



# EKSPERIMENTALNA OBNOVA TUMULA NA BIOKOVU

## Experimental reconstruction of a tumulus on Biokovo

U znanstveno i stručno istraživanje prapovijesnih tumula na Biokovu, važan segment istraživanja je i obnova istraženih tumula da bi ih se vratilo u njihovo prvotno stanje, revitaliziralo, ali i prezentiralo i interpretiralo široj grupi korisnika. Općeniti cilj arheologije, rekonstruiranje života u prošlosti repertoarom metoda slabo dostupnih drugim povijesnim znanostima, bio bi perverzno elitistički i izoliran od društvene zajednice bez diseminacije široj publici. Golemi broj tumula pronađen na prostoru Biokova iznenadio je i dobre poznavatelje planine, pa je potrebno njihovim ponovnim oživljavanjem dati novi akcent u prirodnom pejzažu i onom artificialnom, kulturnom, polja grobnih humaka. Time bi bila stvorena i jedna nova, dodatna kulturološka i vizualna vrijednost. S tim idejama pristupilo se obnovi istraženih tumula, tako da su prilagođene svakom pojedinačnom spomeniku. Ovisno o sadržaju humaka, njihovoj sačuvanosti, mogućnostima rekonstrukcije i dostupnom građivnom materijalu, tumuli su obnovljeni i izloženi na različite, individualne načine.

Tijekom lipnja 2023. godine studenti i profesori Odjela za arheologiju i Odjela za povijest umjetnosti Sveučilišta u Zadru na planini Biokovu na lokalitetu Lokva održali su terensku nastavu iz kolegija Uvod u eksperimentalnu arheologiju. Sve prethodne terenske spoznaje primijenjene su u eksperimentu, a studenti su s njima upoznati kroz prezentaciju prije izlaska na teren koji je trajao tjedan dana.

Dva su glavna cilja ostvarena, rekonstrukcija procesa, tehnika i alata za izgradnju prapovijesnog grobnog humka te sama izgradnja i prezentacija. Eksperiment se provodio na temelju znanja stečenih u višegodišnjim arheološkim istraživanjima prapovijesnih grobnih humaka na prostoru Parka prirode *Biokovo* (položaji Lokva, Podglogovik i Prisika) kao i izvedenim rekonstrukcijskim i prezentacijskim zahvatima na četirima takvim tumulima. Na prvom takvom zahvatu iz 2018. godine na tumulu poviše prijevoja Staza, na spoju Rodičeve i Biokovske ceste obnovljen je obodni prsten humka promjera 12 metara te dva grobišna unutrašnja prstena u kojima je bila po jedna kamena škrinja za ukop pokojnika. U jednu od škrinja postavljena je kopija ljudskog kostura položenog u zgrčeni položaj. Dva manja sepulkralna tumula promjera oko 5

