




**BIOKOVO**  
Park prirode  
Nature park



**noviadri**  
Zajedno do fonda EU



Europska unija  
Zajedno do fonda EU



EUROPSKI STRUKTURNI  
I INVESTICIJSKI FONDOVI



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prirode Biokovo“



# PRAVILA PONAŠANJA NA PLANINI

Park prirode Biokovo je primarno visoka i strma, zahtjevna i teško savladiva te bezvodna krška planina. Stoga je uspon potrebitno organizirati u grupi s iskusnim vodičem, a prije uspona dobro promisliti o savjetima Hrvatske gorske službe spašavanja (HGSS; [www.hgss.hr](http://www.hgss.hr))

- Izaberite izlet koji možete savladati tjelesno i vremenski
- u planinu uvijek idite s nekim, ne odvajajte se od druge osobe ili skupine
- obavijestite obitelj ili prijatelje o svom smjeru kretanja i vremenu povratka i držite se tog plana
- upišite se u knjigu posjetitelja u planinarskim domovima ili upisne knjige na vrhovima
- pitajte za savjet domare u planinarskim domovima ili iskusne planinare
- budite spremni na moguću naglu promjenu vremena, ponesite obavezno dobru jaknu, rezervnu toplu odjeću, kapu i zaštitu od kiše i vjetra
- uvijek nosite baterijsku svjetiljku
- uvijek nosite torbicu prve pomoći
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- zimi budite posebno oprezni i svjesni ranog padanja mrača
- ne idite zimi na izlete na teren koji niste upoznali u ljetnim uvjetima
- zimi ne idite u više planine bez društva iskusnih članova
- nakon obilnih snježnih oborina barem tri dana ne idite u više planine
- pratite vremensku prognozu i obavijesti o stanju snijega i rizicima od lavina
- nosite mobitel s punom baterijom
- naučite kako iščitati koordinate svoje pozicije s pametnog telefona
- šaljite SMS za pomoć: u planinama je signal često slabiji i otežana je govorna veza, ali slanje SMS-a prolazi i uz slabiji signal
- ukoliko imate dobar signal, zovite broj **112** (Jedinstveni operativno-komunikacijski centar) ili **+385 (0)91 721 0011** (HGSS, Stanica Makarska)

# CONDUCT RULES ON THE MOUNTAIN

Biokovo Nature Park is primarily a high and steep, demanding and difficult to overcome and waterless karst mountain. Therefore, the ascent should be organized in a group with an experienced guide, and before the ascent think carefully about the advice of Croatian mountain rescue service (CMRS; [www.hgss.en](http://www.hgss.en))

- Choose a trip that you can master, physically and temporally
- Always go to the mountains with someone, do not separate from another person or group
- Inform family or friends about your direction and return time and stick to that plan
- Sign the visitor's book in the mountain lodges or the registration book on the peaks
- Ask for advice from caretakers in mountain lodges or experienced hikers
- be prepared for a possible sudden change of weather, be sure to bring a good jacket, spare warm clothes, hat and protection from rain and wind
- Always carry a flashlight
- Always carry a first aid kit
- Carry a hiking map and compass on each long trip
- follow the marked paths, by mountaineering markings
- Wear sturdy and comfortable hiking shoes with a rubber ribbed sole
- In winter, be especially careful and aware of the early fall of darkness
- Do not go on field trips in winter that you are not familiar with in summer conditions
- In winter, do not go to higher mountains without the company of experienced members
- After heavy snowfall, do not go to higher mountains for at least three days
- Follow the weather forecast and information on snow conditions and avalanche risks
- carry a mobile phone with a full battery
- learn how to read the coordinates of your position from your smartphone
- send an SMS for help: in the mountains the signal is often weaker and difficult to establish a voice connection, but sending an SMS pass with a weaker signal
- if you have a good signal, call **112** (Unified Operational-Communication Centre) or **+385 (0) 91 721 0011** (CMRS, Makarska Station)

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*Da iztrgneš orlu, što ga prelieće, sva pera,  
pa da ih iztrošiš,  
pišući brzinom njegova olujna leta,  
i da gledaš Biokovo  
oštrinom njegovih žeravnih zjenica,  
ne bi ni zamietio sve zadahe i preljeve  
njegovih manja,  
kamo li bi ih trepavim riečima  
ljudskog jezika opisao.*

*To pluck out the eagle, that flies over it, all the feathers,  
so to spend them,  
writing at the speed of his stormy flight,  
and to watch Biokovo  
with the sharpness of his burning pupils,  
you would not even notice all the breaths and overlays  
of his properties,  
let alone blinking words at them  
human language described*

# 1. BIOKOVO: OSNOVNI PODACI

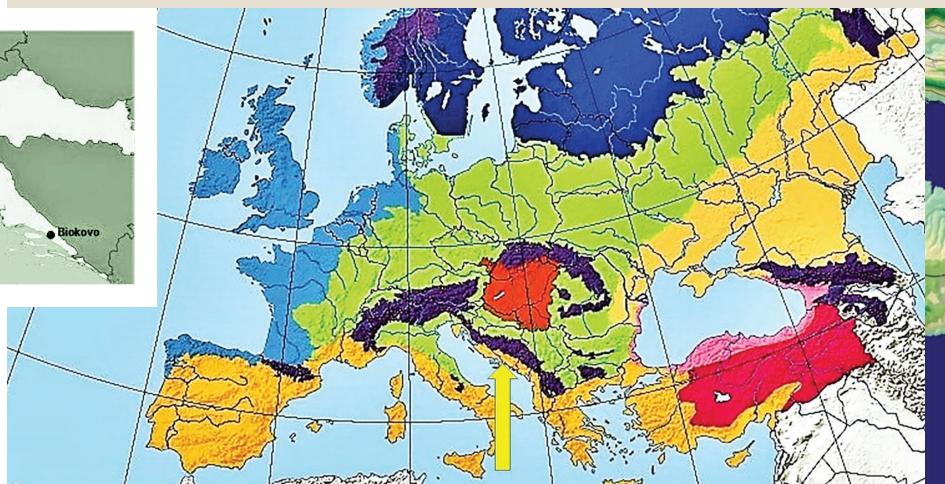
Planina Biokovo nalazi se na području južne Europe, u obalnom dijelu Hrvatske, u okviru povijesne pokrajine Dalmacije te pripada tektonskom sustavu Dinarida i europskoj Mediteranskoj biogeografskoj regiji (sl. 1.1.). Smješteno je neposredno uz istočnu obalu Jadranskog mora, oko 50 km jugoistočno od grada Splita, uzdiže se iznad grada Makarske, a administrativno pripada Splitsko-dalmatinskoj županiji.

# 1. BIOKOVO: BASIC DATA

Biokovo Mt. is in Southern Europe, coastal part of Croatia, within the historical province of Dalmatia. Belongs to the tectonic system of the Dinarides and the European Mediterranean biogeographical region (Fig. 1.1.). It is located next to the eastern coast of the Adriatic Sea, 50 km southeast of the city of Split, rises above the city of Makarska, and administratively belongs to the Split-Dalmatia County.

Krajobrazno, Biokovu pripadaju dva krajobraza: **Obalno područje srednje i južne Dalmacije te Dalmatinska zagora**. Prvo obuhvaća oko 60%, a drugo preostalih 40% SI dijela Biokova.

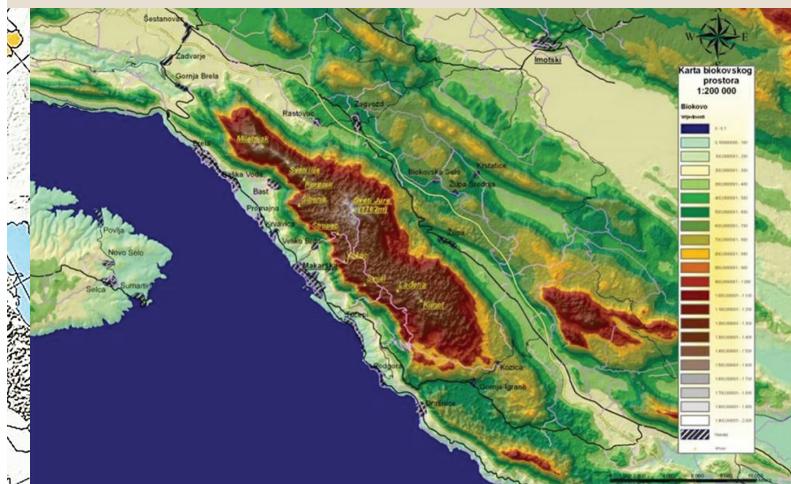
According to the landscape, to Biokovo belongs two landscapes: **the coastal area of central and southern Dalmatia and the Dalmatian zagora** (hinterland). The first covers about 60%, and the second the remaining 40% of the NE part of Biokovo.



Slika 1.1. Lokacija Biokova (žuta strelica) na biogeografskoj karti Europe, u okviru Mediteranske biogeografske regije (narančasto) / Biokovo location (yellow arrow) on the biogeographic map of Europe, within the Mediterranean biogeographical region (orange)

U najužem smislu planina Biokovo se pruža od prijevoja Dubci (288 m) na zapadu, do prijevoja Staza (897 m) na istoku, tipičnim dinarskim smjerom SZ-JI. Duljine je 36 km, prosječno širine oko 7 km (najšire do 9,5 km) te ukupne površine oko 200 km<sup>2</sup>. Dio je planinskog niza vanjskih Dinarida: Velebit-Kozjak-Mosor-Biokovo-Orjen. Najviša je planina hrvatskoga dijela Jadrana s najvišim vrhom Sv. Jurom (1762 m), na kojem je donedavno bio najviši stalno nastanjeni objekt u Hrvatskoj, odašiljač HRT-a. Visina, strmina i izoliranost masiva u odnosu na susjedne planine daju svojevrsni odvojeni, otočni karakter Biokovu (sl. 1.2.), koji se očituje i posebnošću živog svijeta s velikim brojem endemičnih svojstava. U širem smislu, **Biokovski planinski lanac** uključuje masive **Omiška Dinara** (863 m) i **Rilić** (920 m), od rijeke Cetine na SZ do rijeke Neretve na JI, u duljini od gotovo 80 km.

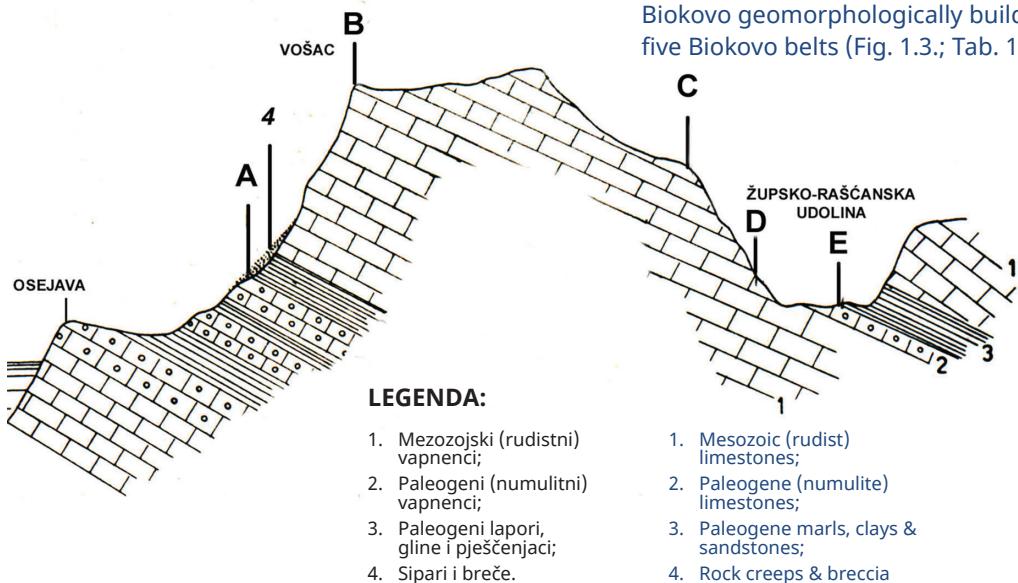
In the narrowest sense, the Biokovo Mt. stretches from the Dubci pass (288 m) in the west, to the Staza pass (897 m) in the east, in the typical Dinaric direction NW-SE. It is 36 km long, in average about 7 km wide (9.5 km widest) with total area of 200 km<sup>2</sup>. Belongs to the mountain range of the outer Dinarides: Velebit-Kozjak-Mosor-Biokovo-Orjen. It is the highest mountain in the Croatian part of the Adriatic, with the highest peak St. Jure (St. Georg) on 1762 m altitude, on which, till recently, was the highest permanently inhabited building in Croatia, the TV transmitter. The height, steepness & isolation of the massif in relation to the neighbouring mountains give a separate, kind of island character to Biokovo (Fig. 1.2.), manifested by the peculiarity living world with a many endemic taxa. In a broader sense, the **Biokovo Mt. range** includes **Omiška Dinara** (863 m) and **Rilić** (920 m) massifs, from the Cetina River in the NW to the Neretva River in the SE, in a length of almost 80 km.



Slika 1.2. Morfometrijska karta Biokova (prema Dragušića & Ozimec, 2008).  
Biokovo morphometric map

Biokovo geomorfološki gradi pet Biokovskih pojasa (Sl. 1.3.; Tab. 1.1.)

Biokovo geomorphologically builds five Biokovo belts (Fig. 1.3.; Tab. 1.1.)



Slika 1.3. Profil središnjeg dijela Biokova u smjeru J-S (prema Dragušića & Ozimec, 2008; Kušan, 1969; Roglić, 1934);  
Fig. 1.3. Profile of the central part of Biokovo in the S-N direction (after Dragušića & Ozimec, 2008; Kušan, 1969; Roglić, 1934)

Mnv Altitude	Bikovski pojaz <b>Biokovo belt</b>	Opis <b>Description</b>	Klima <b>Climate</b>
A 0-500	Predgorska stepenica (Podgorje) Foothill staircase	obalno flišno područje coastal flysch area	eumediterska eu-Mediterranean
A-B 500-1000 (1200)	Primorski strmac (Prigorje) Coastal downhill	strma primorska bikovska padina; prosječni nagib 49% steep coastal Biokovo slope; average slope 49%	mediteranska Mediterranean
B-C 1000-1760	Bikovska vršna zaravan Biokovo peak plateau	zaravan poligonalnog krša s najvišim vrhovima a plateau of polygonal karst with the highest peaks	visoko-planinska high mountain
C-D 1000-700	Zagorska padina (Zagorsko prigorje) Biokovo peak plateau	kontinentalna bikovska padina a plateau of polygonal karst with the highest peaks	planinska high mountain
D-E 700-200	Rasjedne zabiokovske udoline (Zagorsko podgorje) Fault valleys in Biokovo behind	Župsko-raščka i Rastovacko-žeževička udolina Župa-Rašča & Rastovac-Žeževica valley	submediteranska sub-Mediterranean

Tablica 1.1. Sažeta analiza 5 biokovskih pojasa Biokova / Short summary of 5 belts of Biokovo

Nakon Primorskog strmca, iznad 1200 mnv, energija reljefa smanjuje, nagibi postaju znatno blaži te se ističe **Biokovska vršna zaravan** koja se proteže od vrha Šibenik na SZ, pa sve do prijevoja Staza na JI, uz očiti blagi reljefni pad od SZ prema JI. Reljefno se ističu vrhovi Sv. Jure te Veliki i Mali Troglav, ali i prostrane vrtace, duboke i preko 100 m, najčešće urušene, ali se neke nastavljaju u duboke jame. Nastale su u vapnencima donje krede, a često su međusobno odvojene tek uskim grebenima, prirodnim kamenim mostovima. Ovaj osobiti površinski krš na Biokovu zovemo **polygonalni** (mrežasti) **krš**. Zaravan je svijet za sebe, otok na planini-otoku, na kojoj, izolirano od drugih populacija, obitavaju brojne kontinentalne, planinske, čak i sibirske vrste, ovdje najbliže moru.



Vršna zaravan Biokova / Peak terrace of Biokovo, foto Roman Ozimec

Dok obalni dio Biokovo odlikuje blaga **eumediterranska** klima, a zagorsko podnožje **submediteranska**, na Biokovskoj vršnoj zaravni vlada izrazito **hladna visoko-planinska klima** s preko 2500 mm oborina, posebno zimi, kad je vrlo teško dostupna zbog nanosa snijega. Na vrhu Sveti Jure prosječna je godišnja temperatura oko 4°C, a snijeg se zadržava veći dio godine te je najviši vrh Biokova jedna od najhladnijih točaka Hrvatske.

After Coastal downhill, till 1200 m altitude, the energy of the relief decreases, the slopes become much milder and the **Biokovo peak plateau** stands out, stretching from the Šibenik peak to the NW, till the Staza pass in the SE, with an obvious slight relief drop from NW to SE. The peaks of Sv. Jure and Veliki & Mali Troglav, but also spacious sinkholes, over 100 m deep, most often collapsed, but some continue into deep pits. They were formed in the Lower Cretaceous limestone and are often separated only by narrow ridges, natural stone bridges. This special surface karst on Biokovo is called **polygonal** (mesh) **karst**. The plateau is a world unto itself, an island on a mountain-island, inhabited, isolated from other populations, by numerous continental, mountainous, and even Siberian species, here closest to the sea.



