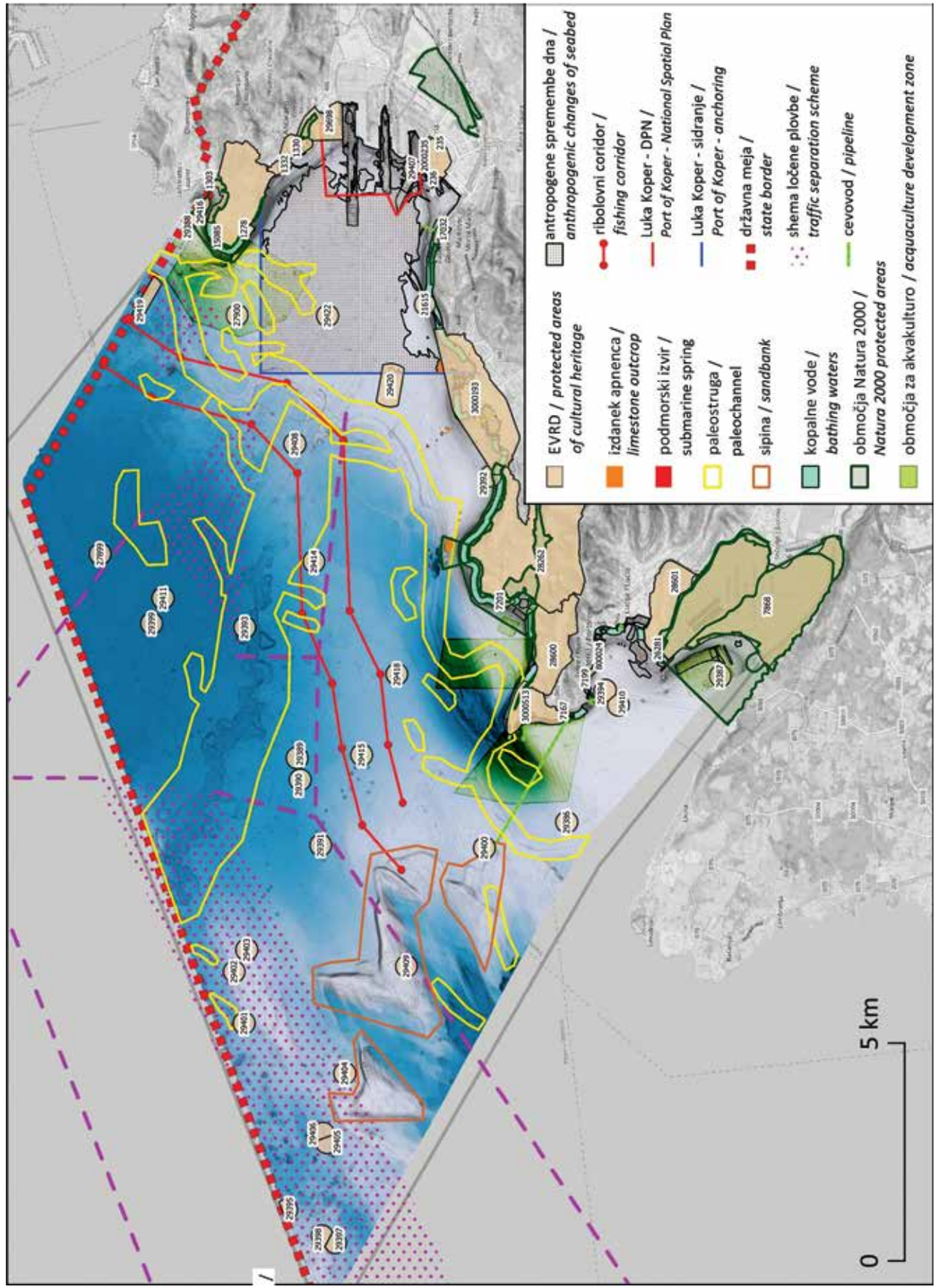
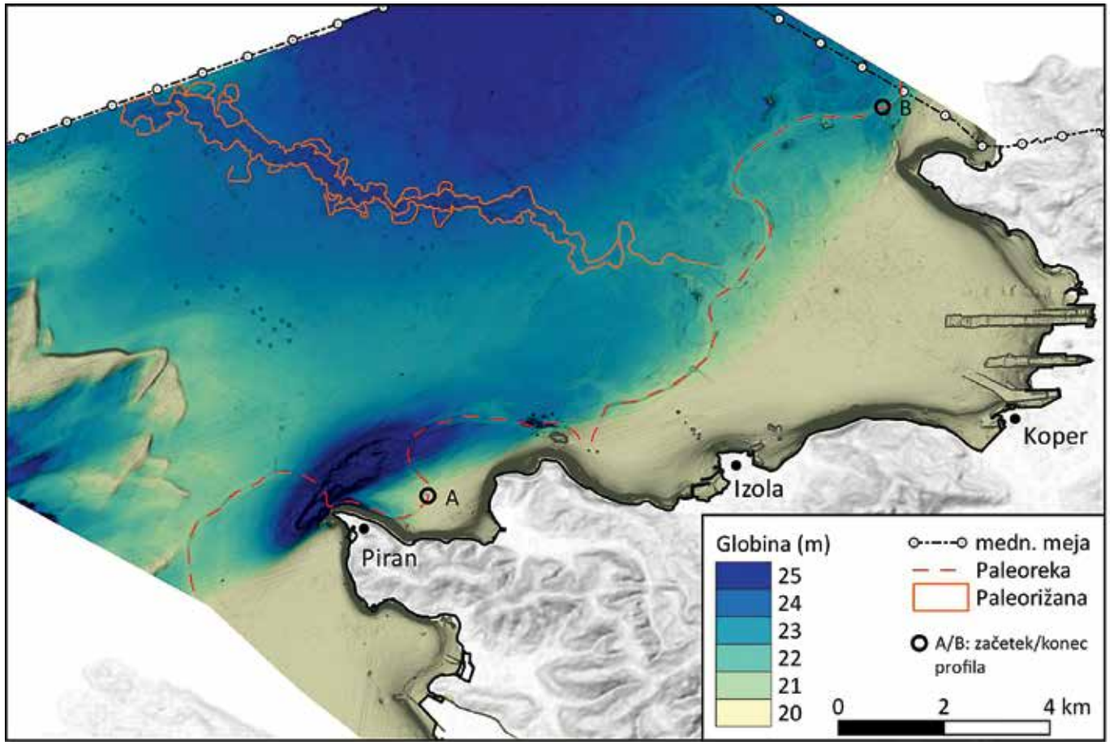
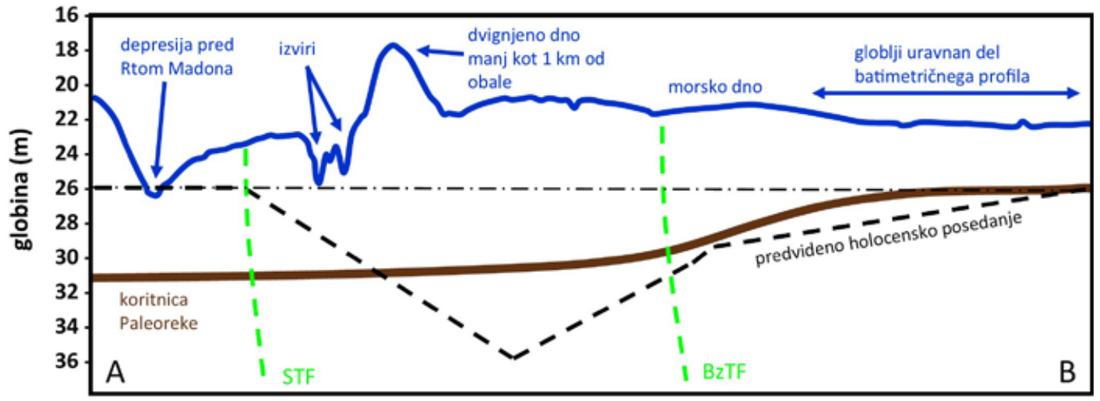
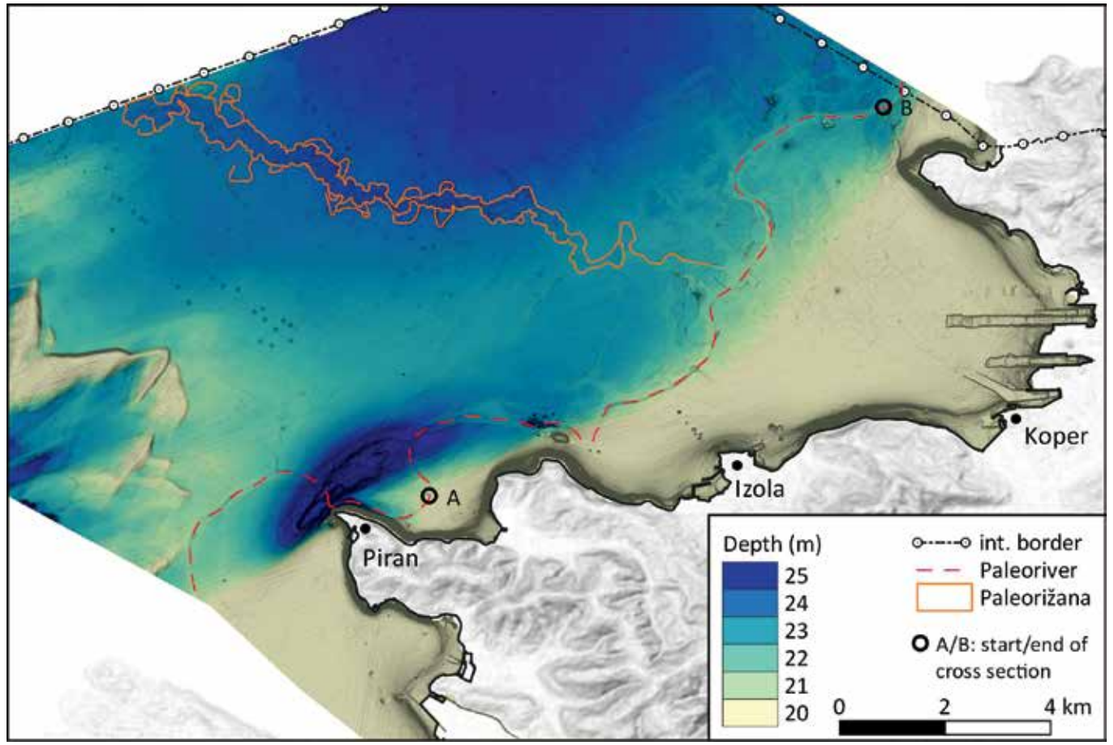


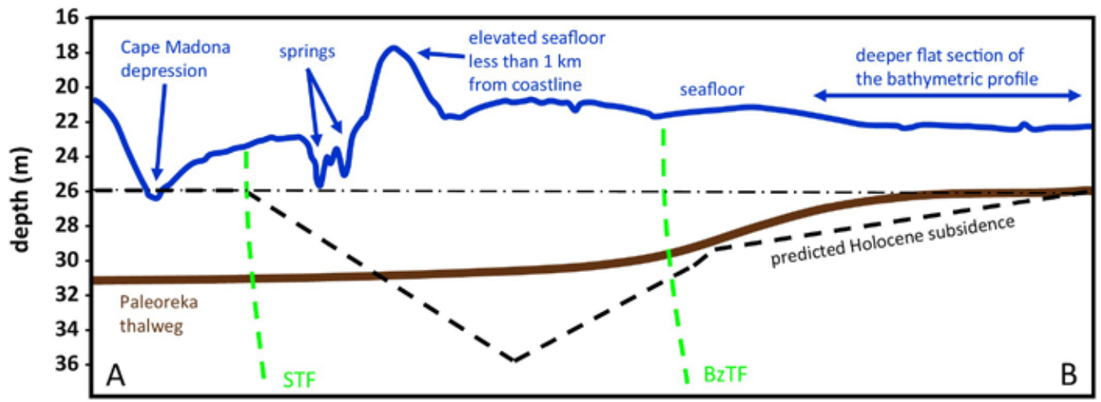
1. Kumulativna karta varovanih območij in dejavnosti v slovenskem morju s priobalnim pasom (pripravil: S. Poglajen)
1. Cumulative map of protected areas and activities in the Slovenian sea and nearshore zone (prepared by: S. Poglajen)



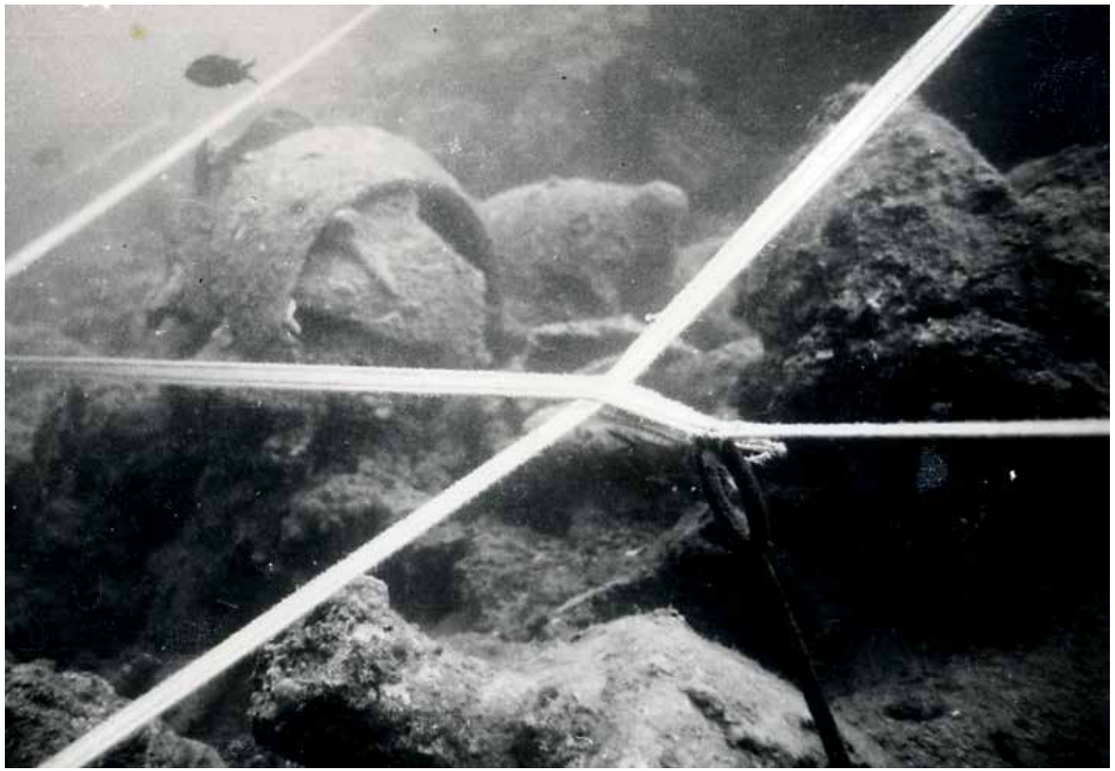


2. Geomorfološke značilnosti na morskem dnu so zglajen odraz paleopovršja s poplavno ravnico iz časa pred začetkom holocenske transgresije morja okoli 10.000 PS. Podatki snemanj z večsnopnim in podpovršinskim sonarjem so omogočili identifikacijo in študij dveh paleostrug v sedimentih morskega dna slovenskega dela Tržaškega zaliva: (a) meandrirajoča struga Paleorižane na batigrafskem posnetku in (b) vzdolžni profil Paleoreke med Strunjanskim zalivom (točka A) in Debelim rtičem (točka F) (po Trobec et al. 2017).



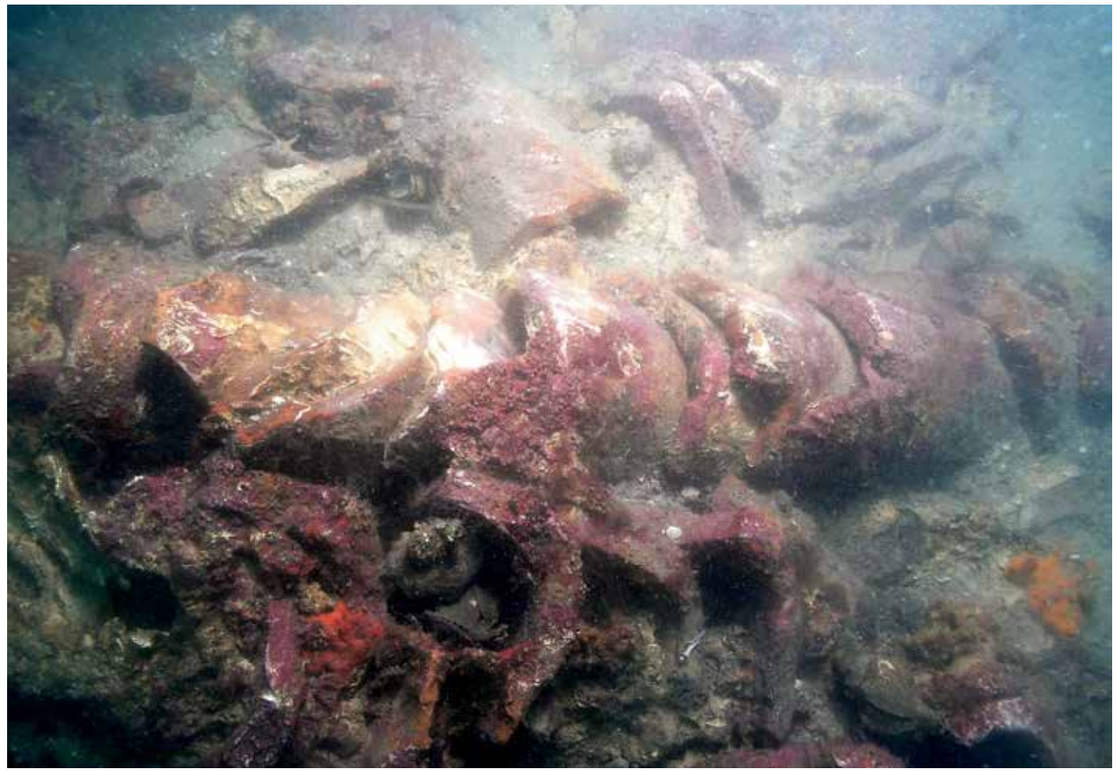


2. Geomorphological characteristics on the seabed are a smoothed reflection of a palaeosurface with floodplain from the period before the start of the Holocene marine transgression in around 10,000 BP. Data obtained by surveying with multibeam and sub-bottom sonar have enabled identification and study of two palaeochannels in seabed sediments of the Slovenian part of the Gulf of Trieste: (a) the meandering channel of the palaeo-Rižana in a bathymetric image and (b) the longitudinal profile of the palaeo-Reka between Strunjan Bay (point A) and Debeli Rtič (point F) (after Trobec et al. 2017).



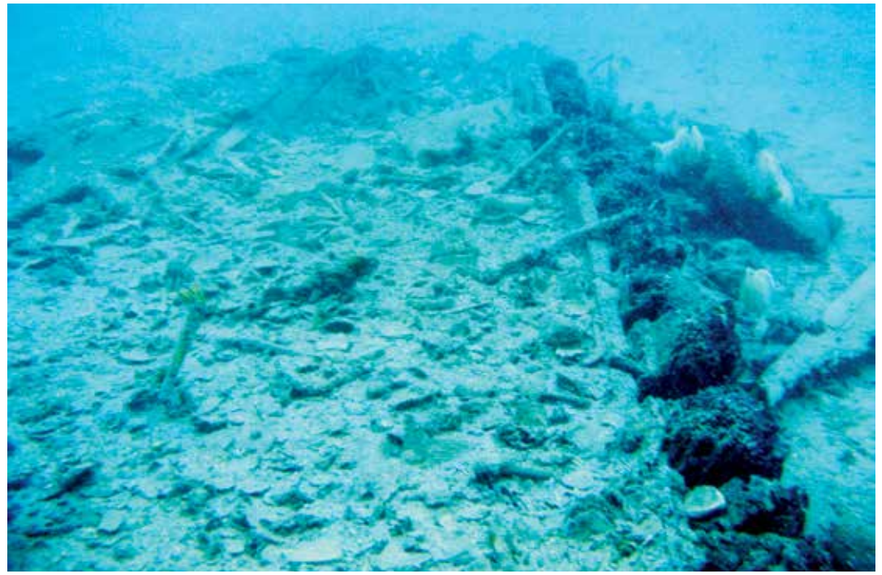
3. Rt Savudrija. Avgust 1963. Raziskave antičnega brodoloma s konca 2. stoletja pr. n. št. ali začetka 1. stoletja n. št., ki leži na globini med 8 in 16 m, je izvajal Center za podvodna raziskovanja SRS iz Ljubljane pod patronatom Arheološkega muzeja Istre iz Pulja (foto: Z. Kralj; arhiv Pomorskega muzeja »Sergej Mašera« Piran)

3. Cape Savudrija. August 1963. Research of an ancient shipwreck from the end of the second century BC or the start of the first century AD lying at a depth of between 8 and 16 metres was carried out by the Ljubljana-based underwater research centre "Center za podvodna raziskovanja SRS" under the patronage of the Archaeological Museum of Istria in Pula (photo: Z. Kralj; Archives of the Sergej Mašera Maritime Museum, Piran)



4. Ostanki opečnih zidakov in strešnikov z brodoloma Barka Kope Izola (SI-744; EŠD 80021), radiokarbonsko datiranega v 17./18. stoletje. Globina 24 m (foto: A. Zajič).

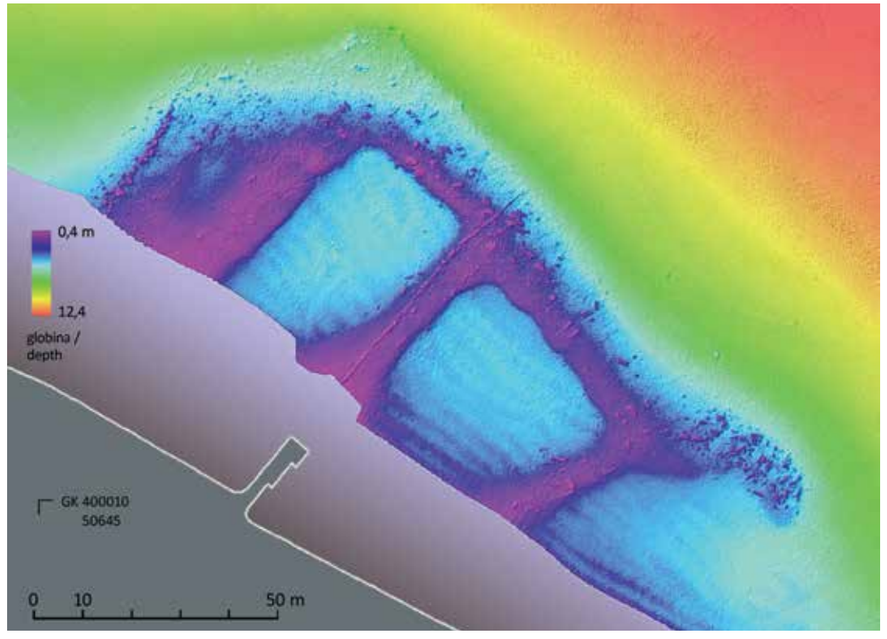
4. Remains of bricks and tiles from the wreck of the vessel known as "Kope Izola" (SI-744; Heritage No 80021), radiocarbon dated to the 17th/18th century. Depth 24 m (photo: A. Zajič).



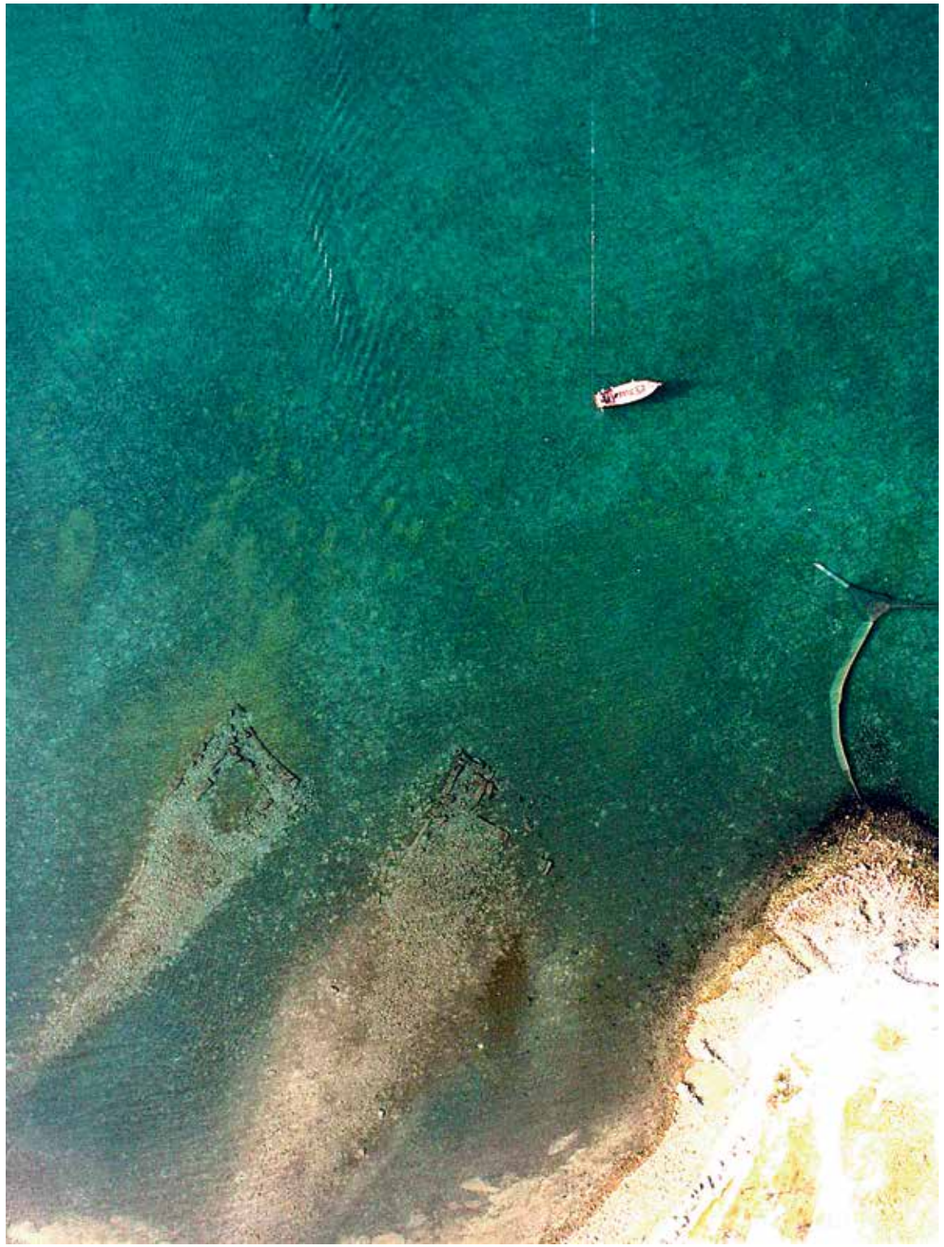
5. Ostanki trgovske trijambornice (Sl-79; EŠD 27899) iz druge polovice 18. stoletja ali z začetka 19. stoletja, po najditelju Stojanu Radešiću poimenovane Stojanov bark. Globina 25 m (foto: A. Gaspari; november 2006).
5. Remains of a three-masted merchant vessel (Sl-79; Heritage No 27899) from the second half of the 18th century or early 19th century, named "Stojan's Barque" (Stojanov bark) after its finder Stojan Radešić. Depth 25 m (photo: A. Gaspari; November 2006).

6. Sledovi sider in pridnenih mrež na območju brodoloma Stojanov bark na batigrafskem posnetku iz let 2006–2008 so jasen pokazatelj specifičnih groženj podvodni kulturni dediščini na mehkem sedimentnem dnu (izdelal: S. Poglajen, HarphaSea).
6. Traces of anchors and bottom nets in the area of the "Stojan's Barque" wreck in a bathymetric image from the period 2006–2008 are a clear indication of the specific threats faced by underwater cultural heritage in soft seabed sediments (image prepared by: S. Poglajen, HarphaSea).

7. V mehkem dnu pod eno od razbitin v slovenskem delu Tržaškega zaliva si je izkopal skrivališče jastog (Homarus gammarus), zaščitena živalska vrsta (foto: A. Gaspari).
7. A lobster (Homarus gammarus), a protected species, has dug itself a hiding place in the soft seabed beneath one of the wrecks in the Slovenian part of the Gulf of Trieste (photo: A. Gaspari).

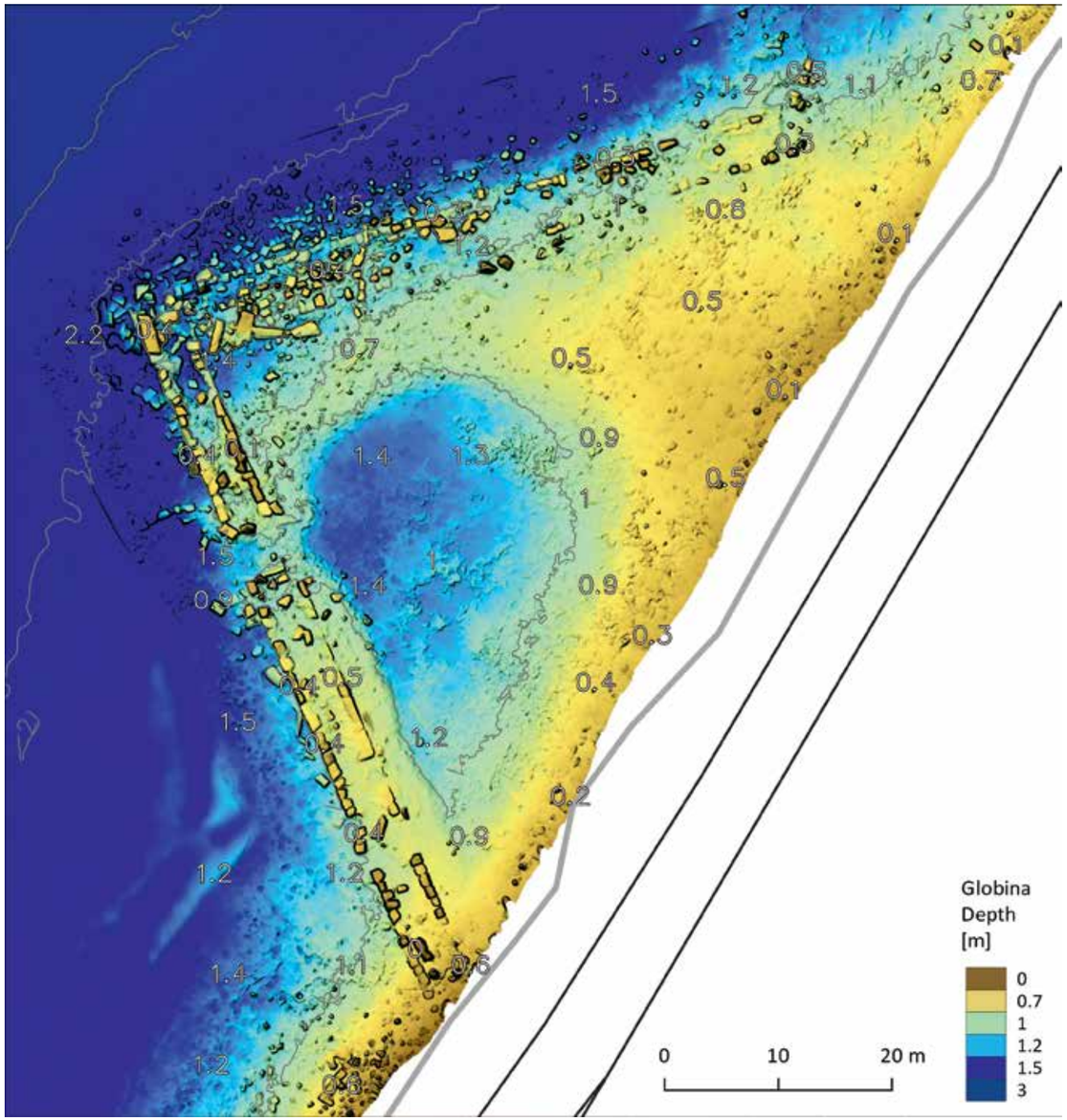


8. Jernejev zaliv (EŠD 1303). Batigrafski posnetek rimske ribogojnice (piscina vivaria) s pomolom na zahodnem delu zaliva; 1. stoletje n. št. (izdelal: S. Poglajen, HarphaSea).
8. Jernejev zaliv (EŠD 1303). Bathymetric image of a Roman fish farm (piscina vivaria) with jetty in the western part of the bay; 1st century AD (image prepared by: S. Poglajen, HarphaSea).



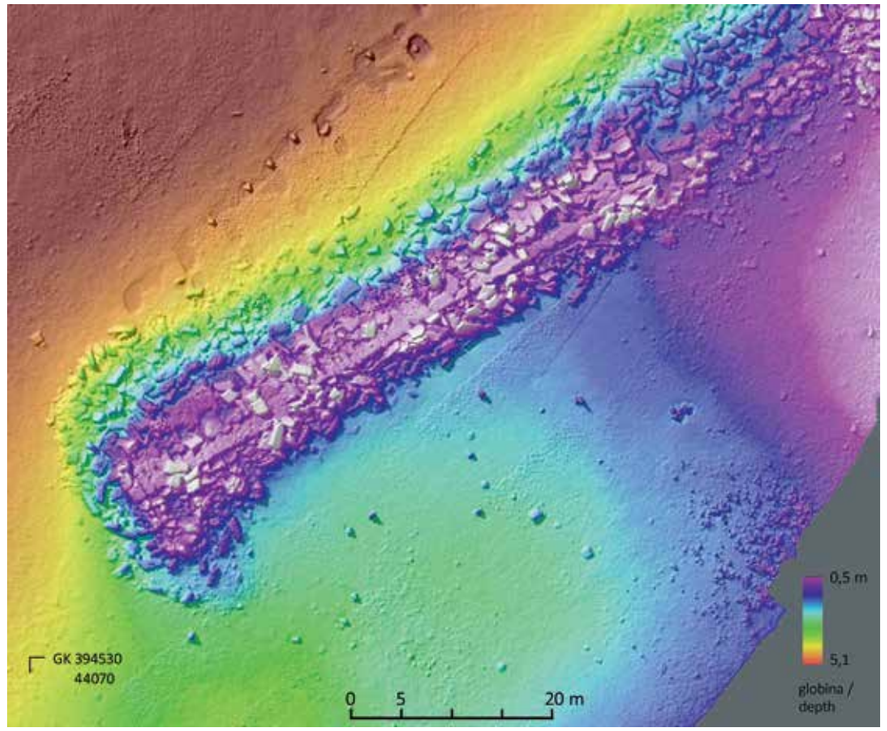
9. Jernejev zaliv. Rimska pomola na morskem dnu zahodno od polotoka Karigador; 1. stoletje n. št. (foto: A. Zajić).
9. Jernejev Zaliv. Roman jetties on the seabed west of the Karigador peninsula; 1st century AD. (photo: A. Zajić).

10. Jernejev zaliv. Načrt pomolov – strukturni pregled leta 2006. Okoli 70 m dolg zahodni pomol ima v glavi urejen bazen za shranjevanje ulova (izdelal: M. Erič).
10. Jernejev Zaliv. Plan of jetties – structural inspection 2006. The western jetty, around 70 metres long, has a basin for storing the catch at its head (plan drawn by: M. Erič).



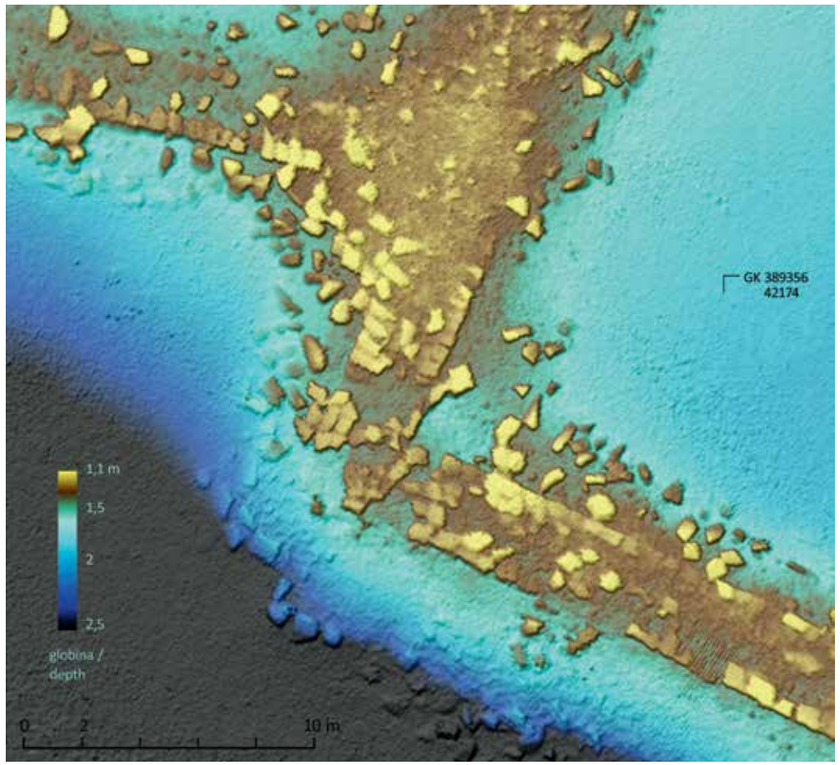
11. Viližan. Batigrafski posnetek rimskega pristanišča. Najvišje ohranjeni bloki pomolov segajo slabih 40 cm pod srednjo morsko gladino (izdelal: S. Poglajen; HarphaSea).
11. Viližan. Bathymetric image of Roman harbour. The highest preserved blocks of the piers reach some 40 cm below median sea-level (prepared by: S. Poglajen, HarphaSea).

12. Simonov zaliv (EŠD 195). Ruševine pomola, bankine in valobrana pristanišča ville marittime ob oseki leta 1968 (foto: E. Boltin-Tome; arhiv Pomorskega muzeja »Sergej Mašera« Piran).
12. Simonov Zaliv (Heritage No 195). Ruins of the jetty, quay and breakwater of the harbour of a villa marittima at low tide in 1968 (photo: E. Boltin-Tome; Archives of the Sergej Mašera Maritime Museum, Piran).

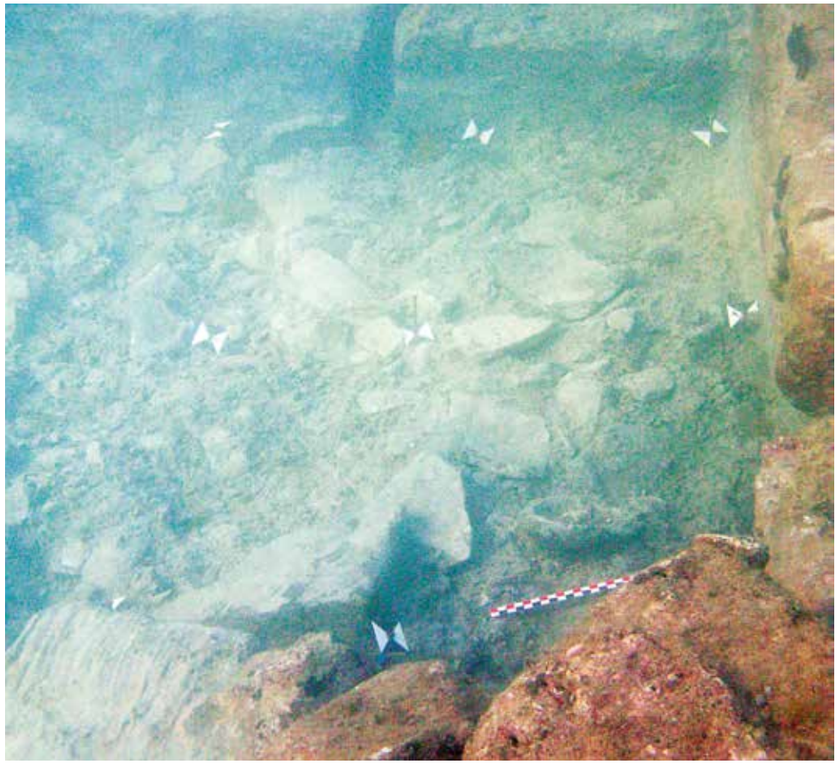


13. Simonov zaliv. Batigrafski posnetek valobrana (izdelal: S. Poglajen, HarphaSea).
13. Simonov Zaliv. Bathymetric image of the breakwater (prepared by: S. Poglajen, HarphaSea).

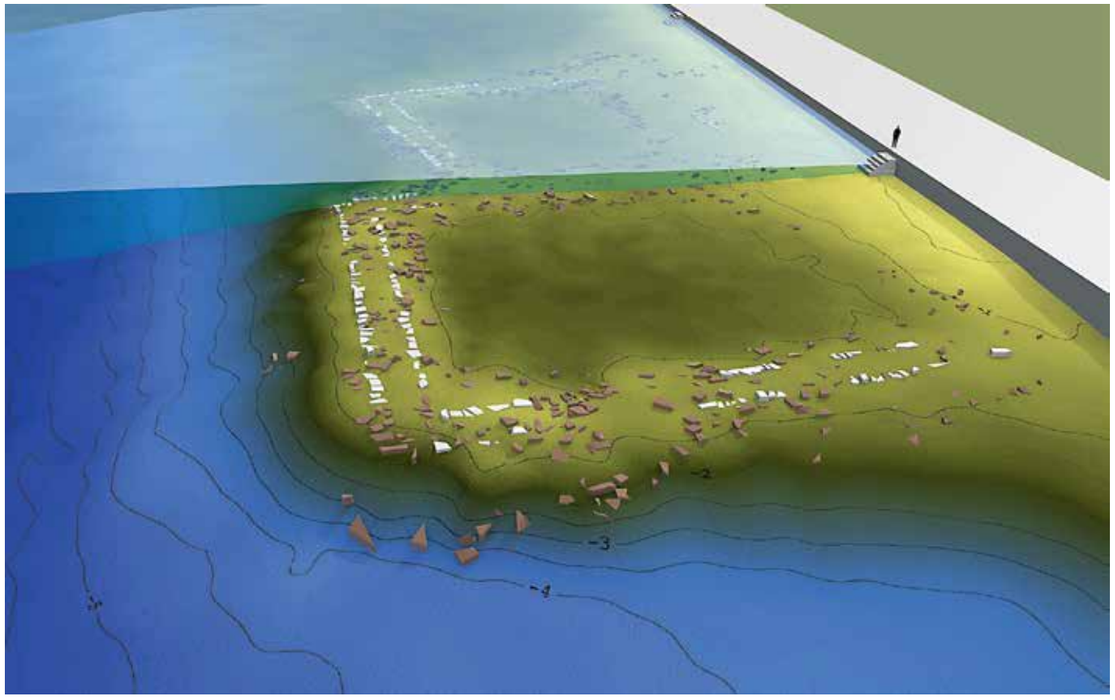
14. Simonov zaliv. Radiokarbonska datacija enega od lesenih pilotov (GrN–23533; 1250±30 BP), zabitih v mehko sedimentno dno na notranji strani valobrana, nakazuje rabo pristanišča še v zgodnjem srednjem veku (foto: M. Erič; arhiv Pomorskega muzeja »Sergej Mašera« Piran).
14. Simonov Zaliv. Radiocarbon dating of one of the piles (GrN–23533; 1250±30 BP) driven into soft sediments inside the Roman harbour prove that they were still in use in the early Middle Ages (photo: M. Erič; Archives of the Sergej Mašera Maritime Museum, Piran).



15. Fizine (EŠD 7199). Batigrafski posnetek jugozahodnega vogala zahodnega bazena rimske ribogojnice; 1.–5. stoletje n. št. (izdelal: S. Poglajen, HarphaSea).
15. Fizine (Heritage No 7199). Bathygraphic image of the SW corner of the western basin of the Roman fish farm; 1st–5th centuries AD (prepared by: S. Poglajen, HarphaSea).



16. Fizine. Sondiranja Skupine za podvodno arheologijo ZVKDS leta 2005. Nasutje iz časa gradnje ribogojnice vsebuje odlomke amfor za olivno olje oblike Dressel 6B. Zgodnjecesarsko obdobje (foto: A. Gaspari).
16. Fizine. Test trenches dug by the ZVKDS Underwater Archaeology Group in 2005. Material from the period of construction of the fish farm contains fragments of amphorae for olive oil of the Dressel 6B type. Early Imperial period (photo: A. Gaspari).



17. Fizine. Virtualni prikaz ruševin rimske ribogojnice s pristajalno bankino. Ostanki obsegajo obsežno kamnito nasutje v nekdanjo plitvino ter na njem postavljene zidove iz dveh front masivnih blokov peščenjaka in polnila iz manjšega kamenja. Zidovi–pomoli obdajajo dva zaprta pravokotna prostora, najverjetneje bazena za gojenje ali shranjevanje rib. 1. – 5. stoletje n. št. (foto: A. Gaspari).
17. Fizine. Virtual image of the ruins of the Roman fish farm with landing quay. The remains consist of extensive rock ballast in the former shallows with walls built on it consisting of two faces of solid blocks of sandstone and a rubble filling. The walls/jetties surround two closed rectangular areas, which were probably basins for the farming or storage of fish. 1st – 5th century AD (photo: A. Gaspari).

18. Rt Seča (EŠD 26281). Ostanki potopljene obalne arhitekture, ki so bili dokumentirani ob oseki 23. 5. 2017, obsegajo zidove gospodarsko–pristaniškega dela bližnje ville marittime in stene lesenih kesonov, povezane z ureditvijo obalne bankine. Domnevno zgodnjecesarsko obdobje (foto: J. Bizjak).
18. Cape Seča (Heritage No 26281). The remains of the sunken coastal architecture of a Roman settlement/villa marittima, documented at low tide on May 23th 2017, consist of walls and wooden caissons. Presumably Early Imperial Period (photo: J. Bizjak).

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Design of a programme of integrated research and outsets for the preparation of a management plan for underwater cultural heritage in the Slovenian sea

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Abstract

The purpose of this article is to emphasise the social importance of cultural heritage on the seabed and in nearshore areas of the Slovenian part of the Gulf of Trieste, the need to conserve it for the public good, development opportunities in the scientific, cultural, educational and tourism fields, and possibilities for its inclusion in the integrated management of the marine environment. Particular attention is dedicated to incorporating the results of studies into programmes and projects designed to raise awareness of the importance of underwater cultural heritage and its promotion, ensuring its accessibility and presentation (interpretation) as far as this is possible and within the limitations imposed by educational and tourism-related use, and advocating a participatory approach and the promotion of management partnerships.
The introductory section of the article describes the existing state of management of underwater cultural heritage and offers an assessment of its vulnerability and the threats it faces. It then sets out the starting points, research challenges and design of integrated research of this heritage in the Slovenian sea and nearshore areas with an emphasis on cross-sectoral aspects and the development goals of research. A presentation of criteria for the evaluation of significance and threats as a basis for determining priority protection measures (physical protection, stabilisation and mitigation measures, reserve-based protection) is followed by an outline of guidelines for exploiting the development potential of sites (underwater museums, parks and trails) and possibilities and examples of practices for sustainable management (system of concessions for organised diving in protected locations or areas versus a system of licensing guides for protected locations). The final section sets out starting points and various aspects of networking and the promotion of underwater cultural heritage.

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Introduction

Assessment of the situation and developmental objectives for archaeological heritage in Slovenia's sea and coastal areas

The internal marine waters and territorial sea of the Republic of Slovenia contain 49 registered archaeological sites (Figure 1), while the archaeological potential of sea areas outside these registered sites has not yet been systematically assessed. The possibility of the discovery of archaeological remains of a maritime nature – wrecks, remains of cargo and rigging from vessels from various periods and remains of aircraft – exists across the entire area of the sea. Owing to the gradual rise in the sea level since the last peak of glaciation (until the beginning of the first century the sea level in the Gulf of Trieste was around -1.6 ± 0.6 m below today's level), the possibility of discovering exposed sites from the Stone Age and more recent prehistoric periods exists throughout the area of Slovenia's marine waters.
Of the 49 registered marine archaeological sites, 36 are fully underwater. Sixteen of these are wrecks, while one consists of the submerged remains of a seaplane. In 19 cases the sites were identified on the basis of morphological anomalies of the seabed detected during bathymetric surveys; the absence of further studies means that their structure, extent and age are not known. Among the wrecks, vessels from the nineteenth and twentieth centuries predominate. These are vessels of different sizes and characteristics, and built of different materials (e.g. the remains of an approximately 40-metre wooden-hulled three-masted barque, a 33-metre wooden-hulled steam-powered warship, the 270-metre ocean liner *Rex*, a 45-metre landing craft/minelayer). The remains of two sunken vessels derive from the Middle Ages or early modern age, while the remains of a Roman-era vessel radiocarbon-dated to the first century AD stand out in terms of their age.
The archaeological remains in all 36 underwater archaeological sites are lying exposed on the seabed or are shallowly buried in the upper layers of marine sediments. They are physically unprotected and in the majority of cases insufficiently researched and documented; systematic expert monitoring and supervision of their condition is not carried out. Their legal protection is only guaranteed in procedures for adopting spatial planning documents, and has not yet been tested in cases of developments affecting them.
None of the underwater archaeological sites on the seabed off the coast has been proclaimed a cultural monument and their survival is placed at considerable risk by activities connected to the maritime economy. The greatest pressure on archaeological heritage in the marine environment is caused by cargo ships entering and leaving the ports of Koper and Trieste, which also involves large-scale developments affecting the seabed (construction of port infrastructure, dredging of sea lanes, anchorages for cargo vessels). Significant pressure is also placed on archaeological heritage by fishing with bottom nets. The above activities lead to the uncontrolled destruction and elimination of archaeological remains and cause the irreversible disappearance of underwater archaeological heritage. The anchoring of smaller vessels, the creation of structures for mariculture activities, the looting of archaeological remains, and natural environmental factors all affect underwater archaeological heritage to a lesser extent.
Of the 49 registered archaeological sites in Slovenia's sea, thirteen are partly underwater in that they lie on the seashore, with part of the site in the sea and part on land. In six of these cases, the underwater part consists of the remains of harbour structures (jetties, breakwaters, platforms) and economic structures (fish farms) that belonged to Roman-era coastal villas or settlements, the remains of which lie in the on-land part of the sites in question. Regarding the remaining seven sites, the present state of research does not yet allow conclusions on the structure and size of the underwater remains that are presumed to correspond to Roman-era, medieval and modern-era remains of settlements in the on-land parts of the sites.
Archaeological remains in the 13 partly underwater archaeological sites are either lying exposed on the seabed or are covered by layers of marine sediments of different thicknesses. Exposed remains are physically unprotected. The current state of research and documentation of the underwater remains is adequate in the case of approximately one third of the sites, while systematic expert monitoring and control of the state of remains are not carried out at any site.
Legal protection of partly underwater archaeological sites has been established in processes relating to the adoption of spatial planning documents and in cases of constructions affecting them. The level of threat to underwater remains is high in urbanised areas and areas in which port activities or tourism-related activities take place, where legal development leads to the controlled elimination of archaeological remains (and illegal development causes their uncontrolled destruction). To a lesser extent, all partly underwater archaeological finds are also at risk from the looting of archaeological remains and natural environmental factors. Three partly underwater archaeological sites have been proclaimed cultural monuments of local importance, while the Izola site – the Simonov zaliv archaeological site (Heritage No 195) – has been proclaimed a cultural monument of national importance. The latter site, which includes the extensive and rich archaeological remains of a Roman seaside villa with its own harbour, is the only one of the 49 underwater or partly underwater sites in Slovenia's marine waters for which a manager has been appointed, a management plan adopted and the presentation of archaeological remains to the public planned (since 2015 the creation of an

archaeological park with presented archaeological remains and related interpretational infrastructure has been under way as part of the AS project, which is co-financed by the EEA and Norway Grants programmes for the period 2009–2014).

The underwater archaeological heritage in Slovenia's marine waters has great cultural, educational, developmental, symbolic, identity-related and scientific potential, and also great social importance, so its integrated preservation is in the public interest and a development objective within the context of management of the marine environment. The integrated preservation of underwater archaeological heritage is an obligation to which Slovenia is bound by the Convention on the Protection of the Underwater Cultural Heritage (Slovene translation published in *Uradni list Republike Slovenije* ["UL RS"] – *Mednarodne pogodbe* 1/08), which acknowledges the importance of this type of heritage as an integral part of the cultural heritage of humanity and a particularly important element in the history of peoples, nations, and their relations with each other concerning their common heritage. States Parties undertake to preserve underwater cultural heritage and to use the best practicable means at their disposal to prevent or mitigate any adverse effects that might arise from activities under their jurisdiction incidentally affecting underwater cultural heritage. Under Slovenia's own Cultural Heritage Protection Act (UL RS 16/08, 123/08, 8/11, 30/11 – Constitutional Court Decision 90/12, 111/13 and 32/16), the integrated preservation of cultural heritage, regardless of whether it is underwater or on dry land, is realised through development planning and measures taken by the state, regions and municipalities in such a way that heritage is incorporated into sustainable development, taking due account of its special nature and social importance.