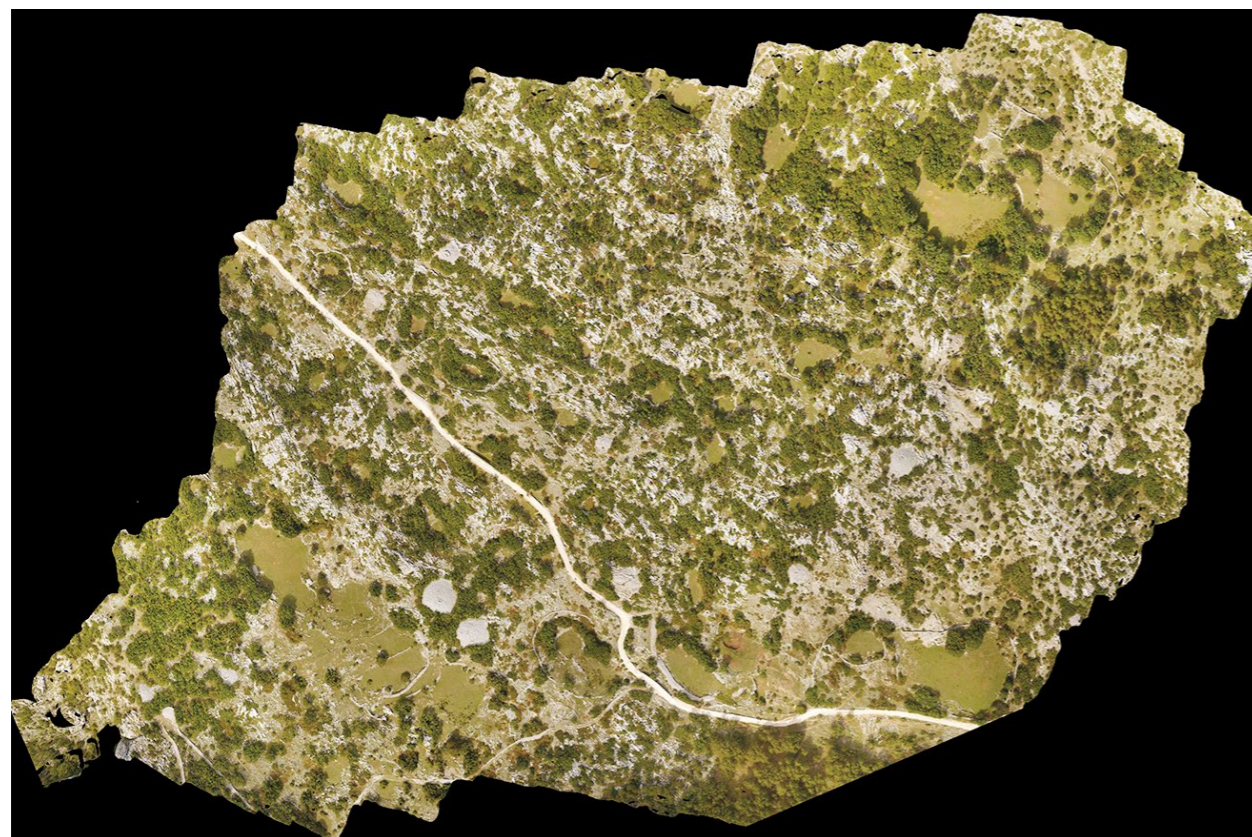
In addition to the scientific and professional research of prehistoric tumuli on Biokovo, an important segment of the research is the restoration of the investigated tumuli in order to return them to their original state, to revitalize them, but also to present and interpret them to a wider group of users. The general goal of archaeology, reconstructing life in the past with a range of methods poorly available to other historical sciences, would be perversely elitist and isolated from the social community without dissemination to a wider audience. The huge number of tumuli found in the area of Biokovo surprised even good mountain connoisseurs, so it is necessary to revive them to give a new accent in the natural landscape and in the artificial, cultural landscape of a field of burial mounds. This would create a new, additional cultural and visual value. With these ideas, the restoration of the investigated tumuli started, adapting to each individual monument. Depending on the contents of the mounds, their preservation, the possibilities of reconstruction and the available

building material, the tumuli were restored and displayed in different, individual ways.

During June 2023, students and professors of the Department of Archaeology and the Department of Art History of the University of Zadar

had field lessons in the course Introduction to Experimental Archaeology on Biokovo mountain at the Lokva site. All previous field knowledge was applied in the experiment, and the students were introduced to it through a presentation before going to the site for a week.

Two main goals were achieved, the reconstruction of the process, techniques and tools for the construction of a prehistoric burial mound, and the actual construction and presentation. The experiment was carried out on the basis of knowledge gained in many years of archaeological research of prehistoric burial mounds in the Biokovo Nature Park (locations Lokva, Podglogovik and Prisika) as well as reconstruction and presentation interventions on four such tumuli. In the first such intervention in 2018, the perimeter ring of the mound with a diameter of 12 meters and two inner burial rings, each containing a stone cist for the burial of the deceased, were restored on the tumulus above the Staza pass, at the junction of Rodičeva and Biokovska roads. A copy of a human skeleton laid in



Segment grobnog polja tumula na Biokovu (foto: arhiv projekta *DisKont*)  
Segment of the burial field of tumuli at Biokovo (photo: archive of the *DisKont* project)

Položaj tumula kod Lokve tijekom istraživanja (foto: arhiv projekta Diskont)  
Location of the tumulus near Lokva during the research (photo: archive of the Diskont project)





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 Detalj obnovljenog tumula na Stazi s plastičnim anatomskim kosturom u grobu 1 (foto: arhiv projekta *DisKont*)  
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 Detail of the restored tumulus on Staza with a plastic anatomical skeleton in grave 1 (photo: archive of the *DisKont* project)  
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metara, istražena su 2020. na položaju Prisika, na istočnom podnožju kote 920, a rekonstruirana i prezentirana iduće godine. Preko puta Rodičeve ceste prezentiran je još jedan veći tumul, čiji promjer iznosi 12 metara i u koji je ugrađeno oko 20 kubika kamene građe.