Sjeverna padina Biokova / Northern slope of Biokovo, foto Roman Ozimec

While the coastal part of Biokovo is characterized by a mild **eu mediterranean** climate, and the north foothills **sub-Mediterranean**, the Biokovo peak plateau has a very **cold high-mountain climate** with over 2500 mm of precipitation, especially in winter, when it is very difficult to access due to snow. At the Sveti Jure, the average annual temperature is around 4°C, and the snow stays for most of the year, so the highest peak of Biokovo is one of the coldest points in Croatia.



Sv. Jure / Sw. Jure peak,  
foto Plamenko Cvitić

### Jeste li znali?

Vrh Biokova Sv. Jure je s 1762 mnv 3. vrh po visini u Republici Hrvatskoj, nakon vrha Sinjal (1831 mnv) na planini Dinari te vrha Kamešnica (1809 mnv) na istoimenoj planini. Međutim kako je TV odašiljač na Sv. Juri visok 90 m, a nalazi se oko 2 m niže od samog vrha, vrh odašiljača je visinom od 1850 mnv najviša točka Hrvatske. Sa Svetog Jure se pruža fantastičan pogled na Makarsko primorje, otroke i Zabiokovlje, a za vedrih dana moguće je vidjeti planinu Monte Gargano u Italiji, udaljenu nevjerojatnih - 250 km.

Jedinstvena geomorfološka cjelina, ljepota očuvanih krajobraza s krškim fenomenima te iznimna bioraznolikost su temelj na osnovi kojeg je **uspostavljen Park prirode Biokovo** 16. lipnja 1981. (NN 24/81). Jedan je od 12 parkova prirode na području Hrvatske koji obuhvaća posebno zaštićeno područje, spomenik parkovne arhitekture „Biokovski botanički vrt Kotišina“.

Pristupanjem Republike Hrvatske Europskoj uniji, doneseno je više Uredbi o ekološkoj mreži kojima su, sukladno Direktivi Vijeća EU 2013/17/EU, na Biokovu utvrđena tri Natura 2000 područja: **Biokovo** (HR5000030), **Podbiokovlje** (HR2001350) te **Biokovo i Rilić** (HR1000030) zbog utvrđenih 12 staništa i 32 vrste bilja i životinja.

Biokovo je od 2020., zajedno s područjem Imotske krajine, u proceduri pristupanja UNESCO globalnoj mreži geoparkova (UNESCO Global Geoparks) kao **Geopark Biokovo-Imotska jezera**, uz geslo - **Mjesto nastalo od čistoće vode i snage kamena**.

The unique geomorphological unit, the beauty of the preserved landscapes with karst phenomena and the exceptional biodiversity are the basis for **Biokovo Nature Park** establishing on 16 June 1981 (OG 24/81). Biokovo, including protected area, monument of park architecture "Biokovo Botanical Garden Kotišina", is one of 12 Nature Parks in Croatia.

With the accession of the Republic of Croatia to the European Union, several Regulations on the ecological network were adopted, which, in accordance with EU Council Directive 2013/17/EU, identified three Natura 2000 sites on Biokovo: **Biokovo (HR5000030)**, **Podbiokovlje (HR2001350)** & **Biokovo i Rilić (HR1000030)** due to the identified 12 habitats and 32 species of plants and animals.

Since 2020, Biokovo Nature Park, together with the Imotski Krajina region, has been in the process of joining the UNESCO Global Geoparks Network as **Biokovo-Imotski Lakes Geopark**, with the slogan - *A place created by water purity and stone strength.*

### Did you know?

*Biokovo peak, St. Jure is with 1762 m altitude, 3rd highest peak in the Republic of Croatia, after the peak Sinjal (1831 m altitude) on the Dinara Mt. and the peak Kamešnica (1809 m altitude) on the mountain of the same name. However, as the TV transmitter on St. Jure is 90 m high and is located about 2 m lower than the very top, the top of the transmitter is with altitude of 1850 m, the highest point in Croatia. From St. Jure there is a fantastic view on the Makarska Riviera, islands and hinterland. On clear days it is possible to see the Mt. Gargano in Italy, an incredible distance - 250 km.*

## 2. MISTIKA BIOKOVA

Najstarije ime Biokova je **Adrion** (Jadransko brdo) koje bilježi Kristov suvremenik, grčki geograf Strabon (63. pr. Kr.-19. n. Kr.). U svom najvažnijem djelu Geografija smješta Biokovo u središte obalne Dalmacije te razlikuje ten epithalattion, južnu, moreplovčima bolje poznatu biokovsku padinu, od sjeverne, ten d'epi thatera. Rimski kroničar Plinije stariji (23.-79. n. Kr.) bilježi da su stanovnici grada Rataneum (danasa Makarska) zapalili osvojeni grad zajedno s osvajačima Rimljana i povukli se u brojne špilje u utrobi obližnjeg brda **Albium** (Bijelo brdo). Mletački ljetopisac Ivan Đakon (940.-1009.) u djelu Chronicum venetum iz 10. stoljeća naziva Biokovo **Mons Slavorum** (Planina Slavena).

Dakle, Grci, Rimljani i Mlečani Biokovu daju opisna imena jer dolaze kao putnici, trgovci ili ratnici osvajači te ne znaju njegovo izvorno ime koje su svojoj planini Biokovo nadjenuli nekad Iliri pa Hrvati. Prvi zapis Biocovo zabilježen je u povelji bosanskog kralja Tvrtka I. iz 1382. godine. Kako povelja nije očuvana u originalu, najstariji očuvani zapis je

## 2. THE MYSTIC OF BIOKOVO

The oldest name of Biokovo is **Adrion** (Adriatic Hill), recorded by Christ's contemporary, the Greek geographer Strabo (63 BC-19 AD). In his most important work, Geography, he places Biokovo in the centre of coastal Dalmatia, and distinguishes the ten epithalattion, the southern slope, better known to sailors, from the northern, ten d'epi thatera. The Roman chronicler Pliny the Elder (23-79 AD) records that the inhabitants of the town of Rataneum (today Makarska) set fire to the conquered city together with the Roman conquerors and retreated to numerous caves in the bowels of the nearby hill **Albium** (White Hill). The Venetian chronicler Ivan Đakon (940-1009) in the work Chronicum venetum from the 10th c. calls Biokovo **Mons Slavorum** (Slavs Mountain).

So, the Greeks, Romans and Venetians give to Biokovo descriptive names, because as they come as travellers, merchants or conqueror warriors and do not know its original name, and the real name of their mountain, Biokovo was once given to the Illyrians, then the Croats. The first record of Biocovo was recorded in the charter of the Bosnian

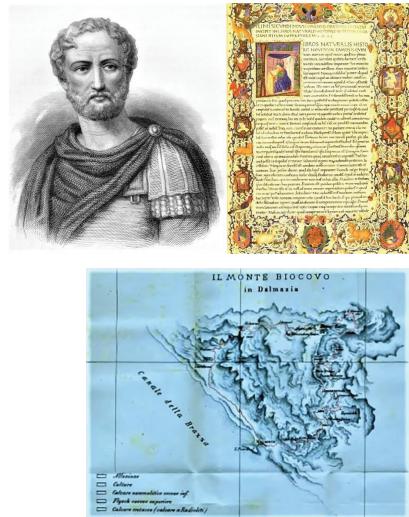
iz 1550., kad Omiški ljetopis navodi snijeg koji je 30. ožujka te godine pao na **Biocovo**. Koničar Imotske krajine fra Pavle Šilobadović (17. st.) zapisuje **Biokovo** 1666. u ljetopisu Libretin na hrvatskom jeziku i tadašnjem pismu - bosančici.

Mnogima je Biokovo ženskog roda - Biokova (Monte Biocova), a fra Andrija Kačić Miošić (1704.-1760.), pjesnik Makarskog primorja, ljubi svoju **planinu Biokovu**. Korijen riječi je bilak, pojam za nešto snježno bijelo. Stoljećima su Biokovci čak do 9 mjeseci godišnje gledali planinu prekrivenu snijegom pa je zovu Bilakovo pa Bijakovo koje konačno evoluira u Biokovo koje svoje ime duguje snježnoj bjelini, što je pomalo teško povjerovati za prevrućih ljetnih dana. Ipak, na Biokovu snijeg katkad padne i u lipnju, a često je najviši vrh Biokova - Sveti Jure, najhladnija točka Hrvatske.

king Tvrtko I from 1382. As the charter has not been preserved in the original, the oldest preserved record is from 1550, when the Omiš Chronicle mentions the snow that fell on **Biocovo** on March 30 of that year. Pavle Šilobadović (17th c.), a chronicler of the Imotski region, recorded **Biokovo** in 1666 in the Libretin chronicle in the Croatian language and the former alphabet - *bosančica*.

For many, Biokovo is female - Biokova (Monte Biocova), and Andrija Kačić Miošić (1704-1760), a poet from the Makarska littoral, loves his **mountain Biokovu**. The root is bilak, a term for something snow-white. For centuries, the local people watched the highest peak covered with snow for up to 9 months, so they called it Bilakovo, then Bijakovo, and finally evolved into Biokovo, owes its name to the snow, hard to believe in hot summer days. However, on Biokovo snow sometimes falls in June, and often is St. Jure, the highest peak of Biokovo -the coldest point in Croatia.

Slika/Fig. 2.1. Plinije stariji i djelo Historia Naturalis / Pliny the Elder and his work Historia Naturalis



Slika/Fig. 2.2. Andrija Kačić Miošić, spomenik / Monument, Makarska



Slika/Fig. 2.3. Karta Biokova iz 19. st. / Map of Biokovo from the 19th c.

Najpoznatija legenda vezana uz Biokovo ona je o okamenjenoj svadbi. U narodu, naime, postoji priča o velikoj ljubavi djevojke i mladića koje je zla kob okamenila na Biokovu iznad Donjih Brela. Prema legendi, djevojka porijeklom iz Dalmatinske zagore trebala se udati u Primorje. Majka je bila protiv te ljubavi i kćerine udaje za nekog koga obitelj nije odabrala – pogotovo za mladića iz siromašnog Primorja. Stoga je majka kćer ispratila riječima: „*Kad more ugledala, dabogda se okamenila!*“ Unatoč kletvi, svadbena povorka krenula je predvođena mladoženjom i mladom na konju, ali kad je stigla poviše Brela, kletva se ostvarila, što dokazuju stijene u obliku konja s mладencima, pogaće i burače za vodu. Ostro oko vidjet će i mlađenkin veo kojeg je vjetar skinuo s njezine glave, a i cijelu povorku svatova koja je išla za njima. Danas pogled zaklanja tijekom desetljeća izrasla borovina, ali područje se i danas zove – *Nevistina stina*.

Možda najpoznatija *znanstvena legenda* je ona kako čuveni biokovski vjetar – bura nastaje u dubokim biokovskim jamama, iz kojih *izvire* i spušta se na *refule*, niz južnu padinu Biokova, kao snažan endemični istočno-jadranski gravitacijski vjetar. U 18. stoljeću jedan od prvih istraživača Biokova, čuveni opat Alberto Fortis, napominje kako je sljedeći ovu legendu, u potrazi za burom, poduzeo naporan uspon na Biokovo.

The most famous legend related to Biokovo is about a petrified wedding, a story among the people, about the great love of a girl and a boy, petrified by an evil fate above Donja Brela. The girl, originally from the Dalmatian hinterland, was supposed to marry in seaside Primorje. The mother was against daughter's marriage to family did not choose - especially from poor Primorje. Therefore, the mother accompanied daughter with the words: "When you saw the sea, you should be petrified!" Despite the curse, the wedding procession set off, led by the groom and the bride on horseback, but the curse came true, evidenced by the horses-shaped rocks with the newlyweds, flat-cake, and the water barrels. The keen eye can see the bride's veil, removed from her head by wind, and the whole procession followed. Today, the view is obscured by a pine tree grown over the decades, but the area is still called - *Nevistina stina* (Bride rock).

Perhaps the most famous scientific legend is that the famous Biokovo wind – *bura* (*bora*), originates in deep Biokovo pits, from which it *springs and descends into the gusts*, down the southern slope of Biokovo, as a strong endemic east-Adriatic gravitational wind. In the 18th century, one of the first explorers of Biokovo, the famous abbot Alberto Fortis, notes that following this legend, in search of a bora, he undertook a strenuous climb to Biokovo.

Slika/Fig. 2.4. Vilinsko kolo / Fairy wheel



Postoje i moderne legende. Tužna ljubav između golemog morskog kita i biokovske vile Vilenjače, sasvim različitih bića, rezultirala je tragičnim završetkom, odnosno kitovim žrtvovanjem - nasukavanjem na obalu. Kada je njegovo tijelo prekrio prvi snijeg, nastala je planina Biokovo. Ovu svoju nadahnutu autorsku viziju umjetnica **Desa Marijeta** popratila je ilustracijama i pretočila u slikovnicu *Priča o postanku Biokova*.

Špilja Vilenjača / Vilenjača cave, foto Slavko Jakša



There are also modern legends. The sad love between the huge sea whale and the Biokovo fairy Vilenjača, completely different beings, resulted in a tragic end, that is, the whale's sacrifice - stranding on the shore. When his body was covered with the first snow, the mountain Biokovo was formed. The artist **Desa Marijeta** accompanied her inspired author's vision with illustrations and translated it into the picture book *The Story of Biokovo origin*.

#### Jeste li znali?

Oko 50 m ispod Nebeske šetrnice na području Ravne Vlaške, u podnožju impozantne strme litice, na visini od 1180 m, nalazi se špilja Tučepska vilenjača. Smještena je iznad sela Gornje Tučepi, SZ od Malog vrva (Šarića staje) i JI od vrha Zavodi (1293 m). Prema narodnom vjerovanju, u špilji su živjele prekrasne plavokose vile s konjskim nogama koje su mamilе prolaznike, posebno noću te se stoga špilja izbjegavala. Naime, oni koje su vile privukle, odmah su s njima zaplesali u kolu, a jao si ga onom koga vile uhvate u kolo. Tko jednom zapleše s vilama, izgubi razum i nikada se više ne vrati kući. Tučepska Vilenjača sastoji se od bogato zasigane velike dvorane duljine 27 i dubine 8 m. Krase je: stalaktiti, saljevi, kaskade, zavjese, cjevcice, a ističu se ogromni sigasti stupovi, visoki do 5 m. Jedan od manjih stalagmita je presječen i uzet kao znanstveni uzorak za datiranje. U dvorani kaplje voda i tvori krasne kamenice s bistrrom i pitkom vodom. Tučepska Vilenjača je tipsko nalazište iz koje je opisan špiljski pauk biokovska mezostalita (*Mesostalita comotti*).

#### Did you know?

About 50 m below the Biokovo Skywalk, in the area of Ravna Vlaška, at the foot of an imposing steep cliff, at an altitude of 1180 m, there is the cave Tučepska vilenjača. It is located above the village of Gornje Tučepi, NW of Mali Vrv (Šarić stables) and SE of the top of Zavodi (1293 m). According to legend, the cave was inhabited by beautiful blonde fairies with horse legs, which enticed passers-by, especially at night, and therefore the cave was avoided. Those who were attracted by the fairies, immediately danced with them in the circle, and woe to any fairies catch in the circle. Whoever dances with fairies loses his mind and never returns home. Cave consists of a richly sewn large hall 27 m long and 8 m deep. It is adorned with: stalactites, rafters, cascades, curtains, tubes, and huge sigma pillars, up to 5 m high. One of the smaller stalagmites is cut and taken as scientific dating sample. Water drips in the hall and forms beautiful pools with clear and drinkable water. Tučepska Vilenjača is a typical site from which the cave spider Biokovo mesostalita (*Mesostalita comotti*) is described.

## 3. ISTRAŽIVAČI BIOKOVA

Istraživanje Biokova započinje razvojem znanosti i trajat će dok je istraživača. Prvi zabilježeni uspon na Biokovo 1640. opisuje rovinjski franjevac Pavao Pelizzer. Čuveni putopisac, opat Alberto Fortis, s kojim započinje doba znanstvenog istraživanja Biokova, uspinje se 1773. na planinu inspiriran biokovskim spiljama, kako je zapisao u knjizi *Put po Dalmaciji* (1774.), u odjeljku *Planina Biokova ili Biokovo koja se diže nad Makarskom*: Lijep pogled na more, rtove i otoke u kojem se odozgo savršeno uživa, bijaše nam gotovo jedina nagrada za naš trud. Slijede: zagrebački kanonik Josip Host, rodom iz Rijeke (1802.); talijanski pravnik i prirodoslovac Giacomo Concina (1804.); francuski entomolog i general Pierre Francois Dejean (1817.), vjerovatno prvi zoolog koji istražuje Biokovo; bečki pravnik i botaničar Franz Portenschlag-Ledermayer (1824.); hrvatski botaničar Robert Visiani (1826.); talijanski botaničar Muzio Giuseppe Spirito de' Tommasini; tršćanski apotekar i botaničar Bartholomeo Biasoletto (1841.); njemački botaničar Franz Petter (1852.); bečki zoolog Georg Ritter von Frauenfeld (1854.); zadarski profesori Baldassare de Pregl (1852.) i Andreas Aschlänger (1861.), a od 1875. tršćanski prirodoslovac Adolf Stošić, rodom iz Like.