The increasing commercial use of the marine environment that is expected in the coming decades demands an assessment of the direct and indirect impacts/consequences on underwater cultural heritage and the taking of reciprocally advantageous measures wherever possible. The background documentation compiled by the Piran Regional Unit of the Institute for the Protection of Cultural Heritage of Slovenia (ZVKDS) in the process of preparing starting points for a definition of the vision and objectives of cultural heritage development in sea and coastal areas (No 6201-0002/2016/2 of 10 June 2016) includes, among the measures that need to be devised and implemented in order to guarantee the integrated preservation of underwater archaeological heritage, the following:

- management of the marine environment must treat underwater archaeological heritage as an unrenewable anthropogenic element of the marine environment and a component of the ecosystemic services of that environment;
- economic operators whose activity represents a threat to the survival of underwater cultural heritage must be included in the process of preservation and management of underwater heritage on the basis of the "polluter pays" principle;
- an evaluation must be carried out of all registered archaeological sites in sea areas by means of systematic preliminary archaeological research designed to determine the structure and extent of archaeological remains. Protection regimes will be formulated for individual sites on the basis of the results of this evaluation and, where necessary, measures will be put in place for the physical protection and presentation of archaeological remains;
- archaeological heritage sites that receive the highest evaluation must be proclaimed cultural monuments, and legal protection regimes covering development that affects these sites must be established in the short term;
- in accordance with sectoral legislation, when following procedures for the adoption of marine spatial planning documents it shall be necessary to take all registered archaeological sites into account and conduct preliminary archaeological research in order to assess archaeological potential in areas outside registered sites, and in the long term establish legal protection regimes covering development affecting all registered sites in the sea area;
- in accordance with sectoral legislation, it is necessary to appoint a manager/managers for underwater archaeological heritage that has cultural monument status and establish monitoring of its condition and the observance of legal protection regimes;
- the presentation of underwater archaeological heritage to the specialist and general public, in this way contributing to raising awareness of its importance, must be done by conducting archaeological research and presenting individual archaeological sites that have been assessed as being most important, and establishing interpretation infrastructure for the presentation of underwater heritage as a whole.

Design of a programme of integrated research of underwater cultural heritage

Outsets

Research conducted to date in the Slovenian part of the sea and nearshore areas in the Gulf of Trieste has drawn attention to the great potential of underwater archaeological sites when it comes to learning about changes in the environment and climate in the Holocene (relative rise of sea level as a result of isostatic/eustatic and tectonic changes and changes to the coastline), and also about seagoing craft, harbours and other maritime structures, and intercultural connections and contacts in prehistoric times, antiquity and more recent periods. Knowledge of these issues is limited to initial recording of individual parts of archaeological heritage in sediments on the seabed (vessels with cargo, parts of cargo or rigging, exposed prehistoric sites) identified during bathymetric surveying or reported by other users of the sea, and the results of basic documentation and a small number of test trenches relating to the sunken remains of Roman harbours and fish farming structures in the coastal belt.

In view of this, research into underwater cultural heritage is a long-term, integrated research activity that generates results slowly and steadily, and where building successfully on these results is dependent on the ability to integrate data from multiple disciplines. The proposed research is therefore designed to be interdisciplinary. It is focused on the one hand on the integrated evaluation of the morphology and structure of the seabed, with particular emphasis on understanding natural and anthropogenic changes that affect the visibility and state of preservation of the archaeological record, while on the other it is focused on the point-by-point enhancement of data on the above processes and sites.

The starting points of the research programme are the premises and recommendations of projects and initiatives implemented at the European level (MACHU, SPLACHOS, SASMAP, etc.) with regard to the role and importance of inclusion of the protection of underwater cultural heritage in integrated maritime spatial planning at national levels, and the urgent need for interinstitutional liaison as regards combining research infrastructure, sharing access to technology and exchanging data. Studies emphasise the great added value of cooperation between commercial users of the sea and science when it comes to the development of technology and techniques, particularly in the fields of documentation (imaging and monitoring), increasing the resolution of images (development of subsurface detection of small objects), improvements in the processing and compilation of data in order to reconstruct palaeo-landscapes and the environment, progress in predictive modelling of archaeological potential or the occurrence, state of preservation and projected degradation of sites, the development of ROV/UAV for the identification and mapping of sites, and the development of excavation technology in order to study the stratigraphy of underwater sites.

Among the key opportunities for stakeholder liaison that derive from the above projects and can potentially be transferred to the regional context, are:

- improved cooperation between stakeholders representing the commercial use of the marine environment and the research community can reduce the costs of developments and provide the scientific community with valuable opportunities and data;
- a contribution to European marine policies through the provision of important data for the sustainable exploitation/use of the seabed;
- early integration of ecosystemic data with data on underwater cultural heritage enables the avoidance of additional costs.

The proposed project concept is based on examples of good practice regarding methodologies for and the approach to the assessment of archaeological potential (from general inspections/surveying to the localisation of small targets on different types of seabed) as part of an environmental impact assessment. The starting points and project objectives include increasing the number of methodologically predicted/projected finds in comparison to chance discoveries through the improvement of remote sensing technology (e.g. effective confirmation of the site with multibeam sonar and video and multi-image photogrammetric 3D modelling) without direct visual examination of the seabed and large-scale sampling, which is the basis for planning underwater surveys.

Envisaged procedures include:

- processing and interpretation of data from already completed and planned bathymetric surveys and 3D photo--documentation of the seabed, and LiDAR and orthophoto imaging of the surface in the coastal and nearshore zones;
- implementation of multidisciplinary underwater research (extensive and intensive surveys, test excavations, monitoring) with geological and biological typification/characterisation of the seabed and subsurface, sampling for the needs of geological, radiocarbon, dendrochronological, palaeofaunistic and palaeobotanical analyses of structures and deposits and monitoring of degradation of remains, with an emphasis on (1) reconstruction of the development of the surface at the time of the marine transgression in the Gulf of Trieste after 10,000 BP and the occurrence of prehistoric archaeological sites, (2) detection, documentation and assessment of the potential of locations with remains of ships and/or their cargo and rigging, (3) Roman, medieval and early modern era maritime infrastructure;
- typological, chronological and functional definition of documented structures and accumulations of artefacts from the seabed and coast and deposits in the nearshore zone;
- processing and study of archival information on sunken vessels and underwater heritage, in particular office--based study of material on losses/accidents at sea (references in documents, insurance policies for ships and/or cargo, ex-votos, marine paintings) and the construction of a database of shipwrecks (type and name of ship; date, approximate location and cause of accident; owner, crew and cargo; sources) and comparative analysis with documented remains/finds on the seabed;
- execution of a structural survey of built structures and installations in the shallow part of the nearshore sea in the intertidal zone or immediately below it, with preliminary office-based analysis of archival material (C15th–C19th)

and archival and contemporary photographs of historic maritime structures on the Slovenian coast (jetties, mandracchios, etc.);

- creation of a register of archaeological sites (merging the existing databases of museums, the ZVKDS, the Civil Protection and Disaster Relief Administration (UXO register) and other stakeholders (recreational and professional divers, collectors, archaeologists, fishermen and other potential finders of archaeological and other cultural historical material from the seabed) into an Arches (GIS) database modelled on MACHU);
- establishing the threat level of sites, based on preliminary underwater research, which will lead to further protection and management procedures;
- valorisation of underwater cultural heritage as the basis for determining heritage protection zones and the proclamation of cultural monuments of national importance, the preparation of a management plan and the adoption of measures for the protection of the most important and most threatened heritage properties;
- design and implementation of various forms of promotion of the importance of underwater cultural heritage (e.g. promotion of responsible conduct following the discovery of or a visit to underwater cultural heritage modelled on UNESCO recommendations, a consolidated approach to raising the awareness of recreational divers in the context of establishing cooperation with local diving clubs, diving centres and the umbrella organisation (Slovenian Diving Federation)) and approaches and methods for the interpretation and presentation of underwater cultural heritage (publications, museum presentations, workshops/roundtables, surveys examining the feelings and expectations of various stakeholders from the local community).

Cross-sectoral aspects and aims of the research

Beside obtaining new data on archaeology and cultural heritage in Slovenia's internal marine waters and territorial sea, the programme focuses on the creation of scientifically justified approaches to the protection and preservation of underwater cultural heritage and its inclusion in the formulation of micro- and macro-regional strategies for the protection and management of the marine environment in the context of maritime spatial planning and integrated coastal zone management, as defined by Article 13 of the Protocol on Integrated Coastal Zone Management in the Mediterranean (ICZM) (UL RS 84/09; *The Parties shall adopt, individually or collectively, all appropriate measures to preserve and protect the cultural, in particular archaeological and historical, heritage of coastal zones, including the underwater cultural heritage, in conformity with the applicable national and international instruments*) with an emphasis on the integrated management of its natural and anthropogenic elements, through:

- assessment of the suitability of various measures to avert or mitigate harmful impacts on the cultural and natural heritage and possibilities for defining areas of common reserves (protection zones) of natural and cultural heritage with joint or complementary protection regimes;
- support for cross-sectoral cooperation in the location of shipping lanes and anchorages, the planning of navigation channels and other commercial use of the sea (fisheries, mariculture, construction of coastal infrastructure) and the needs for protection and rescue (areas envisaged for the dumping or detonation of unexploded ordnance) with guaranteed access to geo-referenced data on the state of exploration/degradation of the marine environment for those preparing spatial planning documents and developers (e.g. up-to-date assessments of the need for preliminary archaeological research and their cost intensity, and projections of the obligation to preserve remains *in situ*; freeing of navigation routes into the Port of Koper, the possibility of inscribing underwater cultural heritage areas onto nautical charts in order to prevent the disturbance of the remains from fishing and anchoring and vice versa the damage on the gear);
- preparation of a plan of measures to protect the most important registered sites, beginning with continuous monitoring of physical and biological/chemical degradation of remains (installation of markers, collection and analysis of samples of wood and metal), with a focus on further decisions (e.g. stabilisation via covering with geotextiles/jute/grass, excavation/controlled dismantling or removal (in the event of the impossibility of reaching a compromise or a situation where one public interest prevails over another), installation of concrete anchor blocks/signal buoys to redirect bottom fishing), etc.);
- liaison between research institutions and institutions working in the field of the protection of the natural and cultural heritage in order to prepare a joint plan and methods for monitoring locations/sites for the purpose of an integrated approach to the elaboration and conservation of documentation of the state of the site (e.g. confirmed multidisciplinary applicability and suitability of photogrammetry for documenting changes in observed areas at specified intervals).

Even more important is the incorporation of the results of research into programmes and projects designed to raise awareness of the importance of underwater cultural heritage and its promotion, to guarantee its accessibility and presentation (interpretation) in the context of the possibilities and limitations of educational and tourism-related use, and the realisation of a participatory approach and the promotion of partnerships in the management of underwater cultural heritage, in accordance with the principles of the Council of Europe Framework Convention on the Value of Cultural Heritage for Society (CETS No 199; signed at Faro on 27 October 2005) and the guidelines of the European Cultural Heritage Strategy for the 21st Century (Recommendation of the Committee of Ministers to member States on the European Cultural Heritage Strategy for the 21st century CM/Rec (2017)).

Taking into account the restrictions applying to organised diving tourism, which direct possibilities of guided or supervised visits towards Roman maritime infrastructure in shallow water and potentially some of the more attractive wrecks of vessels and aircraft in the open sea, this part of the project focuses on the advantages of modern methods of virtual and tangible presentation of evaluated and interpreted field documentation and reconstructions, and also on solutions for ***in situ*** presentations and the enhancement of existing museum-based presentations (Sergej Mašera Maritime Museum, Piran; Koper Regional Museum; Museum of Underwater Activities).

Underwater tourism is without a doubt a growing sector, but lack of research is currently a major obstacle to the realisation of concrete projects in this direction, since available data are in most cases insufficient for the design of an interactive interpretation or story/stories about individual sites, and also for a risk assessment in the case of growing visitor numbers. Two sites that stand out somewhat in this area are Simonov zaliv (San Simone) and the *Rex*, both of which already allow a more holistic presentation. The guiding principles when it comes to the development of the underwater tourism sector are cross-sectoral cooperation and coordination and the effective establishment of synergies with the fields of underwater natural heritage and biodiversity.

Opportunities to reinforce the cultural tourism offering may be seen above all in the interconnection of presentations of both levels of underwater/maritime cultural heritage, *in situ* presentations and museum-based, into the holistic, interactive presentations of individual locations or attractive topics, for example:

- the development of the marine landscape in the Pleistocene and Holocene (sunken river valleys and changes to the coastline from the earlier prehistoric period onwards, indicators of a relative rise in sea level and climate change, sunken remains of prehistoric settlement: Sermin, Piran, etc.);
- structures relating to the maritime economy and the harbours of coastal villas and settlements from the Roman and medieval periods (fish farms and saltworks as one of the principal economic foundations of the area and a phenomenon of ancient Istria, the marine geographical setting, the design and structural characteristics of harbours and basins in connection with coastal infrastructure, types of products and methods of production and packaging);
- remains of ships from a period extending from prehistory to the early modern age (development of shipbuilding technology, ships with their rigging and cargo as time capsules: e.g. the Roman ship *Aura*, Cape Savudrija, the "Brajde" vessel, "Stojan's Barque"), tied to the potential identification of more recent wreckage in archives and other documentary sources; the connection between winds and areas of potentially hazardous weather and the locations of wrecks (the sector north of Savudrija);
- wrecks as habitats for endangered animal and plant species (with a connection to archival sources on the presence of interesting marine species in the past (e.g. sources on the Mediterranean seal at Debeli Rtič, whales, sharks, etc.));
- the heritage of harbours and mandracchios from the Middle Ages and early modern period;
- the Istrian coast on charts and maps through history;
- the Fizine airfield and the stories of sunken remains from the two world wars (ships, aircraft, submarines, origin/type of naval mines, torpedoes and aerial bombs, air attacks) and the Cold War period;
- material heritage of traditional Slovene maritime activity, shipbuilding (types of vessels and shipyards), fishing (dugout fishing boats and tuna fishing) and commercial diving;
- Slovene sailors in the Austrian and Austro-Hungarian navies and the archaeology of battles in the Adriatic (the Battle of Lissa, the battleship *Szent Istvan*, etc.).

Research challenges

Sedimentary zone of the seabed

- bathymetric surveying (MBES) at a resolution higher than existing (with appropriate modification of available equipment: construction or rover) aimed at detecting new sites in deeper-lying parts of the seabed, additional surveying with sub-bottom profiler and elaboration of multi-image photogrammetric 3D models (for the needs of analysis, interpretation and presentation/promotion); priority: sandbanks north of Savudrija;
- multidisciplinary underwater inspections for identification/valorisation/monitoring of sites and characterisation (benthic populations, coralligenous formations, sandbanks, etc.) and sampling of the seabed (manual taking of samples; gravitational corer to 0.5 m, vibration corer and/or water jet probing); priority: banks of palaeochannels, group of (Roman?) ballast rocks off Strunjan);
- office-based and laboratory analyses for reconstruction of palaeosurface before marine transgression and simulations of landscape development and predictive mechanisms/models for the detection of new sites on the basis of seabed morphology (embankments of palaeochannels with surrounding area, slopes, faults) and data on the structure of the surface and subsurface (obtained through surveying, underwater inspections and core drilling);
- implementation of a sample case of deepening the Port of Koper navigation channel with an estimate of potential (sub-bottom profiling combined with drilling) and directed excavations/dredging with accurate positioning and archaeological monitoring of ordinary deepening;

- documentation of the current state of sites (high-resolution multi-image 3D photogrammetry) with the placing of markers for further monitoring, definition of micro-reference areas for observation of overgrowth and changes in sedimentation/erosion, and non-invasive and minimally invasive research to assess the state of the internal structure of the site;
- underwater test excavations/documentation of remains/locations with greater potential for the purpose of establishing the extent, structure and state of preservation of the site in order to allow the preparation of a plan of measures and solutions for permanent preservation/*in situ* management (in accordance with the recommendations of the manual to the "Rules concerning activities directed at underwater cultural heritage" from the Annex to the UNESCO Convention on the Protection of the Underwater Cultural Heritage);
- elaboration of a project plan for the integrated study, raising/moving, conservation-restoration interventions and presentation of the Roman vessel Aura and other wrecks requiring priority treatment where, because of objective circumstances, it is not possible to guarantee long-term preservation *in situ*.

Nearshore seabed
- targeted multidisciplinary underwater surveys of the seabed in the depths between 4 and 15 m for the identification of potential middle to late Holocene sites/after 7,500 BP (priorities: 1. the area of Eocene limestones in the undersea area of the Izola island/freshwater springs/brackish marshes/Izola caves and shafts/tidal erosion; 2. Punta in Piran; 3. limestone outcrop off Ronek Cape) and inspections of the edges/bottoms of abrasion terraces in flysch for the identification of archaeological sites important for understanding the chronological dynamics of retreat/changes of the coastline (including analysis of abrasion of ceramic finds as an indicator of distance from original deposit locations; priorities: 1. area around the entrance to Piran harbour; 2. Fizine);
- a continuation of multidisciplinary research of ancient/medieval/early modern harbour and other built maritime infrastructure (fish farms, saltworks, shipyards) with coastal architecture and related deposits (priorities: 1. Zaliv Sv. Jerneja/Roman period; 2. Ankaran – Sv. Katarina/Roman period; 3. Strunjan – San Basso/Roman period; 4. Bernardin – Fizine/Roman period; 5. Seča/Roman period), including verification of all as yet unrecorded maritime structures identified in historical plans and aerial photographs, by means of sonar surveying or diving in the shallow nearshore sea;
- documentation of the current state of sites (high-resolution multi-image 3D photogrammetry) with the placing of markers for further monitoring, definition/siting of micro-reference areas for observation of overgrowth and changes in sedimentation/erosion, and non-invasive and minimally invasive research to assess the state of the internal structure of the site;
- underwater test excavations/documentation of remains/locations with greater potential for the purpose of establishing the extent, structure and state of preservation of the site in order to allow the preparation of a plan of measures and solutions for permanent preservation/*in situ* management;
- desk-based study of pre-modern and contemporary aerial photographs and bathymetry for the purpose of identifying hitherto neglected built structures in the shallow underwater part of the seabed and their verification in the field, structural inspection and valorisation from the point of view of coastline development and heritage potential.

Coast
- review of data and results of excavations and test trenches of prehistoric and proto-historic sites in the nearshore/tidal belt (priorities: 1. Sermin – western foot/Neolithic and Bronze and Iron Ages; 2. Izola – Palazzo Manzioli/Roman period, Santa Maria d'Alieto/late antiquity, Early and High Middle Ages; 3. Piran – First of May Square (the Jewish quarter)/Bronze and Iron Age; 4. Fornače/late prehistoric period and Roman period) with particular emphasis on the absolute heights of chronologically definable deposits;
- desk-based study of archive material (maps, plans, photographs) of historical (15th–19th century) maritime structures (e.g. in *Archivio di Stato di Trieste, Governo marittimo, 1851–1923, costruzioni portuali, b.* 563–623), study of pre-modern and contemporary aerial photographs;
- non-destructive and minimally invasive research (georadar, core drilling, structural inspection, test excavations) of old mandracchios (1. Izola – Santa Maria d'Alieto/Stari Trg ["Old Square"]; 2. Piran/Tartini Square) and jetties/breakwaters (e.g. Piran – sunken Venetian ships used as foundations of main breakwater and jetty) and hitherto overlooked structures/installations with a heritage character.

Outsets for the preparation of a management plan for underwater cultural heritage

Evaluating the importance of and threats to remains

Assessment of the importance of underwater cultural heritage, on the basis of which decisions are made on management, interventions and protection, and which has an effect on all subsequent decisions,

(1) determines whether an individual site constitutes:
- archaeological remains,
- a unit to be inscribed in the cultural heritage register,
- an area to be proclaimed a heritage protection zone,
- a monument to be proclaimed a monument of national importance;

(2) anticipates:
- the research questions to be raised in connection with the remains/site,
- the research questions leading to the remains/site being assessed as relevant,
- the social and economic importance of the remains/site;

(3) influences planning and the mitigation/averting of harmful impacts;

(4) brings content to the discussion of:
- protection measures, particularly those for vulnerable and endangered remains/sites,
- whether the remains/site need to be preserved *in situ*,
- whether the remains/sites can be dismantled in a controlled manner or re-sited in the context of research and spatial development;
- whether it is appropriate/beneficial to present the remains/site.

Protection and management

In the context of the technical safeguarding of a protected site/protected area/monument, the following solutions or combinations thereof are possible, where decision-making includes coordination with other sectors.

Physical protection/stabilisation/mitigation measures
- *Artificial reefs*: the underwater cultural heritage of the Slovenian part of the Gulf of Trieste is most aggressively (though unintentionally) threatened by cargo ship traffic, which has doubled in the last decade (around 15,000 ships over 100 metres in length per year). With the increase in the capacities of the ports of Koper and Trieste (in part as a result of the doubling of existing rail connections with a planned second line), traffic is very likely to grow significantly in the next decade. Direct damage (in addition to the turbulence caused by ship propellers and thrusters used when manoeuvring) is caused by anchors and chains weighing several tons, against which established methods such as covering or filling cannot guarantee sufficient protection. The only way to protect the most valuable wrecks (aside from studying and raising them) would therefore be to use more massive artificial reefs.
- *Covering* remains with sand, sandbags and an additional layer of sand ballast and/or covers and nets made of polyethylene or geotextiles, which act as a barrier between the remains and the subsequent layers of ballast material and are anchored by concrete blocks or pegs. Covering sites in this manner is an effective and economical way to protect them from damage caused by natural erosion, anchors, trawling and, in part, looting; when protecting wooden remains, geotextiles are effective in preventing colonisation by bacteria and xylophagous (wood-eating) organisms; artificial grass is also effective; the corrosion of metal elements, which is slowed by the formation of marine concretions, can be mitigated by the use of sandbags; the use of aluminium alloy engine blocks placed next to remains is also effective, since they act as anodes and attract chloride salts.
- *Protective panels* made of fibreglass or metal that are installed on frames above the remains and additionally protected by a net and sand ballast; this solution is suitable above all for sites during research.
- *Metal nets (and cages)* that are anchored to the seabed by concrete weights or pegs; experiences in Croatia have proved the installation of cages to be effective solution for protecting endangered sites. The cages consist of welded iron bars, a tubular framework and fittings and are additionally weighted by 1,000-kilogram concrete blocks. They are fitted with lockable double gates enabling direct access. The cage stands around 2 metres above the seabed, enabling safe diving inside it. The openings between the bars also enable observation from outside the cage.
- *Concrete pyramids and/or four-legged structures* with or without a signal buoy to prevent damage caused by fishing with bottom nets. Fishermen are already familiar with the locations of sites and avoid them, since wreckage and other obstacles can tear their nets. But blocks combined with notices (or the establishment of a system of sensors transmitting a signal in specific locations) would definitively prevent destructive trawling by trawler crews.

Reserve-type protection – measures – means of control
- *Signal buoys* with an anchor and extended chain to mark a position, warn of danger or mark a navigation channel; information boards with warnings can be installed on the buoys; sensors trigger an alarm and a response from the competent authorities when a vessel sails into a specific area.
- *Supervision* by the harbourmaster's office and marine police, who carry out controls of diving and other activities in protected locations (alongside already established systems for supervising activities at sea: cameras and thermal imaging, radar).
- *Periodic monitoring of sites*: measurement-based monitoring of changes at a site on the basis of previously installed geomarkers and/or observation of reference micro-areas. Regular monitoring is the basis for the ongoing identification of threats to a site and a timely response that may involve changes/adaptations to the protection regime/management plan. Monitoring should be established at all sites, regardless of the threat level.

CATEGORIES	ELEMENTS	CRITERIA
SCIENTIFIC IMPORTANCE	INTEGRITY	• existence of a site or remains in the original position or original location • stability of the natural environment • integrity of remains and spatial integrity • degree of stratigraphic intactness
	QUALITY	• topographic and geomorphological context of the site • stratification/structuredness and complexity of the site • legibility of archaeological stratification • preservation of spatial relationships between movable finds and deposits, structures and other archaeological phenomena • assessment of diversity and quantity of movable finds • assessment of state of preservation of original material/structures, objects, organic material • presence of chronologically sensitive archaeological material and material suitable for absolute dating • presence of exotic objects and material • typical fauna and botanical material
	INFORMATION POTENTIAL	• possibility of drawing conclusions on the nature/type of site • recognisability of cultural characteristics of structures and phenomena and object sets • possibility of understanding the nature and processes of depositing and formation/transformation • recognisability/distinctness of activity areas within the site • objects and structures characteristic of a socio-economic activity • interest and/or potential of the site for other scientific disciplines
	INTERPRETATION POTENTIAL	• possibility of creating new knowledge • possibility of filling gaps in current knowledge • comparability with recent research of similar types of archaeological remains • comparability with recent research of the region and period
GENERAL IMPORTANCE	RARITY/ EXCEPTIONALITY	• number of comparable, archaeologically documented contemporary and well-preserved sites in the same archaeological microregion • equal, expected to be equal on the basis of predictive modelling, at the regional, national and international level • characteristics that define the site as unique or at least an exceptional example of a specific archaeological phenomenon, form and type of land use, settlement pattern or cultural characteristic at the national and international level
	COMPARATIVE IMPORTANCE	• synchronic context: from the point of view of fully or partially studied contemporary sites in the same archaeological microregion • diachronic context: from the point of view of fully or partially studied sites from different periods in the same archaeological microregion • geographical context (physical and historico-geographical integrity of the landscape) and palaeoenvironmental context
	TYPICALITY/ REPRESENTATIVENES	• number of archaeologically attested comparable, simultaneous and well-preserved sites in the same archaeological microregion • equal, expected on the basis of predictive modelling • degree of preservation of physical remains
SOCIAL IMPORTANCE	AESTHETIC/ EXPERIENTIAL VALUE	• visibility/perceivability as the ability to influence the experience of the location and area • recognisability in space and preservation of external physical characteristics (condition, shape and texture) • relationship with surroundings and their non-archaeological elements (e.g. position of the site in an area of geomorphological phenomena, ecosystems and other valuable natural elements)
	HISTORICAL SIGNIFICANCE AND ATTRIBUTED CHARACTERISTICS AND IMPORTANCE	• connection with people or groups of people, events, activities, places or themes in local, regional, national or international history • contribution to interpretation and reinterpretation of the remains/site • contribution to awareness of continuity or identity, either independently or in connection with other remains/sites • ethnographic or ethnohistorical connection, a living tradition and cultural continuity connected with the remains/site, commemorative or religious/spiritual importance to a specific group of people or community, or another specific role in human understanding of marine landscape
	ECONOMIC VALUE	• economic opportunities and the capacity to generate direct and indirect income • compatibility with environmental protection regimes and exploitation of the seabed • public accessibility and the possibility of management • economic and technical/engineering feasibility of presentation and maintenance • possibilities for protection/measures against vandalism and other forms of deliberate damage • possibility of inclusion in other segments of social and economic life as a contribution to the educational, recreational and aesthetic importance of the area • attitude of the local community towards preserving the site, spatial development or destruction

Table 1: Criteria with elements of evaluation to determine the importance of the remains/site

CHARACTER	• sources/causes of changes • are impacts to the advantage/detriment of remains or are they neutral • character of processes of change and their indirect/direct impact
EXTENT	• extent of expected physical changes or destruction • spatial distribution of the impact, whether general or specific to the site
DURATION	• duration of the impact (impacts can have short-term or temporary effects but also more lasting, long-term effects on the archaeological remains/site)
DEGREE OF CHANGE	• degree to which the impact will change the integrity of physical state of the archaeological remains/site
DIVERSITY	• number of different factors that are expected to have an impact on the archaeological remains/site
FREQUENCY	• number or repetitions of expected impacts (impacts of variable size and seriousness can be one-off events, while those such as bottom fishing, anchoring of vessels and tourist visits can be repeated or permanent)
CUMULATIVE EFFECT	• progressive change or destruction of remains/sites as a result of the repeated nature of one or more impacts

Table 2: Indicators for assessing impacts on archaeological remains/sites

Underwater museums, parks and itineraries

The recent increased interest in underwater cultural heritage, not only among experts and divers, but also among the general public, and the growing acceptance of the principle that remains should as far as possible be preserved *in situ* are behind the development of a relatively new type of cultural tourism in the form of underwater museums, parks and trails. Practical solutions that have already been implemented (see also examples of good practice at unesco.org) or planned include:

- *a virtual museum* of underwater cultural heritage; the basis for this augmented reality presentation are a bathymetric plan of the seabed and a LiDAR image of the coast. New research is adding documentation and 3D images, reconstructions and more detailed explanations. A virtual museum could also include all relevant scientific data from other marine sciences (geology, sedimentology, biology, ichthyology, ecology, etc.);
- *information points* with tactile models (3D printing) of the seabed and individual remains (e.g. wrecks, a negative of the liner Rex) or reconstructions for the blind and partially sighted and other special groups;
- *raising remains and presenting them* in a tank (e.g. the wreck of the Nanhai One) or the natural environment; *in situ* visits where visitors walk through sunken tubes (e.g. the harbour area in Alexandria or the ancient inscriptions in the Yangtze River at the Baiheliang Underwater Museum);
- *diving locations with trails* marked by ropes and waterproof information boards or portable maps (e.g. ancient remains at Punta Gavazza on the island of Ustica in the Tyrrhenian Sea and Baiae in the Gulf of Naples, the harbour of the ancient Caesarea Maritima);
- *underwater parks* with multiple wrecks (e.g. Florida Keys National Marine Sanctuary); the management of archaeological parks envisages constant maintenance and conservation, and in some cases stabilisation and restoration of endangered remains;
- *locations protected by nets and cages* (e.g. Zambratija, Cavtat, the Lastovnjaci islands);
- *creation of artificial sites* by redepositing movable remains raised and analysed in the past (e.g. the placing of amphorae from the Grand Congloué wreck in the Debie and Niolon coves in the Frioul archipelago at a depth of between 13 and 15 metres, or the 18th-century iron anchors in the Anse du Stole cove in Brittany).

One possible solution for sustainable management consists of concessions for organised diving in protected locations or areas that are granted by means of an open tendering process and are currently being used successfully in Croatia. These are concessions granted to selected diving centres that enjoy the exclusive right to guide visitors around eight underwater archaeological sites protected by cages (Cavtat, Mljet, Žirje, Pag, Rab, Zambratija). These sites are referred to as underwater museums. Thirty-two underwater locations included in a programme of the Croatian Ministry of Culture for the period 2014–2018 are currently managed in a similar way, since independent diving in underwater cultural heritage areas is prohibited in Croatia. Priority goes to legal entities that, as well as meeting the required conditions, offer a higher fee, have actively participated in the protection of cultural heritage, are located close to the protected location and employ local inhabitants. The funds collected through annual fees are then used for investment in the protection of underwater cultural heritage. In this way, access to this heritage is guaranteed in the most favourable manner: concession fees represent revenue paid into the national budget, from which the preservation of underwater heritage can be financed, while providers have an incentive to control the areas and provide services in an efficient and high-quality manner, taking into account the conditions of use defined in the concession agreement. With the consent of the competent services and authorities, one-off visits of a sightseeing, promotional, commemora-

tive or educational character may also be allowed.
The regime covering diving in protected locations or areas obliges the licence holder to maintain an appropriate attitude towards the cultural asset, which includes (1) the prohibition on damaging cultural assets and raising objects, (2) the obligation to report illegal activities in a protected area, (3) obligation to report any damage or destruction in the protected area, (4) the obligation to report any discoveries of archaeological finds, (5) the obligation to submit a diving log to the competent services responsible for supervision before every visit.
Introduction of a similar system in Slovenia would require a preliminary study involving a survey among potentially interested stakeholders. The key considerations worth taking into account are the small number of diving centres on the Slovenian coast and the limited number of users of their services, the free diving regime across almost the entire area of the territorial sea and internal marine waters, the concentration of visitors in two locations (diving courses at Fiesa and at Punta in Piran) and the diving community's lack of familiarity with other locations of interest. Taking all this into account, and in particular the low volume of traffic at diving centres, a concession system for the centres could be commercially interesting, provided it is implemented in (aesthetically and contextually interesting) locations (in the open sea) with a regulated approach. Such a form of organisation would mean a significant deviation from the current free diving regime, so establishing a system of licensing guides for protected locations would perhaps be a socially more acceptable alternative. This would have a longer-lasting effect than granting concessions, which given the volume of traffic at Slovenia's diving centres would not contribute a significant amount to the budget or any special fund set up for the purpose of funding measures for the protection of underwater cultural heritage. Furthermore, the logic of restricting a site to the highest bidder puts the provider in the position of a monopoly which does not in itself contain a developmental factor, while the mechanism of granting licences to those who demonstrate the required knowledge about the site and guiding approaches leads to knowledge-based competition between providers and a knowledge-related growth in general awareness of the importance of preserving underwater cultural heritage.

Networking and promotion

Two key factors in efforts to increase awareness of the importance of the protection of underwater cultural heritage and the development opportunities connected to its management are liaison between public institutions and non-governmental organisations operating in the field of the research and promotion of underwater cultural heritage, and the inclusion of the broadest possible spectrum of the diving public, diving clubs and diving centres. It follows from this that when it comes to managing underwater cultural heritage, it is necessary to develop uniform, participatory activities, in particular training and promotion programmes. An identifiable communication channel needs to be set up to impart information about underwater cultural heritage in a uniform manner that combines three key aspects of management: networking among stakeholders, education and popularisation.

Networking

The draft pilot project for the promotion of diving in interesting locations envisages the creation of attractive and accessibly written information packages about individual sites (with a uniform design and featuring the underwater cultural heritage "trademark"), to be used by diving centres and diving clubs, in connection with talks for dive leaders that would be worth organising under the aegis of the Slovenian Diving Federation. The information about the sites presented in the packages represents the broader cultural, historical and geographical context linking tourism on the coast with the sea. In this way the packages become a basis for the standardisation of knowledge and tourism services connected to underwater heritage, which can be supplemented annually through the organisation of targeted events (e.g. underwater exhibitions, divers' days, underwater clean-up campaigns, special guided visits, exhibitions, conferences, events such as European Cultural Heritage Days, "baptism of the sea" events, traditional pilgrimages with boats, and so on).
The continuation of communication with the widest diving public envisages the development of a single, participative online platform combining the existing databases of museums, the ZVKDS and other stakeholders, which also represents a starting point for the uniform promotion of underwater heritage and for future enhancements of presentation in the virtual environment. One possibility is the development of mobile 3D application on the model of the Italian project VISAS (*Valorizzazione integrata dei siti archeologici sommersi*), which could be used in connection with an underwater tablet – enabling acoustic geolocation of the visitor, the downloading of relevant information and visual material on underwater heritage, and the uploading of the visitor's own geolocated photographs. The system, which for the time being is still quite expensive and based on relatively impractical technology, could therefore also be a means for (participative) monitoring, which because of the size of the task needs to be designed and implemented using effective solutions. A second possibility offered by a participative online platform is an enhancement of the underwater atlas of Slovenia, which is produced by the Slovenian Diving Federation and is an excellent means for the promotion and selection of underwater excursions in Slovenia. At the same time it is a place to receive up-to-date warnings about any changes in the protection regime, the state of a site or a current (authorised) activity.

Education

Education about underwater cultural heritage needs to be provided at three levels: at the formal (university) level, at the non-formal level (specialist courses under current schemes) and through targeted presentation programmes. Underwater heritage and archaeology are not currently covered by courses at Slovenia's universities, so there is an urgent need to enrich existing curricula with content from this field. Non-formal education on underwater cultural heritage includes recreational specialist courses in underwater archaeology (e.g. those run by the Nautical Archaeological Society), which are an excellent way to inform the public about underwater archaeological research and its importance. The proposed third axis of education involves setting up a system of licensing guides for locations and provides targeted information for divers while also disseminating knowledge about underwater cultural heritage. Information also need to be provided on opportunities for dives and diving services, and on other events connected to underwater cultural heritage – at tourist information points, centres, etc

Popularisation

The popularisation of underwater cultural heritage can only achieve lasting effects if the underwater environment is brought closer to the general public, in other words through better accessibility of underwater sites. The first approach is the creation of archaeological parks. In this way the accessibility of an underwater monument is increased, the park is included in the tourism offering of the area, and programmatic activities are developed. A second level involves campaigns connected to living archaeology, in which history and life in the past are explained clearly and tangibly at the direct experiential level. This is followed by the use of all online platforms or social networks or the above-mentioned online database of locations with descriptions.
Perhaps the most important phase in the management of underwater cultural heritage is the final phase involving the development of promotion, i.e. dissemination, and connecting with the general public. Today we have a wide range of technological solutions at our disposal, along with good practices both from other countries and from here in Slovenia. Combined with high-quality archaeological locations, these can be developed into significant tourism capital. At the same time, all the activities mentioned bring together a number of very different stakeholders: science, heritage protection, tourism, business and enterprise, education and the local community.

Appendix: action plan for priority research

The proposed research programme derives from the inevitable realisation that available information on the cultural heritage on the seabed of the Slovenian part of the Gulf of Trieste does not permit a comprehensive evaluation of the importance of and threats faced by registered underwater sites, since current knowledge of the greater part of the units is far too scant for this purpose. The definition of research priorities is therefore based on the urgent need for a concentration of data on the archaeological potential of anthropogenic and natural phenomena in spatially (and logistically) closed areas of open sea, beginning with the little-known sector north of Savudrija, then on interventions to determine protection measures for the highly endangered wreck of a Roman ship off Debeli Rtič and an inspection of hitherto overlooked nearshore sections of the seabed in areas with greater potential for the discovery of sunken prehistoric remains and ancient architecture.

1st priority

Reconnaissance and minimally invasive research to determine the archaeological potential of documented wrecks and anomalies detected by bathymetry in the sector north of Savudrija

Vessel Punta Piran – Heritage No 29400
Vessel N III – Heritage No 29404
Vessel N II – Heritage No 29405
Vessel N I – Heritage No 29406
Vessel Brajde Piran – Heritage No 29409

The research includes reconnaissance and an assessment of the archaeological potential of the little-known sector of underwater sandbanks north of Savudrija, an area with one of the largest concentrations of wrecks and potential wrecks from archaeological and historical periods. At the same time, this is an area from which, according to information provided by Italian colleagues in 2005, a whole series of Roman amphorae sold on the black market may have originated. Together with the confirmed remains of a late medieval shipwreck, these indications could confirm the assumption of the existence of a ship cemetery, the location of which is perhaps conditioned by overlapping shipping routes and an area of wind inversions where the southerly Sirocco changes to the strong north-westerly Maestral and then the north-easterly Bora (a phenomenon locally known as *scontradura*/*škontradura*).

Planned work

- identification and structural inspection of the anomaly and documentation of the current state of remains/structures using high-resolution multi-image 3D photogrammetry;
- sampling for the needs of an assessment of the archaeological potential of the site (radiocarbon dating/dendrochronology; sampling of movable archaeological finds) and biological (benthic populations) and geological characterisation (characteristics of the seabed and dynamics of change) of the area of the anomaly;
- definition of micro-reference areas for observation of overgrowth and changes in sedimentation/erosion and placing of markers for further monitoring;
- extensive examination of direct surrounding area of anomaly: approx. 100 x 100 m;
- elaboration of a report with proposals for further research and protection measures.

2nd priority

Test excavation of highly endangered remains of the wooden vessel from the 1st century AD.

Aura – Heritage No 27900

The research envisages a test excavation of the *Aura*, which is currently the only known wreck of an antique craft in Slovenian waters. The shape of the coralligenous formation over the remains of the wooden structure indicates that this was a vessel around 14 metres long, which radiocarbon analysis places somewhere in the middle of the first century AD. Research needs to be carried out immediately for confirmation of the importance of the remains and for their removal/raising, since the location is on the edge of the Port of Koper anchorage and is exposed to the risk of total destruction.

Planned work

- documentation of the current state of the formation using high-resolution multi-image 3D photogrammetry;
- test excavation of a transverse trench perpendicular to the long axis of the structure/object for final definition of the physical characteristics and state of preservation of the remains and further protection measures, including:
  - sampling and segmental removal of coralligenous formation to the remains of the structure;
  - comprehensive documentation of the structure and sampling for the needs of dating and determination of types of materials used;
  - sampling of movable finds in the interior/exterior of the structure;
  - deepening of test excavation on one side of the structure in order to identify the archaeological/biological/geological characteristics of stratification below the structure and draw up a plan to raise it.

3rd priority

Minimally invasive research to determine the archaeological potential of the seabed in the nearshore zone

The purpose of this block of research is reconnaissance of the nearshore sector of the seabed by the Izola island/peninsula, where on the basis of limestone bedrock and freshwater springs it is possible to assume the potential existence of traces of prehistoric habitation from the early and middle Holocene, and extensive and intensive surveys of the seabed in the area of three Roman coastal settlements.

Izola (Delamaris – Punta)
Seča – *Villa marittima* at Cape Seča – Heritage No 26281.
Ankaran – Sv. Katarina – Heritage No 29698
Strunjan – San Basso – Heritage No 7201

Planned work
extensive survey (in transverse lines);

- intensive/structural survey of the area with discovered (architectural) remains/geomarkers and concentrations of movable finds (in quadrants);
- spatial and multi-image 3D photogrammetric documentation of situations, including potential geological markers of a relative rise in sea level;
- sampling for the needs of an assessment of the archaeological potential of the site (radiocarbon dating/dendrochronology; sampling of movable archaeological finds) and biological (benthic populations) and geological characterisation (characteristics of the seabed and dynamics of change) of the area;
- definition of micro-reference areas for observation of overgrowth and changes in sedimentation/erosion and placing of markers for further monitoring;
- elaboration of a report with proposals for further research and protection measures.

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Dokumentiranje in preverjanje stanja ter odkrivanje novih arheoloških najdišč v gozdnatem in hribovitem terenu – primeri iz Bele krajine

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Povzetek

V prispevku bomo primerjali klasično topografijo in novejšo metodo za odkrivanje novih arheoloških najdišč in preverjanje obsega tistih, ki so že registrirana, temelječo na zračnem laserskem skeniranju (*Airborne Laser Scanning*, ALS) oziroma tridimenzionalnem kartiranju površja (*Light Detection And Ranging*, LiDAR). Ta omogoča identifikacijo struktur in drugih sledi pretekle uporabe pokrajine tudi na območjih, poraslih z gosto vegetacijo. Predstavili bomo novoodkrito arheološko najdišče ter nove podatke o registriranih arheoloških najdiščih, ki smo jih pridobili z ZLS-snemanjem. Obravnavana najdišča ležijo na gozdnatem območju Poljanske gore v Beli krajini. Vse podatke smo preverili s terenskim obhodom.

Uvod

Dokumentiranje in zaščita arheoloških najdišč na gozdnatem hribovitem območju jugovzhodne Slovenije sta poseben izziv za arheološko konservatorsko stroko. Težko dostopna najdišča na hribovitih gozdnatih območjih so pogosto slabše dokumentirana. Površina oziroma velikost najdišč, ki sega izven človekovega vidnega polja, gozd, podrast in kraške značilnosti območja pripomorejo k slabši vidnosti in s tem tudi slabši prepoznavnosti še ohranjenih arheoloških struktur, kar otežuje klasične načine dokumentiranja. Hkrati pa odmaknjenost teh struktur žal ne zagotavlja boljše zaščite pred antropogenimi posegi in naravnimi dogodki ter procesi. Med antropogene posege uvrščamo izgradnjo in vzdrževanje infrastrukture za komercialno izkoriščanje in za vzdrževanje gozdov, kot so na primer gozdne ceste, vlake, pogozdovanje, kakor tudi pritisk iskalcev kovin, med naravne dogodke in procese pa plazove, viharje, potrese, žled in erozijo. Namen članka je nadgraditi že opravljeno delo in poudariti pomen vpeljevanja novih pristopov in razvoja tudi v arheološki stroki. V nadaljevanju predstavljeni primeri so omejeni na črnomaljsko občino, vendar je metodologija primerna za preverjanje najdišč na geografsko podobnih območjih tako v Sloveniji kot tudi na širšem območju Evrope, kjer je tudi že v uporabi.

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Metodologija

Sam pojem preverjanje (angl. monitoring) ima širok pomen v arheologiji in varstvu arheološke dediščine. Najpogosteje ga uporabljamo kot termin za spremljanje uničevalnih posegov na območju že opravljenih predhodnih arheoloških raziskav (»watching brief«). Tovrstne raziskave zahtevajo prisotnost arheološke ekipe med gradbenimi deli. Naloga ekipe je dokumentirati morebitni arheološki zapis med gradbenim posegom oziroma ustaviti dela, če zaradi obsega in pomembnosti zapisa spremljanje uničevalnih posegov in dokumentiranje zapisa preide v izkopavanja.[1] V ožjem pomenu je preverjanje tudi izraz za spremljanje stanja že znanih arheoloških ostalin neodvisno od morebitnih napovedanih posegov.

V obravnavanem primeru gre za preverjanje tlorisa in obsega dokumentiranih najdišč na hribovitem pogozdenem terenu s pomočjo analize posnetkov zračnega laserskega skeniranja, ki so dostopni na državnem spletnem portalu Atlas okolja.[2] Zračno lasersko skeniranje (angl. *Airborne Laser Scanning*, ALS, ali *Light Detection And Ranging*, LiDAR) je tehnologija, ki omogoča zelo natančno tridimenzionalno kartiranje površja zemlje, tudi ko je površje poraslo z gozdom in gosto vegetacijo (Opitz, 2013). V Sloveniji je kar 60 odstotkov površine porasle z gozdom. Z uporabo tehnologije ALS razkrivamo doslej skrite značilnosti pokrajine pod pokrovom gozda. Detajli na digitalnih površinskih in reliefnih modelih, izdelanih iz visoko resolucijskih topografskih ALS-podatkov, nam v veliki meri pomagajo pri identifikaciji struktur in drugih sledov poselitve ter uporabe pokrajine (Mlekuž, 2013: 88–99). Državno lidarsko snemanje Slovenije kljub nizki ločljivosti omogoča sistematičen pregled celotnega površja države in prinaša nove podrobnejše podatke o pretekli poselitvi in rabi tal, od sledov naselbin, obrambnih nasipov, ograd in polj do gomil in mrež ugreznjenih poti, teras ter sledov industrijskih dejavnosti – oglarjenja, rudarjenja in pridobivanja kamna in peska.

Prednosti nove metode oziroma podatkov, dobljenih na osnovi interpretacije ZLS-posnetkov, je več. Poleg določanja struktur na težko dostopnem terenu metoda omogoča tudi primerjavo z obstoječimi podatki, dobljenimi s klasično topografijo in njihovo preverjanje z izkopom testnih sond, s katerimi ugotavljamo tip in časovno opredelitev struktur. Pri opisu stanja na terenu najprej dokumentiramo vidne sledi najdišča (okope, jarke, terase, suhozidne in druge strukture ...) ter vegetacijo. Ob tem je treba dokumentirati morebitne poškodbe najdišča, ki so posledice naravnih procesov (erozija, plazenje, izruvanje dreves), zoogenih posegov (živalski rovi in krtine) ter antropogenih posegov (strojno preoblikovanje terena za gradbene, poljedelske in gozdarske posege, rigolanje, nasipavanje, sajenje dreves). Zgoraj navedene podatke moramo pisno in fotografsko dokumentirati ter locirati na kartografsko podlago. Pri tovrstnih poškodbah obstaja možnost odkritja materiala antropogenega izvora, ki ga moramo ustrezno zaščititi.

Zgodovina topografskih raziskav

Dokumentiranje oziroma topografija arheoloških najdišč v Beli krajini ima dolgo tradicijo. Ob pregledu zgodovine topografskih raziskav lahko izluščimo tri obdobja, preko katerih sledimo razvoju metodologije od klasične topografije in sistematičnih terenskih pregledov do analize ZLS--posnetkov. V najstarejšem obdobju, v drugi polovici 19. stoletja in na začetku 20. stoletja, so različni raziskovalci izkopali oziroma posegali v večja poznobronastodobna in železnodobna gomilna ter plana grobišča v bližini večjih prazgodovinskih gradišč na območju Bele krajine, Dolenjske, Posavja in Zasavja. V tem obdobju je Jernej Pečnik izkopal oziroma posegel v več belokranjskih najdišč – večinoma prazgodovinskih gomil pri Podzemlju, kjer je od leta 1887 do leta 1888 sodeloval z Jozefom Szombathyjem. Szombathy je izvajal prva izkopavanja gradišča Kučar pri Podzemlju. Pečnik je nadaljeval izkopavanje gomil v Loki pri Črnomlju (s Šetino leta 1896) in v okolici Dragatuša (1900, 1901), sočasno je izvajal tudi prve topografske oglede na širšem območju Bele krajine. Zabeležil je 56 potencialnih najdišč, ki jih je v letu 1906 preveril in potrdil Josip Žmavc (Dular, 1985: 7–8; Dular, J., Ciglenečki, S., in Dular, A., 1995: 11–14; Dular in Tecco Hvala, 2007: 15–16).

Naslednji večji topografski pregledi z namenom preverjanja in dopolnjevanja starih podatkov so sledili šele leta 1962. Njihovi rezultati so bili vključeni v ANSl (1975). V obdobju od leta 1974 do leta 1982, ki je bilo za topografijo najplodovitejše, je Janez Dular obstoječo sistematično ovrednoteno dokumentacijo dopolnil s popisom slučajnih najdb ter z novimi podatki z izkopavanj in manjših sondiranj. Raziskoval je naselbine na hribovitih obronkih Bele krajine (Dular, 1985: 9–12). Namen manjših sondiranj je bil dobiti vpogled v stratigrafijo in s tem v časovni razpon naselij. Sonde so locirali na robove naselij oziroma na mesta, kjer so pričakovali najbolj ohranjene plasti (Dular in Tecco Hvala, 2007: 28). Iz zgoraj navedenega je jasno, da so s tovrstnimi pregledi odkrili in potrdili najdišča z jasno vidnimi strukturami ali pa so najdišča vidno preoblikovala teren.

Leta 1986 smo, ob vse strožji zakonodaji na področju varstva kulturne dediščine, za raziskave v nižinskem predelu Bele krajine začeli uporabljati nove metode, t. i. sistema-

1 http://www.archaeologists.net/sites/default/files/CIfAS&GWatchingbrief_2.pdf.
2 http://gis.arso.gov.si/atlasokolja/profile.aspx?id=Atlas_Okolja_AXL@Arso.

tične terenske preglede. Z njimi so pri Moverni vasi in Pustem Gradcu odkrili obseg neolitske in eneolitske poselitve na območju Krupskega in dela Dragatuškega polja (Budja, 1989: 83–102; 1991: 50–55). Po letu 1994 so sistematične terenske preglede kot uspešno metodo odkrivanja najdišč vključili v predhodne preglede pred večjimi posegi v pokrajini (trase avtocest in drugi infrastrukturni posegi, stanovanjske, industrijske in poslovne cone) na območju Slovenije (Djurić, 2003: 7–24; 2007: 181–186; Mason, 2008: 17–47). V okolici Gribelj v Beli krajini smo opravili enega redkejših sistematičnih pregledov, s katerim smo dokumentirali arheološki zapis v pokrajini in določili obseg najdišča, ki mu je botrovalo uničenje s kmetijsko obdelavo oziroma oranje in ne urbanistični, infrastrukturni ali drugi gradbeni posegi (Mason, 2001: 7–27). Sistematične terenske preglede težko izvajamo na težko dostopnem pogozdenem, hribovitem terenu. Običajno jih na takih območjih izvajamo le pred morebitnimi uničujočimi posegi. Sistematična analiza ZLS-posnetkov je pomemben vir novih podatkov in omogoča sistematično dokumentiranje narave, obsega in stanja tako starih kakor tudi novih najdišč na terenu v sorazmerno slabo poznanem območju.

Geološki in geografski opis območja

Bela krajina je pretežno kraška pokrajina v jugovzhodni Sloveniji. Razprostira se na kraškem ravniku, ki je zgrajen pretežno iz krednih apnencev in dolomitov. Kraški ravnik je del večje Slunjske plošče. Nizki kras prehaja preko Kolpe do vznožja Gorjancev in Poljanske gore. Na zahodni strani dostop v Belo krajino zapirajo venci visokih kraških planot Kočevskega roga s Poljansko goro, na severu pa Gorjanci. Poljanska gora označuje planoto, ki se iz Kočevskega roga izteza nad reko Kolpo in ločuje Poljansko dolino od ostale Bele krajine. Zahodno ležeči Kočevski rog s Poljansko goro predstavlja slabo razrezano kraško planoto, kjer so le posamezni neizraziti prehodi med slemeni, potekajočimi v tipični dinarski smeri SZ–JV. Poljanska gora se podobno kot zahodni obronki Gorjancev razmeroma strmo spušča proti Beli krajini. Reliefno nedostopnost s Kočevsko-ribniškega polja dokazuje le ena pomembnejša prometna povezava, in sicer cesta Kočevje–Nemška Loka–Miklarji–Črnomelj. Večji del kopastih vrhov Kočevskega roga in Poljanske gore prekrivajo strnjeni mešani gozdovi (Plut, 1985: 13).

Katalog najdišč

V naslednjem delu prispevka bomo predstavili štiri že znana belokranjska najdišča z območja Kočevskega roga in Poljanske gore ter novo najdišče, ki je bilo odkrito s pomočjo ZLS-posnetka. Njegov obstoj smo preverili in potrdili z najdbami, odkritimi pri terenskem obhodu. Obravnavana najdišča uvrščamo med prazgodovinska in poznorimsko-dobna naselja. Najdišča so zaradi težje dostopnosti, neposeljenosti in poraslosti z gozdom varna pred urbanističnimi in infrastrukturnimi posegi, zato so slabše raziskana, vendar bolje ohranjena ter zaradi omenjenih oteževalnih dejavnikov tudi slabše definirana v prostoru. Žal so kljub odmaknjenosti izpostavljena različnim oblikam poškodb in ponekod tudi uničenju zaradi vzdrževanja gozda.

Najdišča so predstavljena po vrstnem redu od severa proti jugu, kot si geografsko sledijo (slika 1). Poimenovanje, evidenčna številka dediščine (EŠD) in datacija so povzeti po Registru nepremične kulturne dediščine (http://giskd6s.situla.org/giskd/).

1.
Ime: **Stražnji Vrh – arheološko najdišče Sv. Križ**
EŠD **2758**
Obdobje: **pozna bronasta doba, druga polovica 15. stoletja in prva polovica 16. stoletja**

Zahodno od vasi Stražnji Vrh leži kopast hrib, poraščen z listnatim gozdom in grmičevjem. Pešpot na zakraseli vrh vodi mimo vrtač. Na vrhu je cerkev sv. Križa. Naselbina je bila obdana z obodnim nasipom, od katerega so se ohranili le skromni ostanki. Nasip, ki je bil po vsej verjetnosti kamnit, ni nikjer ohranjen kot okop, ampak je od njega ostala le skromna terasa. Ne preveč izrazita terasa je najbolje ohranjena na severni strani naselja, medtem ko je na zahodu in jugu njen potek še komaj zaznaven (Dular, 1985: 63; Dular in Tecco Hvala, 2007: 31, 71, 350).