Tumul koji je tema ovog priloga nalazi se na Lokvi, kraj Planinarske kuće *Slobodan Ravlić* i ima dvije ukopne faze, primarnu iz razvijenog eneolitika i sekundarnu iz 14. stoljeća, s grobovima koji su na većoj visini. Bilo bi ih nemoguće rekonstruirati zajedno s dublje ukopanim prapovijesnim grobom pa je odlučeno da će tumul biti obnovljen tako da se vide ukopi iz 14. stoljeća, a stariji, prapovijesni, bit će prikazan i protumačen na edukacijskoj signalizaciji koja će uskoro biti postavljena. Taj prvotni tumul cetinske kulture bio je kameno-zemljani za razliku

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 Studenti i profesori na eksperimentalno podignutom tumulu na položaju Prisika (foto: arhiv projekta *DisKont*)  
 Students and professors on the experimentally erected tumulus at the location of Prisika (photo: archive of the *DisKont* project)  
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od ostalih brončanodobnih i željeznodobnih tumula na Podglogoviku i Prisiki koji su sagrađeni isključivo od kamena. Tako je i rekonstruiran s obodnim prstenom podignutim u visinu do četiri reda kamena, dva srednjovjekovna groba s masivnim poklopnicama i nasipom od krupnog kamena, šljunka i zemlje. Za potrebe provedbe eksperimenta pripremljen je jednostavni alat, čekić i drvena nosiljka tzv. tralje (lat. *ferculae*). Taj nosač za teške terete napravljen je od grubo obrađenih dasaka i dviju gredica za ručke, a nosi se u paru. Čekić se upotrebljavao za minimalne intervencije na kamenu ugrađenom u obodni zid tumula, da bi se odlomili manji segmenti i površine kamena međusobno bolje sljubile. Taj tumul, iznova eksperimentalno izgrađen oblika je nepravilnog kruga i podignut je u visini 30 cm do pola metra na obodu. Iz bolje sačuvanih tumula na prostoru Biokova vidi se da je originalna visina cjelovitog tumula odgovarajućeg promjera mogla biti i nekoliko metara. U strukturu eksperimentalno izgrađenog humka integralno su ugrađeni skromni preostatci postojećeg originalnog prapovijesnog tumula, a veći dio građe prikupljen je ručno s okolnog krševitog terena ili, u manjoj mjeri, odlomljen iz površinskih slojeva.

a crouched position was placed in one of the cists. Two smaller sepulchral tumuli with a diameter of about 5 meters were explored in 2020 at the location of Prisik, at the eastern foot of the topographic point 920. They were reconstructed and presented the following year. Across the street from Rodičeva road, another larger tumulus is presented, whose diameter is 12 meters and which was built of about 20 cubic meters of stone.

The tumulus that is the subject of this paper is located in Lokva, near the Slobodan Ravlić mountain hut and has two burial phases, the primary one from the Advanced Eneolithic and the secondary from the 14th century, with graves that are at a bigger height. It would be impossible to reconstruct them together with the deeper buried prehistoric grave, so it was decided that the tumulus will be restored so that burials from the 14th century can be seen, and the older, prehistoric ones will be displayed and interpreted on educational signage that will be installed soon. This original tumulus of the Cetina culture was made of stone and earth, unlike the other Bronze Age and Iron Age tumuli in Podglogovik and Prisika, which were built exclusively of stone. This is how it was reconstructed with a perimeter ring raised to the height of four rows of



Students carry a heavy load in a litter (foto: arhiv projekta DisKont)  
Students carry a heavy load in a litter (photo: archive of the DisKont project)



Podizanje obodnog zida tumula (foto: arhiv projekta DisKont)  
Erecting the perimeter wall of the tumulus (photo: archive of the DisKont project)



Prijenos teških kamenih poklopnica za srednjovjekovne grobove (foto: arhiv projekta DisKont)  
Transfer of heavy stone lids for medieval graves (photo: archive of the DisKont project)





Ipak, kamen se na Biokovu svakako trebao lomiti, obraditi i transportirati, barem za izgradnju grobnih škrinja s poklopcima, što je zahtijevalo poznavanje vještina obrade kamena.