## 3. BIOKOVO RESEARCHERS

The research of Biokovo begins with the development of science and will last while the researcher. The first recorded ascent to Biokovo in 1640, is described by the Rovinj Franciscan Pavao Pelizzer. The famous travel writer, Abbot Alberto Fortis, with whom the era of scientific research of Biokovo began, climbed a mountain in 1773, inspired by Biokovo caves, as he wrote in the book *The Road through Dalmatia* (1774), in the section *Mountain Biokova or Biokovo rising above Makarska*: A beautiful view of the sea, capes and islands, which is perfectly enjoyed from above, was almost the only reward for our efforts. They are followed by the Zagreb canon Josip Host, born in Rijeka (1802); Italian jurist and naturalist Giacomo Concina (1804); the French entomologist, general Pierre Francois Dejean (1817), probably the first zoologist who explore Biokovo; Viennese jurist, botanist Franz Portenschlag-Ledermayer (1824); Croatian botanist Robert Visiani (1826); Italian botanist Muzio Giuseppe Spirito de' Tommasini; Trieste pharmacist and botanist Bartholomeo Biasoletto (1841); German botanist Franz Petter (1852); the Viennese zoologist Georg Ritter von Frauenfeld (1854); Zadar professors Baldassare de Pregl (1852) and Andreas Aschlänger (1861), and from 1875 Trieste naturalist Adolf Stošić, a native of Lika region.

Koncem 19. stoljeća, za vrijeme austrougarske vlasti u Dalmaciji, počinju sustavnija znanstvena istraživanja Biokova. Makarski svećenik **Petar Kaer** piše 1914. monografiju ***Makarska i Primorje***. Splitski entomolozi **Petar Novak** i **Guido Nonveiller** istražuju na Biokovu u 12 navrata. Josip Roglić, geomorfolog i akademik rodom iz Župe, piše 1935. monografiju ***Biokovo: geomorfološka ispitivanja***. Stočarstvo na Biokovu istražuje zagrebački geograf **Ivo Rubić** 1929., a 1941. vegetaciju Biokova botaničar **Ivo Horvat**. Objektivom svog fotoaparata Biokovo istražuje nestor hrvatske fotografije **Tošo Dabac**. Od druge polovice 20. stoljeća slijede brojni istraživači, čije rade dajemo u preporuci na kraju Vodiča, a među njima se posebno ističe svećenik i prirodoslovac **fra Jure Radić**.

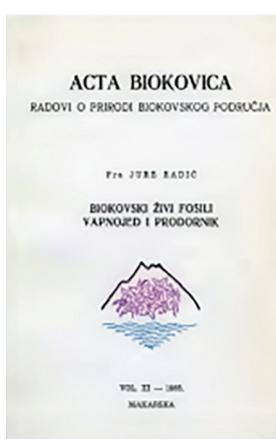
*Oculis, mente, corde per visibilia ad invisibilia*

*Očima, pameću, srcem po onom što se vidi do onoga što se ne vidi...*

*With eyes, mind, heart by what is seen to what is not seen...*

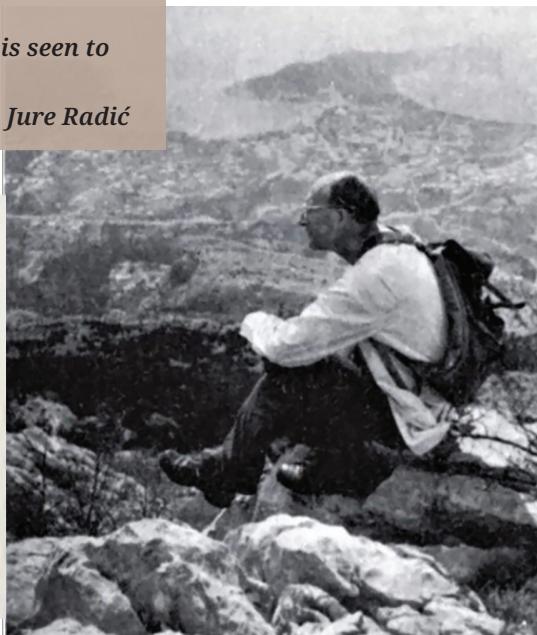
*Dr. fra Jure Radić*

Slika/Fig. 3.1. Acta Biokovica



At the end of the 19th century, during the Austro-Hungarian rule in Dalmatia, more systematic scientific research of Biokovo began. In 1914, the priest from Makarska, **Petar Kaer**, wrote the monograph ***Makarska and the Littoral***. Split entomologists **Petar Novak** and **Guido Nonveiller** are researching on Biokovo on 12 trips. **Josip Roglić**, a geomorphologist and academic born in Župa, wrote in 1935. the monograph ***Biokovo: Geomorphological investigations***. Livestock breeding on Biokovo was researched by the Zagreb geographer **Ivo Rubić** in 1929, and in 1941 the vegetation of Biokovo was researched by the botanist **Ivo Horvat**. **Tošo Dabac**, the Nestor of Croatian photography, with the lens of his camera explores Biokovo. From the second half of the 20th century, numerous researchers followed, whose works we give in the recommendation at the end of the Guide, and among them the priest and naturalist, **Fr. Jure Radić**, stands out.

Slika/Fig. 3.2. Fr Jure Radic na Biokovu / Fr. Jure Radic on Biokovo



**Fra Jure Radić** (1920.-1990.), rođen u Baškoj Vodi, na podnožju Biokova, zasigurno je najsvestraniji biokovski prirodoslovac koji je bio: svećenik, profesor teologije, humanist, učitelj, pedagog, ekumenist, poliglot, prevoditelj, liturgičar, planinar, astronom, filatelist te ekolog, biolog, zoolog-malakolog, botaničar i muzealac. Ali nadasve ljubitelj i poznavatelj prirode, njen vrhunski zaštitnik, motivator, edukator te vizonar koji je osnovao Malakološki muzej u Makarskoj i Biokovski botanički vrt Kotišina. Otac je Parka prirode Biokovo, nakladnik i urednik periodičnog znanstvenog časopisa posvećenog Biokovu **Acta Biokovica** te sanjar koji je video, još u punom opsegu neostvaren, **Institut Planina i more u Makarskoj**.

Cijeli život boravio je i istraživao Biokovo na koje se popeo preko 200 puta i o kojem je napisao preko 30 znanstvenih i stručnih radova te knjiga, od kojih su neke još neobjavljene. Povodom njegove smrti uspostavljen je **Poučni ekološki put dr. fra Jure Radića** koji od prve postaje u Baškoj Vodi - njegove rodne kuće, preko Sv. Jure, vrhunca Biokova pa do Franjevačkoga samostana u Makarskoj vodi kroz 15 postaja ili kontrolnih točaka.

**Jure Radić** (1920-1990), born in Baška Voda, at the foot of Biokovo, is certainly the most versatile Biokovo naturalist, who was: priest, professor of theology, humanist, teacher, pedagogue, ecumenist, polyglot, translator, liturgist, mountaineer, astronomer, philatelist, and ecologist, biologist, zoologist-malacologist, botanist and museologist. But above all, a lover and connoisseur of nature, its top protector, motivator, educator, and visionary, who founded the Malacological Museum in Makarska and the Biokovo Botanical Garden Kotišina. He is the father of the Biokovo Nature Park, the publisher and editor of a periodical scientific journal dedicated to Biokovo - **Acta Biokovica**, and the dreamer who saw the **Institute Mountain and the Sea** in Makarska, which has not yet been fully realized. All his life he stayed and researched Biokovo, which he climbed over 200 times and wrote over 30 scientific and professional papers and books, some of them not yet been published. On the occasion of his death, the **Educational Ecological Path of Dr. Fr. Jure Radić** was established, which from the first station in Baška Voda, his birthplace, through the peak Sv. Jure, to the Franciscan monastery in Makarska, leads through 15 stations or checkpoints.

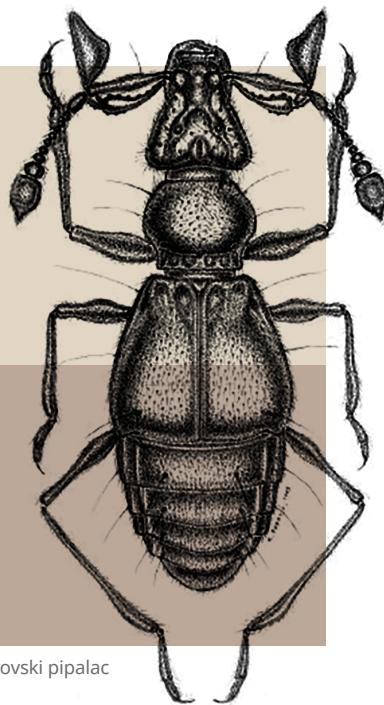
Fra Jure Radić nije vjerovao u znanost samodostatnu samoj sebi, već u znanost koja mora biti dostupna i razumljiva svima jer jedino tako, spoznajom znanstvenih činjenica, možemo očuvati bogatstva prirode, u njoj u potpunosti uživati, ali i - opstati. *Hodati ekološkim putom, otvoriti oči tjelesne i duhovne, uživati u prirodi i diviti se dobroti i ljepoti* – to je fra Jurina oporuka i poruka svima nama.

#### Jeste li znali?

*U čast našeg slavnog i među ljudima omiljenog fra Jure Radića nazvane su dvije vrste špiljskih kornjaša, endema Biokova – Radićev biokovski špiljski trčak (*Biokovoaphaenopsis radici* Jalžić, 1993) i Radićev biokovski pipalac (*Biokovobythus radici* Pavićević & Ozimec, 2013).*

#### Did you know?

*In honour of our famous and popular Dr. Radić, two species of cave beetles endemic to Biokovo are named - Radić's Biokovo cave runner (*Biokovoaphaenopsis radici* Jalžić, 1993) and Radić's Biokovo tentacle (*Biokovobythus radici* Pavićević & Ozimec, 2013).*



Slika 3.3 Radićev biokovski pipalac



Biokovoaphaenopsis radici, endem Biokova, foto Roman Ozimec

Fr. Jure Radić did not believe in self-sufficient science, but in science that must be accessible and understandable to all, because only by knowing scientific facts, we can preserve the riches of nature, fully enjoy it, but also - survive. *To walk the ecological path, to open the eyes of the physical and the spiritual, to enjoy nature and to admire goodness and beauty* - that is Fr. Jura's last will and message to all of us.

## 4. PRIRODNA BAŠTINA 4. NATURAL HERITAGE

### GEORAZNOLIKOST

Na Biokovu se, s obzirom na geološke osobitosti stijena, razlikuju 3 osnovne jedinice.

**Predgorska stepenica:** dominiraju naslage paleogena i neogena koje zastupaju slabo uslojeni foraminiferski vapnenci, s čestim fosilima te slabo uslojene vapnene breče, svjetlosmeđe do sive boje. Nalaze se na širem području od Krvavice, preko Makarske do Gornjih Tučepi. Kredne stijene zastupaju gromadasti, svjetlosivi rudistični vapnenci s manjim uklopčima dolomita, locirane na uskom zapadnom području od Dubaca do Basta te iznad Promajne. Fliš je prisutan uz obalno područje, a čine ga pješčenjaci i detritični vapnenci u izmjeni s laporima. Najmlađe kvartarne taložine vezane su uz padinske gravitacijske procese na strmoj južnoj padini koji su, uz snažne povremene bujice, ubrzali transport i taloženje odlomljenih stijena – breče koje nalazimo u podnožju masiva uz cijeli priobalni pojas.

**Centralni gorski hrbat** Biokova grade stijenski kompleksi iz razdoblja jure i krede (mezozoik), razvijeni u kontinuiranom slijedu karbonatne sedimentacije i taloženi u uvjetima prostrane karbonatne platforme. To su vapnenci s ulomcima dolomita (donja jura), debelo uslojeni i gromadasti vapnenci (srednja jura), debelo uslojeni vapnenci (gornja jura) i dolomiti, dolomitni vapnenci, vapnenci i breče iz razdoblja krede.

### GEODIVERSITY

On Biokovo, due to the geological features of the rocks, there are 3 basic units.

**Foothill staircase:** dominated by Paleogene and Neogene deposits represented by weakly stratified foraminiferal limestones, with frequent fossils and weakly stratified limestone breccias, light brown to grey in colour. They are located in the wider area from Krvavica, through Makarska to Gornji Tučepi. Cretaceous rocks are represented by bulky, light grey ore-bearing limestones with smaller dolomite deposits, located in the narrow western area from Dubci to Bast and above Promajna. The flysch, present along the coastal area, consists of sandstones and detrital limestones alternating with marls. The youngest Quaternary sediments are related to the slope gravity processes on the steep southern slope, which, with strong occasional torrents, accelerated the transport and deposition of broken rocks - breccias found at the foot of the massif along the entire coastal belt.

**The central mountain ridge** of Biokovo is built of Jurassic and Cretaceous (Mesozoic) rock complexes developed in a continuous sequence of carbonate sedimentation and deposited in the conditions of a vast carbonate platform. These are limestones with fragments of dolomite (Lower Jurassic), thick-layered and bulky limestones (Middle Jurassic), thick-layered limestones (Upper Jurassic) and dolomites, dolomite limestones, limestones and breccias (Cretaceous period).

**Biokovska zagora** oblikovana je u stijenskim kompleksima krede i paleogena, a čine ih vapnenci s klastičnim naslagama fliša. Debele serije sedimenata fliša pravilno se izmjenjuju s krupnjim i sitnjim stijenama građenim od breča, pješčenjaka te laporu i laporastih vapnenaca.

**Krš je drugo ime Biokova, a okršavanje Biokova** započinje već u neogenu. Najizrazitije je kroz pleistocen, posebno u kišnim, fluvijalnim razdobljima kad se Biokovo nalazilo na rubu kontinentalnih oledbi (glacijalnih stadija) i toplinskog utjecaja Sredozemnog mora, kao i planine Velebit i Orjen. Tada je more bilo pliće oko 100 m i oko 30 km udaljeno od Biokova, tako da je utjecaj mediteranske klime bio daleko slabiji.

**Geomorfološki**, Biokovo je borano-rasjedno-ljuskava struktura koja pripada mega-makrogeomorfološkoj regiji Dinarskoga gorskog sustava, a u okviru njezina hrvatskog dijela, geomorfološkoj regiji **Centralna Dalmacija s arhipelagom**, mezogeomorfološkoj regiji *gorski hrptovi Biokova i Rilića s Vrgoracima brdsko-zavalskim područjem*, u okviru kojeg je za masiv istaknuta zasebna subgeomorfološka regija - **gorski hrbat Biokova**.

The **Biokovo Zagora** (Hinterland) is formed in Cretaceous and Paleogene rock complexes and consists of limestones with clastic flysch deposits. Thick series of flysch sediments alternate properly with larger and smaller rocks built of breccia, sandstone, marl and marly limestones.

**Karst is another name for Biokovo, and Biokovo karstification** begins in the Neogene. It is most pronounced through the Pleistocene, especially in the rainy, fluvial periods when it was on the edge of continental glaciation (glacial stages) and the thermal influence of the Mediterranean Sea, similar as the mountains Velebit and Orjen. At that time the sea was shallower about 100 m and about 30 km away from Biokovo, so the influence of the Mediterranean climate was far weaker.

**Geomorphologically**, Biokovo is a wrinkle-fault-shell structure, belonging to the mega-macro-geomorphological region of the Dinaric Mountain system, and within its Croatian part, the geomorphological region of **Central Dalmatia with the archipelago**, the meso-geomorphological region of the mountain ranges of Biokovo and Rilić with the Vrgorac hills a separate sub-geomorphological region - **the mountain ridge of Biokovo** - is highlighted for the massif.

Otisak dinosaure / Dinosaur footprint,  
foto Ksenija Protrka



Pretežiti vapnenački sastav masiva odredio je prevladavajuće krške procese i reljefne oblike u geomorfološkoj Biokova. Od vanjskih ili egzogenih krških oblika ističu se: **ponikve (vrtače), uvale, kamenice i škape** koje oblikuju ove krške tipove: **ljuti krš, grohot, poligonalni (mrežasti) krš i škrapare**. Iznimka su vršni dijelovi biokovske zaravni, gdje su utvrđeni tragovi pleistocenske glacijacije (uvala Studenci, Bukovačka draga, Razvale). Uz okršavanje, jaki nagibi padina, posebno primorske strane, kroz padinske procese oblikuju vanjski reljef (egzoreljev). Procesi izraženi na strmim biokovskim padinama uvjetuju nastanak brojnih geomorfoloških oblika: **točila, koluvijalne zavjese, sipari, gravitacijski odroni**; koje uvjetuju potresi te djelovanje leda, snijega i mraza (periglacijalni procesi). U podnožju primorskih padina Biokova padinski procesi u suradnji sa snagom valova stvorili su prekrasne šljunčane plaže po kojima je poznata Makarska rivijera. Možda najočitiju i najspektakularniju cjelinu nastalu tim procesima možemo vidjeti povиše sela Bast, između vrhova Šibenik i Sv. Ilija, gdje srećemo sve navedene oblike i procese, uz reljefnu cjelinu u obliku amfiteatra.