Na ZLS-posnetku lahko prepoznamo antropogeno preoblikovan vrh okrogle oblike, omejen z nizkim nasipom oziroma robom širše terase, ta nasip je izrazitejši na strmejših pobočjih. Izravnana je tudi notranjost najdišča, kjer lahko prepoznamo zaporedje treh ali štirih ozkih teras, ki se prilagajajo obliki površja. Na jugovzhodni in vzhodni strani je nasip, ki omejuje najdišče, manj izrazit. Prepoznamo lahko zaporedje manjših nasipov oziroma jež teras, ki segajo izven območja, omejenega z obrambnim nasipom. Terase so tu širše in izrazitejše (slika 2). Velikost naselbine smo ocenili na okoli 0,7 ha.

Pri terenskem obhodu, ki smo ga opravili v aprilu 2016, smo se do naselbine vzpeli po jugovzhodnem pobočju hriba, po planinski poti, kar dokazuje, da je hrib priljubljena izletniška točka domačinov. Na najvišji točki, na platoju hriba za cerkvenim zvonikom, stoji tudi planinski bivak. Na tem območju smo našli srednjeveško okensko steklo. Pri spustu smo opazili širše izravnave, ki jih je omejeval in ločeval nasip iz apnenčastih skal. Lahko bi jih zamenjali z naravno strukturo, saj jih ob vzponu zaradi neizrazitosti in podobnosti naravnemu kraškemu terenu nismo prepoznali. Prepoznamo lahko štiri ali pet naselbinskih teras. Na platoju in treh terasah, ki so s postopnim spuščanjem terena omogočale poselitev, smo v krtinah odkrili odlomke keramike iz pozne bronaste dobe (10.–8. stoletje pr. n. št.). Predstavili bomo izbor značilnih odlomkov keramike s platoja okoli cerkve (slika 8: 1, 2, 4) in druge terase (slika 8: 3, 5).

2.
Ime: **Dolenja Podgora – arheološko najdišče Židovec**
EŠD: **19755**
Obdobje: **bakrena doba, pozno rimsko obdobje**

Židovec je apnenčast, na severni, vzhodni in zahodni strani strm hrib, ki je porasel z mešanim gozdom.

Naselje na Židovcu ima nepravilen ovalen tloris. Skoraj z vseh strani je naravno zavarovano s prepadnimi skalami in strminami. Zid je bil nujen le na severovzhodni strani gradišča, kjer so z njim zaprli široko vrzel med skalnatimi čoki. Danes je ohranjen le še kot kamnit okop in deloma kot 6 m široka terasa. Vhod v naselje je bil z južne strani. Za vhod so uporabili naraven prehod, ki so ga dodatno zavarovali oziroma utrdili z dvema manjšima okopoma (Dular, 1985: 61–62; Dular in Tecco Hvala, 2007: 351).

Na ZLS-posnetku lahko prepoznamo antropogeno preoblikovano teraso ali izravnavo, ki leži med dvema skalnima rogljema. Z juga vodi do izravnave pot, na severni strani pa je izravnava omejena z obrambnim zidom, v katerem lahko prepoznamo vhod in dostopno pot. Terase se nadaljujejo tudi proti severu, izven zamejenega območja. Na vzhodnem roglju lahko prepoznamo nekaj majhnih pravokotnih teras, ki bi lahko predstavljale morebitne ostanke zidanih struktur (slika 3).

Pri terenskem ogledu 21. 6. 2016 smo odkrili drobce prazgodovinske keramike na površini pri vhodu v zgornjem delu naselbine in na terasi pod njim.

3.
Ime: **Zapudje – utrjena višinska naselbina Veliki Kolečaj**
EŠD: **EŠD 27897**
Obdobje: **pozno rimsko obdobje**

Naselbina na Velikem Kolečaju ima še vedno dobro ohranjen obodni obrambni sistem, ki mu lahko sledimo po vsej dolžini. Sledimo mu kot dobro vidni terasi, ki je najbolj razpoznavna na južnem, manj na strmem pobočju, medtem ko je na severni strani obodni sistem že spolzel po strmem pobočju. Dobro je ohranjen tudi severovzhodni vogal naselbine, pri katerem je obodni sistem ohranjen kot nizek okop. Notranjost naselbine je precej strma (Dular, 1985: 71; Dular in Tecco Hvala, 2007: 31, 352, 504).

Na ZLS-posnetku lahko prepoznamo obod naselbine, ki sledi obliki vzpetine. Obrambni nasip je izrazitejši na južni strani, saj je tu pobočje manj strmo. Tu lahko prepoznamo tudi nekaj nasipov izven naselja, ki tečejo vzporedno z obrambnim nasipom. Na severni strani naselbino zamejuje strmo pobočje, zato je obrambni nasip manj izrazit. Na severnem grebenu pa lahko opazimo negativno obliko, morda ostanek jarka ali poti. V notranjosti lahko prepoznamo nekaj manjših antropogenih teras. Nasip ločuje severni del naselbine in morda kaže na dvofaznost gradnje obrambnega nasipa. Na najvišjem delu lahko opazimo ostanke porušenih struktur naselbine. Na severovzhodnem delu je izven naselbine polkrožni jarek, ki zapira dostop. Razmerje med jarkom in naselbino ni popolnoma jasno, jarek je lahko tudi kasnejši (slika 4). Ocenjena velikost naselbine je 0,5 ha.

Pri terenskem ogledu arheološkega najdišča smo na vzhodni strani najdišča opazili na novo narejeno gozdno vlako, ki se konča na obzidju. Janez Dular omenja, da je kulturna plast v naselbini zelo plitva. Tanko humusno plast in apnenec, ki se pojavi na globini približno 0,25 m, smo dokumentirali tudi na območju uničenja (slika 5), kjer smo našli odlomke keramike iz poznorimskega obdobja (slika 8: 7, 8).

4.
Ime: **Gorica pri Sinjem Vrhu – Prazgodovinska naselbina Gradišče nad Gorico**
EŠD: **24763**
Obdobje: **pozna bronasta doba**

Gradišče je kopast hrib, porasel z mešanim gozdom, brez vira pitne vode. V sredini je ovalno obzidje, katerega obod lahko sledimo po vsej dolžini. Na zahodni in vzhodni strani je ohranjen kot skromen okop, v katerega so vključili tudi naravne skale. Vhoda v naselbino ni mogoče zanesljivo locirati, ker je obzidje preveč uničeno. Za poselitev so najugodnejše manjše izravnave oziroma terase med naravnimi skalami, na katerih je že na površini precej keramičnih najdb (Dular, 1985: 108; Dular in Tecco Hvala, 2007: 353, 509).

Ograda ovalne oblike je obdana z nizkim in ozkim nasipom, ki se prilagaja obliki površja. V notranjosti ograde lahko prepoznamo nekaj teras ali bolje očiščenih in izravnanih površin med skalnatimi izdanki. Vhod v ogrado je bil najbrž z južne, strmejše strani. Na vzhodnem pobočju lahko prepoznamo zaporedje ozkih teras izven ograde, nekaj teras je tudi na južni in severozahodni stran (slika 6). Velikost ograde smo na ZLS-posnetku ocenili na 0,25 ha, vendar se prazgodovinska poselitev širi na večje območje.

Ob terenskem ogledu aprila 2016 smo v naravi prepoznali teraso na jugovzhodni strani ograde, ki pa na posnetku pri

tej resoluciji ni razločno vidna. Pri terenskem ogledu smo znotraj ograde in na terasah okoli nje našli odlomke poznobronastodobne keramike (10.–8. stoletje pr. n. št.) (slika 8: 6). Menimo, da so ograd postavili po obdobju pozne bronaste dobe.

5.
Ime: **Zapudje – prazgodovinsko gradišče Nerajski Cirnik**
EŠD: **30362**
Obdobje: **prazgodovina, srednji vek, novi vek**

Nad Dragatuškim poljem se dviga močno zakrasel osamelec Nerajski Cirnik (242 m n. m.), porasel z listnatim gozdom. Pod vzhodnim vznožjem leži Okno, izvir potoka Nerajčice, pritok reke Lahinje.

Pri pregledu ZLS-posnetkov smo opazili poudarjeno ovalno obliko, ki se prilagaja obliki vzpetine. Dobro viden in razpoznaven je obrambni nasip. Sestavljen je iz več – do treh vzporednih ozkih nasipov, ločenih s plitvim jarkom, ki sestavljajo obrambni sistem najdišča. Na jugozahodni strani teče še en vzporeden nasip okoli 70 m od obrambnega nasipa. Prepoznamo lahko dva vhoda v naselbino, vhod na južni strani ima obliko navzven obrnjenega nasipa, na severni strani pa lahko ob vhodu prepoznamo zaporedje do šestih zidov, vzporednih z obrambnim nasipom. Notranjost najdišča je terasirana, dolge in ozke terase lahko prepoznamo predvsem na jugozahodni in zahodni strani. Na južni strani nekaj teras sega tudi izven območja gradišča (slika 7). Pri terenskem ogledu 20. 3. 2016 in 13. 4. 2016 smo pregledali notranjost naselbine in širšo teraso na južni strani. Ob vinogradu na južnem robu naselbine v krtinah in v sadilnih jamah dreves na predelu severnega vrha smo pri terenskem obhodu našli odlomke prazgodovinske keramike in ožgano glino – hišni lep. Obod naselja je na jugovzhodni strani poškodoval vinograd, območje na severni strani pa izgradnja RTV-oddajnika, dostopna pot in zasaditev dreves. Prisotni so tudi odlomki poznosrednjeveške in zgodnje novoveške lončenine, ki so posledica kasnejše kmetijske uporabe obodne terase. Izkazalo se je, da gre za večjo prazgodovinsko naselbino ovalnega tlorisa, ki pokriva celotni severni vrh osamelca in obsega površino 16,5 ha. Naselbina je obdana s širšo teraso, ki po vsej verjetnosti predstavlja naselbinsko teraso z obzidjem, delno preoblikovano s kasnejšimi kmetijskimi dejavnostmi. Na južnem robu je viden vhod v naselbino, ki ga ščiti navzven obrnjen nasip. Območje naselbine še ni bilo podrobneje raziskano.

Prazgodovinsko gradišče bi lahko povezali z gomilami na območju Velikega Nerajca in Dragatuša. Gomile časovno uvrščamo v starejšo fazo starejše železne dobe (Škvor Jernejčič 2011, 165–230). Po velikosti je to največje gradišče v Beli krajini in sodi med štiri največja gradišča v jugovzhodni Sloveniji, večje je le Vir pri Stični.

Katalog najdb

Odlomke lončenine in ožgane gline smo našli v krtinah ali v zemlji oziroma jamah ob izkopih za stebre ograje na vseh obravnavanih najdiščih pri terenskem ogledu. Večino odlomkov predstavljajo kosi ostenja brez posebne oblike ali okrasa. Po fakturi sodijo v bronasto ali železno dobo, podrobnejše opredelitve oblike in časovnega razpona pa ni mogoče ugotoviti. Kosi, ki omogočajo časovno opredelitev, so predstavljeni na sliki 8.

Večino najdenih odlomkov keramike iz naselbine Sv. Križ nad Stražnjim Vrhom in Gradišča nad Gorico pri Sinjem Vrhu predstavljajo deli ostenij posod, ki so bile izdelane prostoročno in jih uvrščamo v širšo obdobje pozne bronaste dobe (10.– 8. stoletje pr. n. št.) ali starejšega dela starejše železne dobe (od začetka 7. stoletja do konca prve četrtine 6. stoletja pr. n. št.). Analogije nekaterim odlomkov ustij najdemo na poznobronastodobnih višinskih naselbinah na širšem območju jugovzhodne Slovenije. Analogijo za fragment izvihanega ustja posode iz naselbine na Sv. Križu (slika 8: 1) najdemo na višinski naselbini Makovec nad Zagorico pri Dobrniču v Suhi krajini (Dular et al., 1995: 124, T.7:4; Dular, 1993: 103–104, slika 2). Analogije za drugi fragment izvihanega ustja posode z nekoliko odebeljenim robom iz naselbine na Sv. Križu (slika 8: 2) najdemo na poznobronastodobnih višinskih naselbinah na območju Mirnske in Temeniške doline, in sicer v naselbinah Gradišče nad Gradiščem pri Trebnjem (Dular et al., 1991: 82, 84, 114, T. 11: 1, 2, 5, 6; Dular, 1993: 104, slika 2; 106) in Žempoh nad Ostrožnikom (Dular et al., 1991: 96–98, 130, T. 42:5; Dular, 1993: 104, slika 2), ter tudi v dolini Krke v naselbini Plešivica nad Drenjem (Dular, 1993: T. 3:7–9; Dular et al.,1995: 120,131, T. 23: 14, 15). V zgoraj obravnavani sklop posod uvrščamo tudi fragment posode z izvihanim ustjem in visokim vratom iz Gradišča nad Gorico, čeprav ima nekoliko višji vrat (slika 8: 6). Okras roba ustja fragmenta posode s skoraj navpičnim ustjem in vratom (slika 8: 3) ima analogije le v poznobronastodobni fazi jamskega najdišča Veliki zjot pri Sečjem selu ob Kolpi v Beli krajini (Dular, 1993:105; T.5:12; Leben, 1991:175, T.2:2). V isto časovno obdobje umeščamo tudi fragment ustja odprte sklede s plitvim žlebom ali fasete (slika 8: 4) (op. cit.). Okras vodoravnega rebra na fragmentu ostenja z naselbine na Sv. Križu (slika 8: 5) pogosto najdemo tako na keramiki iz pozne bronaste dobe kot tudi na tisti iz starejše železne dobe, zato časovno ni natančneje opredeljiv.

Keramika z območja nedovoljenega posega – vlaka na območju višinskega naselja Veliki Kolečaj sodi v pozno rimsko obdobje. Gre za odlomek pokrova (slika 8: 7) in odlomek pekve (slika 8: 8). Podobne oblike so izkopali na najdišču Tonovcov grad pri Kobaridu (Modrijan in Milavec, 2011: 184, T.86:1–1). Odlomke sta Zvezdana Modrijan in Tina Milavec glede na fakturo in obliko datirali v širše pozno rimsko obdobje. Če odlomka primerjamo z okrašenimi odlomki iz starejše faze utrjenega naselja iz poznega rimskega obdobja na območju mestnega jedra Črnomlja, pa po vsej verjetnosti sodijo v 5. stoletje ali v prvo četrtino 6. stoletja (Mason, osebna pripomba).

Stražnji Vrh – arheološko najdišče Sv. Križ

1. Fragment ustja; izdelan prostoročno (slika 8: 1);
zrnatost: fina – posamezni drobci apnenčastega peska (≤ 0,5 mm); površina: brisanje; trdota: mehka;
barva zunanje površine: lisasto 5YR 7.5 4/2 rjava do 5YR 7.5 6/6 rdečkasto rumena;
barva notranje površine: 5YR 7.5 4/2 rjava;
barva jedra preloma: 7.5YR 8/3 roza; žganje: stihijsko;
rahlo izvihano ustje posode;
datacija: pozna bronasta doba.

2. Fragment ustja; izdelan prostoročno (slika 8: 2);
zrnatost: fina – posamezni drobci – večje glineno jedro (≤ 5 mm); površina: brisanje; trdota: mehka;
barva zunanje površine: 5YR 4/1 temo siva z lisami 5YR 4/6 rdečkasto rumena;
barva notranje površine: 5YR 7.5 4/2 rjava;
barva jedra preloma: 7.5YR 8/3 roza; žganje: stihijsko;
izvihano ustje posode;
datacija: pozna bronasta doba.

3. Fragment okrašenega ustja; izdelan prostoročno (slika 8: 3);
zrnatost: fina; površina: brisanje; trdota: trda;
barva zunanje površine/notranje površine: 5YR 4/6 rumenkasta rjava;
barva jedra preloma: 7.5YR 3/2 temno rjava; žganje: nepopolna oksidacija;
z vrezi razčlenjeno izvihano ustje;
datacija: pozna bronasta doba.

4. Fragment ustja; izdelan prostoročno (slika 8: 4);
zrnatost: fina – posamezni kosi Fe O_2 (≤ 2 mm); površina: brisanje; trdota: mehka;
barva zunanje površine/notranje površine: 5YR 7.5 6/6 rdečkasto rumena;
barva jedra preloma: 7.5YR 8/3 roza; žganje: stihijsko;
rahlo usločeno ustje sklede, okrašena s plitvo široko kaneluro, ki teče poševno po obodu pod ustjem;
datacija: pozna bronasta doba.

5. Fragment ostenja; izdelan prostoročno (slika 8: 5);
zrnatost: drobna – posamezni drobci glinenih jeder (≤ 2 mm); površina: brisanje; trdota: mehka;
barva zunanje površine:7.5YR 8/3 rožnata;
barva jedra preloma/notranje površine: 5YR 5/4 rdečkasto rumena; žganje: stihijsko;
ostenje posode okrašeno s plitvim vodoravnim plastičnim rebrom s trikotnim presekom;
datacija: pozna bronasta doba.

Gorica pri Sinjem Vrhu – prazgodovinska naselbina Gradišče nad Gorico

6. Fragment ustja; izdelan prostoročno (slika 8: 6);
zrnatost: fina – posamezni kosi oglatega apnenca (≤ 5 mm);
površina: brisanje; trdota: mehka;
barva zunanje površine: 5YR 5 4/1 temno siva z lisami 5YR 7.5 7/6 rdečkasto rumena;
barva notranje površine: 5YR 5 4/1 temno siva z lisami 5YR .5/6 rumenkasto rdeča;
barva jedra preloma: 5YR 4/1 temno siva; žganje: ponovno žgana po uporabi;
izvihano ustje posode;
datacija: pozna bronasta doba.

Zapudje – utrjena višinska naselbina Veliki Kolečaj

7. Fragment pokrova; izdelan na počasno vreteno (slika 8: 7);
zrnatost: fina – obilna pogostnost drobcev kalcijevega karbonata (≤ 0,5 mm); notranja površina: brisanje z luknjicami (izgorevanje pustila); zunanja površina: okrašena s koncentričnim vodoravnim »metličenjem«; trdota: trda;
barva zunanje površine: lisasta 7.5YR 7/2 rožnato siva do rjava 5YR 7.5 4/2;
barva notranje površine: 5YR 7.5 7/3 rožnata do 7.5 YR 3/2 temno rjava;
barva jedra preloma: 5YR 4/1 temno siva; žganje: redukcijsko, v končni fazi vzpostavljena oksidacijska atmosfera;
del stožčastega pokrova;
datacija: pozno rimsko obdobje.

8. Fragment spodnjega roba/ustja pekve ali noga trinožnika, izdelan na počasnem kolovratu (slika 8: 8);
zrnatost: fina – obilna pogostnost drobcev kalcijevega karbonata (≤ 0,5 mm) na zunanji površini, posamezne koncentracije na notranji površini, drugače redko na prelomu in na notranji površini; notranja in zunanja površina: brisanje z luknjicami (izgorevanja pustila); trdota: mehka;
barva zunanje površine: 10 YR 6/4 svetlo rumenkasto rjava;
barva notranje površine: 10 YR /4/1, temno rjava do 7.5 YR 3/2 temno rjava;
barva jedra preloma: 7,5YR 2.5/1 črna, 10 YR 5/8 rumenkasto rjava ob notranji površini; žganje: redukcijsko, v končni fazi vzpostavljena oksidacijska atmosfera;
spodnji del noge trinožne posode;
datacija: pozno rimsko obdobje.

Sklep

V zgoraj navedenih vzorčnih primerih smo prikazali uporabnost podatkov, pridobljenih z analizo ZLS-posnetkov pri dokumentiranju, in jih primerjali s podatki, ki so plod dolgoletne tradicije topografskih raziskav (topografije) na težko dostopnem pogozdenem terenu hribovitih obronkov Bele krajine. Prednost analize ZLS-posnetkov pred tradicionalno topografijo je, da lahko bolj sistematično, kompleksno in celoviteje opazujemo preteklo podobo in uporabo krajine na zgoraj omenjenem območju kakor tudi v nižinskih predelih, kjer narava terena in uporaba prostora omejujeta ali celo onemogočata uporabo klasičnih načinov dokumentiranja z zračnimi posnetki. Vsekakor ga moramo kombinirati z drugimi pristopi, kot sta na primer primarna ocena stanja morebitnega najdišča in redno spremljanje stanja že znanih arheoloških najdišč, kakor tudi s sistematičnimi površinskimi in podpovršinskimi pregledi, geodetskimi posnetki in izjemoma celo z arheološkim testnim sondiranjem ali izkopavanjem.

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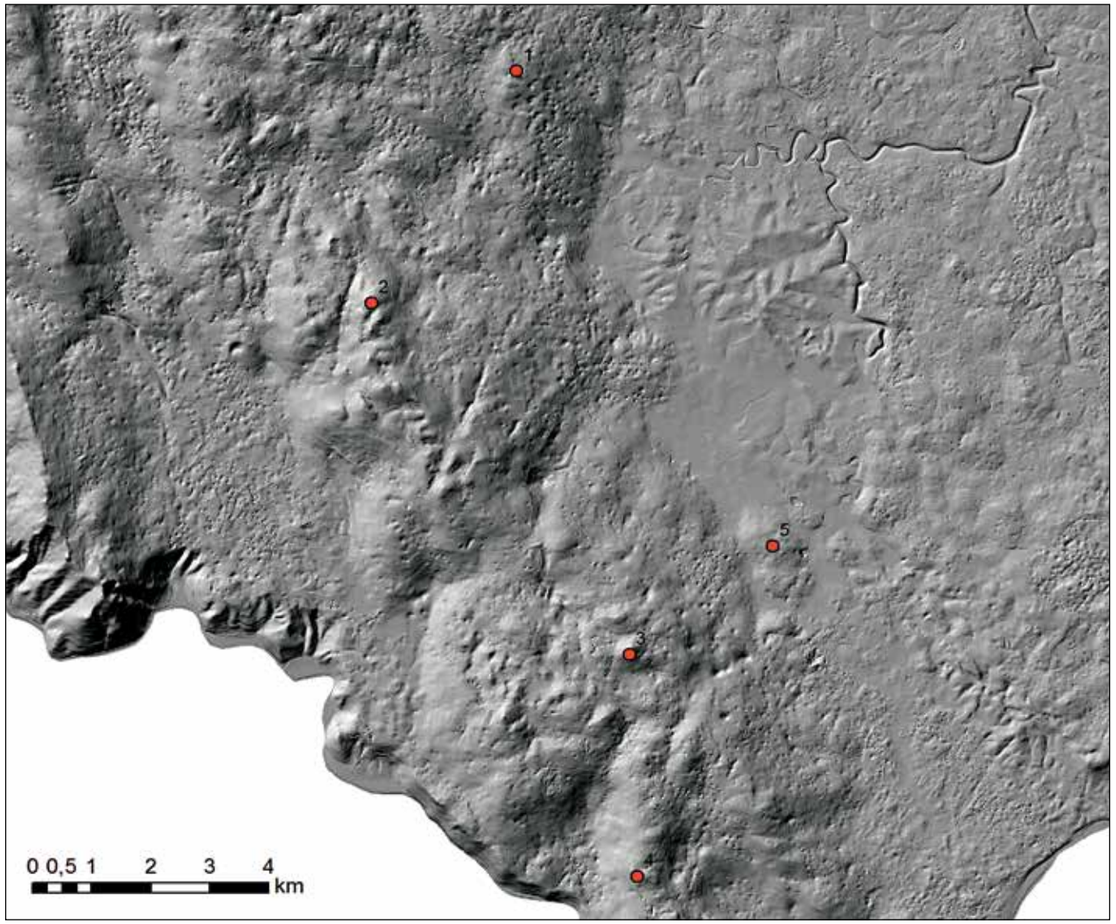
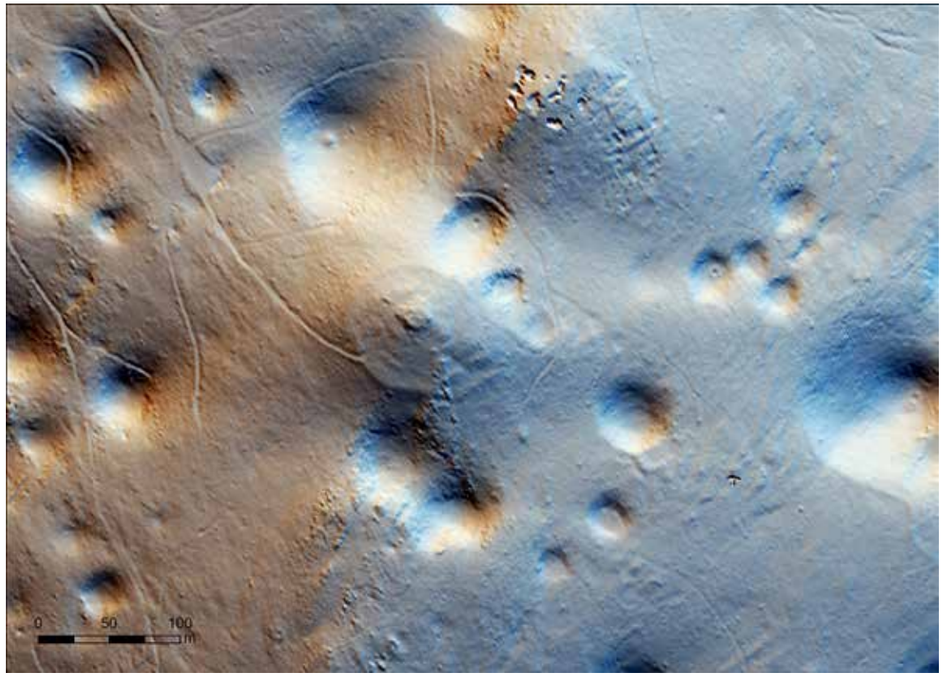
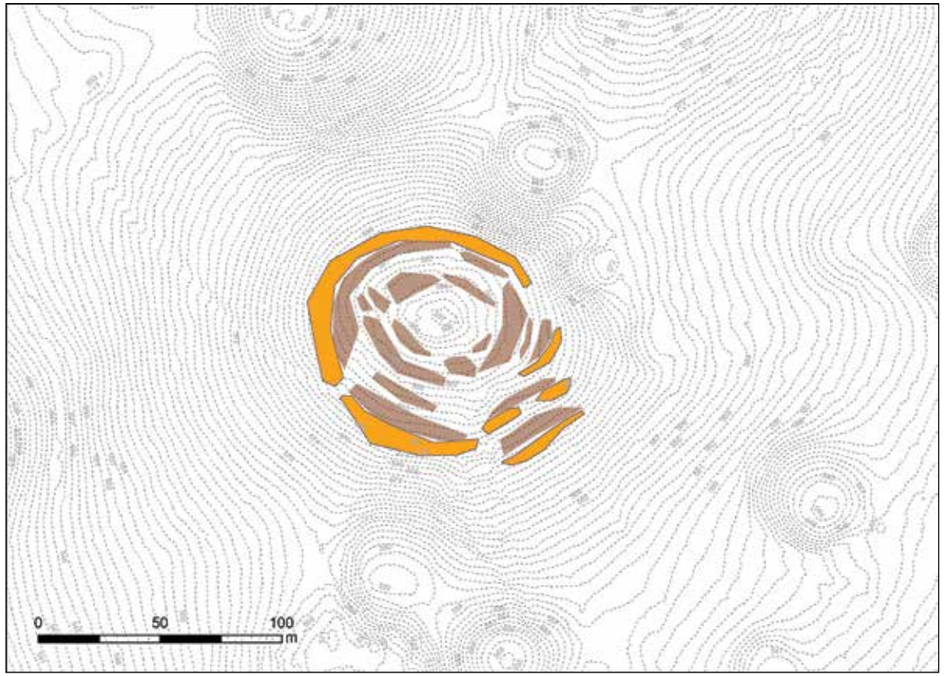


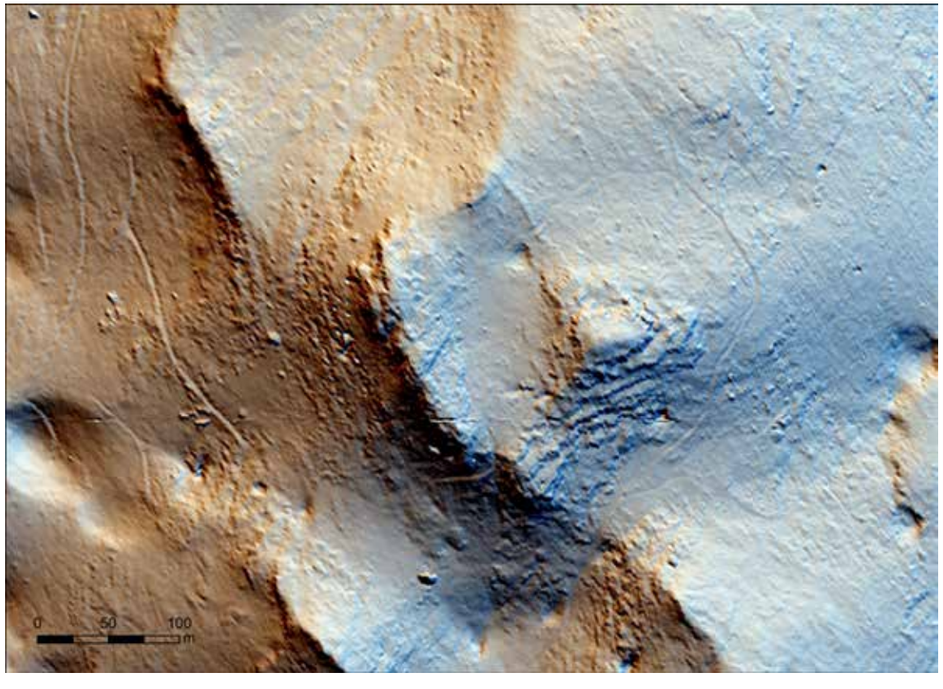
1. Lokacije arheoloških najdišč: 1- Stražnji Vrh – arheološko najdišče Sv. Križ, 2- Dolenja Podgora – arheološko najdišče Židovec, 3- Zapudje – utrjena višinska naselbina Veliki Kolečaj, 4- Gorica pri Sinjem Vrhu – prazgodovinska naselbina Gradišče nad Gorico, 5- Zapudje – prazgodovinsko gradišče Nerajski Cirnik.

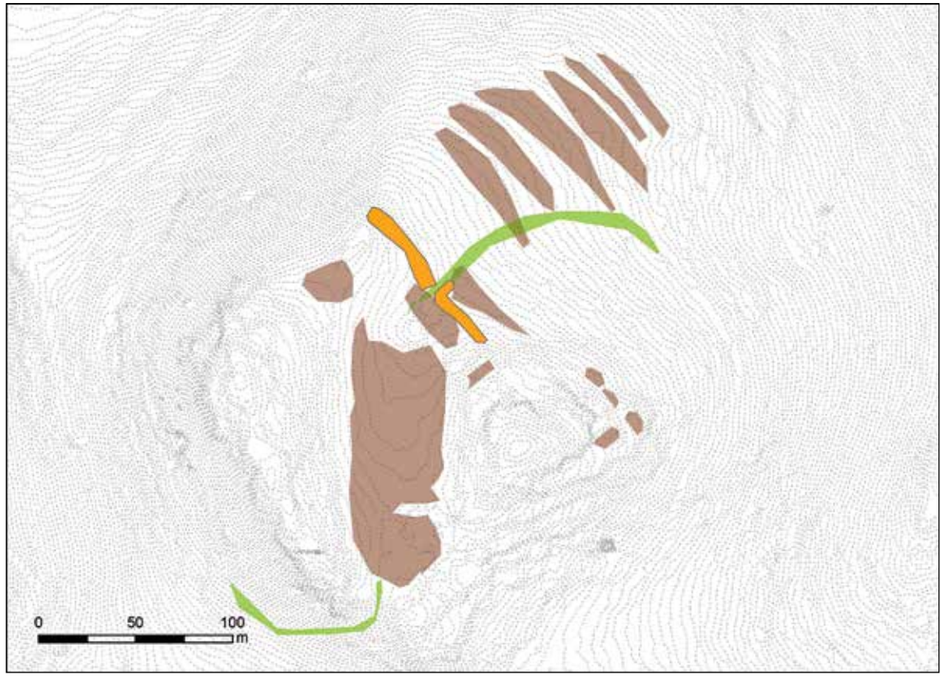
1. Locations of archaeological sites: 1. Stražnji Vrh – Sveti Križ archaeological site, 2. Dolenja Podgora – Židovec archaeological site, 3. Zapudje – Veliki Kolečaj fortified hill settlement, 4. Gorica pri Sinjem Vrhu – Gradišče nad Gorico prehistoric settlement, 5. Zapudje – Nerajski Cirnik prehistoric hill fort.



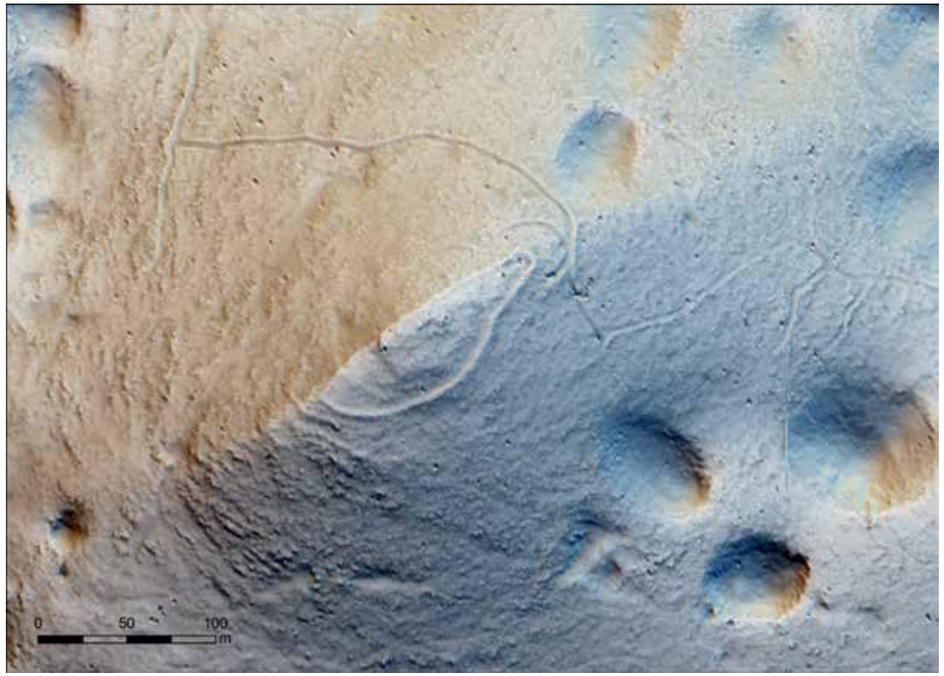


2. Stražnji Vrh – arheološko najdišče Sv. Križ (izvedba ZVKDS, CPA; podatki iz državnega ZLS-snemanja, interpretacija D. Mlekuž)
2. Stražnji Vrh – Sveti Križ archaeological site (realisation ZVKDS, CPA; data from national ALS, interpretation D. Mlekuž)



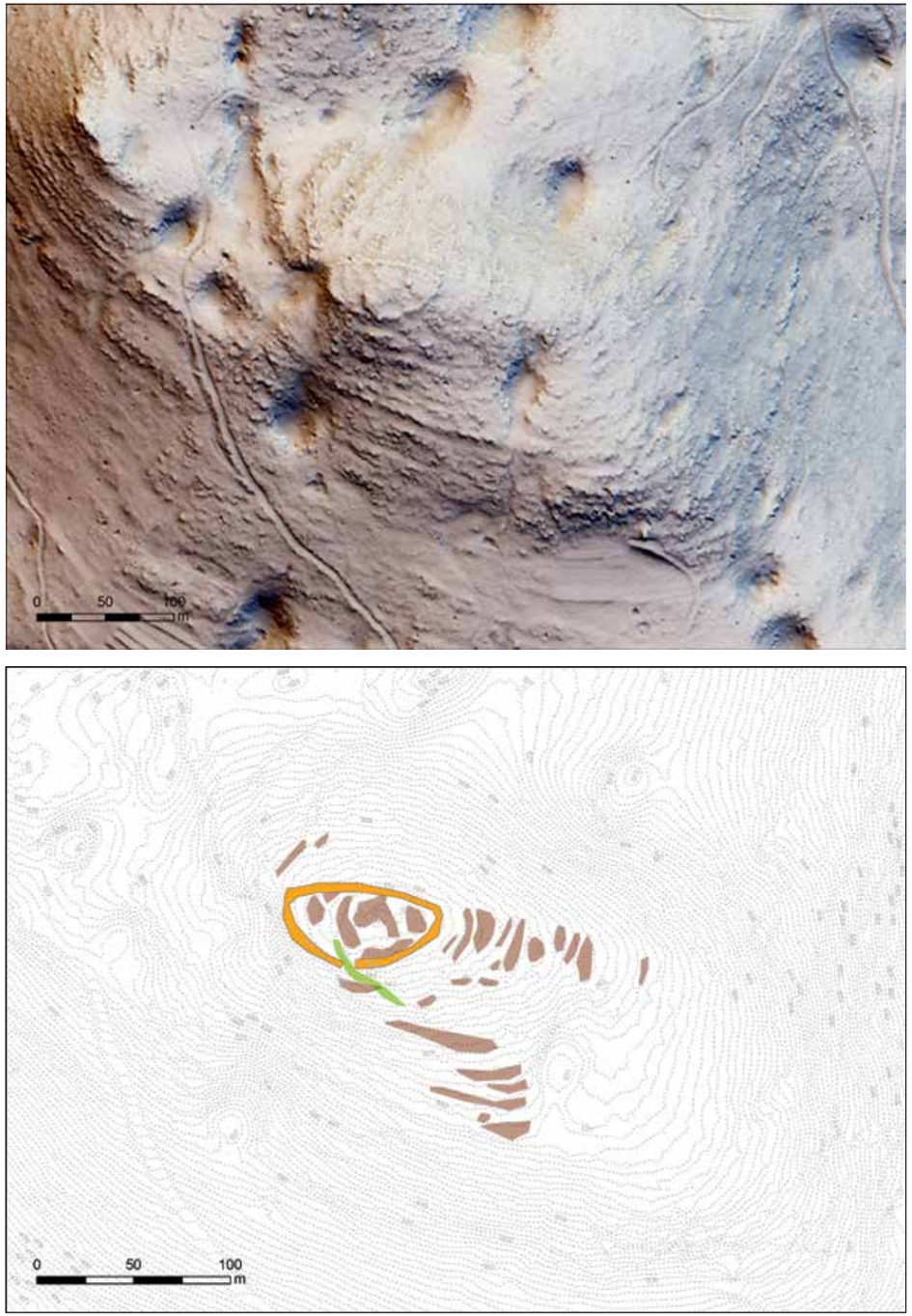


3. Dolenja Podgora – arheološko najdišče Židovec (izvedba ZVKDS, CPA; podatki iz ZLS-snemanja, interpretacija D. Mlekuž)
3. Dolenja Podgora – Židovec archaeological site (realisation ZVKDS, CPA; data from national ALS, interpretation D. Mlekuž)



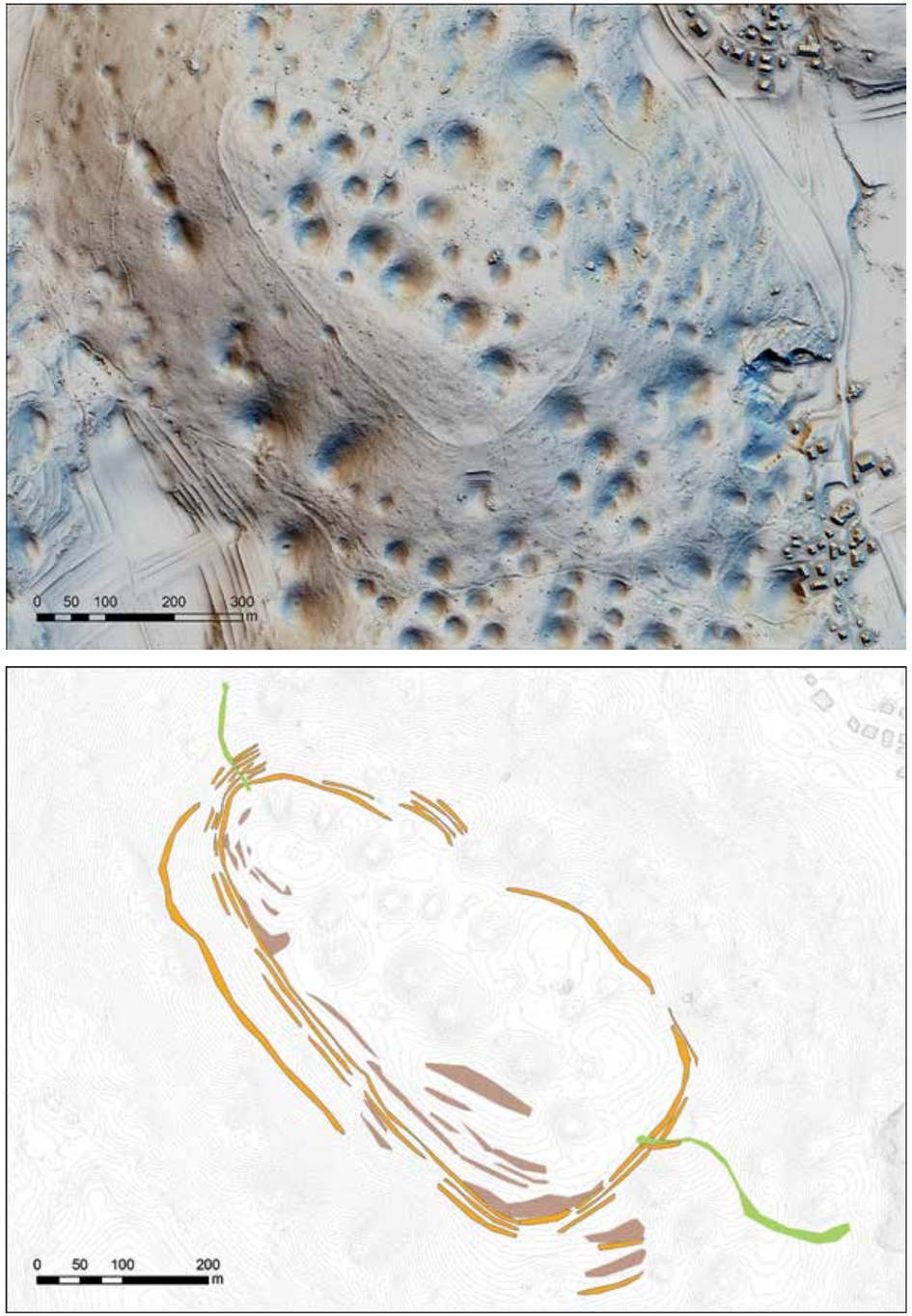
4. Zapudje – utrjena višinska naselbina Veliki Kolečaj (izvedba ZVKDS, CPA; podatki iz državnega ZLS-snemanja, interpretacija D. Mlekuž)
4. Zapudje – Veliki Kolečaj fortified hill settlement (realisation ZVKDS, CPA; data from national ALS, interpretation D. Mlekuž)

5. Zapudje – utrjena višinska naselbina Veliki Kolečaj, na fotografiji je vidno uničenje, ki ga je na vzhodni strani povzročil nelegalni poseg – t. i. gozdna vlaka (foto: M. Pungerčar, ZVKDS).
5. Zapudje – Veliki Kolečaj fortified hill settlement. The destruction caused on the eastern side by illegal development – the »logging path« through the forest – is visible in the photograph (photo: M. Pungerčar, ZVKDS).



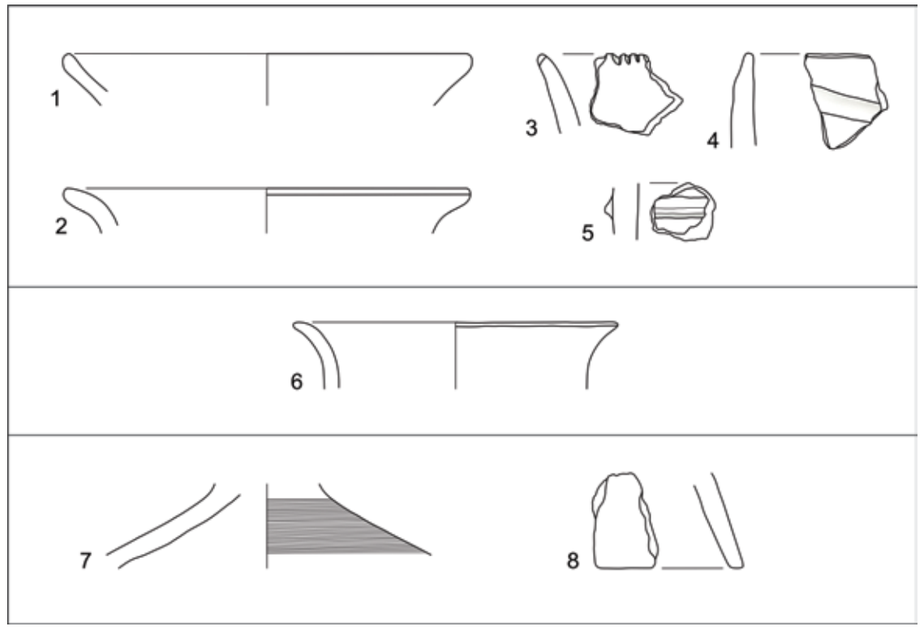
6. Gorica pri Sinjem Vrhu – prazgodovinska naselbina Gradišče nad Gorico (izvedba ZVKDS, CPA; podatki iz ZLS-snemanja, interpretacija D. Mlekuž)

6. Gorica pri Sinjem Vrhu – Gradišče nad Gorico prehistoric settlement (realisation ZVKDS, CPA; data from national ALS, interpretation D. Mlekuž)



7. Zapudje – prazgodovinsko gradišče Nerajski Cirnik (izvedba ZVKDS, CPA; podatki iz državnega ZLS-snemanja, interpretacija D. Mlekuž)

7. Zapudje – Nerajski Cirnik prehistoric hill fort (realisation ZVKDS, CPA; data from national ALS, interpretation D. Mlekuž)



8. Vse keramika, M 1 : 3; Stražnji Vrh – arheološko najdišče Sv. Križ 1–5, Gorica pri Sinjem Vrhu – prazgodovinska naselbina Gradišče nad Gorico 6, Zapudje – utrjena višinska naselbina Veliki Kolečaj 7–8
8. All pottery, scale = 1 : 3; Stražnji Vrh – Sveti Križ archaeological site 1–5, Gorica pri Sinjem Vrhu – Gradišče nad Gorico prehistoric settlement 6, Zapudje – Veliki Kolečaj fortified hill settlement 7–8

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Documentation and monitoring of state of archaeological sites and detection of new sites in forested hilly terrain – examples from Bela Krajina

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Keywords: archaeological topography, ALS, monitoring of state of registered archaeological sites and detection of new ones, forest areas

Abstract

The article compares traditional topography and a more recent method for the detection of new archaeological sites and verification of the size of already registered sites based on Airborne Laser Scanning (ALS) or three-dimensional mapping of the surface (Light Detection And Ranging, LiDAR). This method enables identification of structures and other traces of past use of the landscape, even in areas covered by thick vegetation. We present a newly discovered archaeological site and new data on registered archaeological sites obtained through ALS. The sites covered in the article lie in the forested area of Poljanska Gora in Slovenia's south-eastern Bela Krajina region. All data have been verified through field inspection.

Introduction

The documentation and protection of archaeological sites in the forested hill region of SE Slovenia present a particular challenge to the archaeological conservation profession. Sites located in hilly forest areas are hard to access and frequently poorly documented. The area or magnitude of sites extending out of human view, coupled with forest, undergrowth and karst features, further reduces the visibility of surviving archaeological structures, making them harder to recognise, which makes traditional methods of documentation more difficult. Meanwhile, the remoteness of these structures does not, unfortunately, guarantee better protection against human intervention and natural events and processes. Human intervention includes the construction and maintenance of infrastructure for the commercial exploitation and maintenance of forests (e.g. forest roads, logging paths, afforestation) and pressure caused by the activities of metal detectorists. Natural events and processes include landslides, storms, earthquakes, glaze ice and erosion. The purpose of the article is to build on work already carried out and to emphasise the importance of development and the introduction of new approaches in the archaeological profession. Although the cases presented below are limited to the municipal territory of Črnomelj, the methodology is suitable for the monitoring of sites in geographically similar areas both in Slovenia and, more broadly, across Europe, where it is also already in use.

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Methodology

The term »monitoring« has a broad range of meanings in archaeology and the protection of archaeological heritage. We encounter it most frequently as a term to describe the monitoring of destructive interventions in areas in which archaeological investigations have already been carried out (known as a »watching brief«). Investigations of this kind require the presence of an archaeological team during construction work. It is the team's task to document any archaeological remains during construction or to halt construction work if the scale and importance of the remains result in a transition from monitoring destructive interventions and documenting the archaeological record to actual excavation.[1] In a narrower sense the term »monitoring« is also used to mean monitoring the state of already known archaeological remains, independently of any development that may be planned.

The case in question involves monitoring the ground plan and extent of documented finds in hilly, forested terrain with the help of analysis of airborne laser scanning images accessible on the national »Atlas of the Environment« website.[2] Airborne Laser Scanning (ALS) aka Light Detection and Ranging (LiDAR) is a technology that enables the extremely accurate three-dimensional mapping of the Earth's surface, even when the surface is covered by forest and dense vegetation (Opitz, 2013). As much as 60% of the land in Slovenia is covered by forest. Using ALS technology we are able to discover landscape features that have hitherto been hidden beneath forest cover. Details in digital surface and relief models made using high-resolution topography data acquired with ALS are very helpful for identifying structures and other traces of settlement and use of the landscape (Mlekuž, 2013: 88–99). National LiDAR scanning of Slovenia enables, despite the low resolution, a systematic overview of the entire surface of the country and brings new and more detailed information on past settlements and land use, from traces of settlements, defensive earthworks, enclosures and fields, to burial mounds and networks of sunken paths, terraces and traces of industrial activities – charcoal burning, mining and quarrying of stone and sand.

The new method, or rather the data acquired on the basis of interpretation of ALS images, has several advantages. As well as determining structures in hard-to-access terrain, the method enables a comparison with existing data obtained through traditional topography and their verification by digging test trenches that enable us to identify the structures in terms of type and period. When describing the situation on the ground, we first document the visible traces of the site (dykes, ditches, terraces, drystone and other structures, etc.) and the vegetation. At the same time it is necessary to document any damage to the site that is the consequence of natural processes (erosion, slip, uprooting trees), zoogenic disturbances (animal burrows and molehills) and anthropogenic intervention (transformation of the terrain by mechanical means for construction, agricultural and forestry development, ploughing, embankment building, tree planting). The above information must be documented in writing and photographically and placed on a cartographic base. In the case of damage of this kind, there is a possibility of discovering material of anthropogenic origin which must be appropriately protected.

1 http://www.archaeologists.net/sites/default/files/CIfAS&GWatchingbrief_2.pdf.

2 http://gis.arso.gov.si/atlasokolja/profile.aspx?id=Atlas_Okolja_AXL@Arso.

History of topographic research

The documentation or topography of archaeological sites in Bela Krajina has a long tradition. When reviewing the history of topographic research, we can distinguish three periods via which we are able to trace the development of methodology from traditional topography and systematic field inspections to analysis of ALS images. In the earliest period – the second half of the nineteenth century and early twentieth century – various researchers excavated or otherwise investigated large late Bronze Age and Iron Age burial mounds and flat grave sites in the vicinity of large prehistoric hill forts in the Bela Krajina, Dolenjska, Posavje and Zasavje regions. It was in this period that Jernej Pečnik excavated or investigated several sites in Bela Krajina – for the most part prehistoric burial mounds near Podzemelj, where from 1887 until 1888 he worked with Jozef Szombathy. Szombathy carried out the first excavations of the Kučar hill fort near Podzemelj. Pečnik continued the excavation of burial mounds at Loka near Črnomelj (with Šetina in 1896) and in the area around Dragatuš (1900, 1901). At the same time he conducted the first topographic surveys in the wider Bela Krajina region. He recorded 56 potential sites which were then checked and confirmed by Josip Žmavc in 1906 (Dular, 1985: 7–8). Dular, J., Ciglenečki, S., and Dular, A., 1995: 11–14). Dular and Tecco Hvala, 2007: 15–16).

It was not until 1962 that the next major topographic surveys were carried out, for the purpose of verifying and supplementing old data. The results of these surveys were included in ANSI, Slovenia's first archaeological register, published in 1975. Between 1974 and 1982, the most fruitful period for topography, Janez Dular supplemented the existing systematically evaluated documentation with an inventory of random finds and new data from excavations and small test trenches. He investigated settlements in the hilly areas of Bela Krajina (Dular, 1985: 9–12). The purpose of the test trenches was to gain an insight into the stratigraphy and thus of the chronological development of settlement. The test trenches were located on the edges of settlements, in other words in places where the best-preserved strata could be expected (Dular and Tecco Hvala, 2007: 28). It is clear from the above that surveys of this type served to discover and confirm sites with clearly visible structures or sites that had visibly transformed the terrain.

In 1986, given increasingly strict legislation in the cultural heritage protection sphere, we began to use new methods for investigations in lowland Bela Krajina, namely systematic field surveys. Surveys near the settlements of Moverna Vas and Pusti Gradec revealed the extent of Neolithic and Eneolithic settlement in an area encompassing the Krupsko Polje and part of the Dragatuško Polje (Budja, 1989: 83–102); 1991: 50–55). After 1994, systematic field surveys were included, as a successful method of discovering archaeological sites, in preliminary inspections before major developments in the landscape (motorway building; other infrastructure developments; residential, industrial and business zones) across Slovenia (Djurić, 2003: 7–24); 2007: 181–186); Mason, 2008: 17–47). In the area around Griblje in Bela Krajina we conducted one of the rarer systematic surveys by which we documented the archaeological record in the landscape and determined the extent of a site for which destruction through cultivation or ploughing was responsible rather than urban or infrastructure development or other construction work (Mason, 2001: 7–27). It is difficult to conduct systematic field surveys in hard-to-access forested hilly terrain. They are usually only carried out before potentially destructive interventions. Systematic analysis of ALS images is an important source of new data and enables the systematic documentation of the nature, extent and state of both old and new sites in relatively poorly known areas.