Iako postoje općenite pretpostavke o društvenom raslojavanju tijekom brončanog doba, u ovom trenutku istraživanja teško je govoriti o raspodjeli djelatnosti među članovima biokovskih zajednica i o mogućnosti da je pojedincima primarni posao bio upravo izgradnja tumula. U sklopu eksperimenta koji smo u nekoliko istraživačkih kampanja proveli zajedno sa studentima arheologije Sveučilišta u Zadru pouzdano možemo reći da je za gradnju jednog tumula promjera oko 12

stones, two medieval graves with massive lids and an embankment made of large stones, gravel and earth. For the purposes of conducting the experiment, simple tools were prepared: a hammer and a wooden litter (Lat. *ferculae*). This heavy load carrier is made of rough-hewn planks and two billets for handles, and is carried in pairs. The hammer was used for minimal interventions on the stone embedded in the perimeter wall of the tumulus, in order to break off smaller segments and make the stone surfaces fit together better. This tumulus, experimentally built anew, has an irregular round shape and is raised at a height of 30 cm to half a meter on the perimeter. From the better-pre-



Tumul je predstavljen i kroz postavu prezentacijskog centra Parka prirode Biokovo u Župi (foto: arhiv projekta DisKont)  
The tumulus is also presented through the display of the presentation center of Biokovo Nature Park in Župa (photo: archive of the DisKont project)

metara i visine do 3 metra, s jednim ukopom u tjemenu, uz pretpostavku da se sirovinom opskrbljujete iz neposredne blizine, trebalo petnaest dana intenzivnog rada grupe od šest ljudi. Takav eksperiment podrazumijevao je i primjenu starih alata te poznavanje principa slaganja kamena tehnikom suhozida. Dužina trajanja gradnje i pripreme grobnog mjesta za ukop pokojnika otvara



served tumuli in the area of Biokovo, it can be seen that the original height of a complete tumulus of the appropriate diameter could have been several meters. The modest remains of the existing original prehistoric tumulus were integrally incorporated into the structure of the experimentally built mound, and most of the material was collected by hand from the surrounding rugged terrain or, to a lesser extent, broken off from the surface layers. Nevertheless, the stone at Biokovo definitely had to be broken, shaped and transported, at least for the construction of burial cists with lids, which required certain stonemasonry skills.

Although there are general assumptions about social stratification during the Bronze Age, at this point in the research it is difficult to talk about the distribution of activities among the members of the Biokovo communities and the possibility that the primary job of individuals was the construction of tumuli. As part of the experiment that we conducted in several research campaigns together with the archaeology students of the University of Zadar, we can reliably say that for the construction

Planinari kraj eksperimentalno obnovljenog tumula kod Lokve (foto: arhiv projekta DisKont)  
Mountaineers near the experimentally restored tumulus near Lokva (photo: archive of the DisKont project)





pitanje o kulturnoj praksi i pogrebnim ritualima koji su pratili cjelokupan proces sahrane, od trenutka smrti i pripreme pokojnika za polaganje u kame-  
nu grobnu škrinju do slaganja kamenog grobnog humka. Odgovore na to pitanje može dati samo rekonstrukcija poznatih radnji povezanih s grad-  
njom tumula te pokušaj odgonetanja njihova du-  
bljeg transcendentnog značenja.