The predominant limestone composition of the massif determined the predominant karst processes and relief forms in the geomorphology of Biokovo. Of the external or exogenous karst forms, the following stand out: **sinkholes, bays, stone-pools and scrapes**, which form these karst types: **naked karst, roar, polygonal (mesh) karst and scrapers**. The exceptions are the peak parts of the Biokovo plateau, where traces of Pleistocene glaciation have been established (Studenci bay, Bukovačka draga, Razvale). Beside karstification, strong inclination of the slopes, especially the coastal sides, through the slope processes form the outer relief (external relief). Slope processes on vertical Biokovo slopes, cause the formation of numerous geomorphological forms: **grindstones, colluvial curtains, screes, gravitational escarpments**, caused by earthquakes, ice, snow & frost (periglacial processes). At the foot of the coastal side of Biokovo, the slope processes in cooperation with the strength of the waves have created beautiful pebble beaches for which the Makarska Riviera is famous. Perhaps the most obvious and most spectacular whole created by these processes can be seen above the village of Bast, between the peaks of Šibenik and Sv. Ilija, where we meet all the above forms and processes, with a relief unit in the form of an amphitheatre.

Unutarnji (endogeomorfološki) oblici Biokova su speleološki objekti - **špilje i jame**, nastali u tektonskim pukotinama masiva, kroz procese okršavanja i speleogeneze. Postupno ih ispunjavaju raznolike sige: stalaktiti, stagmiti, stalagnati, zavjese i dr., građene od kristala kalcijevog karbonata ( $\text{CaCO}_3$ ), otopljenog iz matičnog vapnenca. Dosadašnjim istraživanjima na Biokovu je otkriveno oko 450 speleoloških objekata, a detaljnije istraženo njih oko 200. Više od 90% su jame, dok su špilje relativno rijetke. Na području Parka ne postoji niti jedan turistički uređen speleološki objekt, a među 10 najdubljih jama u Hrvatskoj čak 4 su na području Biokova (Jama Njemica – 934 m, Jama Mokre noge – 831m, Jama Amfora – 788 m, Jamski sustav A-1 - Vilimova jama (A-2) – 589 m)

The internal (endo-geomorphological) forms of Biokovo are speleological objects - **caves and pits**, formed in the tectonic cracks of the massif, through the processes of karstification and speleogenesis. Gradually they are filled with various sinter: stalactites, stalagmites, stalagnate, curtains, etc., built of calcium carbonate ( $\text{CaCO}_3$ ) crystals, dissolved from the parent limestone. About 450 speleological objects were discovered in Biokovo so far, and about 200 have been investigated detailed. More than 90% are pits, while caves are relatively rare. There is not a single tourist-arranged cave in the Park, and among the 10 deepest pits in Croatia, as 4 are in the Biokovo area (Jama Njemica – 934 m, Jama Mokre noge – 831m, Jama Amfora – 788 m, Jamski sustav A-1 - Vilimova jama (A-2) – 589 m)

#### Jeste li znali?

*Ponikve ili vrtače su kružne depresije u kršu, promjera i do 1 km, dubine i više stotina metara. Bočne strane mogu biti blago nagnute pa do gotovo okomite. Nastaju korozijom površinskih stijena ili urušavanjem stropa nad velikim podzemnim šupljinama. Na središnjoj biokovskoj zaravni gusto su grupirane - poligonalni ili mrežasti krš, a sliče na mjeseceve kratere. Korozijom rubnih dijelova pličih ponikvi nastaju uvale, duguljaste izdužene udoline.*

#### Did you know?

*Sinkholes are circular depressions in the karst, up to 1 km in diameter, and hundreds of meters deep. The sides can be slightly sloping to almost vertical. They are formed by corrosion of surface rocks or collapse of the ceiling over large underground cavities. On the central Biokovo plateau, they are densely grouped - polygonal or reticulated karst, and they look like moon craters. Corrosion of the marginal parts of shallower sinkholes creates bays, elongated valleys.*

Ponikve ili vrtače / Sinkholes, foto Stipe Srzić



**Škrape** su uske udubine nalik na žlijeb, duboke najčešće 0.1-1 m, međusobno odvojene oštrim ili zaobljenim bridom. Geološki su vrlo mladi mikrooblici površinskog reljefa nastali djelovanjem vode na gole nagnute vapnenačke stijene. Što su ravnije, površina stijene je strmija, a vijugave kod manjih nagiba.

**Kamenice** su pliće udubine na ravnim do blago nagnutim stijenama, od par centimetara do više metara u promjeru. Mogu biti korozjske, nastale djelovanjem kišnice na vapnenac i biogene, kad manja udubljenja karbonatnih stijena zapuni organski materijal koji biokemijskim procesima otapa stijenu.

**Špilje i jame** razlikuju se po nagibu kanala. Dok kod špilja dominiraju horizontalni kanali s nagibom do 45°, jame čine vertikalni kanali s nagibom od 45°, pa sve do potpuno okomitih kanala od 90°

**Scrapes** are narrow grooves resembling a groove, usually 0.1-1 m deep, separated from each other by a sharp or rounded edge. Geologically, very young microforms of surface relief were formed by the action of water on bare sloping limestone rocks. The flatter they are, the steeper the rock surface, and the meandering at smaller slopes.

**Stone-pools** are shallower depressions on flat to slightly sloping rocks, from a few centimetres to several meters in diameter. They can be corrosive, caused by the action of rainwater on limestone and biogene, when small depressions of carbonate rocks are filled with organic material, which dissolves the rock by biochemical processes.

**Caves and pits** differ in the inclination of the canal. While caves are dominated by horizontal channels with an inclination of up to 45°, the pits consist of vertical channels with an inclination over 45°, till to fully vertical channels of 90°.



Ulaž u jamu Čavlenovaču i vrh Sv. Jure u pozadini / Entrance into Čavlenovača pit and sv. Jure peak in the background, foto Roman Ozimec

## BIORAZNOLIKOST

Malo gdje u svijetu postoji planina visoka gotovo 1800 m uz samu obalu mora. Sudar Mediterana i kontinenta uvjetuje iznimnu raznovrsnost ekoloških čimbenika, a uzdignuta i okršena biokovska zaravan okružena udolinama postaje otok u kopnu. U i na masivu od samo 200 km<sup>2</sup> očuvana je iznimna bioraznolikost svih oblika života, raspoređenih u postojeća carstva koju tek postupno otkrivamo u punoj veličini.

## BIODIVERSITY

In the world are rare mountains almost 1800 m high along the coast. The collision of the Mediterranean and the continent causes an exceptional variety of ecological factors, and elevated & karstified Biokovo plateau, surrounded by valleys, becomes an island in the mainland. In and on the massif of only 200 km<sup>2</sup>, the exceptional biodiversity of all life forms distributed from all existing empires, are preserved, and which we only gradually discovering in full size.

### Gljive



Vještičje srce  
/Witch's heart, foto Roman Ozimec

Na Biokovu postoji iznimna bioraznolikost gljiva, od eumediterskih vrsta na primorskoj padini, preko submediterskih na zagorskoj, sve do kontinentalnih, čak visokoplaninskih vrsta u bukovim i jelovim šumama biokovske zaravni. Među njima i svoje nove za znanost, specijalizirane za pojedine endemične biljke i staništa. Neke vrste iz roda zdjeličarki (*Peziza* sp.) i hrčaka (*Helvella* sp.) počinju rasti na primorskoj padini već oko Božića, a u proljeće slijede smrčci (*Morchella* sp.) i druge zdjeličarke. Od stapčara (*Basidiomycota*) u simbiozi s višim biljkama rastu brojne mikorizne gljive, ali i saprofitne koje koriste mrtvu organsku tvar. Iz porodice vrganjevki (*Boletaceae*) vrste iz roda pravih vrganja (*Boletus* sp.), baršunovaca (*Xerocomus* sp.) i boričara (*Suillus* sp.), brojne uz sve biokovske borove, kao i borov čavlić (*Chroogomphus rutilus*). Bukove šume Biokova krasiti više vrsta krasnica (*Russula* sp.), a krške livade - puhare (*Lycoperdaceae*), iz rodova *Bovista* i *Lycoperdon*. Na stablima oraha već za Božić rastu plodišta judinog uha (*Auricularia auricula-judae*). Na srušenim bukovim deblima masovno dolazi bukovača (*Pleurotus ostreatus*). Porodicu stršaka (*Phallaceae*) zastupaju vještičje srce (*Clathrus ruber*) i pasji stršak (*Mutinus caninus*). U šiljama Biokova na troglofilnim leptirima iz roda *Triphosa* parazitira vrsta *Cordyceps riverae*, a na izmetu konja i magaraca raste ugrožena magareća točkarica (*Poronia punctata*).



Magareća točkarica / Nail Fungus, foto Roman Ozimec

## Fungi

On Biokovo there is an exceptional biodiversity of fungi, from eumediterranean taxa on the coastal slope, through sub-Mediterranean on continental, all the way to continental, even high mountain taxa in beech and fir forests of the Biokovo plateau. Among them are taxa new to science, specializing in certain endemic plants and habitats. Some species of the genera *Peziza* and *Helvella* begin to grow on the coastal slope around Christmas, followed by *Morchella* and other Ascomycota. From Basidiomycota in symbiosis with higher plants, grow numerous mycorrhizal fungi, but also saprophytic, which use dead organic matter. From the family Boletaceae, species from the genera of *Boletus*, *Xerocomus* and *Suillus*, numerous with all Biokovo pines, as well as copper spike (*Chroogomphus rutilus*). Beech forests on Biokovo are adorned with many species of genus *Russula* and karst meadows with *Lycoperdaceae*, from the genera *Bovista* and *Lycoperdon*. On the walnut trees, the fruiting bodies of the wood ear (*Auricularia auricula-judae*) grow for Christmas. Oystercatcher (*Pleurotus ostreatus*) occurs on fallen beech trunks. Family Phallaceae is represented by the witch's heart (*Clathrus ruber*) and the dog stinkhorn (*Mutinus caninus*). In the caves of Biokovo, the species *Cordyceps riverae* parasitizes on troglophilic butterflies of the genus *Triphosa*, and the endangered Nail Fungus (*Poronia punctata*) grows on the horse and donkey faeces.

## Lišaji

Na biokovskim stijenama mogu se vidjeti okruglaste pjegе kojih ima u raznim bojama: bijela, crvena, žuta, narančasta, siva, zelenasta. To su lišaji (Lichenes), simbiotska zajednica gljiva s modro-zelenim bakterijama ili zelenim algama (Chlorophyta). Većina biokovskih lišaja raste na vapnenačkim stijenama - epilitični lišaji, ali brojni su i epifitni lišaji koji rastu na biljkama, odnosno na granama i kori drveća. Iako rastu vrlo sporo, lišaji luče čak 230 vrsta kiselina kojima su u stanju postupno topiti stijenu na kojoj rastu. Vrlo su važni ekološki indikatori jer ne podnose zagađenje zraka, stoga je zrak čist tamo gdje rastu. Do sada je za Biokovo utvrđeno preko 50 svojti lišaja iz 16 porodica i 23 roda. To je ipak tek naznaka bogatstva ove još slabo istražene skupine jer je samo iz Dalmacije poznato oko 800 svojti. Na stablima i otpalim granama, još pod snijegom raste ljekoviti plućnjak (*Lobaria pulmonaria*), nekad iznimno cijenjen kao lijek za tuberkulozu. Na biokovskim stijenama iznad Brela nađena je i opisana endemična podvrsta *Verrucaria parmigera biokvensis*.

## Alge

Na biokovskim stijenama rastu epilitične silikatne alge (Bacillariophyta), na kori drveća epifitne alge, a u tlu brojne zelene, silikatne i zlatne alge (Chrysophyta). Gotovo su neistražene, kao i vrlo zanimljive endolitične alge koje žive unutar vapnenačkih stijena. Postoje i alge u biokovskim špiljama te kriofilne alge, na površini snijega i leda, često jarkih boja jer sadrže pigmente. U biokovskim lokvama i bunarima žive slatkovodne planktonske alge te alge slatkovodnog bentosa.

## Lichenes

On the rocks of Biokovo you can see round spots which are in various colours: white, red, yellow, orange, grey, greenish. These are lichens, a symbiotic community of fungi with blue-green bacteria or green algae (Chlorophyta). Most of the Biokovo lichens grow on limestone rocks - epilithic lichens, but there are also many epiphytic lichens, grow on plants, tree branches and bark. Although lichens grow very slowly, secrete as many as 230 acids, able to gradually melt the rock on which they grow. Lichens are very important environmental indicators, because they do not tolerate air pollution, so where they grow - air is clean. So far, over 50 lichens taxa from 16 families and 23 genera have been detected on Biokovo. However, this is only an indication of biodiversity of this still poorly researched group, because about 800 taxa are known from Dalmatia. On trees and fallen branches, still under the snow, grows the lung lichen (*Lobaria pulmonaria*), highly valued as tuberculosis cure. An endemic subspecies - *Verrucaria parmigera biokvensis* was described on the Biokovo rocks above Brela.

## Algae

Epilithic silicate algae (Bacillariophyta) grow on the rocks of Biokovo, epiphytic algae grow on the bark of trees, and numerous green, silicate and gold algae (Chrysophyta) in the soil. They are almost unexplored, as well as very interesting endolytic algae, which live inside the limestone rocks. There are also algae in Biokovo caves and cryophilic algae, on the surface of snow and ice, often bright colours, because they contain pigments. Freshwater planktonic and benthos algae live in Biokovo ponds and wells.

## Biljke (Plantae)

Zahvaljujući rasponu od mediteranske do visokoplaninske, čak snježne klime, Biokovo je dalmatinska Noina arka na kojoj srećemo nevjerojatan raspon staništa i vrsta. Nadmorska visina je glavni ekološki čimbenik koji uvjetuje raspodjelu biljne raznolikosti na Biokovu, odnosno **vegetacijske katove Biokova**. Za podnožja planine tipične su sredozemne vrste, a uslijed antropogenog utjecaja značajan udjel čine **kozmopoliti i neofiti**. Strme stijene i sipari u pojusu od 600 do 1000 m su specifična staništa u kojima rastu **jadranski i dalmatinski endemi** te **biokovski stenodendmi**. Reliktne šume dalmatinskog crnog bora (*Pinus nigra dalmatica*) razvijene u pojusu od 1000 do 1400 m dom su za mnoge **iliarske biljne vrste** koje su većinom **paleogeni relikti**. U flori visokoplaninskih travnjaka miješaju se ilirski, jadranski i dalmatinski elementi, ali i **arktičke i alpske vrste**. Kontinentalne padine obrastaju listopadne šume crnog graba (*Ostrya carpinifolia*) i bukve (*Fagus sylvatica*) te srednjoeuropske i **euroazijske** vrste kojih nema na primorskim padinama. Osobito se ističu šume biokovske jele (*Abies alba biokvensis*) uz koje rastu **holoarktičke i borealne** vrste. Takva raspodjela i sastav flore s borealnim i sredozemnim vrstama na udaljenosti od svega nekoliko stotina metara, dodatno obogaćeni brojnim endemima, dokazuju botaničku jedinstvenost Biokova.

## Plants

Thanks to the range from Mediterranean to high mountain, even snowy climate, Biokovo is the Dalmatian Noah's Ark where we meet an incredible range of habitats and taxa. Altitude is the main ecological factor that determines the distribution of plant diversity on Biokovo, and **Biokovo vegetation floors**. Mediterranean species are typical for the foothills of the mountain, and due to anthropogenic influence, **cosmopolitans and neophytes** make a significant share. Steep rocks and cliffs in the belt of 600-1000 m above sea level are specific habitats in which **Adriatic and Dalmatian endemics** and **Biokovo steno-endemic** grow. Relict forests of Dalmatian black pine (*Pinus nigra dalmatica*) developed in the belt of 1000-1400 m are home to many **Illyrian endemics** that are mostly **Paleogene relicts**. The flora of high mountain meadows mixes Illyrian, Adriatic & Dalmatian taxa, as well as **Arctic and Alpine species**. The continental slopes are overgrown with deciduous forests of black hornbeam (*Ostrya carpinifolia*) and beech (*Fagus sylvatica*), as well as Central European and **Eurasian** taxa, not found on the coastal slopes. The forests of the Biokovo fir (*Abies alba biokvensis*) with **holoarctic and boreal** species stand out. Such distribution and composition of flora with boreal and Mediterranean species at a distance of only a few hundred meters, additionally enriched with numerous endemics, prove the botanical uniqueness of Biokovo.

Trenutno je za područje Parka prirode Biokovo utvrđeno oko 750 vrsta viših biljaka, među kojima su brojni endemi i relikti, a neke vrste su endemi Biokova. Među tridesetak biokovskih endema ističu se: **biokovski kozlinac** (*Astragalus angustifolius biokovoense*), **biokovska i makarska zečina** (*Centaurea biokvensis; C. mucroneensis*), **biokovski oštrolist** (*Onosma biokovoense*), **biokovsko i puzavo zvonce** (*Edraianthus pumilio; E. serpyllifolius*), **biokovska runjika** (*Hieracium waldsteinii biokovoense*), **biokovska ruža** (*Rosa pendulina biokovoensis*) i dr. Na Biokovu tipsko nalazište (*locus classicus*) ima čak 29 biljnih vrsta, a da na Biokovu ima i dalje novih, za znanost još neopisanih vrsta, dokaz je **Rainerov šeboj** (*Erysimum raineri Polatschek*) opisan nedavne 2013. te **hrvatski kozlinac** (*Astragalus croaticus Alegro*, Bogdanovic, Brullo et Giusso), opisan 2009. Pojedine prašumske sastojine su posebno zaštićene. Botanički rezervati ustanovljeni su na Velikom Troglavu koji čini cjelinu sa Sv. Jurom te na potezu Sv. Ilija-Šibenik-Štropac.