Geological and geographical description of the area

Bela Krajina is a predominantly karst region in south-eastern Slovenia. It extends across a karst peneplain mainly formed of Cretaceous limestones and dolomites. This karst peneplain is part of the larger Slunj Plate. Low karst traverses the river Kolpa to the foot of the Gorjanci and Poljanska Gora. Access to Bela Krajina is blocked to the west by the chain of high karst plateaux of Kočevski Rog and Poljanska Gora and to the north by the Gorjanci. Poljanska Gora is the name given the plateau that extends from Kočevski Rog above the Kolpa and separates the valley of Poljanska Dolina from the rest of Bela Krajina. Lying to the west, Kočevski Rog and Poljanska Gora represent a karst plateau with few divisions and only a few indistinct transitions between ridges running in a typical Dinaric NW–SE direction. Poljanska Gora, like the western slopes of the Gorjanci, descends relatively steeply towards Bela Krajina. The inaccessibility of the relief from the Kočevsko–Ribniško Polje is demonstrated by the existence of just one major road connection: the Kočevje–Nemška Loka–Miklarji–Črnomelj road. Dense mixed forest covers the greater part of the domed peaks of Kočevski Rog and Poljanska Gora (Plut, 1985: 13).

Catalogue of sites

In the next part of the article we will present four already known Bela Krajina sites in the Kočevski Rog and Poljanska Gora area and a new site discovered with the help of an ALS image. We have verified and confirmed its existence using finds discovered during a field inspection. The sites covered are classified as prehistoric and late Roman settlements. Owing to difficulties of access, the absence of human population, and forest cover, the sites are safe from urban and infrastructure development and, consequently, less well investigated but better preserved and, because of the difficulties mentioned, less well defined in the physical environment. Unfortunately, despite their remoteness they are exposed to various forms of damage and, in places, destruction as a result of forest maintenance.

The sites are presented in accordance with their geographical sequence from north to south (Fig. 1). Names, heritage numbers and dates are taken from the Register of Immovable Cultural Heritage (http://giskd6s.situla.org/giskd/).

1.
Name: **Stražnji Vrh – Sveti Križ archaeological site**
Heritage No: **2758**
Period: **late Bronze Age, second half of 15th century and first half of 16th century**

West of the village of Stražnji Vrh is a domed hill covered with deciduous forest and shrubland. The footpath to the karstified summit runs past a number of dolines. A church dedicated to the Holy Cross stands at the summit. The settlement was surrounded by a circular earthwork, of which only scant remains have survived. No part of the earthwork, which was probably rocky, survives as a dyke, and a modest terrace is all that remains of it. The terrace, which is not very prominent, is best preserved on the north side of the settlement. On the west and south sides it is barely perceptible (Dular, 1985: 63; Dular and Tecco Hvala, 2007: 31, 71, 350).

In the ALS image we can identify an anthropogenically

transformed summit of circular shape, delimited by a low earthwork or the edge of a broader terrace. This earthwork is more conspicuous on the steep slopes. The interior of the site has also been levelled and we can identify a sequence of three or four narrow terraces adapted to the shape of the relief. On the south-eastern and eastern sides the earthworks enclosing the site are less distinct. We can identify a sequence of smaller embankments or the banks of terraces extending outside the area delimited by the defensive earthworks. Here the terraces are wider and more distinct (Fig. 2). We estimated the size of the settlement to be approximately 0.7 ha.

During the field inspection we conducted in April 2016, we climbed up to the settlement via the SE slope of the hill, following a mountain footpath, which proves that the hill is a popular excursion destination for the local population. At the highest point, on flat ground behind the church bell tower, stands a climbers' refuge. We found medieval window glass in this area. On the way down we observed wider levelled areas delimited and separated by a limestone embankment. These could be mistaken for a natural structure and in fact we had failed to notice them on the way up because of their inconspicuousness and similarity to the natural karst terrain. We are able to identify four or five settlement terraces. On the flat ground at the summit and on three terraces where the gradually descending terrain would have enabled settlement, we found fragments of late Bronze Age pottery (10th–8th centuries BC) in molehills. We will present a selection of characteristic pottery fragments from the flat ground around the church (Fig. 8: 1, 2, 4) and the second terrace (Fig. 8: 3, 5).

2.
Name: **Dolenja Podgora – Židovec archaeological site**
Heritage No: **19755**
Period: **Copper Age, late Roman period**

Židovec is a limestone hill covered with mixed forest, with steep slopes on its northern, eastern and western sides.

The settlement on Židovec has an irregular oval ground plan. It is naturally protected on almost all sides by steep cliffs and sheer slopes. A wall was only required on the NE side of the hill fort, where it was used to close a wide gap between boulders. Today it only survives as a rocky dyke and, in part, as a six-metre-wide terrace. Access to the settlement was from the south. A natural gap was used to enter the settlement, additionally protected or fortified by two small dykes (Dular, 1985: 61–62; Dular and Tecco Hvala, 2007: 351).

The ALS image shows a terrace or level between two rocky prongs that results from anthropogenic landscape transformation. A path leads to this level area from the south, while on the north side it is delimited by a defensive wall in which an entrance and access route can be recognised. The terraces also continue towards the north, outside the delimited area. On the eastern prong we are able to identify some small rectangular terraces that could represent the possible remains of masonry structures (Fig. 3).

During a field inspection on 21 June 2016 we found fragments of prehistoric pottery on the surface by the entrance in the upper part of the settlement and on the terrace below it.

3.
Name: **Zapudje – Veliki Kolečaj fortified hill settlement**
Heritage No: **27897**
Period: **late Roman period**

The settlement on Veliki Kolečaj is still surrounded by a well-preserved defensive system which can be traced for its entire length. It is traceable as a clearly visible terrace, which is most recognisable on the southern, less steep slope, while on the northern side the perimeter system has already slid down the steep slope. The NE corner of the settlement is also well preserved. Here the perimeter survives as a low dyke. The interior of the settlement is quite steep (Dular, 1985: 71; Dular and Tecco Hvala, 2007: 31, 352, 504).

The perimeter of the settlement, which follows the shape of the acclivity, can be identified in the ALS image. The defensive earthworks are more clearly visible on the southern side, where the slope is less steep. Here we are also able to identify a number of earthworks outside the settlement running parallel to the defensive earthworks. The settlement is delimited on the northern side by a steep slope, so the defensive earthworks are less distinct here. A negative form, perhaps the remains of a ditch or a path, may be observed on the northern ridge. A number of small man-made terraces can be identified in the interior of the settlement. An earthwork separates the northern part of the settlement and possibly indicates that the defensive earthworks were constructed in two phases. In its highest part we can observe the remains of the demolished structures of the settlement. In the NE part a semicircular ditch outside the settlement blocks access to the latter. The relationship between the ditch and the settlement is not entirely clear and the ditch may also have been dug later (fig. 4). The size of the settlement is estimated to be 0.5 ha.

During our field inspection of the archaeological site, we observed on the eastern side of the site a newly cut logging path through the forest that ends at the walls. Janez Dular mentions that the cultural layer in the settlement is very shallow. We also documented a thin humus layer and limestone, which appears at a depth of approximately 0.25 m, in the area of disturbance (Fig. 5), where we found fragments of pottery from the late Roman period (Fig. 8: 7, 8).

4.
Name: **Gorica pri Sinjem Vrhu – Gradišče nad Goriško prehistoric settlement**
Heritage No: **24763**
Period: **late Bronze Age**

The site of the hill fort is a domed hill covered with mixed forest and with no sources of drinking water. In the centre is an oval wall, the circumference of which can be traced for its entire length. On the western and eastern sides it survives as a modest dyke into which natural rocks are also incorporated. The entrance to the settlement cannot be reliably located because too much of the wall is destroyed. The most favourable areas for settlement are the small levels or terraces between natural rocks, where a considerable amount of pottery fragments can be found even on the surface (Dular, 1985: 108; Dular and Tecco Hvala, 2007: 353, 509).

An oval enclosure is surrounded by a low, narrow earthwork adapted to the relief of the terrain. Inside the enclosure we can identify a number of terraces or, rather, cleared and levelled areas between rocky outcrops. The entrance to the enclosure was probably from the steeper, southern side. A sequence of narrow terraces outside the enclosure can be identified on the eastern slope and there are also terraces on the southern and north-western sides (Fig. 6). Using the ALS image, we estimated the size of the enclosure to be 0.25 ha, although the prehistoric settlement covers a larger area.

During a field inspection in April 2016 we identified a terrace on the SE side of the enclosure which is not clearly visible in the image at this resolution. Also during this inspection, we found fragments of late Bronze Age pottery (10th–8th centuries BC) within the enclosure and on the terraces around it (Fig. 8: 6). We believe the enclosure to have been built after the late Bronze Age.

5.
Name: **Zapudje – prehistoric hill fort Nerajski Cirnik**
Heritage No: **30362**
Period: **prehistory, Middle Ages, modern era**

Nerajski Cirnik (242 m), a heavily karstified inselberg covered with deciduous forest, rises above Dragatuško Polje. A spring known as the Okno (»Window«), the source of the Nerajčica stream, a tributary of the river Lahinja, lies at its eastern foot.

On examining ALS images we observed an accentuated oval form adapted to the shape of the slope. Defensive earthworks are clearly visible and recognisable. The earthworks consist of several (up to three) parallel narrow banks separated by shallow ditches that together comprise the defensive system of the site. A further parallel embankment runs along the SW side about 70 metres from the defensive earthworks. Two entrances to the settlement can be identified. The entrance on the south side has the form of an out-turned bank, while on the north side we can recognise a sequence of up to six walls by the entrance, running parallel to the defensive earthworks. The interior of the site is terraced. Long, narrow terraces can be recognised in particular on the SW and W sides. Some terraces extend outside the area of the site on the southern side (Fig. 7). During field inspections on 20 March 2016 and 13 April 2016, we examined the interior of the settlement and a wide terrace on the southern side. We found fragments of prehistoric pottery and burnt clay (a form of plaster) in molehills by the vineyard on the southern edge of the settlement and in the planting pits of trees in the area of the northern summit. The perimeter of the settlement has been damaged on the SE side by a vineyard and on the northern side by a TV transmitter mast, an access road and the planting of trees. Fragments of late medieval and early modern pottery are also present: the consequence of later agricultural use of the perimeter terrace. It appears that this was a large prehistoric settlement with an oval ground plan occupying the entire northern summit of the hill and covering an area of 16.5 ha. The settlement is surrounded by a broad terrace, which in all likelihood represents the settlement terrace together with a surrounding wall, partly transformed by later agricultural activity. The entrance to the settlement, protected by an out-turned bank, is visible on the southern edge. The area of the settlement has still not been investigated in detail.

There may be a link between the prehistoric hill fort and burial mounds in the Veliki Nerajec and Dragatuš areas. These burial mounds have been dated to an older phase of the early Iron Age (Škvor Jernejčič 2011, 165–230). This is the largest hill fort in Bela Krajina and is among the four largest in SE Slovenia, with only the hill fort at Vir pri Stični being bigger.

Catalogue of finds

We found fragments of pottery and burnt clay in molehills or in the soil (in holes sunk for fence posts) during field inspection of all the sites covered. The majority of fragments are potsherds without any special shape or decoration. In terms of manufacture, they belong to the Bronze Age or Iron Age, but a more detailed definition of their shape and the period covered cannot be established. Potsherds that allow the period of origin to be determined are shown in Fig. 8.

The majority of pottery fragments from the settlement of Sveti Križ (»Holy Cross«) above Stražnji Vrh and from Gradišče nad Gorico near Sinji Vrh consist of fragments from the walls of hand-made pots roughly dating from the late Bronze Age (10th–8th centuries BC) or the earlier part of the early Iron Age (from the start of the 7th century BC to the end of the first quarter of the 6th century BC). Fragments analogous to some rim fragments have been found in late Bronze Age hill settlements across the wider area of SE Slovenia. A fragment of the everted rim of a pot from Sveti Križ (Fig. 8: 1) is analogous to a fragment found in the hill settlement of Makovec nad Zagorico near Dobrnič in the Suha Krajina area (Dular et al., 1995: 124, T.7:4; Dular, 1993: 103–104, Fig. 2). Analogies for another fragment of everted pot rim with a slightly thickened edge from Sveti Križ (Fig. 8: 2) are found in the late Bronze Age hill settlements in the area of the Mirna and Temenica valleys, namely the settlements of Gradišče above Gradišče pri Trebnjem (Dular et al., 1991: 82, 84, 114, T. 11: 1, 2, 5, 6; Dular, 1993: 104, Fig. 2; 106) and Žempoh nad Ostrožnikom (Dular et al., 1991: 96–98, 130, T. 42:5; Dular, 1993: 104, Fig. 2), and also in the valley of the Krka, in the settlement of Plešivica nad Drenjem (Dular, 1993: T. 3:7–9; Dular et al., 1995: 120, 131, T. 23: 14, 15). Also included in the above group is a fragment of a pot with an everted rim and tall neck from Gradišče nad Gorico, although in this case it has a slightly taller neck (Fig. 8: 6). The decoration of the rim edge from a fragment of a pot with an almost vertical rim and neck (Fig. 8: 3) only finds analogies in the late Bronze Age phase of the cave site Veliki Zjot near Sečje Selo on the river Kolpa in Bela Krajina (Dular, 1993: 105; T.5:12; Leben, 1991: 175, T.2:2). The fragment of the rim of an open bowl with a shallow groove or facet (Fig. 8: 4) (op. cit.) belongs to the same period. The decoration consisting of a horizontal rib on a pot body fragment from Sveti Križ (Fig. 8: 5) is frequently found both on late Bronze Age pottery and on pottery from the early Iron Age, and therefore cannot be dated with more precision.

The pottery from the area of the unauthorised development – the logging path in the area of the hill settlement of Veliki Kolečaj – belongs to the late Roman period. This consists of a fragment of a pot lid (Fig. 8: 7) and a fragment of a cover known as a *pekva* under which bread or meat was baked in the hearth (Fig. 8: 8). Pottery of similar design has been excavated at the Tonovcov Grad site near Kobarid (Modrijan and Milavec, 2011: 184, T.86:1–1). Taking into account the structure and shape of the fragments, Zvezdana Modrijan and Tina Milavec have broadly dated them to the late Roman period. If we compare the fragments to decorated fragments from the earlier phase of the late Roman fortified settlement in Črnomelj's old town centre, it is highly likely that they come from the 5th or the first quarter of the 6th century (Mason, personal annotation).

Stražnji Vrh – Sveti Križ archaeological site

1. Fragment of rim; made freehand (Fig. 8: 1);
fabric texture: fine – individual fragments of limestone sand (≤ 0.5 mm); surface treatment: wiped; hardness: soft;
colour of exterior surface: patchy 5YR 7.5 4/2 brown to 5YR 7.5 6/6 reddish yellow;
colour of interior surface: 5YR 7.5 4/2 brown;
core colour in the break: 7.5YR 8/3 pink; firing technique: uncontrolled;
slightly everted pot rim;
date: late Bronze Age.

2. Fragment of rim; made freehand (Fig. 8: 2);
fabric texture: fine – individual fragments – larger clay core (≤ 5 mm); surface treatment: wiped; hardness: soft;
colour of exterior surface: 5YR 4/1 dark grey with patches of 5YR 4/6 reddish yellow;
colour of interior surface: 5YR 7.5 4/2 brown;
core colour in the break: 7.5YR 8/3 pink; firing technique: uncontrolled;
everted pot rim;
date: late Bronze Age.

3. Fragment of decorated rim; made freehand (Fig. 8: 3);
fabric texture: fine; surface treatment: wiped; hardness: hard;
colour of exterior/interior surface: 5YR 4/6 yellowish brown;
core colour in the break: 7.5YR 3/2 dark brown; firing technique: incomplete oxidation;
everted rim with incisions;
date: late Bronze Age.

4. Fragment of rim; made freehand (Fig. 8: 4);
fabric texture: fine – individual fragments of Fe O_2 (≤ 2 mm); surface treatment: wiped; hardness: soft;
colour of exterior/interior surface: 5YR 7.5 6/6 reddish yellow;
core colour in the break: 7.5YR 8/3 pink; firing technique: uncontrolled;
slightly concave bowl rim decorated with a shallow broad groove running diagonally around the circumference below the rim;
date: late Bronze Age.

5. Fragment of pot wall; made freehand (Fig. 8: 5);
fabric texture: fine – individual fragments of clay cores (≤ 2 mm); surface treatment: wiped; hardness: soft;
colour of external surface: 7.5YR 8/3 pinkish;
core colour in the break/interior surface: 5YR 5/4 reddish yellow; firing technique: uncontrolled;
pot walls decorated with a shallow horizontal moulded rib with a triangular section;
date: late Bronze Age.

Gorica pri Sinjem Vrhu – Gradišče nad Gorico prehistoric settlement

6. Fragment of rim; made freehand (Fig. 8: 6);
fabric texture: fine – individual fragments of angular limestone (≤ 5 mm); surface treatment: wiped; hardness: soft;
colour of exterior surface: 5YR 5 4/1 dark grey with patches of 5YR 7.5 7/6 reddish yellow;
colour of interior surface: 5YR 5 4/1 dark grey with patches of 5YR .5/6 yellowish red;
core colour in the break: 5YR 4/1 dark grey; firing technique: refired after use;
everted pot rim;
date: late Bronze Age.

Zapudje – Veliki Kolečaj fortified hill settlement

7. Fragment of lid; made on a slow wheel (Fig. 8: 7);
fabric texture: fine – high frequency of calcium carbonate fragments (≤ 0.5 mm); interior surface: wiped, with small holes (from burning-out of temper); exterior surface: decorated with concentric horizontal »combing«; hardness: hard;
colour of exterior surface: patchy 7.5YR 7/2 pinkish grey to brown 5YR 7.5 4/2;
colour of interior surface: 5YR 7.5 7/3 pinkish to 7.5 YR 3/2 dark brown;
core colour in the break: 5YR 4/1 dark grey; firing technique: reduction firing with oxidation in the final phase;
part of a conical cover;
date: late Roman period.

8. Fragment of the lower edge/rim of a *pekva* (cover used for baking on a fire) or the foot of a tripod, made on a slow wheel (Fig. 8: 8);
fabric texture: fine – high frequency of calcium carbonate fragments (≤ 0.5 mm) on exterior surface, individual concentrations on interior surface, otherwise rare on break and on interior surface; interior and exterior surface treatment: wiped, with small holes (from burning-out of temper); hardness: soft;
colour of exterior surface: 10 YR 6/4 light yellowish brown;
colour of interior surface: 10 YR /4/1, dark brown to 7.5 YR 3/2 dark brown;
core colour in the break: 7.5YR 2.5/1 black, 10 YR 5/8 yellowish brown on the interior surface; firing technique: reduction firing with oxidation in the final phase;
lower part of the foot of a three-legged pot;
date: late Roman period.

Conclusion

In the sample cases mentioned above we have shown the usefulness of data obtained through analysis of ALS images and compared them to data that are the fruit of a long tradition of topographic research (topography) in the hard-to-access forested terrain of the hilly margins of Bela Krajina. The advantage of analysis of ALS images over traditional topography is that we are able to observe the past appearance and use of the landscape in the above area in a more systematic, complex and holistic manner. This also applies to lowland areas where the nature of the terrain and land use mean that the application of traditional methods of documentation using aerial photography is limited or even impossible. The method must, however, be combined with other approaches such as a primary assessment of the state of a potential archaeological site and regular monitoring of the state of already known archaeological sites, and with systematic surface and subsurface inspections, geodetic imaging and, in exceptional cases, even archaeological test trenches or excavations.

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Adela Pukl

Kulturna dediščina gradov v Sloveniji: stanje in potencial etnoloških prizadevanj

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Izvleček

Članek obravnava kulturno dediščino gradov v Sloveniji. Predstavljeni so najpogostejše vsebine in programi v slovenskih gradovih v 21. stoletju, stanje njihove ohranjenosti, njihovi lastniki, upravljavci in financerji. Številni slovenski gradovi so brez vsebin, v preostalih pa so najpogostejše vsebine: muzeji, zbirke, razstave, izvajanje poročnih obredov, turistične in kulturne prireditve/vsebine, gostinska ponudba, poslovna dejavnost in protokol, hoteli in nočitvene kapacitete, bolnišnice in druge zdravstvene ustanove, stanovanja, domovi za ostarele in izobraževalne ustanove. Za ohranjanje grajske dediščine je izpostavljena celostna in celovita obravnava dediščine ter interdisciplinarno sodelovanje strokovnjakov z lastniki in upravljavci.

Uvod

Grajska kulturna dediščina je v Sloveniji pomemben del stavbne kulturne dediščine. Njene primarne funkcije (rezidenčna, upravna in obrambna) so se s časom spreminjale in prilagajale. Uporabnost grajske kulturne dediščine v Sloveniji je odvisna od številnih dejavnikov in se v 21. stoletju še vedno spreminja. V tem članku bom termin grad uporabljala za vse vrste grajske dediščine na Slovenskem. Za gradove, graščine in dvorce se pogosto uporablja enoten izraz grad, vendar se strokovnjaki (npr. Ivan Stopar (2007), Igor Sapač (2011)) držijo terminološke različnosti, ki je po njihovem mnenju odsev pojavnosti grajskih stavb v različnih časovnih obdobjih ter njihove namembnosti in poimenovanj. Spodbuda za raziskavo uporabe grajske dediščine na Slovenskem je nastala na terenu, kjer so prisotne nekatere težnje po obnovi gradov, njihovi umestitvi v prostor ter pripravi novih programov in vsebin.
Predmet članka sta pregled vsebin in programov v grajski dediščini v Sloveniji v začetku 21. stoletja ter pomen etnoloških prizadevanj in sodelovanj pri obnovah/prenovah. Na začetku sta predstavljena število gradov in stanje ohranjenosti. V nadaljevanju so povzete številke, povezane z grajsko dediščino iz nacionalnega Registra nepremične kulturne dediščine, in vloga odgovornih služb. Na podlagi raziskave na terenu so povzeti najpogostejše vsebine in programi v slovenskih gradovih, ki marsikdaj niso ustrezno umeščeni. Za primerno pripravo vsebin so navedeni štirje pogoji za uspešno funkcionalno izrabo grajske dediščine na Slovenskem. Pri tem ima pomembno vlogo etnologija, ki s svojimi metodami v sodelovanju z drugimi strokami pomembno prispeva k ohranjanju in varovanju grajske dediščine na Slovenskem.

Stanje gradov

Število enot grajske dediščine (gradov, dvorcev, graščin, stolpov) v Sloveniji se razlikuje glede na predmet obravnave. V raziskavi o financiranju, ekonomiki in upravljanju slovenskih gradov, ki so jo leta 2000 objavili na Ekonom-

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ski fakulteti, so na seznam gradov v Sloveniji uvrstili 1182 enot grajske dediščine (Mihelič, 2000: 141–160). Na seznam so uvrstili tako obstoječe zgradbe kot tudi tiste, o katerih pričajo le še pisni ali ustni viri. V Registru nepremične kulturne dediščine (v nadaljevanju Register), ki ga vodi Ministrstvo za kulturo RS, je bilo 6. 6. 2017 vpisanih 573[1] enot. Število cerkva, vpisanih v Register, pa je malo manj kot 2500, kar je štirikrat več, kot je gradov, njihova ohranjenost pa je v primerjavi z gradovi dosti boljša. Stanje je posledica namembnosti cerkva, ki so se zaradi primarne funkcije opravljanja bogoslužja ohranile do danes. Druga pomembna razlika je število »uporabnikov«, ki je pri cerkvah dosti večje, ter stalnost njihovih skrbnikov, lastnikov in upravljavcev.

Stanje ohranjenosti in obnovljenosti gradov, ruševin in razvalin lahko delimo na pet skupin:

1. propadajo,
2. so vzdrževani (na objektu potekajo redna oziroma nujna vzdrževalna dela),
3. so v prenovi (obnovitvena dela še potekajo),
4. so delno obnovljeni (del gradu je obnovljen, a so dela (začasno) končana),
5. so obnovljeni (objekt je popolnoma arhitekturno obnovljen, neodvisno od vsebin).

Tudi podrti gradovi (razvaline in ruševine) in njihove ostaline so pomemben del naše kulturne dediščine. Njhova ohranjanje in predstavitev sta odvisna od namembnosti. Maroević loči dve temeljni usmeritvi aktivne zaščite. Prva je usmerjena k spodbujanju interesa do dediščine v sredinah, v katerih je bila dediščina ohranjena. Kot drugo možnost Maroević navaja aktivno rabo dediščine za potrebe turizma, kjer razvaline ostajajo ob strani, vključena pa je predstavitvena interpretacija, ki naj bi spodbujala oglede (Maroević, 2002: 9). »Zavedati se je treba, da je utrdbena arhitektura že davno izgubila svoj smisel in pravico do obstoja. Ob sleherni obnovi se zato postavlja vprašanje, kaj početi z ostalinami.« (Sapač, 2006: 24) Naj bo grad cel ali samo v ostalinah, primarnih funkcij iz obdobja nastanka ne bo več opravljal. Pa vendar to ne pomeni, da nima več pravice do obstoja.

Za strokovnjake tehničnih ved so tudi samo grajski zidovi, brez poslikav in stavbnega pohištva, izjemen zgodovinski vir. Iz nekaterih »prenovljenih« in prebarvanih slovenskih gradov veje enak duh po svežem betonu kot z gradbišč drugih sodobnih konstrukcij (Zupan, 2006: 44). Sanacije grajskih zidov se morajo opirati na tradicionalne in preizkušene obrtniške metode, saj lahko moderna, hitra in nepremišljena obnova povzroči večjo škodo kot propad (Sapač, 2006: 25). Vito Hazler zagovarja tezo, da ni prenove brez programa, kar naj velja za vse vrste nepremične kulturne dediščine. Stopar pa piše, da se prizadevanja za obnovo drugih arhitekturnih spomenikov ločijo od prizadevanj za obnovo gradov. Pred začetkom obnove gradov moramo poznati tako novo vlogo spomenika kot to, kdo ga bo upravljal in finančno skrbel za njegovo vzdrževanje (Stopar, 2002: 13). Menim, da bi vsaka prenova in obnova katerekoli kulturne dediščine ali spomenika morali imeti najprej začrtano vsebino, šele nato se lahko začne fizična obnova stavbne dediščine.

Grajska dediščina in Register nepremične kulturne dediščine

Kulturna dediščina, vpisana v Register[2], se deli na tri skupine. Prva je »registrirana dediščina«,[3] torej dediščina, ki je vpisana v Register. Naslednja skupina so spomeniki lokalnega pomena, tretja pa spomeniki državnega pomena. V Register je vpisanih 573 enot (vključno s 105 arheološkimi najdišči, ki so izvzeti iz raziskave). Ostalih 468 enot je registriranih kot kulturna dediščina, od tega jih je 322 razglašenih za nepremični spomenik:[4] 269 je spomenikov lokalnega pomena (58 odstotkov), 53 pa spomenikov državnega pomena (11 odstotkov). Dediščini ob razglasitvi za spomenik lokalnega ali državnega pomena pristojni konservatorji določijo tudi varstveni režim. Tako lastniki spomenikov ne dobijo le vrste omejitev pri upravljanju svoje lastnine, temveč tudi možnost za prijavljanje na lokalne ali državne (odvisno od statusa spomenika) razpise za sofinanciranje obnov in prenov. Marsikateri novodobni lastnik se je po Hazlerjevem mnenju soočil z načeli spomeniškovarstvene doktrine in »v konfliktu interesov iztrošil svoje pogosto radikalne prenovitvene zamisli. Tudi zato je nekaj dokaj dobro zamišljenih revitalizacijskih programov ostalo neizpolnjenih in gradovi in druge grajske stavbe še naprej samevajo in propadajo.« (Hazler, 2011: 33)

Konservatorji pogosto poslušajo očitke, da so neživljenjski. Vsekakor konservatorji ne vidijo le sten in streh, temveč tudi lokacijo zgradbe, torej njeno lego v prostoru, gradbeno ohranjenost in vsebino, ki odraža način življenja v preteklosti in danes. Načrtujejo tudi nove vsebine in namembnosti (Hohnec, 2003: 78). Nekateri strokovnjaki pri prenovi, obnovi in sanaciji zagovarjajo ohranitev avtentičnih delov, rekonstrukcije pa le po tehtnem premisleku in raziskavi (Stopar, 2002: 13; Maroević, 2002: 11). Pri rekonstrukciji pa veljajo posebna pravila obnove. »Nujno je, da se avtentični deli od na novo dodanih ob nadrobni primerjavi razlikujejo. Pri tem pa je treba paziti, da ne pride do grobih kontrastov. Celota mora delovati skladno in celovito.« (Sapač, 2006: 26) V sodobni spomeniškovarstveni praksi velja načelo »raje manj kot preveč« (Stopar, 2002: 13).

Vsebine in programi v slovenskih gradovih

Večina današnjih funkcij gradov je povezana s kulturnimi vsebinami in turizmom. Gospodarskih vsebin, ki bi finančno vzdrževale grad, je bolj malo, pa še te so skoraj vedno povezane s turističnimi vsebinami. Velika večina naših gradov pa nima značilnih grajskih vsebin, kar zmanjšuje tudi njihovo turistično privlačnost. »Skoraj vsi naši gradovi so izgubili rodbinsko in lastniško kontinuiteto, korenine bivanja, korenine povezanosti z okolico.« (Zupan, 2006: 43) Vprašanje je, kaj narediti s praznimi stavbami, ki so izgubile svoje prebivalce, uporabnike, opremo in zgodbe. Dati vsebino takim stavbam je dostikrat težje kot zamenjati streho in zidove (Sapač, 2006: 29). Univerzalnega recepta za vsebinsko revitalizacijo gradov ni. Vsak grad ima svojo zgodovino, na podlagi katere je treba pripraviti programe. Revitalizacija grajskega objekta naj bo celostna in naj upošteva celoten grajski kompleks, katerega pomemben del so tudi vrtovi in parki. Ti so po Šumijevem mnenju relativno samostojen areal (Šumi, 2000: 17). Kljub njihovi arhitekturni samostojnosti pa ne smemo pozabiti, da so vsebinsko del celotnega grajskega kompleksa, in jih je treba tako tudi obravnavati. Zato ni mogoče celostno funkcionalno urediti grajskega kompleksa brez vrtov in parkov (ter drugih objektov).

Številni slovenski gradovi so brez vsebin, v preostalih pa so najpogostejše vsebine: muzeji, zbirke, razstave; izvajanje poročnih obredov; turistične in kulturne prireditve/vsebine; gostinska ponudba; poslovna dejavnost in protokol; hoteli oziroma nočitvene kapacitete; zdravstvena ustanova; stanovanja; domovi za ostarele; izobraževanje; drugo (npr. zapor).

Vsebine in programi v gradovih so izredno raznoliki: segajo od ene same namembnosti do številnih, prevečkrat med seboj nepovezanih in slabo koordiniranih vsebin. Tako je npr. v Ravbarjevem gradu v Mengšu (samo) urejeno stanovanje lastnika, ponudba vsebin v gradu Rače pa je med najpestrejšimi (prostori občine Fram – Rače, slikarski atelje, etnološka zbirka, stanovanja, poročna dvorana, turistična agencija ...). Tej raznolikosti in neusklajenosti vsebin in obnove sledi še ljubljanski grad. V povprečju ima vsak grad malo manj kot dve različni vsebini.

Muzeji, zbirke in/ali razstave

Grajska dediščina ni le nepremična dediščina, nad katero strokovno bdijo zavodi za varstvo kulturne dediščine. Kot del nepremične kulturne dediščine je treba obravnavati tudi premično in nesnovno kulturno dediščino. Izvirne grajske premične kulturne dediščine je ostalo zelo malo, saj je bila požgana, izropana ali odnesena. Muzejske postavitve z avtentično opremo in predstavitvijo prostorov v gradovih so v Sloveniji zato redke. Take muzejske postavitve zasledimo v tujini, predvsem v Avstriji, Nemčiji, na Češkem, Slovaškem, Poljskem in v Franciji. V slovenskih gradovih pa domujejo lokalni, regionalni in nacionalni muzeji z razstavami in manjšimi zbirkami. Vsebine teh razstav so ponekod povezane z zgodovino gradu, drugod s predstavitvijo okolja, v katerem stoji grad, ali pa imajo povsem nove vsebine.

Sporočilnost in podajanje kulturnih vsebin v slovenskih gradovih sta izredno raznolika; v gradovih so umeščene tako občasne razstave in zbirke kot tudi stalne postavitve strokovnih in znanstvenih ustanov. Ena zadnjih stalnih razstavnih postavitev je v prenovljenem dvorcu Vipava, kjer domujeta Visoka šola za vinogradništvo in vinarstvo ter Center za raziskave vina Univerze v Novi Gorici. Razstava Srečna dežela je, vino rodi ..., s podnaslovom O zgodovini vinogradništva in vinarstva na Vipavskem, vsebinsko dopolnjuje izobraževalne vsebine dvorca.

Vrišer je zapisal, da se »muzeologija posveča problematiki premičnih spomenikov, ki so izgubili svojo primarno funkcijo v vsakdanjem življenju in dobili novo – muzejsko« (Vrišer, 1988: 15). Prav tako so gradovi kot nepremična kulturna dediščina izgubili svojo primarno funkcijo in dobili novo – muzejsko. Gradovi in grajski predmeti so s časom res izgubili svojo primarno funkcijo, a še vedno stojijo v primarnem okolju. Če uredimo grad kot muzej, ki priča o načinu življenja, ostanejo predmeti v primarnem okolju, le njihova funkcija se spremeni. Tako imamo v Sloveniji ohranjen grad Snežnik, ki ga po besedah Damjane Pečnik[5] z Ministrstva za kulturo vojno uničenje ni doseglo in je hkrati tudi prvi grad v Sloveniji, ki je bil prenovljen z evropskimi sredstvi, v njem pa je na ogled stalna postavitev Narodnega muzeja Slovenije.

1 Popis enot v nekaterih primerih obsega ločeno obravnavanje in vodenje (pod različnimi evidenčnimi številkami dediščine) gradov in območja gradov. Taki primeri so npr. razvaline gradu Soteska in območje gradu Soteska, grad Grm in območje gradu Grm itd.

2 »Register dediščine je osrednja zbirka podatkov o dediščini, ki jo vodi ministrstvo, pristojno za dediščino.« (3. člen Zakona o varstvu kulturne dediščine (ZVKD-1; Uradni list RS, št. 16/08))

3 3. člen Zakona o varstvu kulturne dediščine (ZVKD-1; Uradni list RS, št. 16/08).

4 Po 11. členu Zakona o varstvu kulturne dediščine se registrirana nepremična dediščina, ki predstavlja izrazit dosežek ustvarjalnosti ali dragoceno prispeva h kulturni raznolikosti; ki je pomemben del prostora ali dediščine Republike Slovenije ali njenih regij; ali ki predstavlja vir za razumevanje zgodovinskih procesov, pojavov ter njihove povezanosti s sedanjo kulturo in prostorom, lahko zaradi svojega izjemnega pomena za državo (v nadaljnjem besedilu: spomenik državnega pomena) ali posebnega pomena za pokrajino ali občino (v nadaljnjem besedilu: spomenik lokalnega pomena) razglasi za spomenik (ZVKD-1; Uradni list RS, št. 16/08).

5 Uvodni nagovor Damjane Pečnik, državne sekretarke na Ministrstvu za kulturo RS, na konferenci Gradovi Posavja: projekt povezovanja in izhodišča za sodelovanje, 6. 4. 2017, Sevnica.

Prostor za poroke

Upravne enote imajo določene uradne prostore in čas za izvajanje civilnih poročnih obredov. Teh ne izvajajo samo v mestnih hišah, ampak pogosto tudi v gradovih (v ljubljanskem, slovenskobistriškem, polhograjskem). Nekateri gradovi imajo že dolgo tradicijo poročanja, kot npr. grad Bogenšpek, kjer je mogoče skleniti zakonsko zvezo že tri desetletja. Pari se praviloma poročajo v viteških in drugih grajskih dvoranah in v grajskih knjižnicah. Gradovi s svojimi grajskimi kapelicami kot del dodatne ponudbe nudijo tudi možnost sklenitve cerkvene poroke (grad Tuštanj, grad Rače).

Turistične in kulturne vsebine

Dogajanje na slovenskih gradovih bogatijo kulturne prireditve. Te ponekod dopolnjujejo redno grajsko ponudbo (muzej, hotel, šolo ...), nekatere gradove, ki so sicer brez funkcije, pa z vsebino napolnjujejo. Tako npr. grad Vurberk gosti festival narodno-zabavne glasbe. Vsebine prireditev v gradovih bi si zaslužile posebno in poglobljeno raziskavo, zato je pomembno povezovanje strok in ljubiteljev oziroma lastnikov. »Vse bolj pa se kaže /.../, da ljubiteljska predanost ni dovolj, da programi, ustvarjeni z veliko vnemo, ne zagotavljajo celovitih prenov in t. i. oživitev (življenja) spomenikov.« (Černelič Krošelj, 2011: 102) Pred izborom kulturnih vsebin moramo tako kot pri vseh drugih izvesti raziskavo in strokovno utemeljiti, zakaj določena kulturna vsebina sodi v grad. Enako velja za turistične vsebine, ki lahko v grajskem okolju delujejo bolj agresivno kot kulturne vsebine. Gre predvsem za vprašanje prilagojenosti grajske arhitekture omenjenim vsebinam. Biller ugotavlja, da je velik del Evrope že dolgo posejan z različnimi zabaviščnimi parki, katerih velika večina je v svojo ponudbo integrirala tudi prave zgodovinske objekte. Ti so glede na prilagojenost vsebinam opremljeni tako, da je meja med avtentičnostjo in kuliso skoraj zabrisana. Nevarnost predstavlja že skoraj zabrisana meja med pristnim in ponarejenim, torej med zgodovinsko realnostjo in zabavno fikcijo (Biller, 1993: 7). Vse to so nevarnosti in pasti, ki z vidika stavbarstva lahko škodujejo ohranjanju grajske dediščine. Drug vidik je razvrednotenje grajske dediščine z neprimerno vsebino, kot so npr. veselice.

Gostinska dejavnost

Pri obravnavi grajske dediščine je treba razumeti vse njene funkcije: stanovanjske, upravne, religiozne, obrambne, protokolarne, ustvarjalne in prehranjevalne. K prehranjevalni spadajo tako grajska kuhinja kot drugi prostori za uživanje hrane (Bogataj, 1992: 162). Sodobno umeščanje gostinske dejavnosti v gradove je izziv za lastnika ali upravljavca gradu. Tudi če je grad razvalina in v slabem stanju, mora biti nova namembnost skladna s preteklostjo gradu.
Le manjše število gradov je v celoti namenjenih samo gostinski dejavnosti. Po navadi je gostinska dejavnost dopolnitev obstoječe ponudbe muzeja, protokolarnega objekta ali poslovnega prostora. Oblike, poimenovanja in ponudbe gostinske dejavnosti se med seboj razlikujejo, od bara Grad na gradu Vurberk do gostilne v dvorcu Zemono. Za gostinsko dejavnost uporabljeni termini na slovenskih gradovih so bar, vinoteka, restavracija, gostilna, kavarna. Gostilne so npr. na gradu Bogenšperk, na gradu v Murski Soboti, na ljubljanskem gradu, gradu Metlika in gradu Komenda (Polzela).

Poslovna dejavnost in protokol (države ali podjetja)

Gradovi s svojo pozicijo v prostoru in z zunanjim videzom izražajo pomembnost lastnika, ta pa daje gradu vsebino ter določa njegovo vrednost (ne v finančnem smislu) in pomen. Pri spomenikih v državni lasti, ki so namenjeni poslovni in protokolarni dejavnosti, naj bi bilo več posluha in upoštevanja strokovnega mnenja. Pri posameznikih in podjetjih, ki gradove kupujejo in jih obnavljajo (brez stroke!) z namenom izkazovanja moči in finančnega položaja, pa so negativne vrednote relativno hitro prisotne in vidne.
Poslovna dejavnost je tesno povezana tudi s protokolom. Republika Slovenija za protokolarne namene uporablja dva gradova: grad Brdo pri Kranju in grad Strmol. Bolj znan je grad Brdo, v katerem so dogodki povezani z državnim protokolom. Nekatera podjetja si v gradu uredijo poslovne in razstavne prostore, ki so obenem lahko tudi protokolarni prostori.

Hoteli in druge nočitvene kapacitete

Poleg nočitvenih kapacitet hoteli ponujajo vrsto dodatnih s turizmom povezanih aktivnosti, ponudb in možnosti. S trženjem dvoran, grajskih kapelic in vrtov lahko podjetni hotelirji pridejo do drugotnega vira prihodkov, primaren vir dohodkov pa je »uporaba« grajske dediščine za prenočišča. Če je grajski kompleks razglašen za spomenik lokalnega ali državnega pomena, ima možnosti tudi za prihodke iz statusa dediščine.
V prid hotelirski dejavnosti v gradovih govorijo predvsem primeri iz tujine. Tudi Slovenija ima nekaj uspešnih hotelov v gradovih: v Mokricah in na Otočcu glavna hotelirska dejavnost poteka v gradu. V gradu Drnča glavna hotelirska dejavnost poteka v novem objektu, del hotelskih sob pa je v gradu. V gradu Brdo pri Kranju je hotelirska dejavnost v posebnem (negrajskem) objektu, ki je del posesti Brdo, kot tudi v samem gradu. Dvorec Rakičan je delno preurejen tudi v prostore za nočitev, vendar ni kategoriziran kot hotel.

Bolnišnice in socialnovarstveni zavodi

V večini gradov so si svoje domovanje uredile psihiatrične bolnišnice in bolnišnice za zdravljenje odvisnikov. Pri bolnišnicah se pojavi enako vprašanje kot pri domovih za ostarele: Ali so gradovi primerno prilagojeni za tovrstne dejavnosti? V gradovih so svojo dejavnost ohranili Psihiatrična bolnišnica Begunje (v gradu Katzenstein, Begunje na Gorenjskem), Psihiatrična bolnišnica Vojnik, Oddelek Ravne (v gradu Gutenbuechel, Ravne pri Šoštanju) in Socialnovarstveni zavod Hrastovec (v gradu Hrastovec, Hrastovec v Slovenskih goricah). Konec 20. stoletja so bile bolnišnice in socialnovarstveni zavodi še v naslednjih gradovih: Hompoš (Pivola), Šentilj, Šoštanj, Cmurek in Dornava. Večina omenjenih ustanov se je v zadnjih letih preselila v primernejše prostore, gradovi pa, razen obnovljenega gradu Hompoš (od leta 2008 prenovljen za potrebe Fakultete za kmetijstvo in biosistemske vede Univerze v Mariboru), še naprej propadajo. Število bolnišnic in socialnovarstvenih zavodov v gradovih se je v zadnjem desetletju močno znižalo.

Stanovanja

Po drugi svetovni vojni se ljudje v gradovih niso naseljevali zaradi prestiža, ampak zaradi socialne stiske. Stanovanja, ki so si jih v njih uredili, so v slabem stanju, saj ne nudijo primernih razmer za življenje (obstajajo izjeme!), njihovo vzdrževanje pa je drago. V osemdesetih letih 20. stoletja se je država začela zavedati, da so stanovanja najslabša funkcija za gradove, saj gre za stihijske in nenačrtne spremembe tlorisov, preurejanje notranjosti, zunanjosti ter vrsto drugih nesprejemljivih sprememb, med katere sodijo antene, majhne barake, vrtički ... Čeprav so začeli takrat ljudi iz gradov izseljevati, izseljevanje še zdaleč ni končano.
Gradovi, v katerih so nastanjeni stanovalci (ki praviloma niso lastniki gradov), se po zunanjem videzu razlikujejo od drugih gradov. So pa tudi izjeme, kot je grad Tuštanj, ki poleg zbirk, ki so na ogled, nudi bivalne prostore lastnikom – družini Pirnat.

Domovi za starejše občane

Pri domovih za starejše občane, ki so umeščeni v grajsko dediščino, se je prepogosto dogajalo, da so bili gradovi le izhod v sili in neprimerni za nastanitev starostnikov. Pomembno vprašanje je, kaj taka vsebina pomeni za grajsko dediščino? Če gre za dolgoročne rešitve, ko se grad prilagodi in nato vzdržuje za potrebe doma za starejše občane, kot so to naredili v gradu Turn, kjer ima svoje prostore Dom starejših občanov Preddvor, so posegi v objekt in zunanjost upravičeni. Nedopustno pa je, da so bili starostniki nameščeni v grajsko stavbo, ker boljše rešitve v danem trenutku ni bilo, zgradba pa je bila predelana in nato zapuščena. Večina gradov, v katerih so imeli svoje prostore domovi za starejše občane, je v začetku 21. stoletja praznih in so prepuščeni propadanju. Njihovo hitro propadanje vsaj delno zavira nova ali popravljena streha. V drugi polovici 20. stoletja je bilo vsaj osem gradov namenjenih domovom za starejše občane. Leta 2016 sta v grajsko dediščino umeščena že omenjeni grad Turn (Dom starejših občanov Preddvor) in grad Črni Potok (Dom Tisje Šmartno pri Litiji).

Izobraževalne vsebine

V gradovih imajo prostore različne izobraževalne ustanove, najpogostejše med njimi so glasbene šole. Stiški dvorec je Ljubljanska nadškofija »odstopila« Akademiji za glasbo. Občina Vipava je grad Vipavski Križ preuredila v podružnično osnovno šolo, v dvorcu Rakičan deluje Raziskovalno izobraževalno središče Rakičan, v dvorcu Višnja Gora ima prostore Vzgojno-izobraževalni zavod Višnja Gora. Kot zanimivi izobraževalni vsebini, ki nista v gradu, temveč v pripadajočih grajskih stavbah, sta Pedagoško raziskovalni center za konjerejo Krumperk in kobilarna Lipica kot rejska organizacija. V prenovljenem gradu Hompoš so konec leta 2008 odprli nove prostore Fakultete za kmetijstvo in biosistemske vede Univerze v Mariboru. Za njihove potrebe so uredili prostore v gradu, novem prizidku, vili Pohorski dvorec in v delu nekdanjih grajskih gospodarskih poslopij. Oživili so nekdanjo gospodarsko dejavnost, povezano z izobraževalnimi programi in lokalnim okoljem. »Prenova je na eni strani omogočila revitalizacijo gradu in njegovo prilagoditev uporabnikom, na drugi strani pa njegovo celovito stavbnozgodovinsko raziskavo in prezentacijo številnih kakovostnih historičnih prvin.« (Sapač, Sapač, 2015: 261) Od leta 2013 sta v prenovljenem Lanthierijevem dvorcu v Vipavi Visoka šola za vinogradništvo in vinarstvo ter Center za raziskave vina Univerze v Novi Gorici.

Brez vsebine

Lastništvo se je v zadnjih dvajsetih letih spremenilo zaradi denacionalizacije. Nerešeno lastništvo gradov je močno vplivalo, in še vedno močno vpliva, na stanje in ohranjanje celotnih grajskih kompleksov. S tem so povezani financiranje, upravljanje, obnavljanje, vzdrževanje in funkcioniranje gradov. Damjana Pečnik in Gojko Zupan menita, naj obnova gradov »ne vsebuje samo obnove sten, kar nam gre v Sloveniji bolje od rok kot pa vsebinska obnova ali, kot se radi izrazimo, oživljanje« (Černelič Krošelj, 2011: 101). Mnenja, stališča in želje tako strok kot tudi pristojnih so na mestu, realnost na terenu pa je nekaj drugega. Država je leta 2012 želela prodati kar devet gradov: od teh jih kar šest ni imelo vsebine; to so Rihemberk, Turnišče, Borl, Viltuš, Šrajbarski turn in Gradac. Dva sta bila namenjena

stanovanjem: Socka in Bizeljsko. Grad Socka pri Vojniku je Republiki Sloveniji leta 2013 uspelo prodati podjetju Bent excellent iz Domžal, ki pa gradu do leta 2016 še ni oživil. Konec leta 2013 je država lastništvo gradu Turnišče prenesla na Mestno občino Ptuj, ki si je z interdisciplinarno skupino zadala oživiti dvorec Turnišče kot »mesto uspehov na Slovenskem«, a je leta 2016 slika dvorca, ki propada že tri desetletja, še vedno klavrna (Jazbec, 2016: 17–18). Poleg Turnišča je država leta 2013 na Mestno občino Nova Gorica neodplačno prenesla še grad Rihemberk. Vrata gradu Rihemberg so kljub novemu lastniku po treh letih še vedno zaprta. Med gradovi, ki so bili v preteklih letih (nazadnje leta 2014) namenjeni za prodajo po uspešnosti, izstopa grad Otočec s hotelom, ki je v upravljanju podjetja Terme Krka.

Pogoji za funkcionalno izrabo gradov

Slovenija se lahko ponaša z okoli 1100 gradovi, dvorci in graščinami. Nekateri stojijo še danes, drugi ostajajo skrivnostne razvaline, tretji pa živijo le še v legendah, pravljicah in pesmih. Ko so gradovi izgubili svoje primarne funkcije, so jih lastniki vedno teže vzdrževali oziroma jih sploh niso. Kastelolog Ivan Komelj je že v letih 1951 in 1952 zapisal, kako nujno je gradovom zagotoviti novo funkcijo, saj le pravilno izbrana funkcija zagotavlja pravo vzdrževanje gradov (Komelj, 1951–52: 44). Zaradi lege gradov v prostoru je pogosto turistična vsebina tista, ki vodi do njihove obnove in trženja. Vendar pa je treba pri načrtovanju novih vsebin upoštevati stanje objekta, njegov razvoj in stanje ohranjenosti, nove vsebine pa predvideti skladno s konservatorskimi načrti.

Za uspešno funkcionalno izrabo grajske dediščine na Slovenskem je treba izpolniti štiri pogoje:

1. osebni angažma in primeren odnos lastnika do dediščine,
2. večdisciplinarno prisotnost strok pri obnovi in načrtovanju vsebin ter pri izvedbi,
3. zagotovitev finančnih sredstev,
4. upravljanje, trženje in promocijo.

Na prvo mesto postavljamo lastnika in njegov odnos do dediščine. Izredno pomembni so lastnikov interes in želje glede vitalne funkcije grajske dediščine. Nekateri lastniki imajo že izoblikovano idejo o namembnosti gradu, nekateri jo razvijajo v sodelovanju s strokami. Pogost pojav sta tudi trdna odločenost lastnika o novi namembnosti in neupoštevanje strok. »Dokazovati in uveljavljati svoj vplivni družbeni položaj je bila v preteklosti in tudi danes zelo pomembna in zahtevna vloga.« (Hazler, 2009: 420) Ustvarjanja vplivnega družbenega položaja se ljudje lotevajo na različne načine. Med njimi so tudi nakup grajske dediščine, njena obnova in prenova. Kot pravi Hazler, je lastnikom le ponekod uspelo izpeljati celostno in celovito prezentacijo v prostoru dominantnega spomenika (Hazler, 2011: 33). Pogostejše so le površne prenove, ki jih je lastnikom z lastnim znanjem in sredstvi uspelo pripeljati do konca. Lastnik se odloča, čemu bo namenil svojo lastnino, koliko finančnih sredstev bo vanjo vložil in kako bo realiziral svoje ideje. »Žalostna je ugotovitev, da čedalje več grajskih stavb ali njihovih ostankov izgublja svoje obličje zaradi nestrokovno načrtovanih in izpeljanih prenovitvenih posegov. Zaradi prevelike vneme, preveč denarja, pohlepa in premalo razuma ter strokovne etike.« (Sapač, 2012: 47) Če obnovitveni in prenovitveni postopki potekajo pravilno, z vključevanjem strok in razumevanjem lastnika, pa je uspešna vitalna funkcija zagotovljena. Tak primer je npr. grad Tuštanj pri Moravčah, v katerem lastniki živijo, organizirajo koncerte in imajo muzej. Ves čas grad tudi obnavljajo in vzdržujejo, kar poteka z vključevanjem strok.

Za ustrezno funkcionalno izrabo grajske dediščine je pomemben celosten strokovni pristop, to je povezovanje in sodelovanje interdisciplinarne skupine strokovnjakov. Janez Bogataj je že leta 1992 opozoril na številne zgledno urejene primere iz tujine, ki kažejo, kakšno pozornost posvečajo posameznim funkcijam gradu in njihovim predstavitvam v sodobnem času. Po njegovem mnenju je grajska dediščina v Sloveniji bila in je, glede na njeno novo prihodnje življenje, še vedno močno obremenjena z enostranskimi strokovnimi pogledi in s stereotipnostjo (Bogataj, 1992: 162). Primerov prenove grajske dediščine z enostranskimi strokovnimi pogledi je tudi po dveh desetletjih še vedno preveč, a vendar se stanje izboljšuje, kar potrjujejo interdisciplinarno pripravljene študije novih namembnosti grajske dediščine.

Če govorimo o celostnem in celovitem obravnavanju grajske dediščine, je treba gradove obravnavati skupaj z drugimi elementi, kot so obzidja, jarki, parki, vrtovi, notranja dvorišča, gospodarska poslopja, stolpi, vodnjaki. Ti so smiselno urejeni in sestavljajo kompozicijo celotnega grajskega kompleksa. Zato moramo grad pri raziskovanju in pripravi novih vsebin in programov skupaj s pripadajočimi objekti obravnavati kot celoto. Malokdaj pa je že tako redko dobro obnovljena in vzdrževana grajska arhitektura deležna celostnega obravnavanja in vzdrževanja skupaj z vrtovi, parki in gospodarskimi poslopji. Glede na strokovno predalčkanje in obravnavo grajske dediščine na Slovenskem je očitno skrajni čas, da se obnov in revitalizacij lotevamo celovito in interdisciplinarno, brez ločevanja na naravno in kulturno ter naprej na nepremično, premično in nesnovno dediščino. Razlog za tako stanje je po mnenju Vita Hazlerja tudi v poudarjanju upravnega, slogovnega in arhitekturnega pomena gradov, pri čemer se je pozabljalo na njihov gospodarski, kulturni in družbeni pomen. Zato so bistveno prej kot gradovi propadla gospodarska poslopja, vrtovi in preostala poslopja grajskega kompleksa (Hazler, 2011: 34).