Prikupljeni materijal sabirao se na gomile tamo gdje je prikupljan, tu se prekravao u tralje, preno-  
sio i nasipao na rastuću gomilu. Tumul je obrubljen prstenom od krupnijeg neobrađenog ili grubo  
obrađenog kamena koji je izgrađen u tehnici su-  
hozida. Kamenje se pažljivo složilo tako da je ho-  
rizontalna površina uvijek blago nagnuta prema  
središtu gomile. Zahvaljujući tom nagibu, gravita-  
cijskom pritisku gornjih slojeva kamena i trenju,  
izbjegnuta je mogućnost klizanja kamena prema  
van, tj. urušavanja obodnog zida. Struktura obod-  
nog zida dodatno je učvršćena umetanjem sitnijeg  
kamenja u šupljine između krupnijih stijena. Nasu-  
to kamenje različitog je profila, prosječnog promje-  
ra od 10 do 40 cm. Površina prezentiranog tumula  
zasuta je slojem zemlje koji su kiše naknadno, kao  
što smo i očekivali, sabile u kamenu nasip. Za poklo-  
pnice dvaju srednjovjekovnih grobova prikuplje-

of one tumulus with a diameter of about 12 meters  
and a height of up to 3 meters, with one burial in  
the crown, assuming that the raw material is sup-  
plied from the immediate vicinity, it took fifteen  
days of intensive work by a group of six people.  
Such an experiment included the use of old tools  
and knowledge of the principles of stacking stone  
using the dry stone wall technique. The duration of  
the construction and preparation of the grave site  
for the burial of the deceased raises the question  
of the cult practice and funeral rituals that accom-  
panied the entire burial process, from the moment  
of death and the preparation of the deceased for  
laying in the stone burial cist to the stacking of the  
stone burial mound. The answers to these ques-  
tions can only be given by the reconstruction of  
the known actions connected with the construc-  
tion of the tumulus and an attempt to figure out  
their deeper transcendental meaning.

The material was gathered in piles where it was  
collected, there it was loaded onto a litter, trans-  
ported and unloaded onto the growing pile. The  
tumulus is surrounded by a ring of larger un-  
worked or rough-worked stones that was built us-  
ing the dry stone wall technique. The stones were  
carefully arranged so that the horizontal surface is

no je pločasto masivno kamenje težine i do 160 kg,  
ručno preneseno s položaja udaljenih između 100  
i 500 m.

Tumul se nalazi na izoliranom položaju, izvan  
naselja, stoga je bilo potrebno pripremiti cijelu  
logistiku kako bi se eksperimentalno obnovio i  
prezentirao. Cijeli je proces fotografski dokumen-  
tiran s površine i zračnim snimanjem iz drona.  
Pripremljeni su tekstovi i fotografije za informa-  
tivne ploče koje će postaviti Park prirode *Biokovo*,  
a cijeli proces bit će opisan i objavljen u stručnoj  
literaturi, tako da je cijeli eksperiment zaokruže-  
na cjelina. Rekonstruirani tumul na Lokvi proširit  
će kulturološku i turističku ponudu Parka prirode  
*Biokovo*.

always slightly inclined towards the center of the  
pile. This slope and the gravitational pressure of  
the upper layers of stone and friction prevented  
the possibility of the stone sliding outwards, i.e. the  
collapse of the perimeter wall. The structure of the  
perimeter wall was additionally strengthened by  
inserting smaller stones into the cavities between  
larger rocks. The loose stones are of different pro-  
files, with an average diameter of 10 to 40 cm. The  
surface of the presented tumulus is covered with a  
layer of soil that the rains subsequently compacted  
into a stone embankment, as we expected. Plate-  
like massive stones weighing up to 160 kg were col-  
lected for the lids of two medieval graves, manu-  
ally transported from positions between 100 and 500  
m away.

The tumulus is located in an isolated location,  
outside the settlement, so it was necessary to pre-  
pare the entire logistics in order to experimentally  
restore and present it. The entire process was pho-  
tographically documented from the surface and a  
drone was used for aerial photography. Texts and  
photos have been prepared for the information  
boards that will be installed by Biokovo Nature  
Park, and the entire process will be described and  
published in professional literature, so that the en-  
tire experiment is a unified whole. The reconstruct-  
ed tumulus on Lokva will expand the cultural and  
tourist offer of Biokovo Nature Park.



... Hrbat Vič s kamenim tumulima sačuvanim u visini do 7 metara (foto: arhiv projekta DisKont)  
... Ridge Vič with preserved stone tumuli up to 7 meters high (photo: archive of the DisKont project)