Biokovska jela / Biokovo fir, foto Roman Ozimec

Currently, about 750 species of higher plants have been identified for the Biokovo Nature Park, with numerous endemics and relics species, some endemic to Biokovo. Among the thirty endemics of Biokovo, the following stand out: ***Astragalus angustifolius biokovoense***, (*Centaurea biokvensis; C. mucroneensis*), ***Onosma biokovoense***, ***Edraianthus pumilio; E. serpyllifolius***, ***Hieracium waldsteinii biokovoense***, ***Rosa pendulina biokovoensis***, etc. On Biokovo, the typical locality (*locus classicus*) has as many as 29 plant taxa, but there are still new species on Biokovo, not yet described for science, fe ***Erysimum raineri Polatschek*** described in recent 2013 and the ***Astragalus croaticus Alegro***, Bogdanovic, Brullo et Giusso), described in 2009. Some rainforest stands are specially protected. Botanical reserves have been established on Veliki Troglav, which forms a whole with Sv. Jure, and on the stretch of Sv. Ilija-Šibenik-Štropac.





**Biokovska jela (*Abies alba biokovensis Kušan 1969*)** spušta se s 1300 m biokovske zaravni na zagorsku padinu Biokova, sve do 700 mnv. Najbujnije šume su od Kaoca do Ozdrvače, gdje jela tvori guste šumske zajednice. Od početka proučavanja ove jеле dolazi do sporenja među botaničarima jer neki smatraju da se radi o običnoj europskoj jeli (*Abies alba*), drugi da je biokovska jela njen zaseban ekotip, treći da je zasebna taksa, a neki da je to sjevernoafrička jela (*Abies pardei*), što svakako treba još utvrditi. Za Biokovce je ova jela važna zbog njenih osobina. Uočili su kad se odreže grana biokovske jеле, iz panja izraste paralelno deblo, koje se sjeklo i sušilo za grede krovista kuće. Tako su nastale žive menorae jеле, nalik na židovske svijećnjake, osobito atraktivne na lokalitetu Jelići poviše Čulije.

**Biokovsko zvonce (*Edraianthus pumilio* (Port. ex Schult.) A.DC.)** opisao je 1819. botaničar **Portenschlag Ledermeyer** i time pokrenuo lavinu florističkih istraživanja Biokova. Biokovsko zvonce je hamefit, drvenasti patuljasti grm, rijetko viši od 15 cm koji pripada porodici zvončika (Campanulaceae). Obrasta pukotine stijena i police te planske rudine tvoreći biljnu zajednicu Edraiantho-Seslerietum juncifoliae. Endem je Biokova, a vrlo mali broj primjeraka presađen je i u botaničke vrtove planina Mosor i Velebit (Zavižan).

Patuljasto zvonce, biokovsko zvonce (Schult.) A.DC.  
/ The dwarf bellflower, foto Arhiv PP



**Biokovo fir (*Abies alba biokovensis Kušan 1969*)** descends from 1300 m of the Biokovo plateau to the north slope, up to 700 m altitude. The lushest forests are from Kaoci to Ozdrvača, where fir forms dense forest communities. From the beginning of the study of this fir, there is controversy among botanists, because some suggest it is an ordinary European fir (*Abies alba*), others that Biokovo fir is its separate ecotype, the third that it is a separate taxon, and some that it is North African fir (*Abies pardei*), which still needs to be determined. For Biokovo people this fir is important because of its properties. They noticed that when the branch of the fir was cut off, a parallel trunk grew out of the stump, which was cut and dried for the house roof beams. This is how live fir menorahs, similar to Jewish candlesticks, were created, especially attractive in locality Jelići above Čulija.

**The Biokovo bell (*Edraianthus pumilio* (Port. Ex Schult.) A.DC.)** was described in 1819 by the botanist **Portenschlag Ledermeyer** and thus started an avalanche of floristic research in Biokovo. Biokovo bell is a hamefit, a woody dwarf shrub, rarely higher than 15 cm, which belongs to the bellflower family (Campanulaceae). Overgrowth of rock and shelf cracks and planned ores forming the plant community Edraiantho-Seslerietum juncifoliae. It is endemic to Biokovo, and a very small number of specimens have been transplanted into the botanical gardens of the Mosor and Velebit Mt. (Zavižan).

**Crvenkasta zečina** (*Centaurea cuspidata* Vis.) raste u pukotinama južno eksponiranih stijena u mediteransko-brdskom pojusu Biokova. Opisao ju je 1842. slavni zadarski botaničar **Roberto Visiani** u prvom volumenu djela **Flora Dalmatica** (*Sive enumeratio stirpium vascularium quas hactenus in Dalmatia lectas et sibi observatas*). Stoga predstavlja početak opisivanja biokovskih endema od strane hrvatskih autora. Vrsta je stenoendemična i nađena je samo na Biokovu, na kojem raste čak 7 vrsta endemičnih zečina.

## Životinje (Animalia)

**Beskralježnjaci** (*Avertebrata*) još nisu dovoljno poznati jer je za Biokovo do sada utvrđeno tek oko 1000 vrsta, a ima ih svakako nekoliko puta više. Kao dokaz su gotovo svakodnevni nalazi novih vrsta za faunu Biokova te opisi novih vrsta za znanost, npr. biokovski štipavac (*Euscorpius biokovensis*) opisan 2020. godine. Međutim, već postojeći nalazi ukazuju na iznimnu bioraznolikost i endemizam. Uz veliki broj dinarskih endema, brojni su stenoendemi Biokova, s kojeg je do sada opisano preko 70 endemičnih vrsta, ali i brojni rodovi, čak i porodice, uz brojne glacijalne, paleogene, čak i starije relikte. Osobito je značajna fauna krškog podzemlja – **špiljska fauna**. Trenutno je poznato 223 svojiti iz 28 viših taksonomske kategorije, od čega 103 svojte prave špiljske faune, troglobionata i stigobionata, od kojih čak 40 vrsta na Biokovu ima tipsko nalazište (*locus typicus*), a još je barem toliko novih vrsta znanstveno neopisano.

**Reddish centaury** (*Centaurea cuspidata* Vis.) grows in cracks in the south-exposed rocks in the Mediterranean-mountainous belt of Biokovo. It was described in 1842 by the famous Zadar botanist **Roberto Visiani** in the first volume of the work **Flora Dalmatica** (*Sive enumeratio stirpium vascularium quas hactenus in Dalmatia lectas et sibi observatas*). It represents the beginning of the description of Biokovo endemics by Croatian authors. The species is stenoendemic and was found only on Biokovo, where as many as 7 species of endemic centaury grow.

## Animals

**Invertebrates** (*Avertebrata*) are not yet sufficiently known, because only some 1000 taxa have been identified for Biokovo so far, and there are certainly several times more. Evidence of this is the almost daily findings of new taxa for the Biokovo fauna and descriptions of new species for science, such as the Biokovo scorpion (*Euscorpius biokovensis*) described in 2020. However, already existing findings indicate exceptional biodiversity and endemism. In addition to a large number of Dinaric endemics, there are numerous steno-endemics of Biokovo, from which over 70 species have been described so far, but also numerous genera, even families, with many glacial, Paleogene, and even older relicts. The fauna of the karst underground - **cave fauna** is especially significant. Currently, 223 taxa from 28 higher taxonomic categories are known, of which 103 taxa are true cave fauna, troglobitic and stygobitic, of which as many as 40 species on Biokovo have a typical locus (*locus typicus*), and at least as many new species are scientifically undescribed.

Među biokovskim beskralježnjacima ističu se brojni **puževi (Gastropoda)** među kojima makarska (*Medora macascarensis*), opisana još 1828. i klemova medora (*Medora stenostoma klemmi*), zatim gujavica (Lumbricidae) Eophila biokovica te dalmatinska pijavica (*Trocheta dalmatina*). Najbogatija je vrstama na Biokovu **fauna člankonožaca (Arthropoda)**: rakovi: Strouhalonisculus biokovoensis i Niphargus buturovici; brojni endemični lažištipavci iz rođova Neobisium i Protoneobisium; pauči Mesostalita comottii i Kryptonesticus deelemanae; veći broj endemičnih dvojenoga (Diplopoda), skokun Tritomurus veles, te najbrojniji **kornjaši (Coleoptera)** s brojnim endemičnim vrstama iz porodica Carabidae (Biokovoaphaenopsis, Dalmatoreicheia Derosiella, Duvalius, Lovricia, Neolovricia, Neotrechus, Speluncarius, Trechus), Leiodidae (Hoffmannella, Laneyriella, Leptomeson Radziella, Roubaliella, Speoplanes, Zariqueyella), Staphylinidae (*Biokovobythus*, *Euconus*, *Geostiba*, *Thaumastocephalus*). Sa Sv. Jure opisani su novakov klišnjak (*Athous novaki*), biokovska zlatica (*Aphthona biokovensis*) i biokovska splitska pipa (*Otiorrhynchus spalatrensis biocovensis*), a s Kaoca milerova božja ovčica (*Scymnus mülleri*). Na južnim padinama Biokova slušamo pjesmu manina cvrčka (*Cicada orni*), a iz Makarske je opisan endemični hrvatski livadni cvrčak (*Opsius croaticus*). Leptira (*Lepidoptera*) na Biokovu ima oko 400 vrsta, a s južnih padina iznad Makra opisan je endemični dalmatinski uskršni leptir (*Zerynthia cerysi dalmacijae*), a ističu se rijetki dalmatinski okaš (*Proterebia afra dalmata*), rijetki južni lastin repak (*Papilio alexanor*) i Kleopatrin žučak (*Gonepteryx cleopatra*) te globalno ugroženi mali plavac (*Pseudophilotes schiffermüller*).

Among the Biokovo invertebrates, numerous **snails (Gastropoda)** stand out, including the Makarska medora (*Medora macascarensis*), described in 1828, and the Medora stenostoma klemmi, then the Lumbricidae Eophila biokovica and the Dalmatian leech (*Trocheta dalmatina*). The fauna of **arthropods** is the richest on Biokovo: crabs: Strouhalonisculus biokovoensis and Niphargus buturovici; numerous endemic pseudoscorpions of the genera Neobisium and Protoneobisium; spiders Mesostalita comottii and Kryptonesticus deelemanae; a large number of endemic Diplopoda, collembolan Tritomurus veles, and the most numerous **beetles (Coleoptera)** with numerous endemic taxa from the families Carabidae (*Biokovoaphaenopsis*, *Dalmatoreicheia Derosiella*, *Duvalius*, *Lovricia*, *Neolovricia*, *Neotrechus*, *Speluncarius*, *Trechus*) Leiodidae (*Leptomeson Radziella*, *Roubaliella*, *Speoplanes*, *Zariqueyella*), Staphylinidae (*Biokovobythus*, *Euconus*, *Geostiba*, *Thaumastocephalus*). From Sv. Jure are described: Athous novaki, Aphthona biokovensis and Otiorrhynchus spalatrensis biocovensis, and from Kaoci: Scymnus mülleri. On the southern slopes of Biokovo we hear the song cricket Cicada orni, and from Makarska an endemic cricket Opsius croaticus is described. There are about 400 species of butterflies (*Lepidoptera*) on Biokovo, and from the southern slopes above Makar an endemic Dalmatian Easter butterfly (*Zerynthia cerysi dalmacijae*) has been described, and there are rare Proterebia afra dalmata, Papilio alexanor and Gonepteryx cleopatra, same as globally endangered Pseudophilotes schiffermüller.

### **Biokovski štipavac** (*Euscorpius biokvensis* Tropea & Ozimec, 2020)

Biokovski štipavac je srednje velika vrsta roda *Euscorpius*, duljine tijela 3-4 cm, svijetlog tijela smeđecrvenkaste boje. Opisan je iz špilje Drinova 2, poviše zaseoka Bartulovići na području PP-a Biokovo. U odnosu na druge vrste ovog roda, upadljivo je izduljenog tijela i ekstremiteta, što nam ukazuje da se radi o troglofilu, vrsti koja često i rado obitava u špiljama, iako nema potpune prilagodbe na špiljska staništa. Našem biokovskom štipavcu koji je predator kao i svi drugi štipavci, plijen su drugi špiljski stanovnici, primjerice dalmatinski špiljski konjic (*Dolichopoda araneiformis*). Iako ima osobito dugačak rep s otrovnom bodljom, kao i ostali predstavnici roda, ne predstavlja veću opasnost za ljudе od recimo ose.

**Kralježnjake (Vertebrata)** zastupa tridesetak vodozemaca i gmazova, uz najrjeđe kornjače i najčešće gušterice, a najozloglašenija zmija je otrovni poskok. Mosorska gušterica (*Archaeolacerta mosorensis*) endem je jugoistočnih Dinarida, gdje dolazi na visinama iznad 1200 m, a pripada zasebnom rodu starom oko 16 MG. Četveroprugi kravosas (*Elaphe quatuorlineata*) i modraš (*Malpolon monspessulanus*), najveće biokovske zmije, dosežu i 2 m dužine i nisu otrovne. Na Biokovu obitava oko 100 vrsta ptica, a još prije 50 godina tu je kružio bjeloglavi sup (*Gyps fulvus*) ili kako ga na Biokovu zovu lunja, na koje podsjeća toponim lunjeve kuće, poviše Basta. Na Biokovu još lete suri orao (*Aquila chrysaetos*) i njegov manji rođak orao zmijar (*Circaetus gallicus*). Žutokljune galice (*Pyrrhocorax graculus*), ovdje zvane čolice, u spiralnom letu uranjaju u biokovske jame, u kojima se gniazde.

**Biokovo scorpion** is a medium-sized species of the genus *Euscorpius*, body length 3-4 cm, light brown-reddish body. It is described from the cave Drinova 2, above the hamlet Bartulovići in the area of Biokovo Park. Compared to other taxa of this genus, it has a strikingly elongated body and limbs, which indicates that it is a trogophile, a species that often and happily inhabits caves, although it does not have a complete adaptation to cave habitats. Biokovo scorpion is a predator, like all other scorpions, is preyed upon by other cave dwellers, such as the Dalmatian cave cricket (*Dolichopoda araneiformis*). Although it has a particularly long tail with a poisonous thorn, like other members of the genus, it does not pose a greater danger to humans than, say, a wasp.

**Vertebrates** are represented by about thirty amphibians and reptiles, with the rarest turtles and most common lizards, and the most notorious snake is the venomous viper. The Mosor lizard (*Archaeolacerta mosorensis*) is endemic to the SE Dinarides, where it occurs at altitudes above 1200 m, and belongs to a separate genus about 16 MG old. The four-lined snake (*Elaphe quatuorlineata*) and Montpellier snake (*Malpolon monspessulanus*), the largest Biokovo snakes, reach up to 2 m in length and are non-venomous. About 100 bird species live on Biokovo. Griffon vulture (*Gyps fulvus*), or lunja as it is called on Biokovo, 50 years ago circulated there, which is reminiscent the toponym of the lunja rocks, above Bast. The golden eagle (*Aquila chrysaetos*) and its smaller cousin the snake eagle (*Circaetus gallicus*) is still flying here. The Alpine

Još prije 50.000 godina na Biokovu bismo sreli jelene, špiljske medvjede i kozoroge, a danas ima preko 40 vrsta sisavaca. Vjeverica (*Sciurus vulgaris*) će vam prići dok se odmarate na mirisnom ležaju borovih iglica, a endem istočne obale Jadrana, krški puš (Eliomys quercinus dalmaticus) kao da nosi tamne naočale. Krajem prošlog stoljeća došle su divlje svinje (*Sus scrofa*), a za vuka je planina dio stalnog areala. Tu su: divlja mačka, lisica, jazavac, kuna bjelica i zlatica, tvor, čagalj i lasica, a najveća zvijer na Biokovu je smeđi medvjed.

**Šišmiši** (Chiroptera) su na Biokovu zastupljeni sa 16 vrsta (Tablica P.1.3.) iz porodica: Molossidae (1), Rhinolophidae (4), Vespertilionidae (11). Svi su Natura vrste, dugokrili pršnjak (*Miniopterus schreibersi*) ugrožena je vrsta (EN), a tri vrste: Blazijev potkovnjak (*Rhinolophus blasii*), južni potkovnjak (*Rhinolophus euryale*) i velikouhi šišmiš (*Myotis bechsteinii*) su osjetljive vrste (VU). Najveća kolonija, od oko 3000 jedinki dugokrilog pršnjaka, utvrđena je u jami Jamina poviše Brela.

Mosorska gušterica / The Mosor lizard,  
foto Stjepan Mekinić



Biokovski špiljski lažištipavac - *Protoneobisium biocovense*, foto Roman Ozimec



chough (*Pyrrhocorax graculus*), here called čolica, plunge in a spiral flight into the Biokovo pits, where they nest. Even 50,000 years ago, deer, cave bears and ibex exist on Biokovo, and today there are over 40 species of mammals. The squirrel (*Sciurus vulgaris*) will approach you while resting on a fragrant bed of pine needles, and the endemic of the eastern Adriatic coast, the karst down (*Eliomys quercinus dalmaticus*) seems to wear dark glasses. At the end of the last century, wild boars (*Sus scrofa*) came, and for the wolf, the mountain is part of a permanent area. There are: wild cat, fox, badger, both martens, ferret, jackal and weasel, and the largest beast on Biokovo is the brown bear.