Obnove, prenove in vzdrževanje grajske dediščine so povezani z velikimi finančnimi sredstvi. Brez njih bodo še tako dobri strokovni načrti stavbne in vsebinske prenove ostali neuresničeni. Finančna sredstva v napačnih rokah in brez svetovanja strok pa lahko povzročijo veliko škodo tako stavbni dediščini kot njeni okolici. Mihaličeva meni, da tako za gradove kot za druge dobrine veljajo zakoni tržnosti in gospodarnosti, zato se z gospodarskega vidika gradov praviloma ne splača kupovati, saj nobena dejavnost ne bi povrnila vloženega kapitala (Mihalič, 2000: 7–8). Hkrati pa Mihaličeva opozarja, da »prevzeti lastništvo nad gradom pomeni prevzeti odgovornost za njegovo ohranjanje, raziskave in morebitno obnovo in oživljanje. Kapital se gradov pogosto izogiba.« (Mihalič, 2000: 7–8) Kljub temu pa imajo vsi gradovi svoje lastnike, ki se sami odločajo o višini finančnega vložka[6] v grajsko dediščino oziroma sami poiščejo morebitne vlagatelje.

Kot zadnji pogoj za uspešno uporabo grajske dediščine navajam upravljanje, trženje in promocijo grajske dediščine. Ko je grajska dediščina obnovljena in prenovljena, tako stavbno kot tudi vsebinsko, skladno s strokovnimi usmeritvami in raziskavami, je treba njeno novo funkcijo vzdrževati in ohranjati. Vključitev grajske dediščine z vitalno funkcijo v lokalni, regionalni in državni prostor je naloga strokovnjakov trženja, upravljanja in turizma, ki naj sodelujejo že od začetka pri prenovi in s tem poskrbijo za ustrezno promocijo še vedno izstopajoče in dominantne stavbne dediščine na Slovenskem.

Ali bo grajska dediščina s svojo vitalno funkcijo uspešno delovala tudi v današnjem času, je odvisno od izpolnitve številnih pogojev. Prvi pogoj sta seveda ustrezno načrtovani obnova in funkcija gradu.

Vloga etnologije pri načrtovanju uporabnosti gradov v Sloveniji

Preučevanje grajske arhitekture in zanimanje etnologije zanjo sta se začela šele po drugi svetovni vojni. Delitev kulturne dediščine na etnološke, arheološke ali umetnostne spomenike je neprimerna, saj je, kot je opozoril že Sedej, vsak umetnostni spomenik hkrati tudi etnološki, sociološki, zgodovinski (Sedej, 1983: 72–73). Preučevanje gradov je bilo (in je delno še danes, a vedno manj) domena umetnostnih zgodovinarjev, zgodovinarjev, arhitektov in arheologov. Tudi nekateri etnologi so za svoje raziskovalno področje izbrali grajsko dediščino, npr. Gorazd Makarovič (1988, 1991, 1995), Vito Hazler (2009, 2011) in Bernarda Potočnik (1994).

Obstajajo številne historične raziskave razvoja gradov, njihovih funkcij in lastnikov. Pri tem sta nemalokdaj zapostavljena nepogrešljiva sestavna dela kulturne dediščine: premična in nesnovna kulturna dediščina. Drugo vprašanje pa je, do katere mere sta ohranjeni. Zato moramo pri preučevanju nepremične kulturne dediščine kot neločljivo povezani vselej upoštevati tudi premično in nesnovno dediščino, ki pričata o načinu življenja ljudi. Grajsko dediščino lahko celovito definiramo le na podlagi vseh elementov.

Veliko je bilo napisanega o razvoju konservatorske službe pri nas, o vlogi etnologov konservatorjev in njihovem delu. Etnologi konservatorji se danes zavedajo pomena vključevanja v obnove in prenove stavbarstva kmečkega in delavskega sloja prebivalstva. »Ponekod sodelujejo tudi pri ohranjanju objektov mestnega sloja oziroma višjih slojev prebivalstva. Izključeno ni niti sodelovanje pri ohranjanju grajskih stavb.« (Lorbek, 2011: 76)

Leta 2010 je bil npr. izdelan idejni projekt celostne vsebinske in programske prenove gradu in vzpostavitve Valvasorjevega središča na Bogenšperku. Občina Krško je v letih 2011 in 2012 prenavljala grad Rajhenburg pri Brestanici. Pri obeh prenovah so sodelovali tudi etnologi (Černelič – Krošelj, 2011: 101, Sapač, 2013: 61).

Za etnologijo sta »v najširšem kulturnem pomenu etnološki spomenik tudi cerkev ali grad, saj sta ta dva objekta prav tako enakovredna vira za raziskovanje načina življenja, kot je na primer kmečka hiša ali pastirski stan« (Hazler, 1999: 15). »Pri vsem tem je treba vedeti, da ima vsak predmet svojo ›logiko‹ in razmerje do prostora in funkcij, ki jih je opravljal, zato naj bi v bodoče odločanje o njihovi usodi prepuščali ustreznim strokovnim odločitvam ali vsaj poslušali nasvete.« (Bogataj, 1995: 14) Etnolog lahko s svojim znanjem celovito obravnava določen objekt oziroma kompleks objektov. Zanimajo ga zgodovinska dejstva, zgodovina objekta in njegovih prebivalcev, pohištvo in druga notranja oprema, legende, pripovedke. Na vsako vprašanje želi dobiti odgovor, in odgovore logično povezuje. Vsako stvar obravnava v različnih kontekstih: zgodovinskem, socialnem, kulturnem … In kot je zapisal Vilko Novak, nas mora poleg zgodovinskega vidika voditi tudi funkcionalni, ki določa zvezo med prvinami kulture in njihovim/i nosilcem/nosilci (Novak, 1956: 12). Raziskovanje in preučevanje pa se ne smeta končati v določenem zgodovinskem obdobju, saj sta predmet preučevanja tudi sedanjost in prihodnost. Vsekakor je rešitev za kakovostno revitalizacijo grajske dediščine v sinergiji različnih strok.

Na področju konservatorstva ne smemo pričakovati celovitih rešitev, ki bi bile delo enega samega strokovnjaka. Na seznam poklicev, ki lahko v večji ali manjši meri sodelujejo pri upravljanju kulturne dediščine, so uvrščeni tudi etnologi (Lah, 2002: 44–45). Etnologija lahko prav s poznavanjem nepremične, premične in nesnovne kulturne dediščine prispeva h kakovostnejšemu ohranjanju grajske dediščine, ki je tako kot človeška kultura živ organizem in je pod vplivom kulturnih, socialnih, ekonomskih in zgodovinskih sprememb (Stojanović, 2007: 591).

Enakovreden pomen moramo pripisati tudi snovni dediščini. Glede na zgodovinska dejstva, ki so na Slovenskem po drugi svetovni vojni močno zaznamovala usodo grajske

6 Ugotovitve o možnostih financiranja, državnih pomočeh in davčnih olajšavah. Glej Mihalič [2000].

dediščine, imamo ohranjene relativno malo grajske premične dediščine. Po vojni je bila večina slovenskih gradov nacionalizirana, podržavljena s predpisi o agrarni reformi, nacionalizaciji in zaplembah ter z vrsto drugih predpisov. Gradovi, dvorci, graščine in drugi objekti so prešli v roke države. Številni gradovi so bili izropani, požgani in uničeni. »Ideološko enoumje med vojno in po njej je bilo vzrok popolnemu ali delnemu uničenju grajske dediščine. Ti časi se kažejo nekako anahronistično: na eni strani uničevanje ideološko spornih materialnih dokazov, na drugi strani opremljanje protokolarnih in zasebnih stanovanj prav z dediščino, ki je sooblikovala njihovo notranjo podobo.« (Bogataj 1992: 162) Ohranila se je (kolikor ni bila popolnoma uničena) nepremična dediščina: gradovi s pripadajočimi objekti.

Etnološka stroka je pri ohranjanju in revitalizaciji grajske dediščine izredno pomembna. Boneva-Trayanova pri tem opozarja, da ne smemo pozabiti, da je oživitev preteklosti dejanje velike odgovornosti (Boneva-Trayanova, 2007: 57). Etnologija s preučevanjem, raziskovanjem in poznavanjem načina življenja, družbene, duhovne, bivalne in oblačilne kulture ter kulture gospodarskih načinov in obrti pomembno prispeva k ohranjanju in varovanju grajske dediščine na Slovenskem.

Sklep

Vedno več ljudi v Sloveniji in po svetu se zaveda pomembnosti lastne kulturne dediščine in njene vrednosti. Kljub različnim vzrokom propadanja grajske dediščine v Sloveniji, ki sega že na konec 18. stoletja, ko se je začel proces opuščanja gradov, je spodbudno dejstvo, da kulturni spomeniki na podlagi celovite obravnave dobivajo nove vsebine in programe, ki so kot celota pomembni elementi tako na lokalni in regionalni kot na nacionalni ravni.

Obravnavani so izbrani gradovi s pripadajočimi posestvi in poslopji, kar pomeni, da ponekod glavna funkcija grajskega kompleksa ni v gradu, temveč v pripadajočem objektu. V Register nepremične kulturne dediščine je bilo leta 2017 vpisanih 573 enot, ki se glede na vrsto dediščine delijo na tri skupine: registrirana dediščina, spomeniki lokalnega pomena in spomeniki državnega pomena. Kot kulturna dediščina so registrirane tudi ruševine in razvaline. Prvotna funkcija gradu za to raziskavo nima bistvenega pomena, saj bi zelo težko govorili o povezavi prvotne in današnje funkcije. Pri tem je treba upoštevati tudi dejstvo, da so se funkcije grajske dediščine v času spreminjale in prilagajale potrebam njihovih lastnikov.

Najpogostejše vsebine v slovenskih gradovih so: muzeji, zbirke, razstave, izvajanje poročnih obredov, turistične in kulturne prireditve/vsebine, gostinska ponudba, poslovna dejavnost in protokol, hoteli in nočitvene kapacitete, bolnišnice in druge zdravstvene ustanove, stanovanja, domovi za ostarele, izobraževanje. Veliko gradov je brez vsebine, kar dokazuje, da se gradovi tudi opuščajo, saj lastniki ne zmorejo vzdrževati gradu, najnujnejša vzdrževalna dela pa ne omogočajo varne uporabe grajske dediščine. Iz zbranega je razvidno, da je še danes tako: funkcija gradu je povezana z dejavnostjo in premožnostjo njenega lastnika ali upravljalca, kar se odraža tudi v ohranjenosti nepremične dediščine.

Za uspešno obnovo in prenovo gradov morajo biti izpolnjeni štirje pogoji: osebni angažma in primeren odnos lastnika do dediščine; večdisciplinarna prisotnost strok pri obnovi, načrtovanju in izvedbi vsebin; zagotovitev finančnih sredstev; program upravljanja, trženja in promocije. Pri obnovi in prenovi mora sodelovati interdisciplinarna ekipa strokovnjakov, ki se spoznajo na svoje delo, a so hkrati za dobrobit ohranjanja kulturne dediščine pripravljeni sprejemati kompromise. Prav tukaj se pokaže pomen vključevanja etnologov, ki s svojim načinom dela in raziskovanja ustrezno dopolnjujejo strokovnjake drugih strok.

Grajska dediščina v Sloveniji je velik (delno neizkoriščen) potencial za razvoj kulturnih in turističnih dejavnosti. Z ustreznimi skupinami strokovnjakov in finančnimi sredstvi bi marsikateri slovenski grad lahko ponovno zaživel in oživel.

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1. Grad Rakičan, 2016 (foto: Matej Pukl)
1. Rakičan Castle, 2016 (photo: Matej Pukl)

2. Grad Hompoš, 2012 (foto: Matej Pukl)
2. Hompoš Castle, 2012 (photo: Matej Pukl)

3. Rokodelski dan na gradu Tuštanj, 2018 (foto: Adela Pukl)
1. Handicrafts Day at Tuštanj Castle, 2018 (photo: Adela Pukl)

4. Stalna razstava na gradu Snežnik, 2012 (foto: Matej Pukl)
4. Permanent exhibition at Snežnik Castle, 2012 (photo: Matej Pukl)

5. Propadajoči grad Viltuš, 2012 (foto: Matej Pukl)
5. Decaying Viltuš *Castle, 2012 (photo: Matej Pukl)*

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Castle heritage in Slovenia: current state and the potential of ethnological efforts

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Abstract

The article covers castle heritage as an element of cultural heritage in Slovenia. It presents the types of content and programmes that are most frequently to be found in Slovenia's castles in the twenty-first century and looks at their state of conservation, their owners and the individuals or institutions that manage and finance them. Many castles in Slovenia have no content at all. In the others, the following types of content are most common: museums, collections, exhibitions, wedding venues, tourism and cultural events/content, catering establishments, business activities and diplomatic/ceremonial functions, hotels and other types of accommodation, hospitals and other health care institutions, dwellings, old people's homes, educational institutions. A holistic and comprehensive approach to heritage and the interdisciplinary cooperation of experts with owners and managers are highlighted as important conditions for the conservation of castle heritage.

Introduction

Castle heritage in Slovenia is an important part of architectural cultural heritage. The primary functions of this heritage (residential, administrative and defensive) have changed and adapted over time. The uses to which castle heritage in Slovenia is put depend on numerous factors and are still changing in the twenty-first century. In this article I use the term "castle" for all types of castle heritage in Slovenia. The single term "castle" is frequently used for castles, manor houses and other grand country houses, although some experts (e.g. Ivan Stopar (2007), Igor Sapač (2011)) prefer to maintain the terminological distinctions between the different types, which in their opinion reflect the different periods of origin of castle-type buildings, the purposes for which they were built and the ways they were named. This study of the use of castle heritage in Slovenia was prompted by the situation on the ground, where a number of moves are afoot to restore castles, reconnect them to the environment in which they are located, and develop new programmes and contents for them.

The article reviews the content and programmes that are to be found in Slovenia's castle heritage in the early twenty-first century and considers the significance of ethnological endeavours and cooperation in the repair/renovation of castle heritage. It begins by looking at the number of castles in Slovenia and their state of conservation. It continues with a summary of data relating to castle heritage from the national Register of Immovable Cultural Heritage and an account of the role of the responsible services. On the basis of field research it describes the content and programmes most commonly found in Slovenia's castles, which in many cases are inappropriate. To ensure the appropriate preparation of content, four conditions are set out for the successful functional use of castle heritage in Slovenia. An important role is played by ethnology, which through its methods and in cooperation with other disciplines makes a significant contribution to the conservation and protection of castle heritage in Slovenia.

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Castles: present state

The number of units of cultural heritage (castles, mansions/country houses, manor houses, towers) in Slovenia differs, depending on the subject that is being considered. A study of the financing, economics and management of castles in Slovenia published by the University of Ljubljana's Faculty of Economics in 2000 included 1,182 "castle heritage units" on its list of castles in Slovenia (Mihalič et al. 2000: 141–160). The list includes both existing buildings and those for which only written or oral sources remain. The Register of Immovable Cultural Heritage (hereinafter: the Register) kept by the Ministry of Culture contained 573[1] units as at 6 June 2017. The number of churches entered in the Register is just under 2,500, which is four times more than the number of castles, while the state of conservation of churches is significantly better than that of castles. The reason for this is the purpose of use of churches, which have survived to the present day by virtue of their primary function as places of worship. A second important difference is the number of "users", which is considerably greater in the case of churches, and the permanency of their custodians, owners and administrators.

The state of conservation and repair of castles and castle ruins may be divided into five groups:

1. decaying,
2. maintained (regular or urgent maintenance work is carried out),
3. under renovation (repairs still in progress),
4. partly renovated (part of the castle has been renovated but work has (temporarily) halted),
5. renovated (the building has undergone complete architectural renovation, independently of its content).

Ruined castles and their remains are also an important part of our cultural heritage. Their state of conservation and their presentation are dependent on their purpose of use. Maroević distinguishes between two fundamental focuses of active protection. The first focuses on promoting interest in heritage in the milieu in which the heritage has been preserved. The second is the active use of heritage for the needs of tourism, where ruins are ignored but the site incorporates a presentational interpretation designed to encourage visits (Maroević, 2002: 9). "It is important to realise that fortifications have long since lost their meaning and their right to exist. For this reason, in every renovation the question is raised as to what to do with the remains" (Sapač, 2006: 24). Whether a castle is complete or in ruins, it will no longer perform its primary functions from the period in which it was built. This does not mean, however, that it no longer has the right to exist.

For experts in technical fields, even castle walls, without painted decoration and fittings, represent a remarkable historical source in their own right. Some "restored" and repainted castles in Slovenia give off the same air of fresh concrete as the building sites of other modern structures (Zupan, 2006: 44). Repairs to castle walls should be based on traditional and tested artisanal methods, since a modern, rapid and poorly considered renovation can cause more damage than decay (Sapač, 2006: 25). Vito Hazler defends the view that there is no renovation without a programme, something that should apply to all types of immovable cultural heritage. Stopar, on the other hand, writes that efforts to renovate other architectural monuments are separate from efforts to renovate castles. Before starting the renovation of a castle, we have to know both what the new role of the monument will be and who will manage it and finance its maintenance (Stopar, 2002: 13). I believe that every renovation of any type of cultural heritage or monument should first of all establish the content that it is to have. Only then should the physical renovation of architectural heritage begin.

Castle heritage and the Register of Immovable Cultural Heritage

Cultural heritage entered in the Register[2] is divided into three groups. The first is "registered heritage ",[3] i.e. heritage that is entered in the Register. The next group is monuments of local importance, while the third group is monuments of national importance. A total of 573 units (including 105 archaeological sites that are excluded from the present study) are entered in the Register. The remaining 468 units are registered as cultural heritage, with 322 of them proclaimed an immovable monument:[4] 269 are monuments of local importance (58%), while 53 are monuments of national importance (11%). When heritage is proclaimed a monument of local or national importance, the competent conservators

1 In some cases the inventory of heritage units treats castles and the areas of castles separately and records them under different heritage numbers. Examples include the ruins of Soteska Castle and the area of Soteska Castle, Grm Castle and the area of Grm Castle, and so on.

2 »The Heritage Register is the principle collection of data on heritage, kept by the ministry responsible for heritage« (Article 3 of the Cultural Heritage Protection Act (ZVKD-1; UL RS 16/08))

3 Article 3 of the Cultural Heritage Protection Act (ZVKD-1; UL RS 16/08)).

4 Under Article 11 of the Cultural Heritage Protection Act, registered immovable heritage that represents a notable achievement of creativity or a valuable contribution to cultural diversity; that is an important part of the territory or heritage of the Republic of Slovenia or its regions; or that represents a resource for the understanding of historical processes, phenomena and the connections between them with present-day culture and territory, may because of its outstanding importance for the state (hereinafter: monument of national importance) or special importance for a region or municipality (hereinafter: monument of local importance) be proclaimed a monument (ZVKD-1; UL RS 16/08)).

also define a protection regime for it. The owners of monuments are given a series of restrictions regarding the management of their own property, but they also gain the opportunity to apply for local or national funding (depending on the status of the monument) to co-finance repairs and renovations. In Hazler's view, many modern owners have found themselves clashing with the principles of monument protection doctrine and "in this conflict of interests applied their own frequently radical ideas about renovation. This is also the reason why a number of relatively well conceived revitalisation programmes have remained unimplemented and castles, and other castle buildings continue to be left alone to crumble into ruin" (Hazler, 2011: 33).

Conservators are frequently accused of being impractical. But conservators do not only see walls and roofs, they also see the location of the building, in other words its position in the environment, its state of architectural conservation, and content that reflects a way of life in the past and today. They also plan new contents and purposes of use (Hohnec 2003: 78). Some experts advocate the conservation of authentic elements when carrying out restorations, renovations and repairs, and only opt for reconstruction after careful consideration and research (Stopar, 2002: 13; Marović, 2002: 11). In the case of reconstruction, special rules apply. "It is essential that authentic elements can be distinguished from newly added elements on close comparison. It is, however, necessary to be careful to avoid harsh contrasts. The whole must function in a harmonious and integrated manner" (Sapač, 2006: 26). In modern monument protection practice, the principle "better too little than too much" applies (Stopar, 2002: 13).

Content and programmes in Slovenia's castles

The majority of functions that castles perform today relate to cultural content and tourism. Commercial uses that financially support a castle are rare, and those cases that do exist are almost always connected to tourism. The great majority of castles in Slovenia do not have typical "castle-type" contents, which also reduces their attractiveness to tourists. "Almost all our castles have lost dynastic continuity or continuity of ownership, their roots as a place of residence, and the roots of their connection with the surrounding area" (Zupan, 2006: 43). The question is: what is to be done with empty buildings that have lost their inhabitants, users, fixtures and stories? It is much harder to give content to such buildings than it is to replace the roof or walls (Sapač, 2006: 29). There is no universal recipe for the revitalisation of castles in terms of their content. Every castle has its own history, on the basis of which programmes have to be prepared. The revitalisation of a castle should be holistic and should take into account the whole of the castle complex, of which gardens and parks are an important part. Šumi considers the latter to be a relatively independent area (Šumi, 2000: 17). Despite their architectural independence, however, we must not forget that in terms of content they are part of the castle complex as a whole, and should be treated as such. It is not therefore possible to speak of the holistic functional regulation of a castle complex without taking into account gardens and parks (and other structures).

Many castles in Slovenia have no content at all. In the others, the following types of content are most common: museums, collections, exhibitions; wedding venues, tourism and cultural events/content; catering establishments; business activities and diplomatic/ceremonial functions; hotels and other types of accommodation; health care institutions; dwellings; old people's homes; educational institutions; other (e.g. prisons).

The contents and programmes we find in castles differ enormously: they range from a single purpose of use to multiple, frequently unconnected and poorly coordinated contents. The sole function of Ravbar Castle in Mengeš, for example, is as the residence of its owner. Rače Castle, meanwhile, is one of the most varied in terms of content (municipal offices, artist's studio, ethnological collection, dwellings, wedding hall, tourism agency, etc.). This diversity and lack of coordination of content and renovation is also apparent at Ljubljana Castle. On average, each castle in Slovenia has just under two different types of content.

Museums, collections and/or exhibitions

Castle heritage is not only immovable heritage that is subject to the expert supervision of cultural heritage protection institutes. Movable and intangible cultural heritage must also be treated as elements of immovable cultural heritage. Very little original movable cultural heritage has remained in castles, since it has been destroyed by fire, looted or otherwise removed. Museum installations with authentic fittings and presentations of rooms in castles are therefore a rarity in Slovenia. Such installations are found in other countries, particularly Austria, Germany, the Czech Republic, Slovakia, Poland and France. Many of Slovenia's castles are home to local, regional and national museums, with their exhibitions and smaller collections. The contents of such exhibitions are sometimes connected to the history of the castle and sometimes to the environment in which the castle stands. They can also be entirely new contents.

The historical message and cultural content of a castle can be communicated in a great variety of ways. Castles in Slovenia thus include both temporary exhibitions and collections and permanent installations created by specialised and scientific institutions. One recent permanent exhibition is the one housed in the recently renovated Lanthieri Mansion in Vipava, home of the School of Viticulture and Oenology and the Wine Research Centre of the University of Nova Gorica. The "Happy the land that brings forth wine..." exhibition on the history of viticulture and wine-making in Vipava naturally complements the mansion's educational functions.

Vrišer notes that "museology devotes itself to the issue of movable monuments that have lost their primary function in everyday life and gained a new one – as museum pieces (Vrišer, 1988: 15). Likewise castles, which are part of immovable cultural heritage, have lost their primary function and gained a new one – as museums. It is true that castles and objects from castles have lost their primary function over time, but they still stand in their primary (original) environment. If we convert a castle into a museum that tells us about the way of life in the castle, the objects in it remain in their primary environment, and only their function has changed. An example of this in Slovenia is Snežnik Castle, which in the words of Damjana Pečnik[5] of the Ministry of Culture, escaped the destruction of war and is at the same time the first castle in Slovenia to have been renovated using European funds. Today it houses a permanent installation created by the National Museum of Slovenia.

Wedding venues

Local administrative units of the state have a list of official venues and times for the conducting of civil wedding ceremonies. Weddings are not only held in town halls, and frequently take place in castles (e.g. Ljubljana Castle, Slovenska Bistrica Castle, Polhov Gradec Castle). Some castles already have a long tradition as wedding venues – for example Bogenšperk Castle, where weddings have been taking place for three decades. Couples usually get married in the Great Hall or other hall of a castle, or in the castle library. Castles with their own chapels (such as Tuštanj Castle and Rače Castle) can also offer the option of a church wedding as an additional service.

Tourism and cultural content

Cultural events enrich life in Slovenia's castles. In some places these complement the regular activity of the castle in question (museum, hotel, school, etc.), while in the case of some castles that have no regular function, they fill them with content. Thus, for example, Vurberk Castle hosts a festival of popular folk music. The contents of events in castles really deserve a separate and more in depth study, so it is important to connect heritage professionals and amateurs or owners. "It is increasingly apparent [...] that the efforts of amateurs are not enough, that programmes created with great enthusiasm do not guarantee comprehensive renovations and the restoration (of life) to monuments" (Černelič Krošelj, 2011: 102). Before selecting cultural content, we must, just as in all other cases, carry out a study and provide an expert justification of why a specific cultural content belongs in a castle. The same applies to content related to tourism, which in a castle environment can have a more aggressive effect than cultural contents. This is above all a question of the adaptability of the castle architecture to the content in question. Biller notes that amusement parks integrating real historic buildings are to be found scattered across a large part of Europe. In terms of adaptation to content, these buildings are fitted and furnished in such a way that the boundary between authenticity and backdrop is practically obliterated. The danger here is represented by the already almost invisible boundary between the genuine and the fake, in other words between historical reality and entertaining fiction (Biller, 1993: 7). These are all dangers and pitfalls that, from the architectural point of view, can be detrimental to the conservation of castle heritage. Another aspect is the devaluation of castle heritage through inappropriate content such as parties and festivities.

Catering establishments

When dealing with castle heritage, it is necessary to understand all its functions: residential, administrative, religious, defensive, ceremonial, creative and alimentary. This alimentary function include both castle kitchens and other premises where food is eaten (Bogataj, 1992: 162). Installing a modern catering establishment in a castle is a challenge for the owner or manager of castle. Even if the castle is a ruin and in poor condition, the new purpose of use must be congruent with the castle's past.

Only a few castles are given over to catering establishments in their entirety. In most cases the catering establishment supplements the existing functions of a museum, ceremonial facility or business premises. The types of catering establishments and the services they offer differ from castle to castle, as do the names by which they are known: from "Bar Grad" at Vurberk Castle to "Gostilna pri Lojzetu" at Villa Zemono. Catering establishments in castles in Slovenia include bars, wine shops, restaurants and cafés. Castles with restaurants in them include Bogenšperk Castle, Murska Sobota Castle, Ljubljana Castle, Metlika Castle and Komenda Castle (Polzela).

5 Introductory remarks by Damjana Pečnik, State Secretary at the Ministry of Culture of the Republic of Slovenia, at the conference »The Castles of Posavje: their interconnection and starting points for cooperation«, 6 April 2017, Sevnica.

Business activities and ceremonial functions (state or corporate)

Through their position in the landscape and their outward appearance, castles are an expression of the importance of their owner, who gives a castle its content and determines its value (in the non-financial sense) and significance. In the case of monuments owned by the state that are used for business and ceremonial activities, more attention should be paid to the opinion of experts. In the case of individuals and businesses that purchase castles and renovate them (without consulting experts!) in order to demonstrate their power and financial standing, negative values are relatively quickly present and visible.
Business activities are also closely connected to the ceremonial function. The Republic of Slovenia uses two castles for ceremonial purposes: Brdo Castle near Kranj and Strmol Castle. The better known of the two is Brdo Castle, which hosts events connected to state ceremonial and diplomatic functions. Some corporate owners create business premises and exhibition spaces in castles that can also be used for ceremonial purposes.

Hotels and other types of accommodation

As well as accommodation, hotels offer a range of additional activities, services and options connected to tourism. By hiring out halls, castle chapels and gardens, enterprising hoteliers can obtain an alternative revenue stream, while their primary source of revenue is the "use" of castle heritage as overnight accommodation. If a castle complex has been proclaimed a monument of local or national importance, they also have opportunities to obtain revenue from the castle's heritage status.
Numerous examples from other countries speak in favour of hotels in castles. Slovenia also has a number of successful hotels in castles: at both Mokrice and Otočec the main hotel activity is in the castle itself. At Drnča Castle the main hotel activity is in a new building, but some of the hotel rooms are located in the castle. At Brdo Castle hotel activities are in a separate (non-castle) building that is part of the Brdo estate, as well as in the castle itself. Rakičan Castle has been partly converted into accommodation, although it is not categorised as a hotel.

Hospitals and social care institutions

Many castles have housed psychiatric hospitals and centres for the treatment of addictions. In the case of hospitals, the same question is raised as in the case of old people's homes: are castles suitably adapted for this type of activity? The following institutions have maintained their activities in castles: Begunje Psychiatric Hospital (Katzenstein Castle, Begunje na Gorenjskem), the Ravne Unit of Vojnik Psychiatric Hospital (Gutenbuechel Castle, Ravne pri Šoštanju) and the Hrastovec Social Care Centre (Hrastovec Castle, Hrastovec v Slovenskih Goricah). At the end of the twentieth century the following castles also housed hospitals and social care institutions: Hompoš (Pivola), Šentilj, Šoštanj, Cmurek and Dornava. The majority of these institutions have moved in recent years to more suitable premises, while the castles, with the exception of the renovated Hompoš Castle (since 2008 the new home of the University of Maribor's Faculty of Agriculture and Life Sciences), continue to decay. The number of hospitals and social care institutions in castles has fallen greatly in the last decade.

Residential use

In the aftermath of the Second World War, people did not move into castles for reasons of prestige, but because of conditions of social hardship. The dwellings created in castles tend to be in a poor state because they do not offer adequate living conditions (there are exceptions!) and their maintenance is expensive. In the 1980s the state started to realise that using castles for residential purposes was the worst possible use for them, because such residential use involved uncontrolled and unplanned changes to floor plans, conversion of interiors and exteriors and a series of other unacceptable changes, including antennae, shanty structures, allotments, and so on. Although people began moving out of castles at that time, the process is far from complete.
Castles occupied by dwellings (where the residents are not, as a rule, their owners) differ from other castles in their external appearance. There are exceptions, however, such as Tuštanj Castle, which as well as housing collections that are on view to the public is also the residence of its owners, the Pirnat family.

Old people's homes

Where old people's homes are located in castles, it has too often been the case that these castles were only an emergency solution and are not suitable as accommodation for the elderly. The important question that must be asked is what such content means for castle heritage. In the case of long-term solutions where a castle has been adapted and then maintained for the needs of an old people's home – for example Turn Castle, which houses the Preddvor Old People's Home – modifications of the building and its exterior are justifiable. What is inadmissible, however, is that old people should be housed in a castle because no better solution is available at the time and that the building should be remodelled and then abandoned. In the early twenty-first century the majority of castles that once served as premises for old people's homes are empty and have been left to decay. This decay is at least partially slowed by the fact that they have new or repaired roofs. In the second half of the twentieth century, at least eight castles were in use as old people's homes. In 2016 residential facilities for old people could be found in the already mentioned Turn Castle (Preddvor Old People's Home) and in Črni Potok Castle (Dom Tisje, Šmartno pri Litiji).

Educational institutions

Various types of educational institutions have premises in castles, with music schools being the most frequent type. Stična House (*Stiški dvorec*, a former residence of the abbots of Stična) in Ljubljana was "surrendered" to the Ljubljana Academy of Music by the Archdiocese of Ljubljana. The Municipality of Vipava has converted Vipavski Križ Castle into premises for a primary school, Rakičan Castle is home to an education and research centre, and Višnja Gora Castle houses a special education institution. Interesting educational activities not housed in castles but in buildings belonging to castles include the horse breeding education and research centre at Krumperk and the Lipica stud farm. At the end of 2008 the new premises of the University of Maribor's Faculty of Agriculture and Life Sciences opened in the newly renovated Hompoš Castle. Premises for the needs of the faculty were created in the castle, a new extension, the Pohorski Dvorec villa and part of the former castle farm. The castle's former commercial activity has been revived in direct connection with education programmes and the local environment. "On the one hand the renovation has enabled the revitalisation of the castle and its adaptation to its new users, while on the other it has permitted thorough research of the building's architectural history and the presentation of numerous valuable historical elements" (Sapač, Sapač, 2015: 261). Since 2013 the renovated Lanthieri Mansion in Vipava has housed the School of Viticulture and Oenology and the Wine Research Centre of the University of Nova Gorica.

No content

The last twenty years have seen changes in castle ownership as a result of the denationalisation process. The unresolved question of castle ownership has had, and continues to have, a strong impact on the condition and conservation of entire castle complexes. Related issues include the financing, management, renovation, maintenance and functioning of castles. Damjana Pečnik and Gojko Zupan believe that the renovation of castles "does not only include the renovation of the walls, which we are better at in Slovenia than the renovation of content or, as we like to call it, revitalisation" (Černelič Krošelj, 2011: 101). The opinions, positions and wishes of conservation professionals and competent authorities are of course valid, but the reality on the ground is something different. In 2012 the state was offering as many as nine castles for sale. Six of these had no content: Rihemberk, Turnišče, Borl, Viltuš, Šrajbarski Turn and Gradac. Two were in use as dwellings: Socka and Bizeljsko. In 2013 the Republic of Slovenia succeeded in selling Socka Castle near Vojnik to the company Bent Excellent of Domžale, but as of 2016 the latter had yet to begin renovating it. In late 2013 the state transferred the ownership of Turnišče to the City Municipality of Ptuj, which set itself the task of revitalising the complex, with the help of an interdisciplinary group, as a "City of Slovene Achievements". Yet in 2016 the complex, in a state of decay for three decades, still presented a sorry sight (Jazbec, 2016: 17–18). Also in 2013, the state transferred ownership of Rihemberk Castle to the City Municipality of Nova Gorica, free of charge. Three years later Rihemberg's gates are still closed, despite the change of ownership. A notable success story among the castles destined for sale in past years (most recently in 2014) is the story of Otočec Castle with its hotel, which is managed by Terme Krka.

Conditions for the functional use of castles

Slovenia boasts around 1,100 castles, country houses/mansions and manor houses. Some are still standing, others are mysterious ruins and others again only survive in legends, tales and songs. Once castles had lost their primary functions, it became increasingly difficult for their owners to maintain them. Either that, or they did not maintain them at all. Writing in the early 1950s, the castleologist Ivan Komelj spoke of the necessity of giving castles a new function, since only a correctly chosen function can guarantee the proper maintenance of castles (Komelj, 1951–52: 44). Owing to the prominent position that castles occupy in the landscape, it is frequently tourism that leads to their renovation and marketing. Nevertheless, when planning new content, it is essential to take into account the condition of the building, its development and its state of preservation, and to plan new content in accordance with conservation plans.
In order to ensure the successful functional use of castle heritage in Slovenia, the following four conditions must be met.

- the personal involvement and appropriate attitude of the owner with regard to heritage,
- a multidisciplinary approach to renovation, content-planning and implementation,
- provision of the necessary financial resources,
- management, marketing and promotion.

In first place is the owner and his or her attitude towards heritage. The owner's interest and wishes regarding the vital function of castle heritage is extremely important. Some owners already have a fully formed idea about the purpose of use of the castle, while others develop an idea in collaboration with heritage professionals. Cases in which owners have made up their mind and disregard the views of professionals are a common phenomenon. "Demonstrating and asserting one's influential position in society was a very important and demanding role in the past and still is today" (Hazler, 2009: 420). People set about creating an influential social position for themselves in a variety of ways. Among them is the purchase of castle heritage and its subsequent repair and renovation. As Hazler says, some owners have successfully achieved the holistic and comprehensive presentation in its original context of a monument that represents a dominant feature of the landscape (Hazler, 2011: 33). More frequent than this, however, are superficial renovations that owners manage to complete using their own skills and resources. Owners decide what they want to use their property for, how much money they are going to invest in it and how they are going to realise their ideas. "The sad realisation is that an increasing number of castle buildings or their remains are losing their true face as a result of unprofessionally planned and implemented renovations. Because of too much enthusiasm, too much money and greed, and too little intelligence and professional ethics" (Sapač, 2012: 47). If repair and renovation processes are conducted properly, with the participation of professionals and understanding on the part of the owner, a successful vital function is guaranteed. One such example is Tuštanj Castle near Moravče, which the owners live in and where they organise concerts and run a museum. They are also constantly repairing and maintaining the castle, a process that takes place in collaboration with heritage professionals.

A holistic expert approach, in other words the integration and cooperation of an interdisciplinary group of experts, is an important part of ensuring a suitable functional use for castle heritage. As long ago as 1992 Janez Bogataj was drawing attention to numerous exemplary cases in other countries that illustrate the kind of attention that is dedicated to the individual functions of castle and their presentation in the present day. In his opinion, castle heritage in Slovenia was and still is heavily burdened by one-sided expert views and stereotypes with regard to its new, future life (Bogataj, 1992: 162). Two decades later, there are still too many examples of the renovation of castle heritage taking place on the basis of one-sided expert views, but the situation is improving, as confirmed by the existence of interdisciplinary studies on new purposes of use of castle heritage.

When talking about the holistic and comprehensive treatment of castle heritage, it is essential to deal with castles together with other elements such as walls, moats, parks, gardens, courtyards, ancillary buildings, towers and wells. These are logically arranged and form the composition of the overall castle complex. For this reason, when researching and preparing new content and programmes we should treat a castle and the other structures pertaining to it as a single whole. Seldom, however, does well repaired and maintained castle architecture – already very rare in itself – receive holistic treatment and maintenance along with its gardens, parks and ancillary buildings. In view of the "compartmentalised" treatment of castle heritage in Slovenia, it is clearly high time for us to tackle renovations and revitalisations in a comprehensive and interdisciplinary manner, without separation into natural and cultural heritage and, further, into immovable, movable and intangible heritage. Part of the reason for this situation, in Vito Hazler's view, is the emphasis on the administrative, stylistic and architectural importance of castles, which leads to their economic, cultural and social importance being forgotten. As a result, ancillary buildings, gardens and other structures within castle complexes have fallen into ruin significantly earlier than the castles themselves (Hazler, 2011: 34).

The repair, renovation and maintenance of castle heritage implies significant costs. Without major financial resources, expert plans for the renovation of the fabric and content of castles will remain unrealised, no matter how good they are. Financial resources in the wrong hands that are deployed without heeding the advice of experts can cause great damage both to architectural heritage and to its surrounding area. Mihalič believes that castles, like other properties, are subject to the laws of the market and economic reality, so from the economic point of view castles are generally not worth buying, in that no activity will repay the capital invested (Mihalič, 2000: 7–8). At the same time, however, she observes that "assuming ownership of a castle means taking responsibility for its conservation, for research, and for eventual renovation and revitalisation. Capital often avoids castles" (Mihalič, 2000: 7–8). Even so, all castles have owners, and it is they themselves who decide on the level of financial investment[6] in the castle heritage they own, or who seek out potential investors.

The final condition for the successful use of castle heritage that I would mention is the management, marketing and promotion of castle heritage. Once castle heritage has been repaired and renovated (both fabric and content) in accordance with expert guidelines and research, it is necessary to maintain and conserve its new function. The inclusion of castle heritage with a vital function in the local, regional and national environment is the task of experts in marketing, management and tourism, who should be involved in the renovation process from the very beginning and in this way ensure the adequate promotion of what still constitutes the most notable and dominant architectural heritage that we have in Slovenia.

Whether castle heritage with a vital function can continue to be viable in the present age depends on the fulfilment of numerous conditions. Adequately planned renovation and a suitable function are, of course, the first of these conditions.

6 Findings on possibilities of funding, state aid and tax relief. See Mihalič [2000].

The role of ethnology[7] in planning the uses of castles in Slovenia

The study of castle architecture and interest in it from an ethnological perspective only really began after the Second World War. The division of cultural heritage into ethnological, archaeological or artistic monuments is inadequate because, as Sedej pointed out several decades ago, every artistic monument is simultaneously also ethnological, sociological and historical (Sedej, 1983: 72–73). The study of castles was (and to some extent still is, although decreasingly so) the domain of art historians, historians, architects and archaeologists. Castle heritage has also been the selected research field of some ethnologists, for example Gorazd Makarovič (1988, 1991, 1995), Vito Hazler (2009, 2011) and Bernarda Potočnik (1994).

Numerous historical studies exist of the development of castles, their functions and their owners. Two indispensable components of cultural heritage are, however, frequently overlooked: movable and intangible cultural heritage. The extent to which they survive is another question. When studying immovable cultural heritage, then, we should always take movable and intangible heritage into account as well, as inseparably connected elements that tell us about the way of life of those who lived in the building in question. We can only define castle heritage comprehensively if all elements are taken into account. Much has been written about the development of the conservation service in Slovenia and on the role of ethnologist-conservators and their work. Ethnologist-conservators are today aware of the importance of their involvement in the repair and renovation of the architecture of the agrarian and labouring classes. "In some areas they participate in the conservation of buildings pertaining to the urban or higher classes of the population, and may even be included in the conservation of castle buildings" (Lorbek, 2011: 76).

In 2010 an outline project was drawn up for the substantive and programmatic renovation of Bogenšperk Castle that included the creation of a Valvasor Centre. In 2011 in 2012 the Municipality of Krško renovated Reichenburg (or Rajhenburg) Castle in Brestanica. Both renovations also saw the participation of ethnologists (Černelič Krošelj, 2011: 101, Sapač, 2013: 61).

For ethnology "even a church or a castle is an ethnological monument in the broadest cultural sense, since both these buildings are no less valuable a source than a farmhouse or shepherd's hut when it comes to researching people's ways of life" (Hazler, 1999: 15). "It is important to realise that every object has its own 'logic" and relationship to the environment and the functions it performed. In future, then, decisions about their destiny should be left to the appropriate experts – or at least should be taken after listening to their advice" (Bogataj, 1995: 14). An ethnologist is able to apply his or her expertise to the comprehensive treatment of any building or complex of buildings. Ethnologists are interested in historical facts, the history of the building and its inhabitants, its furniture and other interior fittings, and also legends and tales associated with it. They try to find an answer to every question and are able to connect the answers together logically. They consider everything in a range of contexts: historical, social, cultural, and so on. And as Vilko Novak notes, we must allow ourselves to be guided not only by the historical aspect but also by the functional aspect that determines the connection between elements of culture and the factor or factors that support them (Novak, 1956: 12). Research and study should not end in a specific historical period, because the present and future are also the object of study. The solution for the high-quality revitalisation of castle heritage undoubtedly lies in a synergy of various disciplines.

In the field of conservation it would be unreasonable to expect comprehensive solutions that are the work of one single expert. The list of professionals who can participate to a greater or lesser extent in the management of cultural heritage also includes ethnologists (Lah, 2002: 44–45). Through knowledge of immovable, movable and intangible cultural heritage, ethnology can in fact contribute to the better quality conservation of castle heritage, which, just like human culture, is a living organism and affected by cultural, social, economic and historical changes (Stojanović, 2007: 591).

We must also attribute the same importance to material heritage. The historical facts that have strongly marked the destiny of castle heritage in Slovenia since the Second World War mean that little movable heritage connected with castles survives in this country. After the war ended, the majority of Slovenia's castles were nationalised by regulations on agrarian reform, nationalisation and confiscation of property, and a series of other regulations. Castles, manor houses, mansions and other buildings passed into the hands of the state. Many castles were looted, burnt down and destroyed. "The ideological climate during and after the war caused the total or partial destruction of castle heritage. There was something anachronistic about this period:

7 Translator's note: the term "ethnology" is used here in the sense of "European ethnology" and refers to the discipline known as social (or cultural) anthropology in other traditions.

on the one hand there was the destruction of ideologically controversial material evidence, while on the other there was the furnishing of state premises and private dwellings with the heritage that played a part in creating their interiors." (Bogataj, 1992: 162). What has survived (unless completely destroyed) is immovable heritage: castles and their ancillary buildings.

Ethnology as a discipline is extremely important for the conservation and revitalisation of castle heritage. Boneva-Trayanova warns that we should not forget that the revitalisation of the past is an act of great responsibility (Boneva-Trayanova, 2007: 57). By studying, researching and fostering knowledge about ways of life, social and spiritual culture, dwelling culture, modes of dress, the economy and crafts, ethnology contributes significantly to the conservation and protection of castle heritage in Slovenia.

Conclusion

Increasing numbers of people in Slovenia and around the world are aware of the importance and value of their own cultural heritage. Despite the various reasons for the decline of castle heritage in Slovenia, which dates back to the end of the eighteenth century when the process of abandoning castles began, it is encouraging to see that cultural monuments are gaining new content and programmes on the basis of a comprehensive approach and, taken as a whole, are important elements at both the local and regional levels and at the national level.

The examples considered are selected castles with the land and buildings pertaining to them, which means that in some cases the principal function of the castle complex is not in the castle itself but in an ancillary building. In 2017 Slovenia's national Register of Immovable Cultural Heritage contained 573 units divided into three categories by type of heritage: registered heritage, monuments of local importance and monuments of national importance. Ruins are also registered as cultural heritage. The original function of a castle is not significant for this study, since it would be extremely difficult to talk about the connection between original function and present-day function. It is also necessary to take into account the fact that the functions of castle heritage changed over time and adapted to the needs of their owners.

The most common types of content in Slovenia's castles include: museums, collections, exhibitions, wedding venues, tourism and cultural events/content, catering establishments, business activities and diplomatic/ceremonial functions, hotels and other types of accommodation, hospitals and other health care institutions, dwellings, old people's homes, educational institutions. Many castles have no content at all, which is proof that castles are also abandoned because their owners are unable to maintain them, and that merely carrying out the most urgent maintenance does not allow the safe use of castle heritage. It is evident from the collected material that this is still the case today: the function of a castle is connected to the activity and wealth of its owner or manager, which is also reflected in the state of conservation of immovable heritage.

Four conditions must be met for the successful repair and renovation of castles: the personal involvement and appropriate attitude of the owner towards heritage; the multidisciplinary presence of heritage professionals in renovation and the planning and implementation of content; the provision of the necessary financial resources; a programme of management, marketing and promotion. Repairs and renovations must involve the cooperation of an interdisciplinary team of experts who know their own job well but are also prepared to accept compromises for the sake of the ultimate goal, namely the preservation of cultural heritage. This is where the importance of the participation of ethnologists becomes apparent, in that through their method of work and research they complement experts from other fields.

Castle heritage in Slovenia represents a major (and partially unexploited) potential for the development of cultural activities and tourism. With the help of appropriate groups of professionals and the necessary funds, many of Slovenia's castles could be revitalised and enjoy a new lease of life.

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Irena Potočnik

Dokumentiranje reliefa in doprsnih kipov na pročelju Kulturnega doma v Črnomlju

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Izvleček

V začetku leta 2012 je bilo v okviru izdelave konservatorskega načrta za Kulturni dom v Črnomlju, ki je spomenik državnega pomena v državni lasti in je v Registru kulturne dediščine vpisan pod evidenčno številko (EŠD) 89, zaključeno dokumentiranje stanja kamnitega reliefa in doprsnih kipov na njegovi glavni fasadi. Namen del je bilo zajetje podatkov o obliki in dimenzijah reliefa in kipov, izbrana je bila metoda terestričnega laserskega skeniranja. Rezultati so oblikovani tako, da glede na trenutno stanje končnemu uporabniku omogočajo kar največjo možnost hranjenja, ravnanja in uporabe. Če bi se pokazalo, da jih je treba nadgraditi, so na več lokacijah shranjene tudi kopije izvornih digitalnih podatkov.

Uvod

Pregled ozadja

Ne glede na vložena prizadevanja in sredstva, naše in tuje izkušnje pričajo, da arhitekturno in arheološko dediščino izgubljamo hitreje, kot jo je mogoče dokumentirati. Na osnovi te zavesti pridobi dokumentacija o njej dodaten pomen in vrednost, dokumentiranje pa postane eno izmed temeljnih opravil v procesu njenega ohranjanja, ki ga je treba večkrat ponoviti. Dokumentacijo je treba nadgrajevati in jo dopolnjevati vso življenjsko dobo dediščine. Dokumentiranje njenega materialnega stanja se zaključi šele, ko je dediščina zaradi naravnih ali drugih vzrokov uničena. V tistem trenutku je treba hranjenju in ohranitvi dokumentarnega in arhivskega gradiva o njej nameniti dodatno pozornost.

Nadgrajevanje in dopolnjevanje dokumentacije je nujno vso življenjsko dobo dediščine. Zaradi razvoja tehnologije in spremenjenega načina dela so rezultati dokumentiranja danes v večji meri v digitalni obliki, zato je toliko bolj nujno posebno pozornost nameniti izboru oblike zapisa podatkov, programske opreme in njenih različic ter medija arhiviranja in se o tem dogovoriti vnaprej. Previdnost je nujna tudi pri ravnanju z rezultati. Če podatki niso ustrezno shranjeni, če jih zaradi različnih razlogov ni možno uporabiti, če njihovi zapisi niso sistematično posodobljeni ali če niso povezani z drugim gradivom, je v prvi vrsti oškodovana kulturna dediščina, z njo pa celotna družba. Z zavezo ohranjati dediščino je sprejeta tudi odgovornost zbiranja in hranjenja informacij o njej. Ker je dokumentacija neločljivi del dediščine, postane s tem tudi sama dediščina. S tem v mislih je bilo izvedeno beleženje trenutnega stanja spomenika Kulturnega doma v Črnomlju, v članku pa so predstavljeni potek dela in rezultati.

V besedilu je opis stavbe in njenih posameznih delov z navedbo osrednjih razlogov za dokumentiranje, predstavljene so osnovne značilnosti izbrane metode dela in zapisan je postopek izvedbe dokumentiranja na terenu; obdelavi podatkov in predstavitvi rezultatov sledi še predstavitev programske opreme in oblik zapisov, uporabljenih pri tej nalogi. Članek zaključuje analiza prednosti in slabosti izbrane metode za dokumentiranje predstavljenega kulturnega spomenika.

Irena Potočnik, Zavod za varstvo kulturne dedišine Slovenije

Namen prispevka

Pri načrtovanju konservatorskega načrta je bilo ugotovljeno in odločeno, da je treba grafično dokumentacijo, načrte in merske podatke o spomeniku dopolniti in ustrezno shraniti v več izvodih in na različnih lokacijah. V ta sklop sodijo dopolnitev fotografske dokumentacije o stanju stavbe, dopolnitev merskih arhitekturnih načrtov stanja z detajli ter beleženje podatkov o obliki in dimenzijah reliefa in štirih doprsnih kipov na jugozahodni fasadi.

Namen prispevka je s postopkom dela na reliefu in doprsnih kipih predstaviti enega od možnih načinov izdelave merskega posnetka stanja, nakazati problematiko njegovega hranjenja ter predstaviti eno izmed možnosti nadgradnje in nadaljnje uporabe rezultata širšemu krogu uporabnikov. Metoda izvajanja meritev je bila izbrana glede na že obstoječo dokumentacijo stanja, ki je bila narejena z metodo stereo fotogrametrije, ter glede na finančne možnosti, raven tehnološkega razvoja, dostopnost orodij, uporabnost za dolgoročno spremljanje degradacije kamna in brona ter uporabnost za morebitno izdelavo duplikatov. Lasersko skeniranje in nadgradnja v modele sta bila zasnovana kot preventivno dokumentiranje, saj stavbo in njene posamezne dele trenutno ogroža zlasti vandalizem.

Kulturni dom v Črnomlju

Kulturni dom v Črnomlju stoji na naslovu Ulica Otona Župančiča 1 in je v lasti Republike Slovenije. Zaradi svojega izjemnega pomena je bila stavba leta 1999 razglašena za spomenik državnega pomena (Odlok o razglasitvi Kulturnega doma v Črnomlju za kulturni spomenik državnega pomena, Uradni list RS, št. 81/99, 55/02 in 16/08 – ZVKD-1). Prvotno stavbo je po načrtih ljubljanskega stavbenika Viljema Trea zgradilo sokolsko društvo iz Črnomlja, slovesna otvoritev je bila leta 1926. Po drugi svetovni vojni je bila stavba po načrtih arhitekta Branka Simčiča obnovljena in prezidana. Stavba je z obnovo dobila memorialno podobo. K njeni celovitosti sta poleg arhitekta Simčiča prispevala še arhitekt Viljem Strmecki z oblikovanjem notranjščine ter kipar Jakob Savinšek z zasnovo in izvedbo kamnitega reliefa na čelu stavbe (1951–1954) (Grobovšek, Jovo, idr., 2012, KN, mapa 1, str. 7–26). Svečana otvoritev je bila julija 1954. Na reliefu, ki je po umetniški prepričljivosti uvrščen v vrh spomeniške plastike na Slovenskem (Odlok o razglasitvi Kulturnega doma v Črnomlju za kulturni spomenik državnega pomena, Uradni list RS, št. 81/99, obrazložitev), so upodobljeni motivi iz življenja Bele krajine (slika 1). Relief je izklesan poudarjeno ravninsko v beli apnenec, tako imenovani braški marmor, in sestavljen iz večjega števila masivnih kamnitih plošč z dvema različnima površinskima obdelavama kamna, poglobljeni deli so špičeni, ostale površine pa so gladke (Grobovšek, Jovo, idr., 2012: KN, mapa 3, str. 48). Relief se na površini 15,52 x 2,61 m razprostira čez celotno čelo stavbe. Med letoma 1986 in 2000 so bili na glavno fasado s posluhom za simbolni pomen celotne kompozicije nameščeni približno polmetrski bronasti doprsni portretni kipi (slika 2) različnih avtorjev (Boštjan Putrih, Marija Keršič Benedetti, Julijan Renko) na podstavkih iz druge vrste belega apnenca, kot je fasada (Grobovšek, Jovo, idr., KN, mapa 3, str. 38). Z njimi je zabeležen spomin na štiri belokranjske narodne heroje narodnoosvobodilnega boja (NOB) med drugo svetovno vojno: Jožeta Mihelčiča (1904–1941), Milke Šobar – Nataše (1922–1943), Ivana Stariha – Janka (1922–1942) in Draga Jermana (1919–1998).