**Bats** (Chiroptera) are represented on Biokovo with 16 species (Table P.1.3.). From the families: Molossidae (1), Rhinolophidae (4), Vespertilionidae (11). All are Natura species, common bent-wing bat (*Miniopterus schreibersi*) is an endangered species (EN), and three species: *Rhinolophus blasii*, *Rhinolophus euryale*, and *Myotis bechsteinii* are vulnerable species (VU). The largest colony, of about 3,000 common bent-wing bat, was established in the Jamina pit above Brela.

Šilac / Dahl's whip snake, foto Stjepan Mekinić



### Balkanska divokoza (*Rupicapra rupicapra balcanica* Bolkay, 1925)

Priča o biokovskim divokozama koje su danas simbol Parka, priča je o uspješnoj reintrodukciji jer su s Biokova istrijebljene u holocenu, prije oko 10.000 godina. Reintrodukcija je počela 1964. s primjercima uhvaćenim na nedalekim planinskim masivima Prenj i Čvrsnica u Hercegovini, a iste godine naseljeni su i mufloni (*Ovis orientalis musimon*) s Brijuna. Do 1969. uneseno je 48 grla, 36 ženki i 12 mužjaka. Divokoza se na Biokovu odlično snašla i postala ne samo jedna od najatraktivnijih biokovskih životinjskih vrsta, već i značajna lovna divljač i izvor prihoda. Brojni trofeji divokoza i muflona s Biokova su postali šampioni Hrvatske. Nažalost, u posljednje vrijeme populacija divokoza na Biokovu je bitno smanjena.



Divokoza / Chamois, foto Stipe Srzić

### Balkan Chamois (*Rupicapra rupicapra balcanica* Bolkay, 1925)

The story of the Biokovo chamois, which are today a symbol of the Park, is a story of successful reintroduction, because they disappear from Biokovo in the Holocene, about 10,000 years ago. Reintroduction began in 1964 with specimens caught in the nearby mountain massifs of Prenj and Čvrsnica in Herzegovina, and in the same year mouflons (*Ovis orientalis musimon*) from Brijuni were also inhabited. Till 1969, 36 females and 12 males had been introduced. The chamois did very well on Biokovo and became not only one of the most attractive Biokovo animal, but also a significant for hunting and a source of income. Numerous trophies of chamois and mouflon from Biokovo became champions of Croatia. Unfortunately, the population has been significantly reduced recently.

#### Did you know?

*During extremely cold winters, chamois descend to lower slopes, closer to the sea, and in 2004 a chamois was rescued from the sea under Biokovo. It is interesting that the endemic plant species chamois senecio (*Senecio doronicum*) also grows on Biokovo.*

#### Jeste li znali?

*Za iznimno hladnih zima, divokeze se spuštaju na niže padine, bliže moru, a 2004. dogodio se slučaj da je jedna divokoza spašena iz podbiokovskog mora. Zanimljivo je da na Biokovu raste i endemična biljna vrsta divokozjački kostris (*Senecio doronicum*).*

**Alpski popić (*Prunella collaris (Scopoli, 1769)*)** U najhladnijim biokovskim jamama obitava mala ptičica - alpski popić (*Prunella collaris*). Veličine je 15–17,5 cm te ima prošarana smeđa leđa. Pomalo sliči na vrapca, ali odrasli imaju sivu glavu i crvenosmeđe pjege na trbuhu. Spolovi se teško razlikuju, a mlade ptice imaju smeđe glave i trbuhe. Relikt je posljednjeg ledenog doba, a obično živi u visokim planinama, iznad 2000 mnv. Na Biokovu ga nalazimo na najvišim vrhovima, ali i u dubokim snježnicama.

**Alpine Poppy (*Prunella collaris (Scopoli, 1769)*)** The coldest Biokovo pits are inhabited by a small bird - *Prunella collaris*. It is 15–17.5 cm in size and has a variegated brown back. It looks a bit like a sparrow, but adults have a grey head and reddish-brown spots on their bellies. The sexes are difficult to distinguish, and young birds have brown heads and bellies. The relic is of the last ice age, and usually lives in the high mountains, above 2000 m altitude. On Biokovo we find it on the highest peaks, but also in deep snow pits.

*Sav napor života uložih da bismo upoznali,  
uzljubili, ušćuvali hram prirode.*

*I put all the effort of my life to get to know,  
to love, to preserve the temple of nature*

*Dr. fra Jure Radić*

Alpski popić / Alpine accentor, foto Stipe Srzić



## 5. ETNOBAŠTINA

Prastanovnici Biokova koji su na njemu ostavili najviše tragova su Iliri, iako je prisutnost neandertalskog čovjeka na Biokovu utvrđena za srednji paleolitik i neolitik, srednje i mlađe kamenopisne doba. U brončano doba, prije oko 6000 godina, Biokovo naseljava ilirsko pleme Ardijejczi, ali su utvrđeni utjecaji i okolnih plemena: Delmati, Daorsi i Narenzi. Njihovi najuočljiviji ostaci na Biokovu su brojni **kameni tumuli (gomila)**. Većinom su poluloptastog oblika, promjera i do 30 m te visine 4-5 m, a često su u skupinama i međusobno su vidljive kako bi omogućile vizualnu komunikaciju i prijenos informacija. Služile su kao osmatračnice, ali i kao pokapališta za mrtve. Na prijelazu iz brončanog u željezno doba grade se **gradine**, utvrde na uzvišenjima, s kojih se nadzirao široki kopneni i morski prostor. Imale su jedan ili više prstena bedema građenih od jedinog pristupačnog materijala, kamena, u obliku suhozida. Uz gradine su se osnivala naselja, a u slučaju opasnosti služile su kao skloništa.

### Pastirski stanovi

Vrtače koje na dnu imaju ravnu površinu koja se obrađuje zovu se **doci**. U docima se uzgajaju brojne stare sorte povrća: krumpir, kupus, mrkva, razne mahunarke. Da bi se dobilo i to malo plodne zemlje muškarci su dolce prvo čistili od kamena, što je vrlo težak posao. Žene i djeca bi stajali iza njih i izvađeni kamen slagali na gomile i suhozide, koji služe kao granica između porodica, dobra zaštita od bure, a posebno visoki zidovi bili su zapreka za stoku da ne

## 5. ETHNOHERITAGE

The ancient inhabitants of Biokovo, who left the most traces, are the Illyrians, although the presence of Neanderthal man on Biokovo has been established for the Middle Palaeolithic and Neolithic, Middle and Late Stone Age. In the Bronze Age, about 6000 years ago, Biokovo was inhabited by the Illyrian tribe Ardiae, but with the influences of the surrounding tribes: Dalmatae, Daorsi and Narensi. Their most noticeable remains on Biokovo are numerous **stone tumuli (gomila)**, mostly hemispherical, up to 30 m in diameter and 4-5 m high. Often are in groups and visible to each other, to enable visual communication and information transfer, also served as cemeteries. At the transition from the Bronze to the Iron Age, fortifications **gradine** were built on the hills, from which a wide land and sea area was controlled, with one or more rings of ramparts built of the only accessible material, stone, in the shape of a dry-stone wall. Settlements were established next to the forts, and in case of danger they served as shelters.

### Shepherd's dwellings

The sinkholes that have a flat surface at the bottom that is cultivated are called **dolac**. Numerous old varieties of vegetables are grown: potatoes, cabbage, carrots, various legumes. In order to get even a little fertile land, the men first cleaned place of stone, which is a very difficult job. Women and children would stand behind them and stack the extracted stone on piles and dry-stone walls, which serve as a border between families, good protection from

ulaze u doce. Uzgajaju se primarno ovce i koze – *dalmatinska pramenka i dinarska šarena koza*, ali i *govedo buša i konj bušak* te *dalmatinski magarac*. Svaki veći obrađeni dolac nosi ime porodice koja ga obrađuje, što ukazuje koliko je bio važan. Ukoliko se dolac nije mogao obrađivati, u njemu se kosi trava te u naramcima nosi na leđima nizbrdo do sela.

Uz rubove dolaca grade se kamene kućice, ljudske nastambe - ***stanovi***, a nedaleko njih kamene kućice za stoku - ***torovi***. Birane su lokacije zaštićene od jake bure i s dovoljno sunca. Stanova je bilo preko 600 organiziranih u oko 120 naselja, na visini 300-1600 nmv. Povremeno su nastajala mala sela u kojima su periodički živjele cijele obitelji, kao u Podgloviku i Lemišinim docima. Ukupno je pod sustavom pašarenja bilo 83% površine Biokova, odnosno sve osim najstrmijih golih padina i površina pod kulturama, a na Biokovu je bilo u uzgoju preko 23.000 grla stoke. Za opstanak stoke na Biokovu moralo se osigurati vodu i zato su građeni ***lokve i bunari***. Za razliku od lokvi do kojih stoka može sama prići i napajati se, do vode u bunarima može samo čovjek te su zbog toga uz njih redovita kamena ili drvena ***pojila***.



Ostaci pastirskih stanova na Lemišinim docima / The remnants of shepherds' dwellings at Lemišini doci, foto Ksenija Protrka

the bora wind, and especially high walls were a barrier for cattle not to enter in dolac. Primarily sheep and goats are bred - *Dalmatian pramenka* and *Dinaric colourful goat*, but also *cattle buša*, *horse bušak* and *Dalmatian donkey*. Each larger cultivated place bears the name of the family that cultivates it, which indicates how important it was. If the dolac could not be cultivated, the grass is cut in it, and carried in shoulder straps downhill to the village.

Stone houses are being built along the edges of the dolac, human dwellings - ***stan (flat)***, and not far from them stone houses for cattle - ***tor (pen)***. Selected locations are protected from strong bora and with enough sun. There were over 600 flats organized in about 120 settlements, at an altitude of 300-1600 m. Occasionally, small villages were formed in which whole families lived periodically, such as in Podglovik and Lemišini doci. In total, 83% of the area of Biokovo was under the grazing system, all but the steepest bare slopes and areas under crops, and over 23,000 head of cattle were raised on Biokovo. Water had to be provided for the survival of the cattle, and that is why ***ponds and wells*** were built. Unlike puddles, which cattle can access themselves, only people can access the water in the wells, which is why there are regular stone or wooden ***drinking troughs*** next to them.



Kameno pojilo na Biokovu / Stone trough on Mt. Biokovo, foto Ksenija Protrka

Pastirski stanovi i torovi za stoku, kao i kameni bunari i lokve oduvijek su sastavni dio biokovskoga krajobraza jer za njih je vezan opstanak ljudi na planini. Nažalost, 1962. godine došlo je do jakog potresa koji je značio prekretnicu za život na Biokovu. Ljudi napuštaju planinu, ali i podbiokovska sele te se nastanjuju uz obalu, a priroda polako ruši torove i stanove. Ipak, u posljednje vrijeme dolazi do obnove starih stanova, ali s posve drugačjom funkcijom, stanovi postaju male, tradicijske vikendice u koje Biokovci dolaze na odmor iz ljetne vreve primorskih gradića.

Shepherd's flats and cattle pens, as well as stone wells and ponds have always been an integral part of the Biokovo landscape, because the survival of people on the mountain. Unfortunately, in 1962 there was a strong earthquake which marked a turning point for life on Biokovo. People are leaving the mountain, but also the villages near Biokovo, and settling along the coast, and nature is slowly destroying flats and pens. However, in the last period, old flats have been renovated, but with a completely different function, are becoming small, traditional cottages where Biokovo people come to rest from the summer bustle of coastal towns.

### **Biokovski ledari**

Čovjek je na Biokovu od pamтивјека koristio spilje i jame kao skloništa, za utvrde, kao torove za zaklon stoke i kao izvor vode, bilo otapanjem snijega i leda, bilo skupljanjem kapljica vode u prikladnu keramičku posudu. U nekim biokovskim jamama se nalazi vječni led, čak i u obliku zamrznutih jezera. Najpoznatije ledenice su: Stara ledenica, Dusa, Crna ledenica, Mucića ledenica, Vrtača Ledenačica i Sniježnica u Silnom gozdu. Led su prije otkrića hladnjaka vadili legendarni biokovski ledari. Led se vadio još u ilirsko doba za napajanje stoke u najsušnijim godinama, a tek pojaviom turizma i za druge namjene. Kako nastaje ovaj led? Snijeg koji pada kroz ulaz jame se periodički smrzava i površinski topi te se tako postupno prekristalizira u led. Silaz u dublje ledenice katkad je bio pravi pothvat, krhkhe drvene konstrukcije uvijek opasne za spuštanje, a priručne baklje tek tračak svjetla u mraku.

### **Biokovo ice keepers**

From ancient time, man has used caves and pits on Biokovo as shelters, fortifications, as shelters for cattle and as a source of water, either by melting snow and ice, or by collecting water droplets in a suitable ceramic vessel. Some Biokovo pits contain permafrost, even in the form of frozen lakes. The most famous glaciers are: Stara ledenica, Dusa, Crna ledenica, Mucića ledenica, Vrtača Ledenačica and Sniježnica in Silni gozd. Before the discovery of the refrigerator, the ice was extracted by the legendary Biokovo icebreakers. Ice was extracted in the Illyrian era to feed cattle in the driest years, and only with the advent of tourism for other purposes. How does this ice form? The snow that falls through the entrance of the pit periodically freezes and melts, thus gradually recrystallizing into ice. Going down into the deeper glaciers was sometimes a real venture, fragile wooden structures always dangerous to descend, and handy torches just a ray of light in the dark.

Ledari su led vadili iz ledenica tako da bi rezali blokove od 50 kg, motali ih u lišće bukve i *koštare* (kozja koža) te ga noću transportirali pomoću mazgi na obalu. Led bi prodavali hotelima, posebno u Makarskoj, Podgori i Tučepima; bogatijim građanima; ribarima za hlađenje ribe te za proizvodnju sladoleda. Kroz transport se otopilo i do 40 % leda, a uslijed velikih razlika u vanjskoj i špiljskoj temperaturi te slabe zaštite od hladnoće, ledari su redovito obolijevali od upale pluća te umirali relativno mladi. Na Biokovu ima i danas ledenica s ostacima drvenih ljestvi po kojima su se ledari spuštali i alata kojim su sjekli led, ali ih je nažalost nemoguće turistički posjetiti. Izumom hladnjaka ovo zanimanje je izumrlo, a o posljednjem ledaru snimljen je dokumentarni film ***Posljednji biokovski ledar.***

The icebreakers removed the ice from the glaciers by cutting blocks of 50 kg, wrapping them in beech and *firewood leaves* (goat skin) and transporting it to the shore with mules at night. Ice would be sold to hotels, especially in Makarska, Podgora and Tučepi; richer citizens; fishermen for cooling fish and for producing ice cream. Up to 40% of the ice melted during transport, and due to large differences in outdoor and cave temperatures and poor protection from the cold, icebreakers regularly contracted pneumonia and died relatively young. There is still a glacier on Biokovo with the remains of a wooden ladder on which the icebreakers descended and tools to cut the ice, but unfortunately it is impossible to visit them as tourists. With the invention of the refrigerator, this profession became extinct, and a documentary film ***The Last Biokovo Iceman*** was made about the last icebreaker.

Jama Crna ledenica / Crna ledenica pit, foto Ksenija Protak



## **Crkve na Biokovu**

Na najvišem vrhuncu Biokova, vrhu Sv. Jure, od pamтивјека se nalazi svetište koje je u prekršćansko vrijeme bilo mjesto kultnog štovanja kulta zmije te kulta boga tame. Dolaskom kršćanstva na tom kulnom mjestu izgrađena je kamena crkvica. Napis na bosančici ukazuje da je kamena kapelica podignuta ili obnovljena u 13. st., a prvi put se spominje 1640. godine u putopisu koji je napisao franjevac Pavao Pelizzer Rovinjanin (1600.-1691.). Zbog izgradnje prvog odašiljača 1965. visokog 97 m, crkvica koja je tada imala bačvast krov i bila površine tek 8,7 m<sup>2</sup> je srušena. Nova je izgrađena 1968. nešto istočnije od vrha te je uređena 1988. U njoj je veliki mozaik Sv. Jure na konju (4,20x2,10 m) te kip Gospe Suotkupiteljice koje je izradio akademski kipar Jure Žaja (1944.), a crkva pripada imotskoj općini. Nekada se do crkvice hodočastilo 23. travnja na blagdan Sv. Jure, ali se zbog čestih loših klimatskih uvjeta danas na svetu misu hodočasti 31. kolovoza.

Na Biokovu postoje i druge crkve i kapelice. **Crkva Sv. Ilije** je na samom prijevoju Staza, na jednom od najvećih biokovskih tumula, promjera oko 30 m. Sagrađena je oko 1880., a bombardirana je 1944. od strane Talijana, kada je uništen i zvonik. Nažalost, nije nađen izvorni nacrt pa je 2005. obnovljena na osnovi postojećih arhivskih fotografija. Dva prozora i kamene rozete s osam latica na ogoljelom pročelju oponašaju primorsku baroknu gradnju. Crkvu su gradili Podgorani te pripada podgorskoj župi. U njenoj blizini, na samom raskršću

## **Churches on Biokovo**

At the highest peak of Biokovo, the top of St. Jure, from time immemorial there is a sanctuary, which in pre-Christian times was a place of cult worship of the cult of the serpent and the cult of the god of darkness. With the arrival of Christianity, a stone church was built on this cult site. An inscription in Bosnian indicates that the stone chapel was built or renovated in the 13th century and was first mentioned in 1640 in a travelogue written by the Franciscan Pavao Pelizzer from Rovinj (1600-1691). Due to the construction of the first transmitter in 1965, 97 m high, the church, which at that time had a barrel roof and had an area of only 8.7 m<sup>2</sup>, was demolished. The new one was built in 1968, a little east of the top, and was decorated in 1988. It contains a large mosaic of St. Jure on horseback (4.20x2.10 m) and the statue of Our Lady Co-Redeemer, made by the academic sculptor Jure Žaja (1944), and the church belongs to the Imotski municipality. Pilgrimage to the church used to take place on April 23 on the feast of St. Jure are running, but due to frequent bad weather conditions, pilgrimages to the Holy Mass are held today, August 31.

There are other churches and chapels on Biokovo. **Church of St. Ilija** is on the Staza pass itself, on one of the largest Biokovo tumuli, about 30 m in diameter. It was built around 1880, and was bombed in 1944 by the Italians, when the bell tower was destroyed. Unfortunately, the original draft was not found, so in 2005 it was restored on the basis of existing archival photographs. Two windows and stone rosettes with eight petals on the

za Podglogovik i Saranač, nalazi se mala **kapelica kod Sv. Ilijе**. Postoji i druga **kapelica Sv. Ilijе** podignuta na 3. najvećem vrhu Biokova, Sv. Ilijа (1640 m), zapadno od vrha.



Kapelica Sv. Kaje iz 18. st / The Chapel of St. Kaja from the 18th century, foto Vedrana Vela Pušarić.

Na istočnom dijelu Biokova su dvije crkvice. Prva je posvećena Sv. Vidu (1336 mnv), a druga Sv. Roku (1228 mnv), sagrađene na istoimenim vrhovima iznad sela Župa, u zaleđu Biokova. **Crkvica Sv. Vida** je nažalost porušena i jedva se nazire, a **crkvica Sv. Roka** je dobro očuvana. Sliči crkvici Sv. Jure na vrhu Biokova, ima bačvast svod, dva bočna prozorčića i orijentirana je prema istoku, a duža je tek za 3 cm. Građena je krajem 18. ili početkom 19. st., u vrijeme posljednjih epidemija kuge. Natpis na njoj upućuje da je 1875. obnovu financirao car Franjo Josip koji je te godine na proputovanju zastao u Župi, kojoj crkvica pripada.

#### Jeste li znali?

*Svake godine se prvu subotu nakon Sv. Roka manja skupina Biokovaca predvodena svećenikom zaputi u crkvicu Sv. Roka koja se nalazi na istoimenom vrhu (1228 mnv) na svetu misu koja se u jedinstvenom okružju divlje prirode i s pogledom na Zabiokovlje ne zaboravlja.*

bare facade mimic the coastal Baroque construction. The church was built by the people of Podgora and belongs to Podgora Parish. In its vicinity, at the crossroads for Podglogovik and Saranač, there is a small **chapel near St. Ilijа**. There is another **chapel of St. Ilijа** erected on the 3rd largest peak of Biokovo, Sv. Ilijа (1640 m), west of the peak.



Crkva Sv. Ilijе na istoimenom vrhu / St. Elias Church at the namesake peak, foto Ante Bulić

There are two churches in the eastern part of Biokovo. The first is dedicated to St. Vid (1336 m), and the other St. Roko (1228 m), built on the peaks of the same name above the village of Župa, in the hinterland of Biokovo. **Church of St. Vid** is unfortunately destroyed and can hardly be seen, and the **church of St. Roko** is well preserved. It resembles the church of St. Jure at the top of Biokovo, has a barrel vault, two side windows and is oriented to the east, and is only 3 cm longer. It was built in the late 18th or early 19th century, during the last plague epidemics. The inscription on it indicates that in 1875 the reconstruction was financed by Emperor Franz Joseph, who stopped on his way to Župa that year.

#### Did you know?

*Every year, on the first Saturday after St. Rocco, a small group of people from Biokovo, led by a priest, went to the church of St. Roko, which is located on the eponymous peak (1228 m) at Holy Mass, which is not forgotten in the unique environment of wild nature and with a view of region after Biokovo.*

# 6. CESTE I TUNELI NA BIOKOVU

## 6.1. Rodićeva cesta

Jedan od najboljih načina za upoznavanje Biokova, a svakako najlakši je cestom koju je još 1878. godine dao napraviti Habsburgovac Franjo Josip (1830.-1916.), car Austrije, kralj Ugarske, Češke, Hrvatske, Slavonije i Dalmacije, austrougarski monarh koji je vladao punih 68 godina. Rodićeva cesta građena je gotovo 6 godina krajem 19. stoljeća (1878.-1883.), svečano je otvorena 30. svibnja 1878., a radove je vodio **general barun Gabriel Rodić** (Gabriel Joseph Freiherr von Rodich), po kojem je cesta nosi ime. Gradili su je vojnici i svi sposobni domaći muškarci. Pojedini zadatak morali su izvršiti u roku od 15 dana, za što su dobili jedan vojnički kruh ili dva obroka na dan zbog čega su mnogi dobrovoljno radili jer je u Dalmaciji tada vladalo siromaštvo i glad.

Rodićeva cesta uspinje se od Makarske, odnosno obale mora, na prijevoj Staza (897 m), gdje skreće na istok, ispod naselja Podglogovik, pa preko prijevoja Saranač i naselja Kozica, sve do Vrgorca. Bila je važna veza prema Zagori jer je spajala dva Napoleonova puta koje je izgradio francuski **general Auguste de Marmont** početkom 19. st., jedan obalni, a drugi zagorski spajaju Zadar i Dubrovnik. Južno od Vrgorca nalazi se najveće nalazište asfalta (bitumen) u Hrvatskoj. Iz rudnika Paklina vađenje asfalta započela je Venecija još početkom 18. st., a polovicom 19. st. preuzele su ga bećke tvrtke i vozile u Austriju tzv. Marmontovim putovima. Manja nalazišta asfalta nađena su i kod Župe, Kozica i Zavojana.

# 6. ROADS AND TUNNELS ON BIOKOVO

## 6.1. Rodić road

One of the best ways to visit Biokovo, certainly the easiest, is by the road made in 1878 by the Habsburg Franz Joseph (1830-1916), Emperor of Austria, King of Hungary, the Czech Republic, Croatia, Slavonia and Dalmatia, Austro-Hungarian monarch, who ruled for a full 68 years. Rodić Road, built for almost 6 years at the end of the 19th century (1878-1883), was ceremoniously opened on May 30, 1878, and the works were led by **General Baron Gabriel Joseph Freiherr von Rodich**, after whom the road is named. It was built by soldiers and all capable local men. They had to complete some tasks within 15 days, for which they received one soldier's bread or two meals per day, which is why many volunteered, because hunger in Dalmatia at that time.

Rodić road climbs from Makarska coast, to the Staza pass (897 m), where it turns east, below the settlement of Podglogovik, and over the Saranač pass till the village Kozica, all the way to Vrgorac. It was an important connection to hinterland, because it connected two Napoleonic roads built by the French **general Auguste de Marmont** in the early 19th century, one coastal and second continental, connecting Zadar and Dubrovnik. South of Vrgorac is the largest asphalt (bitumen) deposit in Croatia. Venice started extracting asphalt from the Paklina mine at the beginning of the 18th century, and in the middle of the 19th century it was taken over by Viennese companies and transported to Austria by the so-called Marmont roads. Smaller asphalt deposits were also found near Župa, Kozica and Zavojane.

## 6.2. Biokovska cesta do vrha Sv. Jure

Od prijevoja Staza, skretanja Rodićeve ceste prema Podglogoviku, nastavlja se biokovska cesta koja je za potrebe odašiljača izgrađena 1964., a asfaltirana 1979. godine. Od ulaza u Park do vrha Sv. Jure duljine je 23 km i najviša je asfaltirana cesta u Hrvatskoj.

## 6.3. Francuska cesta (Napoleonova ili Marmontova)

Kompletna dionica ceste od Zadra do Dubrovnika, linijom Zadar-Knin-Vrlika-Sinj-Trilj-Katuni-Šestanovac-Župa-Vrgorac-Metković-Dubrovnik dovršena je krajem 1808. godine. U narodu je poznatija kao *Napoleonova ili Marmontova cesta*, po francuskom generalu Marmontu. Izgradnju su vodili inženjeri Pietro Pakota i Frane Zavoreo i dovršili je za vrijeme sedmogodišnje vladavine Francuske u Hrvatskoj. Državna prometnica D62 Šestanovac-Zagvozd-Kozica u duljini 18 km, a koja čini sjevernu granicu Parka prirode Biokovo, dio je Francuske ceste, monumentalnog pothvata sa samog početka 19. stoljeća.

## 6.2. Biokovo road to the top of Sv. Jure

From the Staza pass, turn of Rodić road towards Podglogovik, the Biokovo road continues, which was built for the needs of the transmitter in 1964, and asphalted in 1979. From the entrance to the top of St. Jure is 23 km long and is the highest asphalted road in Croatia.

## 6.3. French Road (Napoleon's or Marmont's)

The complete section of the road from Zadar to Dubrovnik, along the line Zadar-Knin-Vrlika-Sinj-Trilj-Katuni-Šestanovac-Župa-Vrgorac-Metković-Dubrovnik, was completed at the end of 1808. It is popularly known as *Napoleon's or Marmont's road*, according to the French general Marmont. The construction was led by engineers Pietro Pakota and Frane Zavoreo and was completed during the seven-year rule of France in Croatia. The 18 km long state road D62 Šestanovac-Zagvozd-Kozica, which forms the northern border of the BNP, is part of French Road, a monumental venture from the very beginning of the 19th century.

Slika/Fig. 6.2 Na Rodićevoj cesti / At the Rodić road

Slika/Fig. 6.1 General Gabriel Rodić



## 6.4. Tunel Sv. Ilija

Od 25. 3 2008. do 21. 1. 2010., dakle oko 2 godine trajalo je probijanje biokovskog tunela koji kroz masiv Biokova povezuje Zagvozd na zagorskoj strani s Baškom Vodom na primorskoj. Tunel je otvoren 8. 7. 2013., a do 2020. se plaćala tunelarina 20 kn. Tunel se sastoji od glavne cijevi duljine 4248 m i pomoćne od 4255,62 m, što ga čini 4. u Hrvatskoj po duljini. Tunel je blago nagnut od zagorske strane prema primorskoj, a na polovici niveleta tunela je na 293 mnv. U istoj točci, nadslj tunela koji prolazi ispod 3. najvišeg vrha Sv. Ilij, po kojem je dobio ime, iznosi fantastičnih 1336,5 m, po čemu je 1. cestovni tunnel Europe. Izniman značaj imaju tri kaverne koje je presjekla pomoćna cijev tunela. Kaverna na stacionaži 1+637 (vertikalna sa slapom) istražena je do ukupne vertikalne razlike 215 m i u duljini kanala od 957 m. U kaverni su nađeni izvanredni biološki nalazi, a posebno je zanimljiva kao izvoriste velike količine pitke vode.

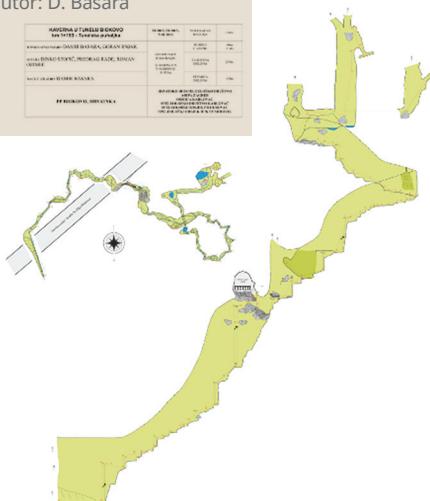


Tunel Sv. Ilija / St. Elias tunnel, foto D.Stopić

## 6.4. Tunnel St. Ilija

From March 25, 2008 to January 21, 2010, that is, it took about 2 years to break through the Biokovo tunnel that connects Zagvozd on the hinterland side with Baška Voda on the coastal side through the Biokovo massif. The tunnel was opened on July 8, 2013, and until 2020, the tunnel fee was 20 kn. The tunnel consists of a main pipe 4248 m long and an auxiliary one 4255.62 m, which makes it the 4th longest in Croatia. The tunnel is slightly sloping from the hinterland towards the coast, and at half of the tunnel it is at 293 m above sea level. At the same point, the overlay of the tunnel that passes below the 3rd highest peak of St. Ilij, after which it is named, is a fantastic 1336.5 m, making it the 1st road tunnel in Europe. Of exceptional importance are the three caverns cut by the auxiliary pipe of the tunnel. The cavern at station 1+637 (Vertical with a waterfall) was explored up to a total vertical difference of 215 m and a channel length of 957 m. Extraordinary biological findings were found in the cavern, and it is especially interesting as a source of large source of drinking water.

Slika 6.3 Nacrt kaverne na stacionaži 1+637 /  
Cavern draft at Chainage 1+637  
autor: D. Basara



## Jeste li znali?

Na tvrdnje vlastitih stručnjaka koji su ga izvijestili kako cestu preko Biokova nije moguće izgraditi, austrijski car Franjo Josip ih je navodno upitao: Možete li je izgraditi ako vam dam kilu baruta za svaku kilu kamena? Inženjeri su pristali i nastala je Rodićeva, najteže izgrađena cesta austrougarskog carstva, danas s nastavkom do Sv. Jure, najimpozantniji i najviši autouspon u Hrvatskoj.

### Did you know?

*To the claims of his own experts who informed him that the road across Biokovo could not be built, Austrian emperor Franz Joseph allegedly asked them: Can you build it if I give you a kilogram of gunpowder for every kilogram of stone? The engineers agreed and Rodić road, the most difficult-to-build road of the Austro-Hungarian Empire was built, today with a continuation to St. Jure, the most impressive and highest car climb in Croatia.*



Biokovska cesta / Biokovo road,  
foto Plamenko Cvitić

## 7. KAKO POSJETITI PARK PRIRODE BIOKOVO

Park prirode Biokovo možemo posjetiti virtualno ili fizički, na ovaj drugi način planinareći brojnim planinarskim stazama, uz poštivanje unutarnjeg reda Parka i pravila ponašanja, ali najjednostavnije, najsigurnije i najbrže je asfaltnom biokovskom cestom duljine 23 km, od Glavnog ulaza u Park pa sve do samog vrha Sv. Jure na 1762 m. Cesta je namijenjena za manje kombi-autobuse, osobne automobile, motocikle i bicikle, a mogu ga koristiti i pješaci. Biokovska cesta je uska, strma, brdska, dvosmjerna, jednotračna, asfaltirana cesta kojom se prometuje posebnim režimom s ugibalištima na svakih oko 300 m.

## 7. HOW TO VISIT BIOKOVO NATURE PARK

We can visit Biokovo Nature Park virtually or physically, in this other way hiking numerous hiking trails in compliance with the Internal Order and the rules of conduct. But the simplest, safest, and fastest is the asphalt Biokovo road, 23 km long, from the main entrance to the very top of Sv. Jure at 1762 m. Road is intended for smaller vans, cars, motorcycles, and bicycles, and can also be used by pedestrians. Biokovo road is a narrow, steep, hilly two-way, one-lane asphalt road, used by a special regime with lay-by about every 300 m.

Zbog prometnih ograničenja biokovske ceste ulaz većim autobusima u Park nije dopušten, a kamioni mogu ući samo uz posebnu dozvolu Ustanove. Biokovska cesta posebna je atrakcija Parka, a njome se prometuje na vlastitu odgovornost! Nekadašnja Rodićeva cesta danas je uređena u pješačko - biciklističku stazu (pomoćni ulaz u Park prirode) koji se, od predjela Saranač na cesti Gornje Igrane-Kozica pa sve do prijevoja Staza, koristi samo u slučaju potrebe i uz posebnu dozvolu Ustanove. Ako za to postoje opravdani razlozi Ustanova može dozvoliti posjećivanje i razgledavanje izvan propisanog vremena, a u posebnim okolnostima, zbog sigurnosti posjetitelja ili zaštite prirodnih i drugih vrijednosti Ustanova može ograničiti posjećivanje ili potpuno zabraniti ulaz.

Due to traffic restrictions on the Biokovo road, larger buses are not allowed to enter the BNP, and trucks can only enter with the special permission of the BNP Institution. Biokovo road is a special attraction of the BNP, and it is used at your own risk! Today, the former Rodić road is arranged into a pedestrian-bicycle path (auxiliary entrance to the Biokovo Nature Park), which is used from the Saranač area, on the Gornje Igrane - Kozica road all the way to the Trail pass, only in case of need and with special permission of the Institution. If there are justified reasons for this, the Institution may allow visits and sightseeing outside the prescribed time, and in special circumstances, for the safety of visitors or protection of natural and other values, the Institution may restrict visits or completely prohibit entry.