Trenutno je stavba namenjena sedežu in programu Zavoda za izobraževanje in kulturo Črnomelj (v nadaljevanju ZIK). Ta je leta 2008 skupaj z Občino Črnomelj in Javnim skladom RS za kulturne dejavnosti, izpostava Črnomelj (v nadaljevanju JSKD), uskladil in do konca istega leta izoblikoval programska izhodišča za posodobitev in obnovo stavbe. Na zahtevo Občine Črnomelj je območna enota Zavoda za varstvo kulturne dediščine Slovenije iz Novega mesta (v nadaljevanju ZVKDS, OE Novo mesto) novembra 2009 izdala kulturnovarstvene pogoje za poseg v spomenik. V dokumentu je bila v skladu s predpisi zahtevana izdelava konservatorskega načrta (KN), ki sta ga ZVKDS, Center za konservatorstvo, Restavratorski center (v nadaljevanju ZVKDS, RC), in ZVKDS, OE Novo mesto, izdelala in zaključila v letu 2012 (po: Grobovšek, Jovo, idr., 2012, KN, mapa 1, str. 7).

Material in metode

Opis izbrane metode meritev

Lasersko skeniranje (tudi snemanje) je metoda zajema, merjenja prostorskih (3D) podatkov, s katero je mogoče natančno in točno izmeriti koordinate točk na površinah stavb, ne da bi bil za to potreben neposreden stik s stavbo. Gre za alternativo običajnim metodam zbiranja merskih podatkov, pri katerih je cilj najmanjše število mer, ki so potrebne za dokončanje naloge; karkoli drugega je namreč potratno tako s finančnega kot tudi s časovnega vidika. Lasersko skeniranje je ostale načine merjenja obrnilo na glavo, saj lahko skener (tudi 3D-merilnik) zajame in zabeleži dobesedno milijone točk. Veščina pri laserskem skeniranju je *»zmanjšanje količine podatkov do te mere, da ne izgubimo pomembnih in uporabnih informacij«* (Dallas, R., 2003: 69).

Pri odločitvi o uporabi laserskega skenerja za dokumentiranje kulturne dediščine je nujen tehten razmislek. Prva tri merila pri odločanju o njegovi uporabi za dokumentiranje stanja dediščine so, ali lasersko skeniranje ponudi bolj udobno izvedbo meritev od drugih metod, ali je cenejše in ali lahko zagotovi ustrezen rezultat. Pomembno vlogo pri tem imajo velikost in lega stavbe ali območja, ki ga nameravamo dokumentirati, zahtevana natančnost rezultatov, razpoložljivi finančni viri, namen in cilji projekta dokumentiranja ter izbira tipa instrumenta, saj niso vsi »laserski skenerji primerni za terensko delo« (Addison, A. C., 2007: 40). Za ilustracijo je mogoče uporabiti podvodno arheologijo; o primernosti metode in ustreznosti instrumentov za dokumentiranje tovrstne dediščine na osnovi lastnih izkušenj pišejo Stopinšek, Ž., Berginc, G., Erič, M., in Solina, F. (2013).

Danes je mogoče izbirati med instrumenti na stativih za snemanje iz avtomobila ali zraka, in kot pravita Boardman in Bryan, tudi med takimi, ki jih »med hojo nosimo v nahrbtniku ali na glavi« (Boardman, C., in Bryan, P., 2018: 4). Za izvedbo laserskega skeniranja kamnitega reliefa in doprsnih kipov na fasadi Kulturnega doma v Črnomlju je bil uporabljen terestrični laserski skener (v nadaljevanju TLS), ki uporablja impulze laserske energije. 3D-koordinate točk na površinah so pri tem načinu izračunane iz časa potovanja laserskega impulza do stavbe oziroma fasade in nazaj ter iz znane hitrosti svetlobe. Poleg skenerjev, ki merijo na opisani način, poznamo še instrumente, ki delujejo na fazni in triangulacijski način (Kastelic, M., 2010; Boardman, C., in Bryan, P., 2018).

Za prvi uporabni rezultat laserskega skeniranja je mogoče šteti že surovi oblak točk, saj je tudi neobdelan koristen vir informacij. Pregledovati ga je mogoče na prenosnem računalniku že na terenu. Ker oblak sestavlja množica točk s tremi 3D-koordinatami v izbranem koordinatnem sistemu in ker te opisujejo površino stavbe, je pregled hkrati tudi nadzor nad morebitnimi manjkajočimi podatki. Na podlagi sočasno izvedenega fotografiranja lahko vsaki točki pripišemo tudi barvno vrednost. V tem primeru govorimo o barvnem oblaku točk. Ta omogoča 3D-prikaz površin stavbe z dejanskimi barvami in teksturami.

Pomemben parameter skeniranja je tako imenovana gostota oblaka točk. Ta se v splošnem izrazi kot število točk na prostorsko enoto. Za praktično izvedbo je treba opredeliti razdaljo med sosednjimi točkami na površini stavbe, ki jo skeniramo. Priporočila pravijo, da naj bi bila gostota točk *»dvakrat večja, kot so dimenzije najmanjše značilnosti, ki naj bi bila zabeležena«* (Boardman, C., in Bryan, P., 2018: 47), torej da naj bo razdalja med sosednjima točkama enaka polovici velikosti najmanjšega detajla, ki ga je še mogoče prepoznati v oblaku točk. Običajno je treba želje po čim večji gostoti oblaka točk uskladiti z možnostmi za nadaljnje postopke obdelave podatkov in njihovo hranjenje, saj količino podatkov omejuje zmogljivost strojne opreme. Na gostoto točk pa vpliva tudi oblika stavbe, ki jo skeniramo. Največja možna gostota v oblaku točk pada z oddaljenostjo teh točk od stojišča, to je od mesta postavitve instrumenta. Pri razgibanih stavbah so razlike večje kot pri površinah, ki so bolj ravninske. Ne nazadnje je treba v povezavi z gostoto oblaka točk upoštevati še dejstvo, da bodo pri skeniranju stavbe z izbranim instrumentom mogoče ostale »sence«, torej površine, ki bodo zaradi različnih razlogov ostale neizmerjene. Običajno se jim je mogoče izogniti z ustrezno postavitvijo instrumenta na več različnih stojišč ter z odstranitvijo začasnih ovir, kot so na primer bližnji avtomobili. To je treba predvideti že v fazi načrtovanja terenske izmere.

Kot vsaka ima tudi tehnologija skeniranja svoje prednosti in tudi določene pomanjkljivosti. Ena teh je, da v surovem oblaku niso samo tiste točke, ki predstavljajo površino stavbe. Nekatere opisujejo avtomobile ali mimoidoče, ki se v trenutku skeniranja pojavijo med instrumentom in stavbo, in jih je treba v postopku obdelave odstraniti. Šum oziroma odstopanje meritev pa se pojavi na primer takrat, ko en laserski žarek zajame več točk na različnih globinah, pri čemer ni nujno, da vsaka od teh točk predstavlja površino na stavbi. S pomočjo namenskih programskih orodij je mogoče v postopku obdelave podatkov takšne točke poiskati in odstraniti. Izvorni podatki izbrane metode meritev so vse točke v združenem oblaku, vključno s točkami, ki ne predstavljajo površine stavbe ali so posledica šuma v meritvah pred kakršnokoli obdelavo.

Terenska izmera

Stanje reliefa in doprsnih kipov je bilo dokumentirano v začetku leta 2012, naročnik je rezultate prejel konec marca istega leta. Delo je bilo opravljeno najprej na terenu v Črnomlju, končni rezultat pa je nastal v pisarni. Za izvedbo terenskih meritev je bil uporabljen terestrični laserski skener VZ-400 podjetja Riegl (slika 3), ki deluje na principu merjenja časa potovanja laserskega žarka bližnje infrardeče valovne dolžine od instrumenta do površine predmeta ali stavbe (*time of flight*, TOF). Skener VZ-400 je hiter in natančen instrument, primeren za skeniranje objektov velikosti od nekaj metrov do nekaj sto metrov. Omogoča, da v nekaj minutah pridobimo večmilijonsko množico točk natančnosti nekaj milimetrov.

V Črnomlju so bile s tem instrumentom opravljene meritve s sedemindvajsetih stojišč. Večina jih je bilo izbranih in postavljenih sistematično po ploščadi pred objektom. Za čim boljšo pokritost površin reliefa in doprsnih kipov je bil instrument postavljen na takšno razdaljo od stene, pri kateri je še bilo možno izvajati snemanje (slika 4); mersko območje za uporabljeni instrument je 1,5–600 m. Za celovitejšo pokritost površin reliefa, predvsem za globlje utore, sta bili izbrani tudi dve stojišči na višjem balkonu sosednje stavbe. Za snemanje horizontalnih in rahlo nagnjenih vrhnjih površin, ki s perspektive ploščadi in z balkona niso dovolj vidne, je bil instrument postavljen še na tri stojišča na strehi Kulturnega doma (slika 4). S teh treh stojišč so bile izmerjene tudi vrhnje površine doprsnih kipov. Medsebojna razdalja točk na površini objekta na posameznem stojišču je 2 mm, na mestih prekrivanja oblakov točk z različnih stojišč pa je gostota točk še večja (slika 5). Sočasno s skeniranjem so z namestitvijo in uporabo digitalnega barvnega kalibriranega fotoaparata NIKON D700 nastale fotografije visoke ločljivosti.

Obdelava podatkov

Namen obdelave je v digitalnem okolju preoblikovati izvorne podatke v končni, uporabni rezultat. Obdelava podatkov poteka v pisarni na osebnem računalniku in z namensko programsko opremo. V opisanem primeru so bili podatki obdelani v dveh sklopih: najprej podatki o kamnitem reliefu, nato še podatki o doprsnih kipih. Podatki so v nadaljevanju tudi ločeno predstavljeni.

Kamniti relief

Obdelava podatkov kamnitega reliefa (slika 1) je potekala v več korakih. Najprej je bil opravljen tako imenovani postopek filtracije, pri katerem je bil vsak oblak točk pregledan, nato pa so bile izločene točke, ki ne predstavljajo površine stavbe. V naslednjem koraku so bile izbranemu oblaku točk pripisane barvne vrednosti s fotografij, kar je občutno olajšalo njegovo interpretacijo. V zadnjem koraku tako imenovane predobdelave so bili oblaki točk s posameznih merskih stojišč združeni v enoten prostorski sistem, posamezni oblaki točk pa so bili združeni v lokalni koordinatni sistem in nato georeferencirani. Na osnovi uskladitve med naročnikom dokumentacije in izdelovalcem je bila sprejeta odločitev o izdelavi dveh oblik dokumentacije kamnitega reliefa: 3D-model in nato hipsografski prikaz.

Doprsni kipi

Kot pri reliefu so si tudi pri obdelavi podatkov posameznega modela doprsnih kipov belokranjskih narodnih herojev (slika 2) sledili ustaljeni koraki. Najprej je bilo treba vsak oblak točk pregledati in izločili točke, ki ne predstavljajo površine doprsnih kipov. Oblaki točk s posameznih stojišč so bili združeni v enoten prostorski sistem. Skupen georeferenciran oblak točk je bil v nadaljevanju razdeljen, razrezan je bil v oblake točk posameznih doprsnih kipov, ki so bili na osnovi uskladitve med naročnikom dokumentacije in izdelovalcem nadgrajeni v najprimernejšo obliko, izdelani so bili njihovi 3D-modeli.

Programska orodja in formati zapisa izdelkov dokumentiranja

Pri načrtovanju dokumentiranja so bile na prvem mestu tri ključne zahteve. Prvič, omogočiti morebitne nadgradnje ali ponovne interpretacije izvornih podatkov dokumentiranja v prihodnosti. Drugič, izboljšati možnosti za dolgoročno berljivost izdelane digitalne dokumentacije. Tretjič, končnemu uporabniku ponuditi preprosto in finančno ugodno možnost pregledovanja in vizualizacije izdelane digitalne dokumentacije.

V fazi načrtovanja je bilo dogovorjeno, da izdelovalec naročniku preda kopijo izvornih podatkov, ki so nastali med izvedbo dokumentiranja. Za končnega uporabnika so ti podatki lahko neuporabni, saj jih je večinoma mogoče odpirati in obdelovati le v namenskih programskih okoljih. Odprtokodne rešitve za pregledovanje tovrstnih podatkov obstajajo, a z omejenimi možnostmi njihove obdelave. Neokrnjeni in neinterpretirani podatki pa so dovolj kakovostni, da ponovno snemanje v bližnji prihodnosti predvidoma ne bo potrebno. Skrbno so shranjeni v obliki sestavljenega oblaka točk, v katerem so v digitalno okolje prenesene 3D-koordinate točk na stavbi v trenutku izvajanja meritev.

V predstavljenem primeru je bil oblak točk z interpretacijo, z izdelavo 3D-trikotniških poligonov in končnim modeliranjem nadgrajen in pripravljen v obliko, s katero je s programi, ki so prosto dosegljivi širokemu krogu uporabnikov, mogoče preprosto ravnati in jo predstaviti širši javnosti.
Pri dokumentiranju stanja reliefa in kipov je bila uporabljena vrsta programske opreme in veliko število formatov ali oblik zapisa datotek. Največ dela je bilo opravljenega v programih Geomagic, Autodesk AutoCAD, Adobe Photoshop, Adobe Reader, a seznam ni popoln. Tudi nabor oblik zapisa podatkov je obsežen. Začeti je treba z obliko zapisa TXT – *text*, besedilo, v kateri so zapisani izvorni podatki – oblaki točk. Za zapis 3D-modelov so uporabljeni WRP – oblika zapisa neposredno iz programa Geomagic, STL – s*tandard template library*, standardna oblika zapisa 3D-modela in PDF – *portable document format*, oblika, v kateri so zapisani rezultati dokumentiranja, namenjeni pregledovanju in merjenju digitalnih 3D-modelov kamnitega reliefa in doprsnih kipov. Hipsografski prikaz pa je shranjen v obliki zapisa TIFF – *tagged image file format* in DWG – *drawing database*.

Takšne oblike zapisov so izbrane z razlogom – tehnično so primerne, izkušnje z njimi so dobre (objavljena je specifikacija formata, delo z njimi je učinkovito, podpira jih veliko programskih orodij), formati so razširjeni in redno v uporabi … Na osnovi tega je mogoče sklepati in pričakovati, da bodo ti zapisi še dolgo berljivi. Kljub razširjenosti računalnikov, interneta, digitalnih medijev in vseh podpodročij je arhiviranje digitalnih podatkov s poudarkom na realnih

možnostih za njihovo bodočo uporabo še vedno daleč od enoznačne rešitve. Za shranjevanje informacij o kamnitem reliefu in doprsnih kipih je bil s tem razlogom preizkušen in uporabljen format zapisa PDF, ki je dostopen in priročen tako s finančnega vidika kot tudi z vidika razširjenosti in dolgoročnosti uporabe.

Rezultati

3D-model kamnitega reliefa

Osnovni postopek izdelave 3D-digitalnih modelov je modeliranje, ki iz nepovezanih točk, dobljenih kot rezultat laserskega skeniranja, generira ploskve v obliki trikotnikov. Gre za časovno najbolj obsežen korak obdelave podatkov, ki zahteva veliko znanja in izkušenj operaterja.

Zaradi velike množice točk se je v predstavljenem primeru število trikotnih ploskev, ki so sestavljale površino pročelja, približalo enajstim milijonom. To je bil eden od razlogov za odločitev za delitev ali razrez celotnega 3D-modela reliefa na manjše kose, ki pa naj ostanejo umeščeni v enotni koordinatni sistem. Prva delitev je bila narejena v vodoravni smeri. Nastali so trije pasovni modeli (slika 6, posamezni model je na sliki prikazan v drugačni barvi), vsak izmed njih vsebuje od tri do štiri milijone trikotnikov. Tu je bilo mogoče sprejeti takšno odločitev, saj so kamniti bloki v posameznem pasu enako visoki.

V naslednjem koraku so bili pasovni modeli v navpični smeri razdeljeni na posamezne modele kamnitih blokov. Iz modela zgornjega pasu je nastalo štiriindvajset 3D-modelov, iz srednjega petindvajset in iz spodnjega štiriindvajset. V povprečju vsak od modelov vsebuje približno sto petdeset tisoč trikotnih ploskev.

Slika 7 prikazuje rezultat drugega razreza, triinsedemdeset 3D-modelov, ki jih je bilo treba še dodatno obdelati. Narejeni so bili tako imenovani vodotesni 3D-modeli, uporabni za izdelavo duplikatov ali dolgoročno spremljanje degradacije kamna. Pri nadaljnjem delu z njimi bo nujna posebna pozornost. Razrez 3D-modela celotnega reliefa na posamezne kamnite plošče je bil izveden na osnovi dejanskega stanja, to je na osnovi podatkov, zajetih na terenu. Kljub temu pa 3D-digitalni model od kamnitega originala odstopa, stranske stranice blokov sosednjih modelov se stikajo, čeprav je v naravi lahko med sosednjima kamnitima ploščama v reliefu milimetrski razmik.
Osnova za modeliranje hrbtne stranice je bil načrt fasade, ki je bil izdelan z metodo bližnjeslikovne fotogrametrije in na katerem je zabeležena debelina robnih plošč (Grobovšek, J., 2001), zato imajo modeli kamnitih plošč debelino 150 mm. Dejanske debeline plošč bi bilo mogoče preveriti ali izmeriti z gradbenega odra ali z demontažo posamezne plošče. Leta 2012 to ni bilo predvideno, zato debeline posameznih plošč od izbrane mere mogoče odstopajo. V primeru morebitne rekonstrukcije bo treba izmeriti in upoštevati dejanske debeline kamnitih blokov.

3D-modeli kamnitih plošč imajo realistično teksturo in barvo kamna, ki pa je informativne narave. V primeru izdelave duplikata prikazani barva in tekstura ne moreta in ne smeta služiti kot osnova za izbiro kamna. Podlaga za to sta lahko le geološko poročilo ali/in stvarna primerjava uporabljenega kamna z novim kosom.

Hipsografski prikaz kamnitega reliefa

Merski hipsografski prikaz je izdelek, ki nam v izbrani barvni lestvici prikaže oddaljenost posameznih točk na 3D-modelu od izbrane referenčne ravnine, ki predstavlja izhodišče. Natančnost hipsografskega prikaza je odvisna od natančnosti 3D-modela.

Ena od pomembnih značilnosti obravnavanega kamnitega reliefa na Kulturnem domu je, da je vsebina na več jasno definiranih ravninah. To je bilo mogoče zelo nazorno prikazati z različno obarvanimi hipsografskimi prikazi, ki poudarijo posamezne prizore na reliefu in lahko pomagajo pri interpretaciji upodobitve zgodovine Bele krajine, ki jo je avtor izklesal v bel kamen. Zaradi ročnega klesanja ravnine niso geometrijsko pravilne, kar je na hipsografskem prikazu vidno in ohranjeno, saj so odstopanja v skupnem 3D-modelu pročelja zabeležena. Za izdelavo referenčne ravnine so bile uporabljene točke na štirih vogalnih predelih registriranih oblakov točk na vogalnih kamnitih ploščah reliefa (Novaković, G., Smole, D., 2012: 10). Ravnina je bila definirana s povprečjem izbrane množice točk. Izdelanih je bilo pet različnih hipsografskih slik, dve izmed njih sta prikazani na sliki 9. V izbranih barvah so prikazani odmiki posameznih prizorov od izbrane referenčne ravnine v razponu 0–70 mm.

Digitalne hipsografske slike so postavljene v okolje CAD (AutoCAD) in pretvorjene v format PDF, obe obliki sta merski. Različne hipsografske prikaze je mogoče pregledovati in obdelovati z običajnim PDF-pregledovalnikom ali s CAD-orodji ter izbirati med prikazi različnih slojev: pet hipsografskih slik, robne linije, decimetrska mreža in označbe (slika 10). Zaradi varnosti pred izgubo digitalnih podatkov je bila ena hipsografska slika izbrana in natisnjena na papir v merilu 1 : 10. Po izkušnjah so dokumenti na papirju trajnejši od medijev za hranjenje digitalnih podatkov, s hranjenjem digitalne in analogne oblike podatkov pa dodatno zmanjšamo možnost njihove izgube.

3D-modeli doprsnih kipov

Na oblaku točk posameznega kipa so bile najprej modelirane vidne površine, nato pa še za instrument nevidne. Kljub v predstavljenem primeru najbolj optimalnim postavitvam uporabljenega instrumenta so v oblaku točk ostale sence. Vseh površin ni bilo mogoče zajeti, ker doprsni kipi narodnih herojev stojijo neposredno ob steni Kulturnega doma. Pri izdelavi končnih 3D-modelov je bilo zato uporabljeno orodje, ki omogoča tvorjenje trikotniških ploskev tudi na delih, ki niso bili izmerjeni. Na levi strani slike 11 je prikazano stanje modela kipa pred tvorjenjem manjkajočih površin, na desni strani slike 11 pa stanje po tvorjenju manjkajočih površin. Prikaz manjkajočih površin je za uporabnika koristna in nujna informacija, saj je vsako digitalno modeliranje individualna interpretacija. Meja med dejansko izmerjenimi vrednostmi in interpolacijo mora ostati zabeležena.

Datoteke digitalnih modelov doprsnih kipov so tako kot modeli posameznih kamnitih plošč reliefa pretvorjene tudi v format PDF. Na ta način je modele doprsnih kipov mogoče pregledovati, vrteti, iz njih izdelati izbrane prereze, izbrati različne načine prikazov in na njih opraviti nekatere meritve (slika 12).

Hranjenje podatkov

Izdelki so shranjeni v arhivu ZVKDS, OE Novo mesto, kopiji pa sta tudi v ZVKDS, RC, in Informacijsko dokumentacijskem centru za dediščino, ki opravlja naloge osrednjega dokumentacijskega centra za varstvo nepremične kulturne dediščine za Ministrstvo za kulturo ter za Zavod za varstvo kulturne dediščine (INDOK center, 2018). Na tak način smo glede na okoliščine povečali možnost, da bo dokumentacija o kamnitem reliefu in doprsnih kipih dostopna in uporabna, ko bo potrebna.

Razprava in sklepi

Članek obravnava več vidikov novejše, a že priznane in ustaljene metode dokumentiranja kulturne dediščine. Za osnovo dokumentiranja kamnitega pročelja in doprsnih kipov Kulturnega doma v Črnomlju je bila izbrana metoda laserskega skeniranja, saj ta omogoča beleženje natančnih merskih podatkov o objektu, torej o njegovih dimenzijah v trenutku snemanja, in njihovo ohranjanje v digitalnem 3D-prostoru. Sprejeta je bila odločitev o takojšnji obdelavi izvornih podatkov, čeprav bi bilo slednje mogoče izvesti tudi v prihodnosti, na primer zaradi spremljanja stanja stavbe ali zaradi poškodb in delnega ali obsežnejšega uničenja celote ali njenih sestavnih delov.

Razlogov za izbiro metode laserskega skeniranja je več. Glavni je bil beleženje in hranjenje obsežne, a smiselne količine podatkov o trenutnem stanju razgibanega reliefa kamnitega pročelja in doprsnih kipov. Stanje bi bilo lahko zabeleženo tudi drugače, vsi elementi bi bili lahko natančno fotografsko dokumentirani ali pa bi bili izdelani kalupi in nato po potrebi duplikati. Digitalni 3D-modeli so z vidika hranjenja, distribuiranja in nadaljnje uporabe v primerjavi s kalupi in fizičnimi kopijami veliko bolj gospodarni. Nadalje so podatki laserskega skeniranja uporabni tudi pri preiskavah. Zaradi natančnosti metode se v rezultatih lahko skrivajo lastnosti dediščine, ki bi jih z uporabo drugačne metode dokumentiranja prezrli in informacijo o njih izgubili.

V članku je nakazana problematika hranjenja digitalnih zapisov izvornih podatkov in rezultatov. Prvič, obstajajo rešitve, s pomočjo katerih je digitalne podatke mogoče zapisati v obliki, ki bo na osnovi izkušenj »berljiva« tudi v prihodnje. Drugič, izvorne podatke je mogoče na zahtevo kadarkoli ponovno obdelati brez ponovne terenske izmere, kar je finančno učinkovito in zaželeno. Tretjič, rezultate dokumentiranja z metodo laserskega skeniranja je mogoče pripraviti tako, da so neposredno dostopni širšemu krogu zainteresirane javnosti. Gre za pomembne zahteve glede varnosti digitalnega dokumentarnega gradiva in možnosti njegovega arhiviranja, in glede na danosti in stanje tehnologije so bile zahteve izpolnjene.

Nekatere okoliščine v zvezi z laserskim skeniranjem kulturne dediščine in spomenikov, ki so pomembnejše pri bolj kompleksnih nalogah, so tu le nakazane. Za dokumentiranje stanja doprsnih kipov zaradi razpoložljivih virov ni bila predvidena uporaba drugega tipa instrumenta, ki bi se mogoče lahko bolj približal zadnjim površinam doprsnih kipov na pročelju Kulturnega doma v Črnomlju. Izmera s terestričnim laserskim skenerjem bi bila lahko dopolnjena na primer z izmero z ročnim laserskim skenerjem. Integracija podatkov iz različnih instrumentov je po zagotovilih proizvajalcev možna, čeprav ne brez ovir. V članku tudi ni podrobno predstavljena kompleksnost izdelave 3D-modelov iz oblaka točk, čeprav gre za obsežen in strokovno zahteven postopek obdelave podatkov. To sta dva sklopa na področju dokumentiranja kulturne dediščine s predstavljeno metodo dela, ki si zaslužita posebno obravnavo.

Zahvala

Zahvaljujem se ekipi DFG CONSULTING, d. o. o., za aktivno delovanje pri izvedbi dokumentiranja stanja reliefa in doprsnih kipov na pročelju Kulturnega doma v Črnomlju ter pri iskanju ustreznih tehničnih rešitev, posebej pa mag. Domnu Smoletu za strokovno in tehnično pomoč pri pripravi članka.

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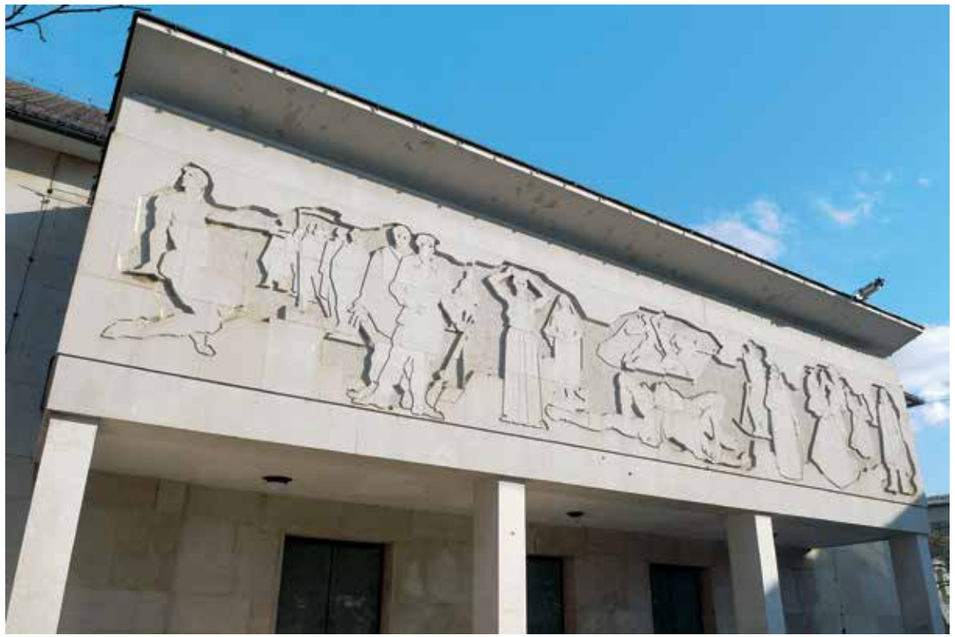


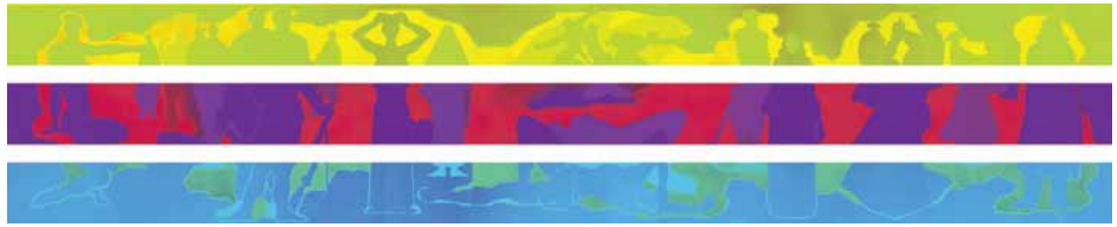
1. Kamniti relief na pročelju Kulturnega doma v Črnomlju (foto: Jon Grobovšek, 2012)
1. Stone relief on the façade of the House of Culture in Črnomelj (photo: Jon Grobovšek, 2012)

2. Doprsni kipi belokranjskih narodnih herojev (foto: Irena Potočnik, 2011)
2. Busts of national heroes from the Bela Krajina region (photo: Irena Potočnik, 2011)

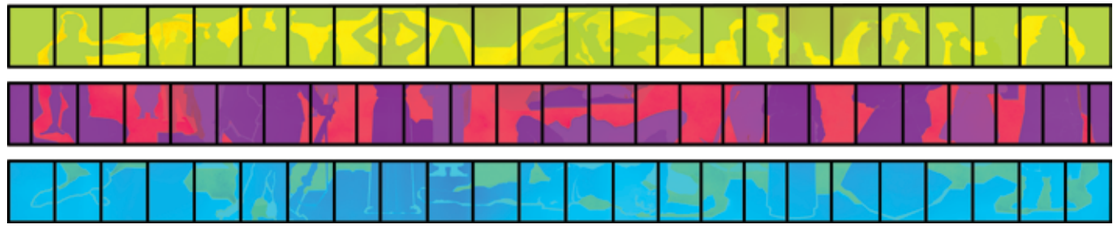
3. Terestrični laserski skener s fotoaparatom na stojišču (foto: Jon Grobovšek, 2012)
3. Terrestrial laser scanner with camera in scan location (photo: Jon Grobovšek, 2012)

4. Stojišče inštrumenta tik ob steni objekta za skeniranje zadnjih površin ter postavitev inštrumenta na strehi za skeniranje zgornjih površin doprsnih kipov foto: Jon Grobovšek, 2012)
4. Scan location of the instrument right next to the wall of the building to scan the rear surfaces and positioning of the instrument on the roof to scan the upper surfaces of the busts (photo: Jon Grobovšek, 2012)

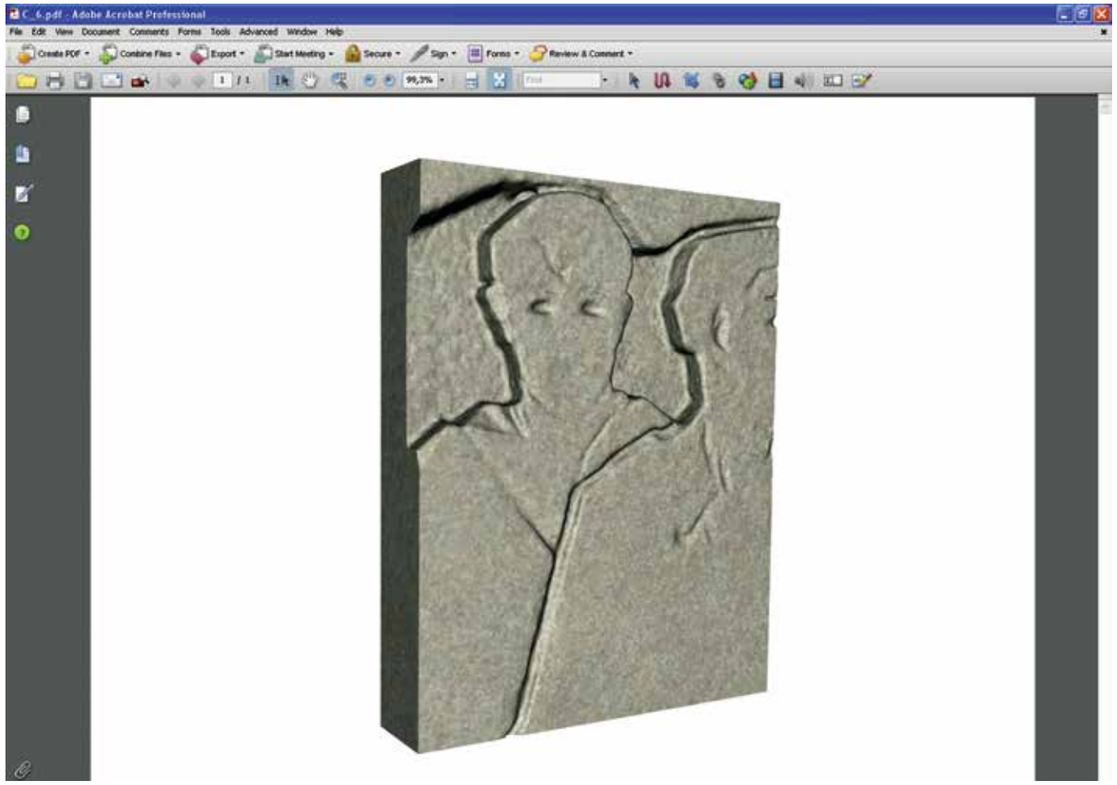
5. Del obarvanega oblaka točk pročelja z gostim rastrom skeniranja in povečava detajla
5. Part of the colour point cloud of the façade with a dense scanning grid and enlargement of detail



6. Razrez skupnega 3D-modela pročelja na tri dele
6. Splitting the complete 3D model of the façade into three parts

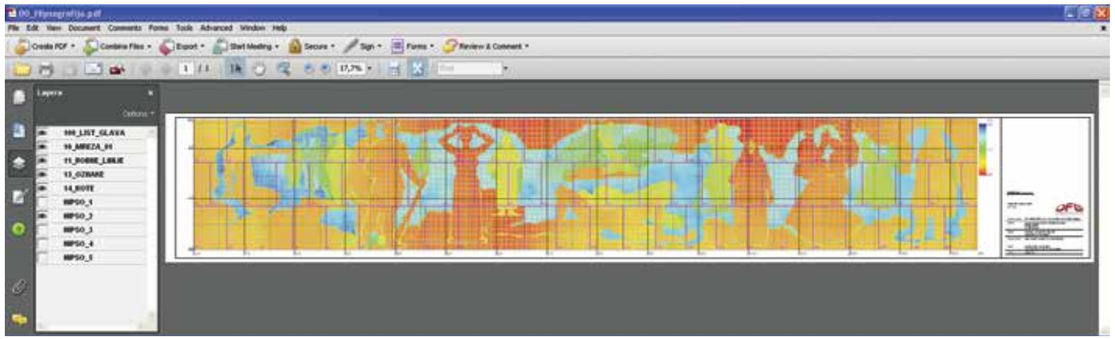


7. Drugi razrez 3D-modela pročelja na triinsedemdeset kosov
7. Second splitting of the 3D model of the façade into 73 pieces

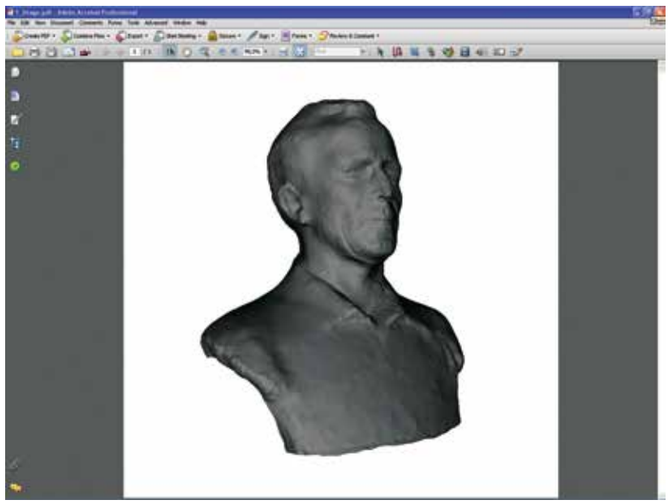


8. Izbran 3D-model kamnite plošče, v PDF-pregledovalniku je možno pregledovati vsak posamezen kos.
8. Selected 3D model of a stone panel; each individual piece can be viewed in a PDF viewer

9. Hipsografska prikaza z oznakama HIPSO_1 in HIPSO_3
9. Hypsographic representations labelled HIPSO_1 and HIPSO_3



10. Možnosti pregledovanja hipsografskih prikazov v PDF-pregledovalniku
10. Options for viewing hypsographic representations in a PDF viewer



11. Možnost pregledovanja 3D-modelov doprsnih kipov v PDF-pregledovalniku
11. Option for viewing 3D models of the busts in a PDF viewer

12. Prostorski model doprsnega kipa Draga Jermana pred zapolnjevanjem manjkajočih površin in po njem
12. Spatial model of the bust of Drago Jerman before and after filling in the missing surfaces.

Irena Potočnik

Documenting the relief and busts on the façade of the House of Culture in Črnomelj

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Keywords: documentation, spatial modelling, storage of digital data, cultural heritage

Abstract

In early 2012, in the context of the drafting of a conservation plan for the House of Culture in Črnomelj, which is a monument of national importance owned by the state and entered in the Register of Cultural Heritage under Heritage Number (EŠD) 89, documentation of the state of the stone relief and busts on the building's main façade was completed. The purpose of the work was to gather data on the form and dimensions of the relief and the busts. Terrestrial laser scanning was the method selected. The results are formulated in such a way as to allow the end user the best possibilities for the storage, handling and use of the data with regard to the current situation. If it should prove that the data require upgrading, copies of the original digital data are kept in several locations.

Introduction

Background

Experience – our own and that of other countries – shows that no matter how much effort and money we invest, we are losing architectural and archaeological heritage more quickly than we are able to document it. For this reason, documentation regarding this heritage takes on additional importance and value. Documenting heritage becomes one of the fundamental tasks in the process of its conservation, and one that needs to be repeated multiple times. Documentation needs to be upgraded and supplemented throughout the life of the heritage. Documentation of the material state of a piece of heritage only ends when that heritage is destroyed, by natural or other causes. At that point, additional attention needs to be paid to the storage and conservation of documentary and archival material relating to the heritage.

Upgrading and supplementing documentation is essential throughout the lifespan of the heritage. As a result of the development of technology and changes in the method of work, the results of documentation are today largely in digital form. It is therefore all the more important to devote particular attention to the selection of the data format, software (including versions), and the storage medium, and to agree on this in advance. Caution is also necessary when handling the results. If data are not suitably stored, if for various reasons it is not possible to use them, if their formats are not systematically updated, or if they are not connected to other material, it is cultural heritage itself that is harmed, and with it society as a whole. The commitment to conserve heritage also means accepting the responsibility of collecting and storing information about it. Since documentation is an inseparable part of heritage, it thus becomes heritage itself. It was with this in mind that the current state of the House of Culture in Črnomelj was recorded. The process of this work and the results are presented in the present article.

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The text includes a description of the building and its individual parts, with an indication of the main reasons for documentation. The essential characteristics of the selected method of work are presented and the process of carrying out documentation in the field is described. The processing of the data and the presentation of the results is followed by a presentation of the software and formats used for this task. The article concludes with an analysis of the strengths and weaknesses of the selected method for documenting the cultural monument in question.

Purpose of the article

When planning the conservation plan it was established and decided that graphical documentation, plans and measurement data on the monument needed to be supplemented and suitably stored in multiple copies and at various locations. This category includes supplementing photographic documentation of the state of the building, supplementing measured surveys of the current state with details, and recording data on the shape and dimensions of the relief and the four busts on the SW façade.

The purpose of the article is to present, through the process of work on the relief and busts, one of the possible methods of making a measured record of the state of a monument, point out issues relating to the storage of that record, and present one of the options for the enhancement and further use of the result to a wider circle of users. The measurement method was selected with regard to existing documentation of the state of the monument, made using the stereo photogrammetry method, and with regard to the available budget, level of technological development, accessibility of tools, usefulness for the long-term monitoring of the degradation of stone and bronze, and usefulness for the creation of duplicates. The laser scanning and enhancement into models were conceived as preventive documentation, since vandalism is currently the biggest threat faced by the building and its individual parts.

House of Culture in Črnomelj

The House of Culture in Črnomelj (*Kulturni dom v Črnomlju*) is located at Ulica Otona Župančiča 1 in Črnomelj (SE Slovenia) and is the property of the Republic of Slovenia. In recognition of its remarkable significance, the building was proclaimed a monument of national importance in 1999 (Ordinance proclaiming the House of Culture in Črnomelj a cultural monument of national importance, UL RS 81/99, 55/02 and 16/08 – ZVKD-1).
The original building was built by the Črnomelj branch of the Sokol movement to plans by the Ljubljana builder Viljem Treo and was solemnly opened in 1926. The building was renovated and converted after the Second World War to plans by the architect Branko Simčič. The renovation gave the building a commemorative aspect. Other contributors to its overall appearance, alongside Simčič, were the architect Viljem Strmecki, who designed the interior, and the sculptor Jakob Savinšek, who designed and made the stone relief on the pediment (1951–1954) (Grobovšek, Jovo, et al, 2012, CP, folder 1, pp. 7–26). The ceremonial opening took place in July 1954. The relief, which belongs at the very pinnacle of commemorative statuary in Slovenia by virtue of its artistic persuasiveness (see the Ordinance proclaiming the House of Culture in Črnomelj a cultural monument of national importance, UL RS 81/99, statement of grounds), shows scenes of life in the Bela Krajina region (Fig. 1). The relief, which is distinctly planar, is carved in white limestone known as „Brač marble". It consists of a large number of solid stone panels on which the surface of the stone is treated in two different ways: the sunken parts are pointed while the other surfaces are smooth (Grobovšek, Jovo, et al., 2012: CP, folder 3, p. 48). The relief measures 15.52 x 2.61 metres and extends across the entire pediment of the building. Between 1986 and 2000, in a reflection of the symbolic importance of the overall composition, bronze portrait busts (Fig. 2) by different sculptors (Boštjan Putrih, Marija Keršič Benedetti, Julijan Renko) were installed on the main façade, on pedestals made of white limestone of a different type from that used for the façade (Grobovšek, Jovo, et al., CP, folder 3, p. 38). These busts, which are about half a metre high, commemorate four national heroes from the Bela Krajina region who distinguished themselves in the national liberation struggle during the Second World War: Jože Mihelčič (1904–1941), Milka Šobar (*nom de guerre*: Nataša; 1922–1943), Ivan Starih (*nom de guerre*: Janko; 1922–1942) and Drago Jerman (1919–1998).

The building is currently the home of the Črnomelj Institute for Education and Culture (or ZIK, to use its Slovene abbreviation). In 2008 the latter agreed starting points for the modernisation and renovation of the building with the Municipality of Črnomelj and the Črnomelj office of the Republic of Slovenia Public Fund for Cultural Activities (JSKD), drawing up a programme by the end of the same year. In November 2009, at the request of the Municipality of Črnomelj, the Novo Mesto regional unit of the Institute for the Protection of Cultural Heritage of Slovenia (hereinafter: ZVKDS Novo Mesto) issued cultural protection conditions for an intervention on the monument. In accordance with regulations, this document required the drafting of a conservation plan (CP). This was duly prepared by the ZVKDS's Restoration Centre (RC) and ZVKDS Novo Mesto and completed in 2012 (from: Grobovšek, Jovo, et al., 2012, CP, folder 1, p. 7).

Material and methods

Description of selected measurement method

Laser scanning (also known as recording) is a method of collecting and measuring spatial (3D) information by which it is possible to precisely and accurately measure the coordinates of points on the surfaces of buildings without the need for direct contact with the building. It is an alternative to standard methods of collecting measurement data, where the goal is the smallest number of measurements necessary to complete the task; anything else is wasteful, in terms of both money and time. Laser scanning has turned other methods of measurement on their head, since the scanner (also known as a 3D measuring machine) can capture and record literally millions of points. The skill in laser scanning is to reduce the quantity of data as much as possible without losing important and useful information (see: Dallas, R., 2003, p. 69).

When deciding to use a laser scanner to document cultural heritage, serious reflection is essential. The first three criteria when deciding on its use for the documentation of cultural heritage are whether laser scanning offers a more convenient way to carry out the measurements than other methods, whether it is cheaper, and whether it can guarantee an adequate result. An important role is played here by the size and position of the building or area we intend to document, the required accuracy of the results, the available financial resources, the purpose and aims of the documentation project, and the selection of the type of instrument, since „not all laser scanners are suitable for fieldwork“ (Addison, A. C., 2007, p. 40). Underwater archaeology can be used by way of illustration; the suitability of the method and the adequacy of instruments for documenting this type of heritage are described, on the basis of their own experiences, by Stopinšek, Ž., Berginc, G., Erič, M., and Solina, F. (2013).

Today it is possible to choose from a variety of instruments on mounts that allow recording from a vehicle or from the air, and also „handheld and backpack systems [...] that allow data collection while walking around a site“ (Boardman, C., and Bryan, P., 2018, p. 4). To carry out laser scanning of the stone relief and busts on the façade of the House of Culture in Črnomelj, a terrestrial laser scanner (TLS) was used. This is an instrument that emits pulses of laser energy. Using this method, the 3D coordinates of points on surfaces are calculated from the time it takes the laser pulse to reach the building or façade and return, and from the known speed of light. As well as scanners that use this ranging principle, there are those that use phase comparison or triangulation (Kastelic, M., 2010; Boardman, C., and Bryan, P., 2018).

The raw point cloud itself may be considered the first useful result of laser scanning, since even in unprocessed form it is a useful source of information. It can be reviewed on a laptop computer while still in the field. Because the cloud is made up of a mass of points with three 3D coordinates in a selected coordinate system, and because these points describe the surface of the building, the review serves at the same time to check whether any data are missing. On the basis of photographs taken at the same time, we can also give each point a colour value. In this case we talk about a colour point cloud. This enables a 3D representation of the surfaces of a building with actual colours and textures.

An important parameter of scanning is known as point cloud density. This is generally expressed as the number of points per spatial unit. For practical implementation it is necessary to define the distance between neighbouring points on the surface of the building that we are scanning. A general rule of thumb is that the point density or resolution should be „better by a factor of two than the smallest feature to be identified“ (Boardman, C., and Bryan, P., 2018, p. 47), in other words that the distance between two neighbouring points should be equal to half the size of the smallest detail that can still be recognised in the point cloud. It is usually necessary to harmonise the desire for the greatest possible point cloud density with the options available for further data processing and storage, since the quantity of data is limited by the capacity of the hardware. Point density is also affected by the shape of the building we are scanning. The further the points are from the scan location (i.e. the position of the instrument), the more the maximum point cloud density decreases. In the case of buildings with articulated façades, the differences are greater than in the case of flatter surfaces. Last but not least, in connection with point cloud density, it is also necessary to take into account the fact that „shadows“ may remain when scanning a building with the selected instrument, in other words areas that for various reasons remain unmeasured. These can usually be avoided by suitable positioning of the instrument in several different scan locations and by removing temporary obstacles such as cars parked nearby. This needs to be foreseen in the planning phase of the field measurement.

Like every technology, scanning has its advantages and also certain weaknesses. One of the latter is that the raw cloud does not only contain those points that represent the surface of the building. Some of them describe cars or passers-by who appear between the instrument and the building at the moment of scanning and must be removed during the processing stage. „Noise“ or a deviation of measurements occurs for example when one laser beam captures several points at different depths, where it is not necessarily the case that each of these points represents a surface on the building. With the help of dedicated software it is possible to find and remove such points in the data processing stage. The original data of the selected measurement method are all the points in the combined cloud, including those points that do not represent the surface of the building or are the result of measurement noise before any processing.

Field measurement

The state of the relief and the busts was documented in early 2012 and the client received the results at the end of March in the same year. The work was first carried out in the field in Črnomelj, while the final result was produced in the office. To carry out the field measurements, a Riegl VZ-400 terrestrial laser scanner was used (Fig. 3). This instrument works on the principle of measuring the time of flight (TOF) of a laser beam of near-infrared wavelength from the instrument to the surface of an object or building. The VZ-400 scanner is a fast and accurate instrument suitable for scanning objects of sizes ranging from a few metres to a few hundred metres. It enables us to acquire several million points with an accuracy of a few millimetres in a matter of minutes.

In Črnomelj measurements were carried out using this instrument from 27 scan locations. The majority of the positions were selected and placed systematically across the flat area in front of the building. In order to ensure the best possible coverage of the surfaces of the relief and the busts, the instrument was placed at a distance from the wall at which it was still possible to carry out scanning (Fig. 4); the measuring range for the instrument used is 1.5–600 metres. For more comprehensive coverage of the surfaces of the relief, above all for the deeper grooves, two scan locations were also chosen on the upstairs balcony of a neighbouring building. In order to scan the horizontal or slightly inclined upper surfaces that were not sufficiently visible from in front of the building or from the balcony, the instrument was placed in three further scan locations on the roof of the House of Culture (Fig. 4). The upper surfaces of the busts were also measured from these three locations. The distance between points on the surface of the object at an individual scan location is 2 mm, while at the points of overlap of point clouds from different scan locations, the point density is even greater (Fig. 5). Simultaneously with the scanning, high-resolution photographs were produced through the positioning and use of a colour-calibrated Nikon D700 digital camera.

Processing the data

The purpose of processing is to transform the original data into a final, useful result, in a digital environment. Data processing takes place in an office using a personal computer and dedicated software. In the case described, the data were processed in two sets: first the data for the stone relief, then the data for the busts. The data are also presented separately below.

The stone relief

Processing the data from the stone relief (Fig. 1) took place in several steps. First a so-called filtration process was carried out, in which every point cloud was reviewed and those points that did not represent the surface of the building were eliminated. In the next step, colour values from the photographs were assigned to the selected point cloud, which made its interpretation significantly easier. In the final step of so-called pre-processing, point clouds from individual scan locations were combined into a single spatial system, while individual point clouds were combined into a local coordinate system and then geo-referenced. Following consultation between the client and the provider, it was decided to produce two forms of documentation of the stone relief: a 3D model and then a hypsographic representation.

The busts

As in the case of the relief, the processing of data from an individual model of the busts of national heroes from Bela Krajina (Fig. 2) followed fixed steps. First it was necessary to examine each point cloud and eliminate those points that did not represent the surface of the busts. Point clouds from individual scan locations were combined into a single spatial system. A common geo-referenced point cloud was then divided or split into point clouds of individual busts, which, following consultation between the client and the provider, were enhanced into the most suitable form, after which 3D models were made.

Software and formats of the products of the documentation

When planning the documentation, there were three key requirements. First, to allow for the upgrading or reinterpretation of the original data from the documentation in the future. Secondly, to improve possibilities for the long-term readability of the digital documentation produced. Thirdly, to offer the end user a simple and inexpensive option for viewing and visualising the digital documentation produced. It was agreed in the planning phase that the provider would give the client a copy of the original data produced during the documentation process. These data can be unusable for the end user, since in most cases they can only be opened and processed in dedicated software environments. Open-code solutions for reviewing data of this kind do exist, but with limited processing options. The complete and uninter-

preted data are, however, of sufficiently high quality that a repetition of recording is not expected to be necessary in the near future. They are carefully saved in the form of a composite point cloud, in which 3D coordinate points on the building at the moment of carrying out the measurements are transferred into a digital environment.

In the case presented here, the point cloud was enhanced by interpretation, the construction of 3D triangular polygons and final modelling, and prepared in a format that can be easily manipulated by freely available software and presented to the general public.

A range of software and a large number of file formats were used when documenting the state of the relief and the busts. Most of the work was done in Geomagic, Autodesk AutoCAD, Adobe Photoshop and Adobe Reader, although this is not a complete list of the software used. The list of data formats is likewise extensive. To begin with it is necessary to use the TXT (text) format in which the original data (point clouds) are written. The formats used for the 3D models are WRP – a proprietary file format from Geomagic software, STL (standard template library) – the standard format for 3D models, and PDF (portable document format) – for the results of documentation intended for the examination and measurement of the digital 3D models of the stone relief and busts. The formats used for storing the hypsographic representation are TIFF (tagged image file format) and DWG (drawing database).

These formats are chosen for a reason – they are technically suitable and experiences with them are good (format specification published, efficient to work with, supported by numerous software packages), they are widespread and in regular use, and so on. This allows us to assume that these formats will continue to be readable for a long time. Despite the ubiquity of computers, the internet, digital media and all sub-fields, we are still a long way away from a clear-cut solution for the archiving of digital information with an emphasis on real possibilities for its future use. For this reason, the PDF format was tested and used to store information on the stone relief and busts. This is an accessible and handy format, both in terms of cost and with regard to diffusion and the potential for long-term use.

Results

3D model of the stone relief

The basic process of creating 3D digital models is modelling that generates planes in the form of triangles from the unconnected points acquired as a result of laser scanning. This is the most time-consuming stage of data processing and requires considerable expertise and experience on the part of the operator.

Because of the enormous number of points involved, the number of triangular planes making up the surface of the façade in the case in question was almost 11 million. This was one of the reasons behind the decision to divide or split the complete 3D model of the relief into smaller pieces, which, however, were to remain part of a single coordinate system. The first division was in a horizontal direction. This resulted in three strip models (Fig. 6, each individual model shown in a different colour), each containing between three and four million triangles. This decision was possible in this case because the stone blocks in an individual strip are of the same height.

In the next step the strip models were divided vertically into individual models of stone blocks. This resulted in twenty-four 3D models from the upper strip, twenty-five from the middle strip and twenty-four from the lower strip. Each of the models contains, on average, approximately 150,000 triangular planes.

Fig. 7 shows the results of the second split: seventy-three 3D models that required additional processing. Next, „watertight 3D models“ were made. These are used for making duplicates or for the long-term monitoring of degradation of stone. Particular attention will be required in subsequent work with them. The splitting of the 3D model of the complete relief into individual stone panels was done on the basis of the actual situation, i.e. on the basis of data collected in the field. Nevertheless, the 3D digital model deviates from the stone original in that the sides of the blocks of neighbouring models touch, whereas in real life there can be a millimetric gap between neighbouring stone panels in the relief.

The basis for modelling the back of the relief was a plan of the façade made using the close-range photogrammetry method, on which the thickness of the edge panels is entered (Grobovšek, J., 2001), so the models of the stone panels have a thickness of 150 mm. The actual thicknesses of the panels could be verified or measured using scaffolding or by removing an individual panel from the façade. This was not envisaged in 2012, therefore the thicknesses of individual panels may deviate from the selected dimension. Should reconstruction take place, it will be necessary to measure and take into account the actual thicknesses of the stone blocks.

The 3D models of the stone panels have a realistic texture and the colour of stone, although this is for illustrative purposes only. In the event of a duplicate being made, the colour and texture shown cannot and must not serve as a basis for the selection of the stone. The only possible basis for this is a geological report and/or a material comparison of the used stone with the new piece.

Hypsographic representation of the stone relief

A measured hypsographic representation is a product that shows, in a chosen colour scale, the distance of individual points in a 3D model from a selected reference plane that represents the starting point. The accuracy of the hypsographic representation depends on the accuracy of the 3D model.

One of the important characteristics of the stone relief on the House of Culture is that its content is on several clearly defined planes. This is something that could be shown very clearly using different coloured hypsographic representations that emphasise individual scenes in the relief and can help in the interpretation of the depiction of the history of Bela Krajina that the artist has carved into the white stone. Because the relief was sculpted by hand, the planes are not geometrically regular, something that is visible and preserved in the hypsographic representation, since deviations are recorded in the full 3D model of the façade. To make the reference planes, points were used in the four corner sections of the registered point clouds in the stone corner panels of the relief (Novaković, G., Smole, D., 2012, p. 10). The plane was defined by the average of the selected mass of points. Five different hypsographic images were made, two of which are shown in Fig. 9. Deviations of individual scenes from the selected reference plane in a range of 0–70 mm are shown in the selected colours.

The digital hypsographic images are placed in a CAD environment (AutoCAD) and converted to the PDF format. Both are measured formats. The different hypsographic images can be viewed and manipulated using a standard PDF viewer or CAD tools, with the possibility of selecting from different layers: five hypsographic images, marginal lines, a decimetric grid and tags (Fig. 10). In order to safeguard against the possibility of loss of digital data, one hypsographic image was selected and printed on paper at a scale of 1 : 10. Experience shows that paper documents are more durable than digital storage media, while storing data in both digital and analogue form additionally reduces the possibility of data loss.

3D models of the busts

In the point cloud of an individual bust, the visible surfaces were modelled first, followed by those surfaces invisible to the instrument. Despite the optimal positioning of the instrument used in the case in question, some shadows remained in the point cloud. It was not possible to capture all the surfaces because the busts of the national heroes stand directly against the wall of the House of Culture. When elaborating the final 3D models, a tool was therefore used that enables the creation of triangular planes even in parts that have not been measured. The left-hand side of Fig. 11 shows the state of the model of the bust before creation of the missing surfaces, while the right-hand side shows the state after creation of the missing surfaces. Showing the missing surfaces is useful and essential information for the user, since all digital modelling is an individual interpretation. The boundary between actually measured values and the interpolation must remain marked.

The files containing the digital models of the busts, like the models of the individual stone panels of the relief, are also converted into PDF format. In this way it is possible to view the models of the busts, rotate them, make selected cross sections from them, select different viewing modes and carry out certain measurements (Fig. 12).

Storing the data

The products are stored in the archives of ZVKDS Novo Mesto, while copies are also held by the ZVKDS Restoration Centre and the Heritage Information and Documentation Centre, which performs the functions of a central documentation centre for the protection of immovable cultural heritage for the Ministry of Culture and the ZVKDS (INDOK Centre, 2018). In this way, and in the light of the circumstances, we increased the possibility of the documentation regarding the stone relief and the busts being accessible and useful when needed.

Discussion and conclusions

The article covers several aspects of a relatively new but already recognised and established method of documenting cultural heritage. Laser scanning was the method chosen as the basis for the documentation of the stone façade and busts of the House of Culture in Črnomelj, since this method enables the recording of accurate measurement data for an object, in other words with regard to its dimensions at the moment of recording, and their storage in 3D digital space. The decision was made to process the original data immediately, although it would also have been possible to do this at some future date, for example in order to monitor the state of the building or in the event of damage or the partial or more extensive destruction of the building or its constituent parts.

There were several reasons for selecting the laser scanning method. The main one was to record and save an extensive

yet reasonable quantity of information on the current state of the articulated relief of the stone facade and busts. It would also have been possible to record the state in another way. All the elements could have been accurately photo-documented, or moulds could have been taken, after which duplicates could have been made as necessary. From the point of view of storage, distribution and further use, digital 3D models are far more economical than moulds and physical copies. Laser scanning data are also useful in investigations. Because of the accuracy of the method, the results can contain characteristics of heritage that would have been overlooked if a different method of documentation had been used, meaning that information about them would have been lost.

The article touches on issues relating to the storage of digital records of original data and results. First, solutions exist with the help of which it is possible to record digital data in a form that, judging from experience, will continue to be „legible" in the future. Secondly, original data can be re-processed at any time on request, without repetition of field measurements, which is cost-effective and desirable. Thirdly, the results of documentation using the laser scanning method can be prepared in such a way that they are directly accessible to a broad circle of interested parties. These are important requirements regarding the security of digital documentary material and options for its archiving, and given the conditions and the state of technology, these requirements were met.

Some circumstances relating to the laser scanning of cultural heritage and monuments that are more important in more complex tasks are merely touched upon here. In view of the resources available, the use of another type of instrument that could perhaps have come closer to the rear surfaces of the busts on the facade of the House of Culture in Črnomelj was not considered. Measurement with a terrestrial laser scanner could, for example, have been supplemented by measurement using a handheld laser scanner. According to the manufacturers, the integration of data from different instruments is possible, though not without obstacles. The article does not offer a detailed presentation of the complexity of elaborating 3D models from a point cloud, although this is an extensive and technically demanding data processing procedure. These are two areas within the field of the documentation of cultural heritage using the method of work presented here that deserve to be treated separately.

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Patrick Schicht

Smernice za arhitekturnozgodovinske raziskave v Avstriji

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Avstrijski zvezni zavod za spomeniško varstvo deluje na podlagi državnega zakona o spomeniškem varstvu, po katerem je lahko vsaka sprememba arhitekturnega spomenika dovoljena samo, če se ohranijo individualne lastnosti spomenika. Utemeljena dokumentacija stanja in arhitekturnozgodovinska analiza sta tako že dolga leta stalni sestavni del večjih obnovitvenih projektov, da se lahko načrtovanja zgodaj usmerijo in ovrednotijo. Njuno pripravo, osredotočenost in kakovost so zaradi pomanjkanja ustreznih nacionalnih izobraževalnih možnosti za poklic arhitekturnega raziskovalca močno zaznamovale osebe, ki so ju izvajale, zato so bile ne nazadnje komaj primerljive.

Od poznega 20. stoletja za javno upravo znatno narašča želja po učinkovitosti, transparentnosti in gospodarnosti, na kar se je spomeniško varstvo odzvalo z razvojem standardov, smernic in navodil. V letu 2014 je bil objavljen izčrpen in pregleden temeljni priročnik »Standardi varstva arhitekturnih spomenikov«, ki členjeno povzema veljavne okvirne pogoje za strokovno obravnavo arhitekturnih spomenikov ter jih povezuje z drugimi zakoni in standardi.[1] S tem mejnikom evropskega spomeniškega varstva, ki je pritegnil veliko mednarodno pozornost, so vsem udeležencem podane transparentne in državljanom približane podlage načrtovanja, ki omogočajo učinkovit potek projektov in tudi sledljive poti odločanja. Ti standardi so razčlenjeni v tri stebre, tj. evidentiranje, ohranjanje in spreminjanje. Predvsem prvi naglo pridobiva pomen, kar se kaže v nadgradnji določb. »Smernice za arheološke ukrepe«, »Standardi za konservatorsko obravnavo arheoloških najdb« ter »Navodila za evidentiranje in spremljanje stanja stenskih poslikav in arhitekturnih površin« pomenijo začetek zadevnih predpisov ter specifično določajo potrebne procese in minimalne standarde.
Januarja 2016 so bile kot nadaljnji gradnik objavljene »Smernice za arhitekturnozgodovinske raziskave«. Določajo metode dokumentacije in analize, ki so potrebne med pripravami in pri spremljanju sprememb, ter minimalne zahteve glede kakovosti. Z vključitvijo v postopke spomeniškega varstva smernice postanejo pravnoveljavne.[2] Ker imajo tako nastala poročila pomembno vlogo v postopku ocenjevanja, ki ga izvajajo organi za spomeniško varstvo, morajo obstajati zavezujoča znanstvena pravila (ločevanje ugotovitev in vrednotenj, sledljivost dokumentacije in argumentacije), ki segajo do enotne členitve besedil in barv načrtov.

Smernice izhajajo iz modularne razdelitve na pet delovnih korakov (gradnikov) ter stopenjskih globin raziskav, da bi bilo zadoščeno heterogenim zahtevam pri predpisani gospodarnosti, ciljni usmerjenosti in približevanju praksi. Za gradnike se štejejo popis stanja v načrtih, arhitekturnozgodovinski popis stanja, katalog najdb, raziskovanje virov in arhivov ter vrednotenje. Štirje vnaprej določeni moduli naročil omogočajo preprosto oblikovanje specifične izbire, saj jih je mogoče glede na potrebo izbrati posamezno ali po stopnjah. Razdeljeni so na začetno evidentiranje (I), raziskavo (II), spremljanje gradnje (III) in skupno vrednotenje (IV). Dodatno se deklarirajo morebitne nadaljnje zahteve, na primer za načrtovane lokalne posege ali za arheološke, statične ali restavratorske vmesnike. Za gradbenike, načrtovalce in organe je torej nujno obvezno, da že ob začetku projekta razmislijo o arhitekturnozgodovinskih podlagah, ki jih bodo potrebovali v prihodnosti, da jih imajo v postopku načrtovanja pri roki v najbolj celoviti obliki. Gradniki, ki se na tak način izberejo skupaj, se vnesejo v obrazec kot »profil zahtev«, ki ga je mogoče poslati pri-

1 Vse standarde, smernice in navodila je mogoče kupiti pri zveznem zavodu za spomeniško varstvo ter brezplačno prenesti na spletnem mestu www.bda.at oz. https://bda.gv.at/de/publikationen/standards-leitfaeden-richtlinien/

2 Euler-Rolle B., Fuchsberger H. (2016), Predgovor, v: Smernice za arhitekturnozgodovinske raziskave, Dunaj 2016, 4–5.

DDr. Patrick Schicht, Avstrijski zvezni zavod za spomeniško varstvo

mernim arhitekturnim raziskovalcem v tržnogospodarsko obravnavo. S ponudbo se obvežete k točni oddaji poročila v skladu s predpisi (praviloma v 3 mesecih) v analogni in digitalni obliki.

To arhitekturnozgodovinsko raziskovalno poročilo se pripravi standardizirano, tako da podatkovnemu listu sledi obrazložitev uporabljenih dokumentov (arhivi, načrti, zgodovinske raziskave), nato pa kot glavni del nastopi vrednotenje arhitekturne zgodovine. Po poglavju o morebitno kritičnem stanju in arhitekturnozgodovinski oceni že znanih namer po spreminjanju se dodajo priloga z zbranimi dokumenti (katalog najdb, naravoslovna, arheološka ali restavratorska poročila) ter načrti z letnicami gradnje v tlorisu in po potrebi pogledih in prerezih.

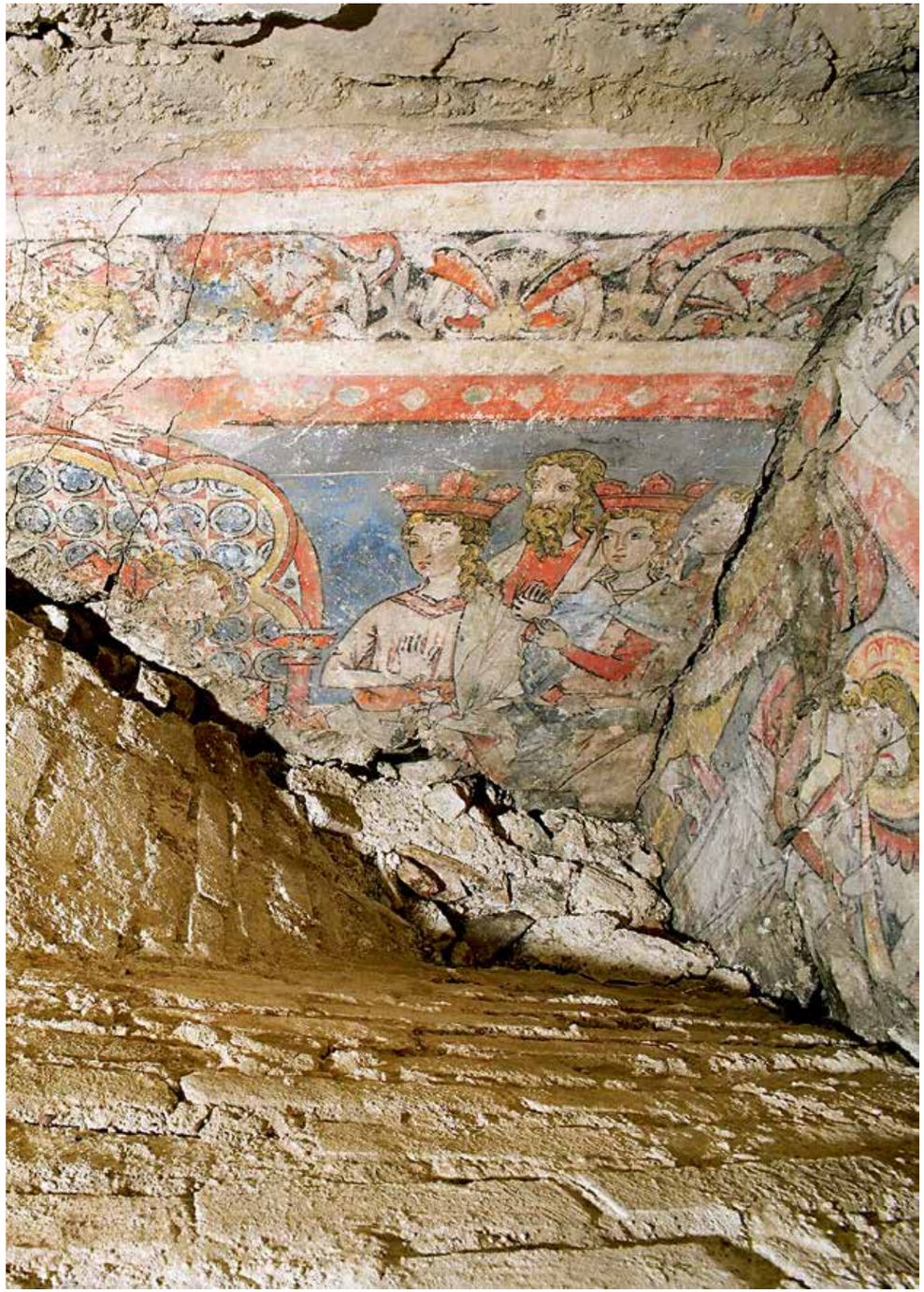
Kot drugi del se pripravi povzetek za objavo, ki v najpreglednejši obliki predstavlja bistvena spoznanja. Skupaj s preglednimi fotografijami in načrtom z letnicami gradnje naj bi tako postale dostopne najnovejše ugotovitve o arhitekturni zgodovini na podlagi poglobljenih raziskav. Kot medij za objave je bila dana na razpolago že trdno institucionalizirana serija Zveznega zavoda za spomeniško varstvo »Fundberichte aus Österreich« (tj. poročila o najdbah iz Avstrije), v kateri so bili do zdaj v analogni obliki katalogizirano evidentirani izključno arheološki rezultati.[3] S tem naj bi zainteresiran bralec prejel letni strnjeni pregled raziskav v zvezi s spomeniškim varstvom na področju arheologije in arhitekturnih raziskav, pri katerem se nazorno zrcalita tudi širina objektov ter njihova geografska zgostitev in regionalni pritisk za spremembe. Avtorji lahko članek poleg tega vsekakor razumejo tudi kot ponazoritev dela za prihodnje naročnike, zato je smiselna skrbna priprava. Povzetki bodo ponujeni analogno in kot e-knjiga. Dejansko dolgo poročilo pa nasprotno ostane zaklenjeno in se sme vanj vpogledati samo po odobritvi lastnikov objekta oz. se sme znanstveno obdelati po odobritvi avtorjev v neposredno dogovorjeni meri.

Po dveh letih že lahko ugotovimo, da so smernice postale nepogrešljiv sestavni del vsakdana v stroki spomeniškega varstva. Gradbeniki in načrtovalci se večinoma rade volje orientirajo po pregledno navedeni arhitekturni zgodovini zadevnega objekta ter kažejo razumevanje za ohranjanje izvirnika in celo za lokalne omejitve. Arhitekturni raziskovalci se veselijo jasnih želja in zahtev, ki so predvidljive, ne nazadnje pa ima organ zelo učinkovit instrument za vsakodnevno delo. Nadalje ugotavljamo, da je bilo s standardi in smernicami v zadnjih letih avstrijsko spomeniško varstvo prestavljeno na novo raven, da lahko omogoča sodobno do državljanov prijazno upravljanje. Temu cilju so na poseben način zavezane arhitekturnozgodovinske raziskave, saj zelo pregledno in sledljivo kažejo na odgovorno ravnanje spomeniškega varstva z zgodovinskimi kulturnimi dobrinami in pogosto povezanimi javnimi finančni sredstvi. Želimo, da so objavljeni povzetki pri avtorjih, naročnikih in projektantih, toda tudi v znanosti in pri za stroko zainteresiranem bralstvu, deležni pozornosti, ki jim pripada, ter da tako postanejo pomemben sestavni del nacionalnega kulturnega posredovanja.

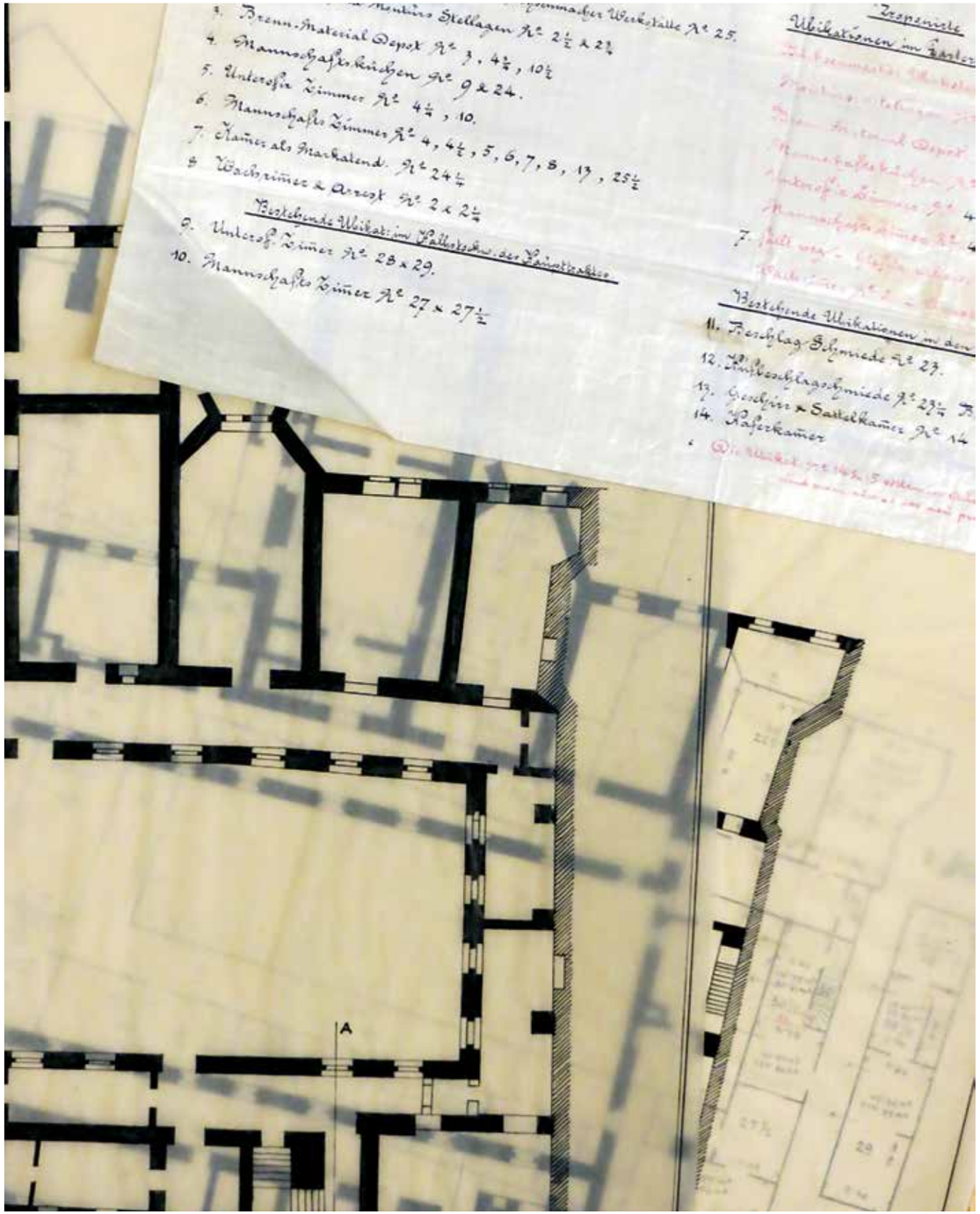
3 Zvezni zavod za spomeniško varstvo ima lastno zbirko publikacij, od prospektov (obnovljenih), strokovnih revij (Denkmal Heute, Zeitschrift für Kunst in Denkmalpflege) do monografij (Fokus Denkmal, Beihefte zur Archäologie), ter je partner pri različnih ustreznih pisanjih.

1. Pogled naslovnice Arhitekturnozgodovinske raziskave
1. Ansicht Titelblatt Bauhistorische Untersuchungen

2. Tihožitje pri arhitekturnih raziskavah na proštiji Wr. Neustadt (foto: Marina Kaltenegger)
2. Stillleben Bauforschung an der Propstei von Wr. Neustadt (photo: Marina Kaltenegger)



3. Vpogled v razsutje kleti gradu Gozzoburg v Kremsu (foto: Christoph Tinzl)
3. Einblick in die Schüttung eines Gewölbes in der Gozzoburg von Krems (photo: Christoph Tinzl)



4. Zgodovinske arhivalije nekdanjega samostana v arhivu Zveznega zavoda za spomeniško varstvo Krems. (foto: Patrick Schicht)
4. Historische Archivalien eines ehemaligen Klosters im Archiv des Bundesdenkmalamts Krems. (photo: Patrick Schicht)

Patrick Schicht

Richtlinien für Bauhistorische Untersuchungen in Österreich

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Das österreichische Bundesdenkmalamt agiert auf Basis des staatlichen Denkmalschutzgesetzes, wonach jede Veränderung eines Baudenkmals nur unter Bewahrung der individuellen Denkmaleigenschaften genehmigt werden kann. Seit vielen Jahren sind daher eine fundierte Bestandsdokumentation und eine Bauhistorische Analyse fixer Bestandteil größerer Umbauvorhaben, um Planungen frühzeitig lenken sowie beurteilen zu können. Ihre Erstellung, Schwerpunktsetzung und Qualität war mangels einschlägiger nationaler Ausbildungsmöglichkeiten für den Beruf Bauforscher sehr von den handelnden Personen geprägt und letztlich kaum vergleichbar.

Seit dem späten 20. Jahrhundert stieg für das öffentliche Behördenwesen der Wunsch nach Effizienz, Transparenz und Wirtschaftlichkeit deutlich an, worauf die Denkmalpflege mit der Entwicklung von Standards, Richtlinien und Leitfäden reagierte. Im Jahr 2014 wurde das grundlegende Handbuch „Standards der Baudenkmalpflege“ veröffentlicht, das die geltenden Rahmenbedingungen für den fachlichen Umgang mit Baudenkmalen umfassend und übersichtlich gegliedert schriftlich zusammenfasst und mit anderen Gesetzen und Normen verknüpft.[1] Mit diesem international viel beachteten Meilenstein der europäischen Denkmalpflege sind allen Beteiligten transparente und bürgernahe Planungsgrundlagen gegeben, die sowohl einen effizienten Projektablauf als auch nachvollziehbare Entscheidungswege ermöglichen. Diese Standards sind in drei Säulen gegliedert, nämlich Erfassen, Erhalten und Verändern. Vor allem erstem kommt rasch steigende Bedeutung zu, der durch aufbauende Bestimmungen Rechnung getragen wurde. Die „Richtlinien für archäologische Maßnahmen“, die „Standards für die konservatorische Behandlung von archäologischen Funden“ und der „Leitfaden Zustandserhebung und Monitoring an Wandmalerei und Architekturoberfläche“ bilden den Anfang diesbezüglicher Vorgaben und präzisieren spezifisch die notwendigen Prozesse und Mindeststandards.

Im Jänner 2016 wurden als weiterer Baustein die „Richtlinien für Bauhistorische Untersuchungen“ publiziert. Sie definieren die im Vorfeld sowie bei der Begleitung von Veränderungen notwendigen Dokumentations- und Analysemethoden sowie deren Mindestqualitäten und werden durch die Einbindung in denkmalfachliche Verfahren rechtswirksam.[2] Da die resultierenden Berichte im denkmalbehördlichen Beurteilungsprozess eine gewichtige Rolle spielen, muss es verbindliche wissenschaftliche Regeln geben (Trennung von Befund und Auswertung, Nachvollziehbarkeit von Dokumentation und Argumentation), die bis zur einheitlichen Gliederung der Texte und zur Farbgebung der Pläne reichen.

Um den heterogenen Ansprüchen bei geforderter Wirtschaftlichkeit, Zielgenauigkeit und Praxisnähe gerecht zu werden, gehen die Richtlinien von einer modularen Einteilung in fünf Arbeitsschritte (Bausteine) sowie von gestuften Untersuchungstiefen aus. Als Bausteine zählen die planliche Bestandsaufnahme, die bauhistorische Bestandsaufnahme, der Befundkatalog, die Quellen- und Archivforschung sowie die Auswertung. Um die spezifische Auswahl einfach zu gestalten, gibt es vier vordefinierte Beauftragungsmodule, sie teilen sich in Ersterfassung (I), Untersuchung (II), Baubegleitung (III) und Gesamtauswertung (IV), die je nach Erfordernis einzeln oder gestaffelt gewählt werden können. Zudem sind eventuelle weitere

1 Alle Standards, Richtlinien und Leitfäden können beim Bundesdenkmalamt käuflich erworben sowie auf der Homepage gratis als pdf heruntergeladen werden. www.bda.at bzw. https://bda.gv.at/de/publikationen/standards-leitfaeden-richtlinien/

2 Euler-Rolle B., Fuchsberger H. (2016), Vorwort, in: Richtlinien für Bauhistorische Untersuchungen, Wien 2016, 4–5.

DDr. Patrick Schicht, Bundesdenkmalamt

Anforderungen zu deklarieren, etwa zu geplanten lokalen Eingriffen oder zu archäologischen, statischen oder restauratorischen Schnittstellen. Es ist also für Bauherren, Planer und Behörde verpflichtend erforderlich, bereits zu Beginn eines Projekts über die künftig notwendigen bauhistorischen Grundlagen nachzudenken, um sie im Planungsprozess möglichst vollständig griffbereit zu haben. Mit den solcherart gemeinsam gewählten Bausteinen wird ein Formblatt als „Anforderungsprofil“ ausgefüllt, das marktwirtschaftlich an geeignete Bauforscher ausgesandt werden kann. Mit ihrem Anbot verpflichten sie sich zur vorschriftsmäßigen und pünktlichen Abgabe (in der Regel 3 Monate) eines Berichts in analoger und digitaler Form.

Dieser Bauhistorische Untersuchungsbericht ist standardisiert zu erstellen, wobei nach einem Datenblatt zunächst Wert auf die Darlegung der verwendeten Unterlagen (Archive, Pläne, historische Forschungen) gelegt wird, ehe als Hauptteil die Auswertung der Baugeschichte folgt. Kapitel zum eventuellen kritischen Zustand und eine bauhistorische Bewertung von bereits bekannten Veränderungsabsichten leiten zum Anhang von gesammelten Unterlagen (Befundkatalog, naturwissenschaftliche, archäologische oder restauratorische Berichte) sowie zu Baualtersplänen in Grundrissen und gegebenenfalls Ansichten und Schnitten.

Als zweiter Teil ist eine publikationsfähige Kurzfassung zu erstellen, die in möglichst übersichtlicher Form die wesentlichen Erkenntnisse darstellt. Gemeinsam mit Überblicksfotos und Baualtersplan sollen damit die neuesten Feststellungen zur Baugeschichte der vertiefenden Forschung zugänglich gemacht werden. Als Publikationsorgan wurde die bereits fest institutionalisierte Reihe des Bundesdenkmalamtes „Fundberichte aus Österreich“ zur Verfügung gestellt, in der bislang in analoger Art ausschließlich die archäologischen Ergebnisse katalogisiert erfasst wurden.[3] Damit soll für den interessierten Leser ein jährlicher kompakter Überblick der denkmalrelevanten Untersuchungen von Archäologie und Bauforschung gegeben werden, wobei sich auch anschaulich die Breite an Objekten sowie ihre geographische Verdichtung und der regionale Veränderungsdruck spiegeln. Von den Autoren kann ihr Artikel zudem durchaus als Leistungsschau für künftige Auftraggeber verstanden werden, für die sich eine sorgfältige Bearbeitung lohnt. Die Kurzfassungen werden analog sowie als E-Book angeboten. Der eigentliche Langbericht bleibt hingegen unter Verschluss und darf nur nach Freigabe der Objekteigentümer eingesehen bzw. nach Freigabe durch die Autoren im direkt vereinbarten Ausmaß wissenschaftlich verarbeitet werden.

Nach zwei Jahren lässt sich bereits evaluieren, dass die Richtlinien umgehend zum unverzichtbaren Bestandteil des denkmalfachlichen Alltags geworden sind. Bauherren und Planer orientieren sich meist bereitwillig an einer anschaulich aufgeschlüsselten Baugeschichte ihres Objektes und zeigen Verständnis für den Erhalt des Originals und sogar für lokale Einschränkungen. Die Bauforscher freuen sich über eindeutige Wünsche und kalkulierbare Anforderungen und nicht zuletzt hat die Behörde ein sehr effizientes Instrument für die tägliche Arbeit. Weiters ist festzustellen, dass mit den Standards und Richtlinien der letzten Jahre die österreichische Denkmalpflege auf eine neue Stufe gestellt wurde, um eine zeitgemäße bürgerfreundliche Verwaltung zu gewährleisten. Diesem Ziel sind in besonderer Weise die Bauhistorischen Untersuchungen verpflichtet, da sie sehr anschaulich den verantwortungsvollen Umgang der Denkmalpflege mit dem historischen Kulturgut nachvollziehbar und die oft verbundenen öffentlichen Fördergelder sichtbar machen. Den publizierten Kurzfassungen ist zu wünschen, dass sie bei Autoren, Auftraggebern und Projektanten aber auch in der Wissenschaft sowie bei der fachlich interessierten Leserschaft die ihnen gebührende Aufmerksamkeit erhalten und so ein wichtiger Bestandteil der nationalen Kulturvermittlung werden.

3 Das Bundesdenkmalamt verfügt über eigene Publikationsreihen, von Foldern (Wiederhergestellt) über Fachzeitschriften (Denkmal Heute, Zeitschrift für Kunst und Denkmalpflege) bis zu Monographien (Fokus Denkmal, Beihefte zur Archäologie) und ist als Partner bei verschiedenen einschlägigen Schriften beteiligt.

V spomin / In memoriam

dr. NATAŠA ŠTUPAR - ŠUMI

Ljubljana 10. 7. 1927 – Horjul 4. 7. 2018

Dr. Nataša Štupar – Šumi, rojena Suhadolc, je bila arhitektka, konservatorka in raziskovalka stavbne dediščine po vsej Sloveniji in še posebno na slovenskem Krasu. Diplomirala je leta 1954 pri Jožetu Plečniku kot pripadnica ene izmed zadnjih generacij, ki so študirale pri njem na Oddelku za arhitekturo tedanje Tehniške fakultete. Kot arhitektka je našla svojo prvo zaposlitev projektantke v kamniškem gradbenem podjetju in kmalu zatem v splošnem projektivnem biroju v Ljubljani. Po poroki z umetnostnim zgodovinarjem dr. Nacetom Šumijem se je leta 1960 zaposlila kot arhitektka konservatorka na Zavodu za Spomeniško varstvo Ljudske republike Slovenije (pozneje Zavodu Republike Slovenije za varstvo naravne in kulturne dediščine). Postala je vodja konservatorskega ateljeja, čez čas pa je na mestu svetovalke direktorja aktivno delovala po vseh slovenskih regijah do svoje upokojitve leta 1994. Bila je ena prvih arhitektk, če ne sploh prva, ki je profesionalno delovala v spomeniškovarstveni ustanovi ter s svojim delom opredelila pojem in delovne zadolžitve arhitekta konservatorja v Sloveniji. Ko je začela svojo poklicno pot na zavodu, so številni arhitekturni spomeniki in spomeniške celote kazali hude rane medvojnega razdejanja in večletnega zanemarjanja. Nataša Štupar – Šumi se je začela ukvarjati s preučevanjem spomenikov, načrtovanjem in pozneje neposrednim vodenjem prenovitvenih procesov. Prizadevala si je za celovito varovanje in obnovo urbanih spomenikov in spomeniških območij, cerkvenih in grajskih stavb, mestnih hiš in palač pa tudi ljudske arhitekture. Pri prenovi številnih spomenikov je sodelovala z vrsto uglednih konservatorjev umetnostnih zgodovinarjev in arheologov, zlasti z Marijanom Zadnikarjem, Ivanom Komeljem, Nacetom Šumijem, Emilom Smoletom in Petrom Petrujem. Med najpomembnejšimi spomeniki, pri katerih je vodila konservatorsko delo oziroma dejavno sodelovala kot arhitektka konservatorka in projektantka, so Žička kartuzija, srednjeveške hiše in baročne palače v Kopru, kamnite kraške hiše v Kobdilju, grad Jama v Predjami z okoliškimi stavbami, samostan Kostanjevica, pri katerem je po starejših upodobitvah obnovila zrušeni cerkveni zvonik in rekonstruirala njegove baročne kape, dalje grad Sevnica, dvorec Betnava pri

Mariboru, Škrateljnova hiša v Divači, antična naselbina Neviodunum pri Krškem, zvonik cerkve v Senožečah, celjski Stari grad, romanska rotunda v Selu v Prekmurju, pokrito klasicistično sprehajališče v Rogaški Slatini, grad Trilek pri Ajdovščini, dvorec Dobrovo, utrjeno naselje Šmartno, oboje v Goriških brdih. Povsem je rekonstruirala najstarejši gotski prezbiterij v Sloveniji, ki je v minoritski cerkvi na Ptuju. Na mnogih od teh spomenikov konservatorski posegi še potekajo po njenih strokovnih usmeritvah. Vrhunec njenega konservatorskega dela pa so uspešni obnovitveni posegi na gradu Rihemberk (od leta 1962), na gradu in v naselju Štanjel na Krasu (od leta 1970) ter na dvorcu Vogrsko (od leta 1968). Teh spomenikov, ki so bili hudo prizadeti med drugo svetovno vojno, brez angažmaja Nataše Štupar – Šumi danes verjetno ne bi bilo več.

Nataša Štupar – Šumi se je vselej zavedala, da sta za uspešno varovanje arhitekturne dediščine ključnega pomena tudi njena ustrezna dokumentacija in popularizacija. Izdelala je številne odlične načrte cerkva, gradov, mestnih hiš in palač, ki so bili objavljeni zlasti v knjigah Naceta Šumija o arhitekturi 16., 17. in 18. stoletja na Slovenskem, v delih Marijana Zadnikarja o romanski umetnosti in Ivana Komelja o gotski arhitekturi. Prispevala je vrsto samostojnih strokovnih člankov, ki jih je objavljala zlasti v reviji Varstvo spomenikov med letoma 1962 in 1990, in napisala štiri vodnike o gradu Rihemberk, gradu in naselbini Štanjel, dvorcu Vogrsko in dvorcu Planina v okviru zbirke Kulturni in naravni spomeniki Slovenje. V okviru svojega konservatorskega dela je ustvarila neprecenljivo in izjemno obsežno zbirko dokumentarnega gradiva o stavbni dediščini v zahodni Sloveniji, ki obsega načrte, risbe, opise in fotografije in jo hrani INDOK center pri Ministrstvu za kulturo. Zbirka je nepogrešljivi pripomoček za vsakega resnega raziskovalca stavbne dediščine v Sloveniji.

Leta 1996 je Nataša Štupar – Šumi svoje ustvarjalno raziskovalno delo sklenila z obsežno in poglobljeno doktorsko disertacijo z naslovom Stavbna dediščina na Krasu in jo zagovarjala na Fakulteti za arhitekturo v Ljubljani. Tudi po upokojitvi je ostala aktivna in se je oglašala, kadar je bilo treba braniti arhitekturno dediščino, zlasti na Krasu in še posebno v Štanjelu. S svojim delom je ustvarila trden temelj, na katerem sloni varovanje arhitekturne dediščine na Slovenskem. Leta 1998 ji je Vlada Republike Slovenije z izjemnim priznanjem in odmero starostne pokojnine priznala posebne zasluge na področju kulture. Ob njenem petinosemdesetem življenjskem jubileju leta 2012 je prejela Steletovo nagrado za življenjsko delo, najvišje priznanje za delo v konservatorstvu na Slovenskem. S tem je stroka hkrati opozorila na pogosto preveč pozabljene začetke organiziranega arhitekturnega dela v okviru slovenske spomeniške službe po drugi svetovni vojni. Prispevek Nataše Štupar – Šumi k ohranjanju arhitekturnih spomenikov je tako dobil javno priznanje pa tudi potrditev visokih etičnih načel, ki jih je arhitektka pri svojem plemenitem poslanstvu imela vseskozi pred očmi.

Peter Krečič

V spomin / In memoriam

dr. IVAN STOPAR

29. 4. 1929–12. 12. 2018

Fotografija: Valentin Benedik

Pripravljali smo se, da bomo skupaj z našim kolegom in prijateljem dr. Ivanom Stoparjem proslavili njegovo 90-letnico, a nas je usoda prehitela. Od cenjenega kolega smo se poslovili 18. decembra na ljubljanskih Žalah.

Ivan Stopar se je rodil 29. 4. 1929 v Ljubljani. Leta 1948 je maturiral na novomeški gimnaziji, leta 1964 diplomiral iz primerjalne književnosti in umetnostne zgodovine na Filozofski fakulteti v Ljubljani in tam leta 1976 tudi doktoriral iz umetnostne zgodovine.

Svoje službovanje je začel v novinarstvu, v letih od 1957 do 1960 je bil novinar Mladine, nato pa urednik glasila Združene kemične industrije v Domžalah. Od leta 1963 je bil zaposlen v svoji stroki, do leta 1974 kot ravnatelj, do upokojitve leta 1992 pa kot višji konservator na Zavodu za varstvo naravne in kulturne dediščine Celje. Leta 1987 je bil habilitiran za izrednega profesorja, leta 1997 je pridobil naziv konservatorskega svetnika.

Ivan Stopar je organiziral spomeniškovarstveno službo najprej v celjski regiji, kasneje pa tudi v delu Posavja in Zasavja. Postavil je temelje za dokumentacijo zavoda, uveljavil je visoke kriterije za strokovno delo ter vzgojil vrsto mlajših konservatorjev in bil vseskozi njihov razgledani sogovornik in dragoceni svetovalec.

Vodil je obnovo številnih kulturnih spomenikov, med drugim cerkve v Marija Gradcu, opatijske cerkve v Celju, cerkve na Svibnem, na Svetini in v Slovenskih Konjicah ter kompleks kapel in cerkve na Svetih gorah pri Bistrici ob Sotli. Pod njegovim strokovnim vodstvom so bili obnovljeni številni gradovi: stari celjski grad, grad Slovenske Konjice, Podsreda, Sevnica, Laško, Velenje in mnogo drugih. Bil je nepogrešljiv sodelavec in konsultant v številnih strokovnih komisijah pri obnovi ključnih, zlasti srednjeveških spomenikov po vsej Sloveniji. Za prenovo dveh ključnih slovenskih fevdalnih spomenikov, knežjega dvorca in starega gradu nad Celjem, je opravil obsežne raziskave in opredelil konservatorske smernice za prenovo.

Z vzornimi obnovami posameznih spomenikov in z razpravami o konservatorskih posegih je soustvaril temelje konservatorske stroke na Slovenskem.

V svojem znanstvenoraziskovalnem delu je obravnaval številne spomeniške objekte in območja, kar mu je pač narekovalo delo v spomeniškovarstveni službi. Največ pa se je dr. Stopar posvečal srednjeveški umetnosti, poseben izziv so mu pomenila njena zgodnja obdobja. Široko znanje in poznavanje slovenskega spomeniškega gradiva sta mu omogočila, da je ovrgel in na novo opredelil vrsto doslej v stroki uveljavljenih spoznanj.
Največji pa je gotovo njegov prispevek na področju grajske arhitekture. Utemeljil je kastelologijo kot samostojno vedo, uvedel je tudi termin, ki je zdaj splošno sprejet. Dr. Stopar je vodilni kastelolog pri nas, priznan tudi v širšem evropskem prostoru. Opredelil je razvoj srednjeveške grajske arhitekture na Slovenskem ter opravil topografijo gradov in dvorcev, ki obsega kar 16 knjig in zajema skoraj celotno Slovenijo. Gigantsko delo, ki ga drugod po svetu opravijo institucije z mnogimi sodelavci. Gradove je slovenski in tuji javnosti predstavil tudi v številnih drugih knjigah, med katerimi velja posebej omeniti temeljno delo Razvoj srednjeveške grajske arhitekture na Slovenskem Štajerskem (Slovenska matica, Ljubljana 1977) in reprezentančno izdajo dela Gradovi na Slovenskem (Cankarjeva založba, Ljubljana 1986), ki je doživela več ponatisov in prevod v več tujih jezikov. Svoje široko poznavanje grajske arhitekture, zlasti pa življenja v srednjem veku, je strnil v knjigah Življenje na srednjeveških gradovih na Slovenskem (Svet viteštva, Ostra kopja, bridki meči, Za grajskimi zidovi). Življenje v srednjeveških samostanih na Slovenskem pa je predstavil v delu Hrami tišine.

Dr. Stopar je s sistematičnim proučevanjem za slovenski prostor pomembnih vedut in vedutnih grafičnih serij dodal k poznavanju naše kulturne dediščine novo prvino – vedutologijo. Na novo je odkril in datiral ter določil avtorje za vrsto upodobitev naših krajev. Opredelimo ga lahko kot največjega poznavalca tega gradiva pri nas, njegova odkritja pa so odmevala tudi na tujem. To problematiko je obdelal v številnih samostojnih knjižnih izdajah in razpravah.

Dr. Stoparju se je zdelo vedno pomembno našo kulturno dediščino predstaviti širokemu krogu ljudi. Tako je postal stalni sodelavec zbirke vodnikov Naravni in kulturni spomeniki Slovenije, kjer je monografsko obdelal kar 23 spomeniških objektov in naselij.
Izjemno široko pa so odmevale tudi oddaje, ki jih je pripravil z RTV Ljubljana, še posebej seriji Gradovi na Slovenskem ter Sprehodi po stari Ljubljani. Z njimi je širokemu krogu ljudi na zanimiv in razumljiv, a strokovno izjemno korekten način predstavil pomemben del pogosto tako zelo ogrožene slovenske kulturne dediščine.

Bibliografija dr. Stoparja je izjemna po obsegu in širini obravnavanega gradiva. Obsega okrog 80 samostojnih publikacij ter še mnogo več razprav in člankov v strokovnih glasilih (Celjski zbornik, Varstvo spomenikov, Zbornik za umetnostno zgodovino ter druge domače in tuje strokovne revije).
Dr. Stopar je bil široko razgledan humanist, izreden poznavalec literature in glasbe. Ukvarjal se je tudi s prevajanjem, predvsem iz nemškega jezika, njegov je na primer odličen prevod dela Hansa Jakoba Christopha von Grimmelshausna Pustolovski Simplicius Simplicissimus, z opombami in spremno študijo (Ljubljana 1961).

Njegovo izjemno delo sta prepoznali tudi stroka in širša javnost. Dr. Stopar je prejemnik več priznanj in nagrad, med njimi zvezne plakete za delo v spomeniškovarstveni službi Zveze konservatorskih društev Jugoslavije leta 1975. Steletovo nagrado Slovenskega konservatorskega društva je prejel leta 1992, leta 2013 mu je nagrado Izidorja Cankarja podelilo Slovensko umetnostnozgodovinsko društvo. Obe društvi sta ga uvrstili med svoje častne člane. Občina Celje mu je leta 1994 podelila najvišje občinsko priznanje zlati celjski grb, od leta 2012 pa je bil tudi častni meščan Celja.

Strokovnemu in znanstvenoraziskovalnemu delu je bil Ivan Stopar povsem predan. Zanj se je dan začel in končal z delom. Ustavila ga ni niti bolezen. Nikoli se ni zadovoljil z že spoznanim, dvomil je in iskal dalje. Pogosto je s svojimi trditvami razburkal strokovne kroge.

Zdaj nam ostajajo rezultati njegovega obsežnega dela v knjigah, člankih in v obnovljenih spomenikih na terenu. Ostajajo spomini na skupno prehojeno pot, na neštete strokovne debate o konservatorstvu, likovni umetnosti, literaturi, glasbi. Ostajajo spomini na strokovne poti, po katerih nas je vodil, da smo si širili obzorje, spomini na številne dogodivščine na terenu – kako duhovito se je znal pošaliti tudi na svoj račun. Spominjali se bomo njegove jeze in nemoči ob propadajočih ali ne dovolj dobro obnovljenih spomenikih, še posebej, če je bilo to rezultat neznanja. Takrat ni oproščal. Pomnili bomo njegovo navdušenje in srečo, ko je odkril kaj novega, nepričakovanega, drugačnega od dotedanjih spoznanj stroke. In na koncu bodo ostali tisti najbolj človeško osebni spomini, ko smo si bili najbližje. Pogrešali ga bomo.

Anka Aškerc

Dr. Ivan Stopar, ugledni in spoštovani preučevalec, raziskovalec in varuh naših umetnostnozgodovinskih spomenikov, je bil spomeniški konservator v najboljšem in edinem pravem pomenu tega žlahtnega pojma, saj je ob vsem svojem strokovnem in znanstvenem delu ves čas verjel, da na tem področju ni moč uspeti brez nenehnega ozaveščanja ljudi o pomenu spomenikov. In znal in zmogel je z vsem žarom opravljati to ozaveščevalno poslanstvo na način, ki je ljudi pritegnil. S svojim izjemno širokim znanjem in karizmatičnim nastopom je znal v ljudeh prebuditi vneto zanimanje (za nekaj, kar jih v bistvu prej niti ni kaj dosti zanimalo) in na koncu bogato potešiti njihovo prebujeno radovednost. In tako se je (tudi po njegovi, pri gradovih pa predvsem po njegovi zaslugi) na Slovenskem v zadnjega pol stoletja počasi, pa vendarle zelo učinkovito, spreminjal odnos javnosti do naše zgodovine ter kulturne in umetnostne dediščine. Prav Ivan Stopar je bil človek, ki je na Slovenskem daleč največ storil za to, da so se gradovi vrnili v našo zgodovinsko zavest kot del naše (in ne neke tako ali drugače tuje) kulturne dediščine.

Pri tem njegovem žlahtnem javnem delovanju (pa naj gre za vodenje ekskurzij, pripovedi na razstavah, za dolgo vrsto dovolj poljudno in privlačno, pa zato nič manj strokovno tehtno napisanih knjig in knjižic vodnikov ali pa za radijske in predvsem neštete televizijske oddaje in serije) je ob svojem širokem znanju, ki je združevalo v celoto različna področja in stroke, ter nesporno visokem občutku za jezik in slog pisanja zavestno gradil svoje javno delovanje tudi na svojem (že prav igralskem) daru za javno nastopanje.

Prvi v arhivu nacionalne RTV ohranjeni televizijski posnetki nastopov dr. Ivana Stoparja izvirajo z začetka sedemdesetih let preteklega stoletja, ko je bil srce in duša takrat še mladega celjskega spomeniškovarstvenega zavoda. Do srede osemdesetih let je s svojimi mnenji in komentarji nastopal kot gostujoči strokovnjak v Kulturnih diagonalah in drugih podobnih (kot se je takrat reklo »kulturno-političnih«) oddajah.
Potem pa se je začelo obdobje zahtevnih umetnostnozgodovinskih ter kulturnozgodovinskih oddaj in televizijskih serij, ki smo jih v celoti zasnovali in pripravljali skupaj s profesorjem dr. Ivanom Stoparjem.
Konec osemdesetih let in na prelomu v devetdeseta je nastala vrsta enournih oddaj v nizih Ex libris in Pogledi, med katerimi sta še posebej privlačni tista o slovenskih literatih graščakih v 19. stoletju ter ona o romantičnih, pravljičnih historističnih grajskih stavbah in o sanjačih, ki so jih gradili in prebivali v njih.
Leta 1990 je s profesorjem Stoparjem nastala obsežna dokumentarna serija trinajstih oddaj Gradovi na Slovenskem, prvi in še danes nedosežen televizijski projekt s tega področja.
In po izdaji knjige, s katero se je profesor Stopar oddolžil svojemu rojstnemu mestu, je nastala še zahtevna serija desetih dokumentarno-igranih oddaj Sprehodi po stari Ljubljani.
Vse te oddaje, kljub temu da so izhajale iz tehtnih znanstvenih spoznanj, nikoli niso bile suhoparne umetnostnozgodovinske znanstvene študije, namenjene same sebi in peščici kolegov. Profesor Stopar je v svoji izjemni izobraženosti in razgledanosti znal umetnostnozgodovinskim besedilom dati široko zgodovinsko in kulturnozgodovinsko ter literarno ozadje in tako (s pomočjo sodobnih televizijskih prijemov) ustvarjal zanimive in privlačne freske o minulih dneh, ljudeh ter ohranjenih materialnih in duhovnih pričah njihovega časa in življenja.

Skupaj z danes prav tako žal že pokojnim profesorjem dr. Nacetom Šumijem sestavlja profesor dr. Ivan Stopar dvojico, ki je ob svojem strokovnem in znanstvenem delu na Slovenskem naredila daleč največ tudi na področju predstavljanja kulturne in umetnostne zgodovinske dediščine javnosti.

Cenjenega kolega in dolgoletnega sodelavca dr. Stoparja namenoma imenujem »profesor Stopar«, pa čeprav v resnici (in kljub priznanemu statusu univerzitetnega profesorja) pravzaprav nikdar ni bil stalni, redni profesor na kaki veliki visoki izobraževalni ustanovi (študentje umetnostne zgodovine in mnogih drugih smeri pa brez njegovih strokovnih knjig tudi nikoli nismo in niso mogli!). Ampak »profesor« so ga imenovali vsi – desettisoči bralcev njegovih knjig in stotisoči gledalcev njegovih televizijskih oddaj. Za vse te ljudi (in tudi za televizijske sodelavce in tehnične ekipe, ki smo pogosto dolge tedne vneto delali z njim na terenu in ga zavzeto poslušali) je bil dr. Ivan Stopar preprosto »profesor Stopar«. Tako so in smo ga spoštljivo naslavljali! In – to je v resnici tudi bil, je in ostaja – priljubljeni »profesor umetnostne in kulturne zgodovine« za vse Slovence!

Profesor Ivan Stopar se je s svojimi privlačnimi televizijskimi nastopi pol stoletja učinkovito zarisoval v našo zavest in v naš čas ter zapustil neizbrisno, dragoceno sled, ki bo ostala.

Janez Lombergar

Navodila avtorjem za pripravo prispevkov v reviji Varstvo spomenikov

PREDSTAVITEV

1. Varstvo spomenikov je osrednja slovenska znanstvena strokovna revija za teorijo in prakso spomeniškega varstva. Izdaja jo Zavod za varstvo kulturne dediščine Slovenije
2. Revija izhaja od leta 1946. Do leta 2010 je izhajala z eno številko na leto.
3. Revija se vsebinsko deli na dva dela. V prvem (daljšem) delu so objavljeni prispevki z oznakami COBISS (**C**o-operative **O**nline **Bi**bliographic **S**ystem and **S**ervices) od 1.01 do 1.04, pri čemer pomeni 1.01 izvirni znanstveni članek, 1.02 pregledni znanstveni članek, 1.03 kratki znanstveni prispevek in 1.04 strokovni članek. Prispevki, ki so objavljeni v tem delu revije, so recenzirani in štejejo kot referenčni v domačem in tujih znanstvenih okoljih. Kategorijo prispevka predlaga avtor, končno odločitev pa sprejme uredniški odbor na podlagi predloga recenzenta.

   Drugi (krajši) del, ki sledi prvemu, je namenjen objavi recenzij (oznaka COBISS 1.19), predstavitvam (npr. knjig, projektov, dogodkov, predavanj, konferenc itd.), knjižničnim informacijam idr. Prispevki, ki so objavljeni v tem delu revije, se ne recenzirajo. Prvi del se imenuje Razprave, drugi del pa Predstavitve.

VRSTA, OBSEG IN SESTAVA PRISPEVKOV

4. Številke praviloma niso tematsko usmerjene. Objavljeni so prispevki različnih znanstvenih ved in disciplin (npr. arheologija, etnologija, umetnostna zgodovina, arhitektura, krajinska arhitektura, konservatorstvo, restavratorstvo, geografija ipd.), ki sledijo znanstvenemu in profesionalnemu zanimanju avtorjev za varovanje, raziskovanje in upravljanje kulturne dediščine, mednarodne akte in nacionalno zakonodajo, prostorsko načrtovanje in informatiko na področju spomeniškega varstva, konservatorske študije, zgodovino in doktrino spomeniškega varstva itd.
5. Prispevki v Razpravah so objavljeni v slovenščini in angleščini. Za prevode praviloma poskrbi uredništvo.
6. Razprave praviloma obsegajo največ 1,5 avtorske pole (24 strani po 30 vrstic s 64 znaki oz. 46.000 znakov s presledki), prispevki iz sklopa Predstavitve in informacije pa največ 5 strani (9300 znakov).
7. Sestavine razprav si sledijo v naslednjem zaporedju: naslov prispevka, izjemoma tudi podnaslov, izvleček, ključne besede, besedilo prispevka, ki je razdeljeno na posamezna poglavja (uvod in sklep sta obvezni poglavji), viri in literatura ter povzetek. Naslov in podnaslov članka, ki primerno opisujeta vsebino prispevka, naj natančno, vendar kratko in jedrnato označita bistveno vsebino. V prispevku najpomembnejši obravnavani pojmi naj bodo praviloma navedeni na začetku naslova oziroma podnaslova. Naslov naj ne presega priporočenih 140 znakov. Izvleček naj obsega največ 6–10 vrstic (do 650 znakov). Biti mora razumljiv sam po sebi, brez branja celotnega prispevka; vsebuje naj oris metodologije in rezultatov; uporabljajo naj se celi stavki, izogibati se je treba slabše znanim kraticam in okrajšavam. Kratice naj bodo ob prvi uporabi razvezane v slovenskem jeziku. Če to ni mogoče, kratico razvežemo v jeziku, v katerem je nastala. Ključne besede naj obsegajo 3–8 besed, ki označujejo vsebino prispevka; to naj bodo enostavni izrazi, zapisani v prvem sklonu ednine. Avtor naj poskuša izbrati take ključne besede, ki so že v splošni rabi v sistemu COBISS. Za UDK-vrstilec oz. klasifikacijsko oznako poskrbi uredništvo. Povzetek obsega 30–45 vrstic (največ 1900 znakov). V njem avtor jasno opredeli namene, glavne značilnosti in metodologijo raziskovalnega dela ter najpomembnejše rezultate in sklepe prispevka. Besedilo prispevka mora biti pregledno in razumljivo strukturirano z naslovi poglavij in podpoglavij. Dovoljeni sta največ dve ravni podpoglavij. Avtor lahko priloži tudi kratko zahvalo, ki bo objavljena pred seznamom virov in literature.
8. Zaradi zagotovitve anonimnosti pri recenzijskem postopku mora(-jo) avtor(-ji) svoje ime in priimek navesti posebej, in sicer na prvi strani prispevka. Dopiše(-jo) naj tudi svoj akademski in pedagoški naziv ali znanstveni naziv ter diplomski naziv. Za diplomske nazive naj se uporabljajo uradne okrajšave, za pedagoške in znanstvene nazive pa naj se okrajšave ne uporabljajo. Avtorice naj napišejo svoje pedagoške nazive v ženski obliki (npr. docentka). Sledi naslov institucije, v kateri je avtor zaposlen, oziroma drugi ustrezen naslov in naslov elektronske pošte. Če je avtorjev več, vrstni red določijo sami. Drugih podatkov naj prva stran prispevka ne vsebuje.
9. Za predstavitve knjig in za recenzije (oznaka COBISS 1.19), objavljene v drugem delu revije, mora avtor najprej navesti naslov prispevka. Ta je lahko poljuden in ni nujno, da je povsem enak kot naslov knjige ali dela, ki ga avtor predstavlja oziroma ocenjuje, vendar pa se mora nanašati na vsebino/recenzijo predstavljenega dela oziroma knjige, biti mora čim krajši in čim manj zapleten. Za naslovom mora avtor navesti še: izvirni naslov dela, ime in priimek avtorja(-jev), ime in priimek urednika(-ov), založbo in leto izdaje ter ISBN-številko.

OBLIKOVANJE IN JEZIK PRISPEVKOV

10. Prispevki morajo biti napisani z urejevalnikom besedil Microsoft Word. V celotnem prispevku naj bo uporabljen le en slog, in sicer privzet slog Normal. To pomeni, da morajo imeti prispevki enojni medvrstični razmik, tip črk Times New Roman, velikost črk 12, levo poravnavo in 2,5-centimetrske robove pri formatu A4. Ta normativ je nekoliko drugačen le pri grafičnih prilogah (tip pisave v grafičnih prilogah mora biti Arial, velikost črk pa ne sme biti manjša od 10). Strani v prispevku naj bodo zaporedno oštevilčene, številka strani pa naj bo na dnu strani postavljena na sredino.
11. Besedilo prispevka naj bo preprosto oblikovano. Ni dovoljeno uporabljati zamikov, deljenja besed, podčrtavanja, senčenja ali kakršnih koli drugih načinov oblikovanja, razen označitve krepke in ležeče pisave. Besedilo naj bo v celoti izpisano z malimi črkami (razen velikih začetnic) in naj bo brez nepotrebnih okrajšav. Če se okrajšavam ni mogoče izogniti, naj jih avtor pri prvi navedbi pojasni.
12. Izvirne izraze/termine lahko avtor zapiše ob izrazih, prevedenih v slovenski jezik. Izraz naj avtor zapiše v oklepaju za slovenskim prevodom, pri čemer napiše najprej okrajšavo jezika, v katerem je zapisan izvirni izraz/termin (na primer: angl. (za angleški jezik), nem. (za nemški jezik), fr. (za francoski jezik) itd.), nato izraz/termin, in sicer v ležeči pisavi. Slovenski prevod izraza/termina naj avtor postavi v narekovaje .
13. Pri naštevanju in navajanju enot, ki si v alinejah sledijo druga pod drugo, ni dovoljeno uporabljati funkcije za avtomatsko označevanje in oštevilčevanje, ki jo ima program Microsoft Word. Avtor naj enote, ki si v alinejah sledijo druga pod drugo, številči ali označuje ročno, čeprav zaradi tega besedilo ne bo poravnano v navpični liniji. Enako velja tudi za številčenje naslov, podnaslov, poglavij, podpoglavij, preglednic in slik. Če pri navajanju enot v alinejah avtor ne uporablja številk, naj alineje označi s pomišljaji.
14. Prispevki, objavljeni v slovenščini, morajo biti napisani v slovenskem knjižnem jeziku in ob upoštevanju pravil Slovenskega pravopisa (2003, 2007).
15. Uporaba tujk v prispevkih v slovenskem jeziku je dovoljena le, če ne obstaja primernejši izraz v slovenskem jeziku.

PREGLEDNICE IN GRAFIČNE PRILOGE

16. Za tabele se v prispevku uporablja poimenovanje preglednica. Preglednice so umeščene med besedilo prispevka in ne smejo presegati 2,5-centimetrskega roba. Vsaka preglednica mora biti razumljiva, pregledna in preprosta, brez dodatnega pojasnjevanja in opisovanja. Sestavljajo naj jo vrstice in stolpci, katerih vidne črte se sekajo v poljih. Polj naj avtorji ne senčijo. Preglednice morajo biti zaporedno oštevilčene z arabskimi številkami in morajo imeti naslove. Naslov preglednice naj bo nad preglednico. Med številko in naslovom naj bo dvopičje. Naslovi preglednic naj bodo čim krajši in čim manj zapleteni. Naslov preglednice naj se s piko zaključi le, če gre za stavčno poved. Avtor pod preglednico dopiše tudi vire za podatke v preglednici. Uporabljeni viri morajo biti (v celoti) navedeni v končnem seznamu virov in literature.
17. Za vsako grafično prilogo (fotografija, zemljevid, grafikon, skica in podobno) se uporablja enotno poimenovanje: slika. Slike ne smejo biti umeščene med besedilom prispevka. Oštevilčene morajo biti enotno z arabskimi številkami in morajo imeti naslove. Med številko in naslovom mora biti dvopičje. Naslovi slik naj bodo čim krajši in čim manj zapleteni. Avtor za naslovom dopiše tudi vir(-e) grafične priloge, in sicer na način, kot je za sklicevanje na vire in literaturo med besedilom določeno v teh navodilih. Pri fotografijah in ilustracijah, ki niso vzete iz virov, ampak so avtorsko delo, se za naslovom slike dopišeta ime in priimek avtorja fotografije/ilustracije. Naslov slike se za navedbo virov (ali avtorja fotografije/ilustracije/risbe) s piko zaključi le, če gre za stavčno poved.
18. Če se avtor med besedilom prispevka sklicuje na grafične priloge (npr. jih opisuje, komentira itd.) oziroma če grafična priloga dopolnjuje besedilo prispevka, mora biti v besedilu obvezno navedeno, na katero grafično prilogo se avtor sklicuje, oziroma mora biti na najprimernejšem mestu v besedilu navedeno, katera grafična priloga dopolnjuje besedilo. Pri sklicevanju na grafične priloge je treba uporabljati njihove številke: npr. (sl. 1), kot je razvidno s slike 1, kot prikazuje slika 1 itd.
19. Če sestavlja eno sliko več grafičnih podob (npr. vertikalni in/ali horizontalni niz fotografij, skic, tabel itd.), mora biti vsak posamezen sestavni del slike vidno in jasno oštevilčen. V podpisu k sliki naj avtor zapiše številko posameznega sestavnega dela slike in naslov/pojasnilo tega sestavnega dela slike, in sicer na način, kot je navedeno pri spodnjem primeru. Tak naslov grafične priloge se zaključi s piko.
20. Če vsebuje grafična priloga besedilo (npr. napisi na skicah, legenda v grafikonu, napisi/besedilna navedba enot na abscisnih in ordinatnih oseh v grafikonih ipd.), mora biti to besedilo napisano v slovenščini in angleščini. Napisi naj bodo čim manj zapleteni in čim krajši (npr. če so v grafikonih napisi oziroma besedilne navedbe enot na abscisnih/ordinatnih oseh in na drugih mestih dolgi, je bolj smiselno, da avtor te enote označi s številkami, številke pa pojasni v legendi).
21. Tip pisave v vseh grafičnih prilogah mora biti Arial, črke pa ne smejo biti manjše od 10. Pisava mora imeti enojni medvrstični razmik in levo poravnavo pri formatu A4.
22. Grafične priloge (razen grafikonov) morajo avtorji oddati v digitalni rastrski obliki, z ločljivostjo vsaj 350 pik na palec (350 dpi), in sicer v formatu JPEG (v najvišji kvaliteti) ali TIFF. Širina slike s tako ločljivostjo naj bo najmanj 14,8 cm. Če avtorji ne morejo oddati grafičnih prilog v predpisani obliki, naj se pred oddajo posvetujejo z urednikom.
23. Grafikoni morajo biti izrisani s programom Microsoft Excel.
24. Vsaka grafična priloga mora biti shranjena in oddana uredništvu v svoji datoteki. Naslov posamezne slikovne datoteke naj bo sestavljen le iz priimka (prvega) avtorja, okrajšave sl, podčrtaja in zaporedne številke, ki jo ima slika v besedilu: npr. Fister_sl_1.
25. Avtor naj prostor, ki naj bi ga grafična priloga zasedla v prispevku, šteje v obseg besedila kot 250 besed (pol strani) oziroma 500 besed (cela stran).
26. Avtorji naj bodo zmerni pri številu grafičnih podob, ki jih nameravajo vključiti v prispevek. Vključijo naj le tiste, za katere menijo, da so potrebne za boljše razumevanje vsebine prispevka.

ŠTEVILKE IN MERILA

27. Merske enote naj temeljijo na metričnem merskem sistemu. Pri številih, večjih od 9999, se za ločevanje tisočic in milijonic uporabljajo pike (na primer 13.432 ali 1.514.800). Pri pisanju merila zemljevida se dvopičje piše nestično (na primer 1 : 500.000). Med številkami in enotami je presledek (na primer 135 m, 23,5 %), pred oznako za potenco ali indeksom številka ni presledka ni (na primer 143 km^2, b_s, 17 °C). Znaki pri računskih operacijah se pišejo nestično, razen oklepajev (na primer $p = a + c - b - (a + c : b)$).

OKRAJŠAVE

28. Uporabljajo se slovenske verzije okrajšav in bibliografskih oznak (ur.; idr.; isti.; ista; prav tam).

    Okrajšava prim. se uporablja, kadar želimo opozoriti na stališče, ki je drugačno od našega ali od tistega, ki ga zagovarja avtor druge citirane knjige.

OPOMBE IN NAVAJANJE VIROV IN LITERATURE

29. Bibliografske opombe se pišejo med besedilom, vsebinske opombe pa kot sprotne opombe pod črto.

    Vsebinske opombe, ki vsebujejo dodatno avtorjevo besedilo, so oštevilčene z zaporednimi številkami od začetka do konca besedila. Opombe naj ne bodo predolge.
30. Če je avtor znan, naj bo v besedilu sklic na literaturo tak: (Zadnikar, 1982: 20–23) oziroma npr. Zadnikar (1982) ugotavlja, da ... Če sta avtorja navedenega dela dva, se navedeta oba: (Buser, Cajhen, 1980) oziroma npr. Buser in Cajhen (1980) ocenjujeta, da ... Pri večjem številu avtorjev se zapiše le priimek prvega avtorja, za druge avtorje se navede okrajšava idr., ki pomeni in drugi: (Benedetti idr., 2004) oziroma Benedetti idr. (2004) menijo, da ... Če je avtorjev šest ali manj, se v končnem seznamu virov in literature navedejo vsi avtorji, in sicer tako, kot je določeno v teh navodilih. Če je avtorjev več kot šest, se v končnem seznamu virov in literature navede prvih šest avtorjev, za druge pa se doda okrajšava idr., in sicer tako, kot je določeno v teh navodilih. Če je v prispevku uporabljenih več virov, ki imajo na začetku iste avtorje, je treba med besedilom navajati vse avtorje do vključno prvega različnega.
31. Dela enega avtorja, ki so izšla istega leta, je treba med seboj ločiti z zaporednim dodajanjem malih črk (a, b, c, č itd.) stično ob letnici izida (Božič, 1992a, 1992b) oziroma Božič (1992a, 1992b) navaja ... Tako jih je treba navesti tudi v končnem seznamu virov in literature. Dela različnih avtorjev, ki se vsa nanašajo na isto vsebino, je treba našteti po abecednem redu glede na avtorjev priimek, med posameznimi navedbami je podpičje: (Fister, 1987; Stopar, 1990; Zadnikar, 1975). Pri navajanju več del istega avtorja se navedejo avtor in zaporedne letnice izidov teh del, ki jih je treba ločiti z vejico: (Zadnikar, 1982, 1988). Če v besedilu zaporedno navedemo sklic na isto delo, se pri drugem in vseh nadaljnjih zaporednih sklicih v istem odstavku uporabi navedba: (prav tam). Če je delo še v tisku, se v oklepaju namesto letnice izdaje navede: (v tisku) – na ta način se delo navaja tudi v končnem seznamu virov in literature.
32. Dobesedni navedki morajo biti označeni z narekovaji, in sicer z dvojnimi srednjimi (» «). Stran, na kateri je dobesedni navedek v delu, se napiše za dvopičjem. Pika kot končno ločilo je za oklepajem, v katerem je zapisan vir citata. Če je besedilo citata v citiranem delu na dveh ali več straneh, se med stranema(-nmi) postavi stični pomišljaj (Zadnikar, 1982: 36–37).
33. Daljši dobesedni navedki (več kot 40 besed) naj bodo postavljeni v samostojen odstavek, napisani naj bodo z ležečo pisavo, pred odstavkom in za njim pa naj bo izpuščena po ena vrstica. Začetek in konec dobesednega navedka se v tem primeru ne označujeta z narekovaji. Pika kot končno ločilo je za oklepajem, v katerem je zapisan vir navedbe.
34. Pri dobesednih navedkih, ki imajo vmes posamezne dele izpuščene, se uporablja tropičje v oglatem oklepaju: […]. Za to oznako, če ni bil izpuščen samo del povedi, začnemo pisati ponovno z veliko začetnico. Če v citiranem delu to ni velika začetnica (npr. ker ni začetek stavka), označimo prvo črko z oglatim oklepajem.
35. Pri sklicih na vire, pri katerih avtor in urednik nista znana, se navedeta ime izdajatelja (v prispevkih v angleškem jeziku mora biti v tem primeru ime izdajatelja prevedeno v angleščino) in letnica izdaje dela, npr. za podatke, ki jih objavlja Statistični urad Republike Slovenije, se navede (Statistični urad Republike Slovenije, 2007). Za vire lahko uporabljamo tudi okrajšave, npr. za Statistični urad Republike Slovenije se uporabi okrajšava SURS, vendar mora biti v besedilu prispevka najprej navedeno ime vira v celoti, nato pa mora biti razloženo, da se bo za vir v nadaljevanju uporabljala okrajšava, ki jo avtor tudi razveže. Za navedeni primer (Statistični urad Republike Slovenije, 2007) bi se tako pri sklicu nanj v nadaljevanju uporabljalo (SURS, 2007).
36. Pri navajanju zakonov med besedilom se navedejo ime zakona, številka Uradnega lista Republike Slovenije in letnica, pri čemer se uporablja za Uradni list Republike Slovenije okrajšava: Ur. l. RS, npr. (Zakon o varstvu kulturne dediščine, Ur. l. RS, št. 16/2008). Pri dobesednem navajanju zakonov se doda še stran v Uradnem listu RS.
37. Če imajo zakoni uradne okrajšave, npr. ZVKD-1, se lahko te uporabijo, vendar mora biti v besedilu članka najprej navedeno ime zakona v celoti, nato pa mora biti razloženo, da se bo za ta vir v nadaljevanju uporabljala okrajšava, ki jo avtor tudi navede.

SEZNAM UPORABLJENIH VIROV IN LITERATURE

38. Vsa dela (viri in literatura), navedena v članku, morajo biti v abecednem seznamu navedena na koncu v sestavnem delu prispevka z naslovom Viri in literatura. Seznama avtor ne sme številčiti ali kakor koli drugače označevati (s pikami, pomišljaji). V primerih navedb, ki so prikazani spodaj, so ločila in oblika pisave (ležeče oziroma pokonci) navedeni točno tako, kot jih mora navesti tudi avtor v svojem prispevku.

Monografije in knjige (en avtor)

Fister, P. (1986): *Umetnost stavbarstva na Slovenskem*. Ljubljana, Cankarjeva založba.

Opomba: Priimek avtorja, Inicialka(-e) avtorjevega imena. (letnica izdaje dela): *Naslov dela: Morebitni podnaslov*. Kraj izdaje, Založba.

Monografije in knjige (od tri do šest avtorjev)

Pernet, L., Carlevaro, E., Tori, L., Vietti, G., Della Casa, P., in Schmid-Sikimić, B.

(2006): *La necropoli di Giubiasco (TI): Vol. II, Les Tombes de La Tène finale et d'époque romaine*, Collectio archaeologica 4. Zürich, Musée national suisse.

Opomba: Če je avtorjev šest ali manj, se v končnem seznamu virov in literature navedejo vsi avtorji. Če je avtorjev več kot šest, se našteje prvih šest, nato pa sledi okrajšava idr.

Monografije in knjige (avtorji niso znani, znan je urednik)

Dromgoole, S. (ur.) (2006): *Legal protection of the Underwater Cultural Heritage: National perspectives in Light of the UNESCO Convention 2001.* Leiden, Martinus Nijhoff.

Diplomska in magistrska dela, doktorske disertacije, raziskovalna poročila

Uhač, M. (2003): *Brodolom na rtu Savudrija.* Diplomska naloga. Sveučilište u Zadru.
Verbič, T. (2008): *Poročilo o ogledu arheoloških izkopavanj na lokaciji NUK 2.* Raziskovalno poročilo. Ljubljana, Zavod za varstvo kulturne dediščine Slovenije, Območna enota Ljubljana.

Prispevki ali poglavja v monografijah, knjigah, enciklopedijah in zbornikih konferenc, zborovanj, seminarjev itd.

Dumont, A. (2000): Etat d'un cours d'eau à la fin du 18e siècle : la visite de la rivière d'Ourthe (Belgique). V: Bonnamour, L. (ur.): *Archéologie des fleuves et des rivières*, str. 25–27. Pariz, Éditions Errance.

Opomba: pri zbornikih konferenc, zborovanj, seminarjev itd. naj avtor ne navaja, za katero konferenco, zborovanje, seminar itd. gre, kje in kdaj je tovrstno druženje potekalo in kakšen je bil njegov naslov. Z ležečo pisavo je napisan naslov knjige, monografije, zbornika.

Prispevki v monografijah, ki izhajajo v seriji z lastnim naslovom

Svetličič, V. (1997): Drobne najdbe iz kovine, jantarja in roževine. V: Horvat, J.: *Sermin.* Opera Instituti Archaeologici Sloveniae, 3, str. 31–38. Ljubljana, Založba ZRC.

Opomba: za naslovom knjige zapišemo tudi naslov serije in številko zvezka (če je zbirka oštevilčena). Oštevilčenje je vedno zapisano v arabskih številkah, tudi če so v knjigi rimske številke. Prav tako izpuščamo oznako za zvezek pred številko *(Band, Heft, Vol., No.).*

Prispevki v periodičnih publikacijah

Delak Koželj, Z. (2008): Programski model delovanja etnologa konservatorja. *Varstvo spomenikov*, 44, str. 256–262.
Raban, A. (1992): Archaological Park for Divers at Sebastos and Other Submerged Remnants in Caesarea Maritima. *International Journal of Nautical Archaeology*, 21(1), str. 27–35.

Opomba: število 21 v oznaki 21(1) je letnik publikacije, 1 pa številka v posameznem letniku. Če publikacija nima številke (npr. če izide le ena publikacija v enem letniku), naj avtor napiše le letnik, vendar ne v oklepaju. Imena revij ni dovoljeno pisati z okrajšavami, napisana pa morajo biti z ležečo pisavo.

Gesla v enciklopedijah in leksikonih

Slovenski biografski leksikon, s. v. "Turner Pavel".
Ulčar, M. (1995): *Enciklopedija orožja: Orožje skozi sedem tisočletij.* Ljubljana, Državna založba Slovenije, s. v. "Enostrelne zadnjače".

Opomba: pri citiranju gesel razširjenih enciklopedij in leksikonov pišemo le naslov (ležeče) in pa izdajo, če jih je na voljo več, ni pa treba zapisati števila zvezkov niti kraja in leta izida. Naslovu sledita kratica s. v. (iz latinskega *sub verbo* – pod besedo) ter citirano geslo v narekovajih in pokončnem tisku.
Kadar navajamo podatke iz manj znanega leksikona ali enciklopedije, moramo seveda v opombo zapisati vse podatke, ki jih pišemo pri monografskih delih.

Prispevki v dnevnih časopisih

Petkovšek, J. (2009): Potrebujemo zakon, ne le odlok. *Delo*, 51(24), 30. 1. 2009, str. 9.

Zakoni

Zakon o varstvu kulturne dediščine. Uradni list RS, št. 16/2008. Ljubljana.

Publikacije, katerih avtor in urednik nista znana – npr. statistični viri, enciklopedije, zemljevidi

Statistični urad Republike Slovenije (2007): *Statistični letopis 2007.* Ljubljana.

Opomba: najprej je naveden izdajatelj, sledijo leto izdaje, naslov dela in kraj izdaje. V prispevkih v angleškem jeziku morata biti v tem primeru ime izdajatelja in naslov dela prevedena v angleščino.

Rokopisi in tipkopisi, ki niso objavljeni, vendar je letnica nastanka znana

Plesničar – Gec, L. (2000): *Emonski teater*. Tipkopis.

Opomba: najprej je naveden avtor rokopisa/tipkopisa, sledijo letnica in naslov ter podatek, da gre za rokopis/tipkopis.

Rokopisi in tipkopisi, ki niso objavljeni, letnica nastanka pa tudi ni znana

Snoj, D. (1999): *Poročilo o zaščitnih izkopavanjih na lokaciji NUK II*. Tipkopis (prejeto 24. 1. 1999).

Opomba: najprej je neveden avtor rokopisa/tipkopisa, sledijo letnica (kot letnica se navede leto, ko je avtor prispevka vir prejel), naslov, podatek, da gre za rokopis/tipkopis, v oklepaju pa je natančen datum prejetja dela.

Intervjuji, pogovori

Svetina, T. (1995): *Marijina kapelica na Mlinem pri Bledu* (osebni vir 25. 3. 1995).

Opomba: navedejo se intervjuvanec, leto intervjuja, kot naslov pa vsebina intervjuja. V oklepaju je natančen datum izvedbe intervjuja/pogovora.

Splošne opombe

- Če je delo še v tisku, se v oklepaju namesto letnice izdaje navede: (v tisku) – na ta način se delo navaja tudi med besedilom.
- Če je krajev izdaj več, mora avtor navesti enega od njih.
- Če je založnik fakulteta ali oddelek na fakulteti, je treba za krajem izdaje dela najprej navesti univerzo, nato fakulteto in na koncu morebitni oddelek.
- Če sta avtorja dva ali jih je več, se v končnem seznamu virov in literature navedba dela začne vedno s tistim avtorjem, ki je (kot prvi) naveden tudi med besedilom.
- Če isti avtor nastopa enkrat samostojno, enkrat pa kot prvi avtor v skupini več avtorjev, potem v seznamu virov in literature najprej navajamo njegova samostojna in nato skupinska dela; slednja razvrstimo po abecedi glede na priimek drugega (ali po potrebi tretjega) avtorja. Če se isti avtor pojavi večkrat, dela navajamo po letu izdaje – najprej starejša in nato novejša dela.
- Če je naslov citiranega dela v dveh ali več jezikih ali če je celotni prispevek v dveh ali več jezikih, mora avtor za prvo napisanim naslovom zapisati še naslove dela v drugem(-ih) jeziku(-ih), in sicer znotraj oglatih oklepajev. Če je teh naslov več, jih mora med seboj ločiti s poševno črto (/), pri čemer pred njo in za njo ne sme pustiti presledka. Če je dvo- ali večjezični prispevek v publikaciji objavljen na različnih mestih, morajo biti številke strani navedene za vsakega posebej, kot je prikazano v spodnjem primeru:
  Horvat, J. (2002): The Hoard of Roman Republican Weapons from Grad near Šmihel [Zaklad rimskega republikanskega orožja z Gradu pri Šmihelu pod Nanosom]. *Arheološki vestnik*, 53, str. 117–150 [150–192].
- Navedba strani se piše s stičnim pomišljajem; avtor naj bo pozoren, da uporablja pomišljaj (–) in ne vezaj (-).
- Vsaka navedba vira se konča s piko.

39. Pri navajanju arhivskih virov je treba v oklepaju navesti ime arhiva ali njegovo okrajšavo, ime fonda in njegovo signaturo, oznako tehnične enote (številko fascikla ali škatle) ter naslov in številko navajanega dokumenta, vse ločeno z vejicami. Poleg tega je – če je to mogoče – smiselno navesti še podatke, ki so na citirani arhivaliji, npr. številko in datum izdaje akta.

Primer navedbe arhivskega vira

Arhiv Republike Slovenije (ARS), Vicedomski urad za Kranjsko, AS 1, šk. 1, akt 942.

40. Vire s svetovnega spleta navajamo, kot je prikazano spodaj. Vedno na koncu navedemo tudi datum, ko je bil vir dostopen na spletu.

Primer navedbe spletnega vira, če je avtor znan

Avramov, D. (2006): Social exclusion and social security. http://www.avramov.org/documents/document7.pdf (dostop 20. 2. 2008).

Primer navedbe spletnega vira, če avtor ni znan

Internet 1: http://www.international.icomos.org/charters.htm (dostop 15. 9. 2008).

Opomba: v prvem primeru se med besedilom navede (Avramov, 2006), v drugem primeru pa (internet 1, 2 ...).

41. Seznam virov in literature vključuje le dela, ki so dejansko navedena v besedilu prispevka. Vsako enoto v teh seznamih zaključuje pika.

RECENZENTSKI POSTOPEK, LEKTURA IN AVTORSKE PRAVICE

42. Uredništvo sprejema prispevke vse leto. Prispevke morajo avtorji poslati po pošti na naslov uredništva

Zavod za varstvo kulturne dediščine Slovenije
Varstvo spomenikov – uredništvo
Poljanska cesta 40
SI–1000 Ljubljana

43. Grafične priloge morajo biti v končni obliki shranjene v podatkovni mapi, ločeno od besedila prispevka. Gradiva ne pošiljajte po e-pošti, ampak ga zapišite na zgoščenko. Zgoščenki priložite iztis vseh datotek.
44. Uredništvo ima pravico, da prispevkov, ki niso v celoti pripravljeni v skladu z navodili za objavo v reviji Varstvo spomenikov, ne sprejme v recenzentski postopek.
45. Uredništvo ima pravico, da prispevkov, ki niso napisani v slovenskem knjižnem jeziku, ne sprejme v recenzentski postopek.
46. Z rezultatom recenzije članka bo avtor seznanjen najpozneje v treh mesecih od oddaje članka. Če recenzent predlaga spremembe oziroma izboljšave, se članek vrne (prvonapisanemu) avtorju. Morebitne popravke ali spremembe lahko sočasno predlaga tudi uredništvo. Avtor vnese predlagane recenzentove in/ali urednikove popravke in vrne popravljeno besedilo v petih dneh. Vnesene popravke in spremembe preveri urednik. Dovoljeni so le popravki in spremembe, ki jih zahtevata recenzent in/ali urednik.
47. Če recenzija ne zahteva popravka ali dopolnitve članka, se avtorju recenzija ne pošlje. V tem primeru uredništvo pošlje (prvemu) avtorju le obvestilo, da bo prispevek objavljen.
48. O uvrstitvi objavljenih prispevkov v eno od tipologij dokumentov/del v bibliografskem sistemu COBISS odloča recenzent. Urednik preveri pravilnost odločitve recenzenta. Če se mu zdi recenzentova uvrstitev sporna, se glede uvrstitve dogovorita skupaj. O uvrstitvi nerecenziranih prispevkov v eno od tipologij COBISS-a odloča urednik.
49. Pred objavo so vsi prispevki, ki so napisani in oddani v slovenskem jeziku, še lektorirani. Avtorju se lektorirano besedilo pošlje v dopolnitev le, če lektor predlaga večje popravke oziroma vstavi svoje komentarje/pripombe, ki so povezani s strokovno vsebino. V takih primerih avtor popravi ali izboljša besedilo v skladu z lektorjevimi pripombami/komentarji in vrne popravljeno besedilo v treh dneh.
50. Prevod se opravi po recenzentskem postopku oziroma po vnosu morebitnih recenzentovih in/ali urednikovih popravkov in pregledu morebitnih predlaganih večjih lektorjevih popravkov oziroma komentarjev/pripomb.

    Za zagotovitev brezhibnosti prevoda prevedene prispevke pred objavo pregleda oseba, ki uporablja angleščino kot svojo materinščino. Če so predlagani manjši popravki, se prevod avtorju ne vrača, ampak uredništvo vnese popravke na podlagi predlogov govorca materinščine. Če je ugotovljeno, da je prevod jezikovno problematičen, uredništvo poskrbi za njegovo profesionalno lektoriranje. Avtor vrne lektorirano besedilo prevoda v petih dneh. Dopolnjeno besedilo prevoda se še enkrat jezikovno pregleda. Prispevek je objavljen, ko je potrjeno, da prevod ustreza pravopisnim pravilom angleškega jezika in pravilom v teh navodilih.
51. Tuji avtorji se za prevod prispevkov iz angleščine v slovenščino dogovorijo z urednikom. Prispevek morajo oddati v brezhibni angleščini. Tudi te prispevke jezikovno pregleda oseba, ki uporablja angleščino kot svojo materinščino.
52. Uredniški odbor lahko na predlog urednika ali recenzenta zavrne objavo prispevka.
53. Sprejeti bodo samo prispevki, ki še niso bili objavljeni. Če je isti prispevek že v postopku objave v drugi reviji, mora avtor to izrecno navesti.
54. Za avtorsko delo, poslano za objavo v Varstvu spomenikov, vse moralne avtorske pravice pripadajo avtorju, materialne avtorske pravice reproduciranja in distribuiranja v Republiki Sloveniji in v drugih državah pa avtor brezplačno, enkrat za vselej, za vse primere, za neomejene naklade in za vse medije neizključno prenese na izdajatelja.
55. Avtorji so za objavo grafičnih prilog, za katere nimajo avtorskih pravic, dolžni pridobiti dovoljenje in ga poslati na naslov uredništva.
56. Za vse trditve v prispevku odgovarja avtor sam, zato objavljamo le podpisane prispevke.
57. Ob izidu prejme vsak avtor članka in vsak recenzent en brezplačen izvod publikacije. Članki niso honorirani.

Instructions to authors for the drafting of articles in *Varstvo spomenikov*

PRESENTATION

1. *Varstvo spomenikov* is Slovenia's main academic and professional journal devoted to the theory and practice of monument protection. It is published by the Institute for the Protection of Cultural Heritage of Slovenia.
2. The journal first appeared in 1946, with one issue published a year up to 2010.
3. The journal is divided into two parts. The first (longer) part contains articles classified according to the COBISS (**Co**-operative **O**nline **Bi**bliographic **S**ystem and **S**ervices) typology under codes 1.01 to 1.04, where 1.01 means original scientific article, 1.02 means review article, 1.03 means short scientific article and 1.04 means professional article. The articles published in this part of the journal are peer-reviewed and are counted as reference articles in domestic and foreign academic environments. The category of the article is proposed by the author but the final decision is taken by the editorial board on the basis of the reviewer's proposal.

   The second (shorter) part, which follows the first, contains reviews (COBISS code 1.19), presentations (of books, projects, events, lectures, conferences, etc.), library information, etc. Articles published in this part of the journal are not subject to peer review. The first part of the journal is called *Razprave* [Papers] and the second *Predstavitve* [Presentations]

TYPE, LENGTH AND STRUCTURE OF ARTICLES

4. The individual issues of the journal are not as a rule thematically oriented. The journal publishes articles from various fields and disciplines (archaeology, ethnology, history of art, architecture, landscape architecture, conservation, restoration, geography, etc.) which follow the scholarly and professional interest of their authors in the protection, research and management of cultural heritage, international acts and national legislation, spatial planning and information technology in the monument protection field, Conservation studies, monument protection history and doctrine, etc.
5. Articles in the *Razprave* section are published in Slovene and English. As a rule translations are arranged by the editorial office.
6. Papers should not exceed 24 pages (30 lines, 64 characters per line) or 46,000 characters with spaces. Articles from the *Predstavitve* section should not exceed 5 pages (9,300 characters).
7. The contents of papers should follow this sequence: title, subtitle (where appropriate), abstract, keywords, text divided into individual chapters (including an introduction and conclusion), list of references and summary. The title and subtitle of the article should accurately but concisely indicate the essential content. As a rule, the most important concepts dealt with in the article should be indicated at the start of the title or subtitle. The maximum recommended length of titles is 140 characters. The abstract should be no more than 6–10 lines long (up to 650 characters). It must be self-explanatory and intelligible to someone who has not read the whole article; it should contain an outline of the methodology used and results obtained; whole sentences should be used and little-known abbreviations should be avoided. Abbreviations should be explained in Slovene at first use. If this is not possible, the abbreviation should be explained in the language in which it originates. Keywords should consist of 3–8 words indicating the content of the article; these should be simple expressions in the nominative singular case. The author should attempt to select keywords that are already in general use in the COBISS system. The UDC call number or classification shall be provided by the editorial office. The summary should be 30–45 lines long (maximum 1,900 characters). In it, the author shall define the purposes, main characteristics and methodology of the research work and the most important results and conclusions of the article. The text of the article must be clearly and intelligibly structured with titles of sections and subsections. A maximum of two levels of subsections (subsections and sub-subsections) are permitted. The author may also include a short acknowledgements section which will be published before the list of references.
8. In order to guarantee anonymity during the peer-review process, the name(s) of the author(s) should only appear on a separate cover page. Titles and degrees should be included. Official abbreviations should be used for degrees but titles are not abbreviated. Female authors should use the female form of their title (e.g. *docentka*). The cover page should also state the address of the institution where the author is employed (or other appropriate address) and an e-mail address. If the article is the work of more than one author, the authors themselves shall determine the order in which their names appear. The cover page should not contain other information.
9. For book presentations and reviews (COBISS code 1.19) published in the second part of the journal, the author must first indicate the title of the article. This does not necessarily have to be the same as the title of the book or work which the author is presenting or reviewing but must relate to the content/review of the presented work or book and should be as brief and uncomplicated as possible. Following the title, the author must also indicate: the original title of the work, the name of the author(s), the name of the editor(s), the publisher and the year of publication, and the ISBN number.

FORMATTING AND LANGUAGE OF ARTICLES

10. Articles must be written in Microsoft Word format. Only one style should be used throughout the article – the default Normal style. This means that articles must have the following characteristics: line spacing: single; font: Times New Roman; font size: 12 pt; alignment: left; margins: 2.5 cm; A4 format. These rules change slightly in the case of illustrations and tables, where the font must be Arial and the font size must not be smaller than 10 pt. The pages of the article should be numbered in sequence and the page number should appear at the bottom of the page (centred).
11. The text of the article should use simple formatting. The use of indentations, hyphenation, underlining, shading or any other forms of formatting except the use of bold and italics is not permitted. The entire text should be lower-case (with the exception of initial capitals) and should contain no unnecessary abbreviations. If abbreviations cannot be avoided, the author should explain them at first use.
12. The author may include original expressions/terms alongside expressions translated into Slovene. The author should include the expression in brackets after the Slovene translation, following an abbreviation indicating the language of the original expression/term (e.g. Eng. for English, Ger. for German, Fr. for French, etc.) and then the expression/term in italics. The Slovene translation of the expression/term should be placed in inverted commas.
13. Do not use the automatic bullets and numbering functions in Microsoft Word to list items. Items in a list should be numbered or marked manually even though this means that the text will not be aligned vertically. The same applies to numbering the title, subtitle, sections, subsections, tables and figures. If numbers are not used to indicate the items in a list, dashes should be used instead.
14. Articles published in Slovene must be written in standard literary Slovene and observe the rules of Slovene usage as set out in *Slovenski pravopis* (2003, 2007).
15. The use of foreign words in articles written in Slovene is only permitted if a more suitable expression does not exist in Slovene.

TABLES AND ILLUSTRATIONS

16. Tables in the article shall be referred to (in articles written in Slovene) by the expression *preglednica*. Tables are incorporated into the text of the article and must not extend beyond the 2.5-centimetre margin. Each table must be intelligible, clear and simple, without additional explanation or description. Tables should consist of rows and columns intersecting in cells. Cells should not be shaded. Tables must be numbered in sequence with Arabic numerals and must have titles. The title of the table should appear above the table. The number and title of the table should be separated by a colon. Titles of tables should be as short and simple as possible. The title of a table should only end with a full stop if it is a full sentence. The author must cite the sources of the data in the table below the table. The sources used must be listed (in full) in the list of references at the end of the article.
17. The uniform designation 'Figure' shall be used for all types of illustration (photographs, maps, graphs, sketches, etc.). Figures must not be embedded in the text of the article. They must be numbered in sequence with Arabic numerals and must have titles. The number and title should be separated by a colon. Titles of figures should be as short and simple as possible. The author shall also include the source(s) of the illustration in the manner set out in these instructions for in-text citation of sources and references. In the case of original photographs and illustrations not taken from sources, the name of the photographer/illustrator shall be given after the title of the figure. The title of the figure shall only end with a full stop placed after the citation of sources (or the name of the photographer/illustrator) in the case of a full sentence.
18. If the author refers in the text to a figure (describes it, comments on it, etc.) it must be stated in the text what figure the author is referring to; if a figure complements the text of the article, the figure complementing the text must be indicated at the most appropriate point in the text. When referring to figures in the text, their numbers should be used, e.g. '(Fig. 1)', 'as can be seen from Figure 1', 'as shown by Figure 1', etc.
19. If a figure consists of more than one image (e.g. a vertical and/or horizontal sequence of photographs, sketches, tables, etc.), each individual element of the figure must be visibly and clearly numbered. The caption to the figure must include the number of the individual element of the figure and the title/explanation of this element, in the manner indicated in the example below. Such a title shall end with a full stop.
20. If an illustration contains text (e.g. labels on sketches, legends on graphs, labels/textual indications of units on the X and Y axes of graphs, etc.), this text must be given in Slovene and English. Labels should be as simple and as short as possible (if labels or textual indications of units on the X and Y axes of graphs and elsewhere are long, it is better to label these units with numbers and explain the numbers in a legend).
21. The font used in all illustrations must be Arial and the font size must be no smaller than 10 pt. Single line spacing, left alignment and A4 format must be used.
22. Illustrations (with the exception of graphs) must be delivered as bitmap images with a resolution of at least 350 dpi (dots per inch), in JPEG (highest quality) or TIFF format. The width of an image at this resolution should be at least 14.8 cm. If authors are unable to submit illustrations in the prescribed form, they should consult the editor before submission.
23. Graphs must be in Microsoft Excel format.
24. Each illustration must be saved and submitted to the editorial office in its own file. The filename of an individual image file must have the following format: surname of (first) author, underscore, abbreviation 'sl', underscore, number of the figure in the text, e.g. **Fister_sl_1**.
25. The author should count the space that the illustration will occupy in the article as an amount of text, in other words 250 words (half a page) or 500 words (whole page).
26. Authors should be moderate in their use of illustrations in the article. They should only use those they consider necessary to aid understanding of the content of the article.

NUMBERS AND MEASUREMENTS

27. Metric measurements should be used. In the case of numbers greater than 9999, commas should be used to separate thousands and millions (for example 13,432 or 1,514,800). When giving the scale of a map, a space should be used either side of the colon (for example 1 : 500,000). Numbers and units are separated by a space (for example 135 m, but 23.5%), but a space is not used before superscripts or subscripts indicating powers or indices (for example 143 km^2, b_5, 17 °C). Symbols in mathematical operations are separated by spaces, except brackets (e.g. p = a + c – b – (a + c : b).

ABBREVIATIONS

28. The Slovene versions of abbreviations and bibliographic references (ur.; idr.; isti.; ista; prav tam) shall be used in articles written in Slovene.

    The abbreviation 'prim.' (cf.) is used to draw attention to a view which differs from that of the author or from that of the author of another cited work.

NOTES AND REFERENCES

29. Bibliographic references shall be given in the text. Explanatory notes shall be given as footnotes.

    Footnotes containing additional text by the author shall be numbered consecutively from the beginning to the end of the text. Footnotes should not be too long.
30. Where the cited author is known, the bibliographic reference in the text should be as follows: (Zadnikar, 1982: 20–23) or, for example, 'Zadnikar (1982) states that...' Where a cited work has two authors, both are cited: (Buser, Cajhen, 1980) or, for example, 'Buser and Cajhen (1980) consider that...' In the case of works by several authors, only the surname of the first author is given, and the abbreviation et al. (meaning 'and others') is used for the other authors: (Benedetti et al., 2004) or 'Benedetti et al. (2004) believe that...' If there are six or fewer authors, all six are cited in the list of references at the end of the article, in the manner specified in these instructions. If there are more than six authors, the list of references at the end of the article cites the first six authors and adds the abbreviation et al. for the others, as specified in these instructions. If the article uses multiple sources with the same initial authors, all the authors up to and including the first different author must be cited in the text.
31. Works by one author published in the same year must be distinguished by the addition of lowercase letters (a, b, c, d, etc.) closed up to the year of publication e.g. '(Božič, 1992a, 1992b)' or 'Božič (1992a, 1992b) mentions that...' This is also how they must be cited in the list of references at the end of the article. Works by different authors all of which relate to the same content should be cited in alphabetical order of the author surname, separated by semicolons: (Fister, 1987; Stopar, 1990; Zadnikar, 1975). When citing two or more works by the same author, cite the author and the years of publication of these works in chronological order, separated by a comma: (Zadnikar, 1982, 1988). If the text contains consecutive references to the same work, the abbreviation *ibid.* is used in the second and all subsequent consecutive references in the same paragraph. If a work is still in the process of being published, use the wording 'in press' in brackets instead of the date of publication – this is also the way to cite the work in the list of references at the end of the article.
32. Quotations should be placed inside single inverted commas. The page on which the quotation appears in the work is indicated after a colon. A full stop is placed as final punctuation after the bracket containing the source of the quotation. If the text of the quotation in the cited work is on two or more pages, an unspaced dash is placed between the page numbers (Zadnikar, 1982: 36–37).
33. Longer quotations (over 40 words) should be placed in a separate paragraph and written in italics. A blank line should be left before and after this paragraph. In this case inverted commas are not used to mark the start and finish of the quotation. A full stop is placed as final punctuation after the bracket containing the source of the quotation.
34. In the case of quotations in which words/sections are omitted, omissions are indicated by an ellipsis in square brackets: […]. This symbol is followed by a capital letter, unless only part of a sentence is omitted. If a capital letter does not appear at this point in the quoted work (e.g. because it is not the beginning of a sentence), the first letter is enclosed in square brackets.
35. In references to sources of which the author and editor are unknown, the name of the publisher (in articles in English the name of the publisher must in this case be translated into English) and the year of publication of the work are cited. For data published by the Statistics Office of the Republic of Slovenia, for example, the citation should be as follows: (Statistics Office of the Republic of Slovenia, 2007). Abbreviations may also be used for sources, e.g. SURS for the Statistics Office of the Republic of Slovenia, but the name of the source must first be given in full in the text of the article, followed by an explanation that from this point on an abbreviation, which must be specified, will be used for this source. For the above example (Statistics Office of the Republic of Slovenia, 2007), further references to it will use (SURS, 2007).
36. When citing laws in the text, the name of the law, the number of the Official Journal of the Republic of Slovenia and the year shall be given, where the abbreviation OJ RS shall be used for the Official Journal of the Republic of Slovenia, for example: (Cultural Heritage Protection Act, OJ RS, No 16/2008). When quoting directly from laws, the page number in the OJ RS is added.
37. If laws have official abbreviations, for example ZVKD-1, these may be used, but the name of the law must first be given in full in the text of the article, followed by an explanation that from this point on an abbreviation, which must be specified, will be used for this source.

LIST OF REFERENCES

38. All works (sources and references) cited in the article must be listed in alphabetical order at the end of the article in a section entitled References. The list of authors must not be numbered or otherwise labelled (with bullets, dashes, etc.). In the case of the citations shown below, the punctuation marks and font style (italic or regular) are given exactly as they must

be given by the author in his/her article.

Monographs and books (single author)

Fister, P. (1986): *Umetnost stavbarstva na Slovenskem*. Ljubljana, Cankarjeva založba.

Note: Author's surname name, Author's initial(s). (year of publication): *Title: Subtitle if any.* Place of publication, Publisher.

Monographs and books (three to six authors)

Pernet, L., Carlevaro, E., Tori, L., Vietti, G., Della Casa, P., and Schmid-Sikimić, B. (2006): *La necropoli di Giubiasco (TI): Vol. II, Les Tombes de La Tène finale et d'époque romaine*, Collectio archaeologica 4. Zurich, Swiss National Museum.

Note: If there are six or fewer authors, all authors are listed in the list of references. If there are more than six authors, the first six are given and then the abbreviation 'et al.'

Monographs and books (authors not known, editor known)

Dromgoole, S. (ed.) (2006): *Legal Protection of the Underwater Cultural Heritage: National Perspectives in Light of the UNESCO Convention 2001.* Leiden, Martinus Nijhoff.

Undergraduate theses, master's theses, doctoral dissertations, research reports

Uhać, M. (2003): *Brodolom na rtu Savudrija.* Undergraduate thesis. University of Zadar.
Verbič, T. (2008*): Poročilo o ogledu arheoloških izkopavanj na lokaciji NUK 2.* Research report. Ljubljana, Zavod za varstvo kulturne dediščine Slovenije, Območna enota Ljubljana.

Papers or chapters in monographs, books, encyclopaedias and proceedings of conferences, conventions, seminars, etc.

Dumont, A. (2000): Etat d'un cours d'eau à la fin du 18e siècle : la visite de la rivière d'Ourthe (Belgique). In: Bonnamour, L. (ed.): *Archéologie des fleuves et des rivières*, 25–27. Paris, Éditions Errance.

Note: In the case of proceedings of conferences, conventions, seminars, etc., the author does not state the name of the conference, convention, seminar, etc. or where and when it took place. The title of the book, monograph or proceedings is given in italics.

Papers in monographs published in a series with its own title

Svetličič, V. (1997): Drobne najdbe iz kovine, jantarja in roževine. In: Horvat, J.: *Sermin*. Opera Instituti Archaeologici Sloveniae, 3, 31–38. Ljubljana, Založba ZRC.

Note: the title of the book is followed by the title of the series and the number of the volume (if the collection is numbered). Numbering is always given in Arabic numerals even if Roman numerals are used in the book. The volume designation (*Band, Heft, Vol., No* etc.) before the number is also omitted.

Articles in periodicals

Delak Koželj, Z. (2008): Programski model delovanja etnologa konservatorja. *Varstvo spomenikov*, 44, 256–262.
Raban, A. (1992): Archaological Park for Divers at Sebastos and Other Submerged Remnants in Caesarea Maritima. International Journal of Nautical Archaeology, 21(1), 27–35.

Note: the numeral 21 in 21(1) refers to the year of publication while the numeral 1 is the number of the issue in that year. If the publication does not have an issue number (for example a single annual publication), the author merely gives the number referring to the year of publication, but not in brackets. Names of publications must not be given in abbreviated form and must be given in italics.

Entries in encyclopaedias and lexicons

Slovenski biografski leksikon, s. v. 'Turner Pavel'.
Ulčar, M. (1995): *Enciklopedija orožja: Orožje skozi sedem tisočletij.* Ljubljana, Državna založba Slovenije, s. v. 'Enostrelne zadnjače'.

Note: when citing entries from well-known encyclopaedias and lexicons, only the title (in italics) and the edition (in the case of there being more than one) are given. It is not necessary to state the volume number or the place and year of publication. The title is followed by the abbreviation s.v. (from the Latin *sub verbo* meaning under the word or heading) and the cited entry in inverted commas. Italics are not used for the cited entry.
When citing information from a less well-known lexicon or encyclopaedia, the reference must of course include all the information given in the case of monographic works.

Articles in daily newspapers

Petkovšek, J. (2009): Potrebujemo zakon, ne le odlok. *Delo*, 51(24), 30. 1. 2009, 9.

Laws

Protection of Cultural Heritage Act. OJ RS, No 16/2008. Ljubljana.

Publications of which the author and editor are unknown – for example statistical sources, encyclopaedias, atlases

Statistics Office of the Republic of Slovenia (2007): *Statistični letopis 2007.* Ljubljana.

Note: the publisher is given first, followed by the year of publication, the title of the work and the place of publication. In articles in English, the name of the publisher and the title of the work must be translated into English in this case.

Unpublished manuscripts and typescripts of which the date of writing is known

Plesničar-Gec, L. (2000): *Emonski teater*. Typescript.

Note: the name of the author of the manuscript/typescript is given first, followed by the date of writing, the title and an indication that it is a manuscript/typescript.

Unpublished manuscripts and typescripts of which the date of writing is not known

Snoj, D. (1999): *Poročilo o zaščitnih izkopavanjih na lokaciji NUK II*. Typescript (received 24. 1. 1999).

Note: the name of the author of the manuscript/typescript is given first, followed by the date (in this case the year that the author of the article received the source), the title, an indication that it is a manuscript/typescript, and in brackets are the exact date on which the work was received.

Interviews, conversations

Svetina, T. (1995): *Marijina kapelica na Mlinem pri Bledu* (personal source 25. 3. 1995).

Note: the reference consists of the name of the interviewee, the year of the interview and, as a title, the content of the interview. The exact date of the interview/conversation is given in brackets.

General remarks

- If a work is still in the process of being published, use the wording 'in press' in brackets instead of the year of publication – this is also the way to cite the work in the text.
- If there is more than one place of publication, the author must cite at least one of them.
- If the publisher is a university faculty or a department thereof, following the place of publication the name of the university must be given first, followed by the faculty and then the department if applicable.
- If there are two or more authors, the reference in the list of references at the end of the article always starts with the author cited (first) in the text.
- If the same author appears both as the sole author of a work and as the first author in a group of authors, the works of which he/she is sole author appear before the group works in the list of references; the latter are arranged alphabetically by the surname of the second author (or if necessary the third). If the same author appears several times, works are cited by year of publication – starting with the oldest.
- If the title of a cited work is in two or more languages, or if the entire article is in two or more languages, the author must add the titles of the work in the other language (or other languages) in square brackets after the title in the first language. If there are several of these titles, they must be separated by a slash (/) without spaces. If a bilingual or multilingual article in a publication is published in more than one place, the page numbers must be given for each separately, as shown in the example below:
  Horvat, J. (2002): The Hoard of Roman Republican Weapons from Grad near Šmihel [Zaklad rimskega republikanskega orožja z Gradu pri Šmihelu pod Nanosom]. *Arheološki vestnik*, 53, 117–150 [150–192].
- Page numbers are separated by an unspaced dash; authors should be careful to use a dash (–) and not a hyphen (-).
- Every reference must end with a full stop.

39. When citing archive sources it is necessary to give the name of the archive or an abbreviation thereof, the name of the collection and its call number, the number of the unit (folder or box) and the title and number of the cited document, all separated by commas. It is also a good idea to cite, where possible, details that appear on the cited archive material, for example the number and date of publication of a document.

Example of a reference to an archive source

Arhiv Republike Slovenije (ARS), Vicedomski urad za Kranjsko, AS 1, Box 1, Document 942.

40. Internet sources are cited as shown below. The reference should always end with the date of retrieval (the date on which the source was accessed on the web).

Example of a reference to an internet source where the author is known

Avramov, D. (2006): Social exclusion and social security. http://www.avramov.org/documents/document7.pdf (retrieved on 20. 2. 2008).

Example of a reference to an internet source where the author is not known

Internet 1: http://www.international.icomos.org/charters.htm (retrieved on 15. 9. 2008).

Note: in the first case the in-text citation will be: (Avramov, 2006); and in the second case (internet 1, 2...).

41. The list of references should only include works that are actually cited in the text of the article. Each item in these lists is concluded by a full stop.

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