<b>Pristup Access</b>	Za Glavni ulaz u Park prirode Biokovo skrećemo na 6. km državne ceste Makarska-Vrgorac, a označen je znakovima obavijesti i smeđom signalizacijom. Na ulazu se nalazi građeni objekt - ulazna recepcija i postavljene rampe.	For the main entrance to the Biokovo Nature Park, turn onto the 6th km of the Makarska-Vrgorac state road, and it is marked with information's and brown signs. At the entrance is a built object - Entrance reception and installed ramps.										
<b>Koordinate Coordinate</b>	43°257867 17°080626	43°257867 17°080626										
<b>Radno vrijeme Working time</b>	Park prirode Biokovo otvoren je za posjete u razdoblju 1.4.-30.11. prema sljedećem radnom vremenu (podložno promjenama):	<table border="1"> <thead> <tr> <th>DATUM / DATE</th> <th>RADNO VRIJEME / WORKING HOURS</th> </tr> </thead> <tbody> <tr> <td>01.04.-31.05.</td> <td>6:00 - 19:00*</td> </tr> <tr> <td>01.06.-30.09.</td> <td>6:00 - 20:00*</td> </tr> <tr> <td>01.10.-30.11.</td> <td>8:00 - 16:00</td> </tr> <tr> <td>01.12.-31.03.</td> <td>Park prirode Biokovo NIJE SLUŽBENO OTVOREN / Biokovo Nature Park IS NOT OFFICIALLY OPEN</td> </tr> </tbody> </table>	DATUM / DATE	RADNO VRIJEME / WORKING HOURS	01.04.-31.05.	6:00 - 19:00*	01.06.-30.09.	6:00 - 20:00*	01.10.-30.11.	8:00 - 16:00	01.12.-31.03.	Park prirode Biokovo NIJE SLUŽBENO OTVOREN / Biokovo Nature Park IS NOT OFFICIALLY OPEN
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	*POSLEDNJI ULAZ MOGUĆ JE U 19:00 SATI!											
<b>Cjenik Price list</b>	Dnevna ulaznica je 60 kn / po osobi u vozilu, a sve detalje o ostalim cijenama i pogodnostima te ažurirane informacije mogu se naći na web stranici Park prirode Biokovo.	Daily ticket is 60 kn / per person in the vehicle, and all details about other prices and benefits and updated information on the Biokovo Nature Park website: <a href="https://pp-biokovo.hr/hr/71/cjenik">https://pp-biokovo.hr/hr/71/cjenik</a>										
<b>Kontakt Contact</b>	Javna ustanova Park prirode Biokovo Franjevački put 2a HR-21300 Makarska	tel: 021/616-924 E-mail: <a href="mailto:info@pp-biokovo.hr">info@pp-biokovo.hr</a> web: <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>										

## 8. BIOKOVSKA NEBESKA ŠETNICA

Biokovska nebeska šetnica – Skywalk Biokovo je moderni vidikovac u obliku potkove, izgrađen izvan strme kamene litice sa staklenom plohom za hodanje i zaštitnom ogradom koja u najizboženijoj točki u duljini od 12 m natkriljuje litice. Nudi spektakularan pogled na biokovske vertikalne stijene, Makarsko primorje te Jadransko more i brojne otoke: Brač, Hvar, Vis, poluotok Pelješac, Korčulu, Mljet. Za posebno vedrih dana vidi se čak i Italija. Nalazi se na visini od 1228 m/nm, u jugozapadnom dijelu Parka prirode Biokovo, na lokalitetu Ravna Vlaška, neposredno uz biokovsku cestu, na 13. km od ulazne recepcije. Uz Skywalk se nalaze **Info - centar Ravna Vlaška** sa suvenirnicom te **geološki stup** – trodimenzionalan prikaz presjeka stijena koje su formirale područje Biokova od njegovog postanka do danas s geološkom tablicom vremena i opisom starosti i vrsta stijena. Skywalk ima mogućnost primanja do 30 posjetitelja u isto vrijeme, zbog čega je vremenski ograničen boravak na staklenoj platformi. I jedna napomena: po mogućnosti ne nosite na Skywalk vrijedne stvari ili dobro pazite na njih jer sve što padne s njega možete zaboraviti.

## 8. SKYWALK BIOKOVO

Biokovo Skywalk - Biokovo is a modern horseshoe-shaped lookout, built outside a steep stone cliff with a glass walkway and a protective fence, which at the most protruding point in the length of 12 m over the cliffs. It offers a spectacular view of Biokovo's vertical rocks, Makarska Riviera and the Adriatic Sea and numerous islands: Brač, Hvar, Vis, the Pelješac peninsula, Korčula, Mljet. Even Italy can be seen on particularly clear days. It is located at an altitude of 1228 m, in the SW part of the BNP, on the site of Ravna Vlaška, next to the Biokovo road, 13 km from the entrance reception. Next to Skywalk there is the **Ravna Vlaška Info Centre** with a souvenir shop and a **geological pillar** - a three-dimensional view of the cross-section of the rocks that formed the Biokovo area from its inception until today with a geological table of time and a description of the age and types of rocks. Skywalk has the ability to receive up to 30 visitors at a time, which makes it time-limited to stay on the glass platform. And one note, preferably don't carry valuable items on the Skywalk or take good care of them, because anything that falls off it can be forgotten.

Nebeska šetnica / Skywalk Biokovo, foto Plamenko Cvitić za PP Biokovo



Neposredno uz Skywalk nalazi se Informativni centar Ravna Vlaška koji je kroz sezonu otvoren za posjetitelje svaki dan. U njemu posjetitelji mogu dobiti informacije o Parku, upoznati se s geološkom prošlošću Biokova na temelju geološkog stupa, vidjeti fotografije flore i faune te saznati nešto o jamama ledenicama i životu stanovnika u sekundarnim stočarskim naseljima u prošlosti. U Centru je na raspolaganju promidžbeni materijal te se mogu kupiti brojni tematski edukacijsko-promotivni suveniri.

Right next to Skywalk is the Ravna Vlaška Information Centre, which is open to visitors every day throughout the season. In it, visitors can get information about the Park, get acquainted with the geological past of Biokovo based on a geological pillar, see photos of flora and fauna, and learn about glacier pits and the life of residents in secondary livestock settlements in the past. Promotional material is available at the Centre and numerous thematic educational and promotional souvenirs can be purchased.

<b>Pristup Access</b>	Od Glavnog ulaza u Park prirode Biokovo na državnoj cesti D512 (Makarska-Vrgorac) 13 km biokovskom cestom koja vodi od glavnog ulaza prema najvišem vrhu Sveti Jure. Vožnja od ulaza traje oko 30 minuta, a vozilo se parkira nasuprot vidikovca gdje se nalazi uređeno besplatno parkiralište.	From the main entrance to the Biokovo Nature Park on the state road D512 (Makarska-Vrgorac) 13 km along the Biokovo road, which leads from the main entrance to the highest peak St. Jure. The drive from the entrance takes about 30 minutes, and the vehicle is parked opposite the lookout point where there is a free parking lot.
<b>Koordinate Coordinate</b>	43°17'07.6"N 17°05'05.4"E	43°17'07.6"N 17°05'05.4"E
<b>Radno vrijeme Working time</b>	Radno vrijeme usklađeno je s radnim vremenom Parka prirode Biokovo te je podložno promjenama, pri čemu se ažurne informacije mogu naći na web stranici Parka	The working hours are harmonized with the working hours of the Biokovo Nature Park, and are subject to change, where up-to-date information can be found on the Park's website
<b>Cjenik Price list</b>	Uključena je u cijenu ulaznice u Park prirode Biokovo	Included in the ticket price to the Biokovo Nature Park
<b>Kontakt Contact</b>	Javna ustanova Park prirode Biokovo Franjevački put 2a HR-21300 Makarska	tel: 021/616-924 E-mail: <a href="mailto:info@pp-biokovo.hr">info@pp-biokovo.hr</a> web: <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>

# 9. PREZENTACIJSKO- POSJETITELJSKI CENTRI

## 9.1. Prezentacijski centar Adrion-srce planine

Prezentacijski centar „Adrion - srce planine“ glavni je moderni multimedijalni prezentacijski centar, a nalazi se u novouređenoj upravnoj zgradbi Javne ustanove Park prirode Biokovo na Gradskom sportskom centru u Makarskoj. Obuhvaća dvojezično (hrvatsko-engleski) tematski podijeljene cjeline koje interpretiraju grafički i multimedijalni prikazi, zvučne kulise, ali se mogu upoznati i opipom te iskustvenim doživljajem te maketom Biokova u malom. Educirajte se o postanku Zemlje i geotektonске cjeline Dinarida; uzdignite se iz mora s Biokovom, upoznajte njegovu bioraznolikost, gljive, biljni i životinjski svijet, kulturnu baštinu i to sve uz proširenu stvarnost, mikroskop, simulator potresa, LCD ekrane osjetljive na dodir, ali i brojne tiskane publikacije i besplatne prospakte Parka prirode Biokovo.

# 9. PRESENTATION- VISITOR CENTERS

## 9.1. The presentation center Adrion - the heart of the mountain

The presentation centre “Adrion - the heart of the mountain” is the main modern multimedia presentation centre located in the newly renovated administrative building of the Public Institution “Biokovo Nature Park” at the City Sports Centre in Makarska. It includes bilingual (Croatian-English) thematically divided units that interpret graphic and multimedia representations, soundscapes, but they can also be introduced by touch and experiential experience, as well as a miniature model of Biokovo. Educate yourself about the origin of the Earth and the geotectonic unit of the Dinarides; rise from the sea with Biokovo, get to know its biodiversity, fungi, flora & fauna, cultural heritage all in augmented reality, microscope, earthquake simulator, LCD touch screens, but also numerous printed publications and free brochures of Biokovo Nature Park.

Pristup <b>Access</b>	U centru grada Makarske, uz rivu uz Park fra Jure Radića na adresi Franjevački put 2a.	In the centre of Makarska, along the waterfront next to the Fra. Jure Radić Park at the address Franjevački put 2a
Koordinate <b>Coordinate</b>	43.290617, N 17.020608 E	43.290617, N 17.020608 E
Radno vrijeme <b>Working time</b>	svibanj - rujan: ponedjeljak - petak: 08,00 - 13,00 sati*; vikendom zatvoreno  listopad-travanj: provjeriti i najaviti se na e-mail	May - September: Monday - Friday: 08.00 - 13.00 *; closed on weekends  October-April: check and announce by e-mail: info@pp-biokovo.hr
Cjenik <b>Price list</b>	svibanj-rujan 30 kn; listopad-travanj 10 kn	May-September 30 kn; October-April 10 kn
Kontakt <b>Contact</b>	Javna ustanova Park prirode Biokovo Franjevački put 2a HR-21300 Makarska	tel: 021/616-924 E-mail: info@pp-biokovo.hr web: <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>

## 9.2. Posjetiteljski centar u Župi

Posjetiteljski centar „Akademik Josip Roglić“ nalazi se u zaleđu Biokova u naselju Župa. Ovaj moderni multifunkcijski Centar rekonstruiran je 2021. godine iz stare školske kamene zgrade. Uređeni interaktivni postav na moderan način predstavlja Biokovo, a posebno Zabiokovlje. Osnovni cilj centra je dovođenje i upoznavanje posjetitelje sa zaleđem Biokova, planine s dva lica – primorskog i zagorskog.

## 9.2. The visitor centre in Župa

The visitor centre “Academician Josip Roglić” is located in the hinterland of Biokovo in the village Župa. This modern multifunctional Centre was reconstructed in 2021 from an old school stone building. Arranged interactive exhibition in a modern way represents Biokovo, and especially hinterland. The main goal of the centre is to bring and introduce visitors to the hinterland of Biokovo, a mountain with two faces - coastal and continental.

<b>Pristup Access</b>	Asfaltiranim Francuskom (Napoleonovom) cestom koja povezuje naselja u zaleđu Biokova, od mjesta Šestanovac na zapadu do mjesta Kozica na istoku. Nalazi se južno od ceste, u impozantnoj kamenoj zgradi stare škole, a uz Centar se nalazi i uređeni besplatni parking.	Throw asphalt French (Napoleon's) road that connects settlements in the hinterland of Biokovo, from Šestanovac in the west to Kozica in the east. Centre is located just south of the road, in an imposing stone building of the old school, with a free parking.
<b>Koordinate Coordinate</b>	43.323255, N 17.131254, E	43.323255, N 17.131254, E
<b>Radno vrijeme Working time</b>	7:00 do 15:00 sati ili po dogovoru provjeriti na <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>	7:00 to 15:00 or by appointment check on: <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>
<b>Cjenik Price list</b>	provjeriti na <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>	check on: <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>
<b>Kontakt Contact</b>	Javna ustanova Park prirode Biokovo Franjevački put 2a HR-21300 Makarska	tel: 021/616-924 E-mail: <a href="mailto:info@pp-biokovo.hr">info@pp-biokovo.hr</a> web: <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>

### Jeste li znali?

*U usporedbi s najpristupačnijom i najatraktivnijim vidikovcima Parka prirode Biokovo: Staza, (897 m/nm), Nebeska šetnica-Skywalk Biokovo (1228 m/nm), Štrbina (ispod Vošca)(1338 m/nm), Vošac (1422 m/nm) i Sv. Jure (1762 m/nm) vidikovac iznad Vruje nalazi se na najmanjoj nadmorskoj visini od svega 250 m/nm. Premda smješten na jednoj od najnižih točaka Parka prirode Biokovo i na njegovom krajnjem sjeverozapadnom rubu, ovaj vidikovac je vjerojatno najposjećeniji. Ne samo zato što se nalazi neposredno uz frekventnu cestu, već i zato što se s vidikovca pruža nezaboravan pogled na otoke Čiovo, Šoltu, Brač, Hvar i Vis te posebno na atraktivnu Vruju u podnožju, uz veliku kartu cijelog Parka.*

Prezentacijski centar Adrion srce planine / The presentation center Adrion - the heart of the mountain, foto arhiva PP Biokovo



## 9.3. Prezentacijski centar "Brela Gornja"

Prezentacijski centar "Brela Gornja" nalazi se u kamenoj kući zavičajne zbirke Breljana, neposredno uz cestu Donja Brela-Dubci-Gornja Brela-Zadvarje-Šestanovac i radi u ovisnosti o dogovoru s Općinom Brela. U prezentacijskom centru posjetitelji mogu putem izložbe "Biokovo" u cijelosti vidjeti prirodne osobitosti i ljepote Parka te dobiti promidžbene materijale i informacije o Parku. Prezentacijski centar ujedno predstavlja polaznu točku Poučne staze "Putovima drevne Berulije".

## 9.3. The presentation centre "Brela Gornja"

The presentation centre "Brela Gornja" is located in a stone house of the native collection of Brela, next to the road Donja Brela-Dubci-Gornja Brela-Zadvarje-Šestanovac and works depending on the agreement with the Municipality of Brela. Visitors can see the natural features and beauties of the Park in its entirety through the exhibition "Biokovo", and receive promotional materials & information about the Park. Centre is also the starting point of the Educational Trail "Paths of Ancient Berulia".

Pristup Access	Neposredno uz regionalnu cestu između prijevoja Dubci i Žadvarja, na adresi Cesta Domovinskog Rata 56, 21255, Gornja Brela.	Next to the regional road between the Dubci and Žadvarje passes, at address Cesta Domovinskog Rata 56, 21255, Gornja Brela
Koordinate Coordinate	43.409696 N 16.915601 E	43.409696 N 16.915601 E
Radno vrijeme Working time	Prema dogovoru i najavi. Za detaljne informacije kontaktirajte Ustanovu	As agreed and announced. Contact the Institution for detailed information
Cjenik Price list	Besplatan; provjeriti na web stranici Parka	Free, check on Park web page
Kontakt Contact	Javna ustanova Park prirode Biokovo Franjevački put 2a HR-21300 Makarska	tel: 021/616-924 E-mail: <a href="mailto:info@pp-biokovo.hr">info@pp-biokovo.hr</a> web: <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>

### Did you know?

*Compared to the most accessible and attractive viewpoints of the Biokovo Nature Park: Staza (897 m), Skywalk Biokovo (1228 m), Štrbina (below Vošac) (1338 m), Vošac (1422 m) and St. Jure (1762 m), lookout point above Vruja is located at the lowest altitude of only 250 m and at its extreme NW edge. But this lookout is probably the most visited. Not only because position next to the frequent road, but also because the lookout offers an unforgettable view on islands: Čiovo, Šolta, Brač, Hvar, Vis and attractive submerged spring Vruja at the foot, with a large map of the entire Park.*

Prezentacijski centar Brela Gornja / The presentation centre "Brela Gornja", foto arhive PP Biokovo



# 10. BIOKOVSKI BOTANIČKI VRT KOTIŠINA I INTERPRETACIJSKI CENTAR VELIKI KAŠTEL

**Biokovski botanički vrt Kotišina** nalazi se neposredno iznad grada Makarska, iznad sela Kotišina na 350-500 m/nm. Osnovan je prema ideji dr. fra Jure Radića 1984. sa svrhom znanstvenog istraživanja, očuvanja te upoznavanja biljnog svijeta planine Biokovo. Kroz vrt vodi više pješačkih staza, a u vrtu raste oko 300 samoniklih biljnih svojti, od tipično mediteranskih do planinskih, te manji broj unesenih egzotičnih biljnih vrsta. Veliki kaštel iz 17. st., smješten u blizini, preuređen je u **Interpretacijski centar**.

**Veliki kaštel** je u nadležnosti i organizaciji Gradskog muzeja Makarska. To je središnje mjesto interpretacije i prezentacije kulturne i prirodne baštine Kotišine kroz tri teme postava: arheološka, etnološka i prirodna baština, kroz koji se može doznati sve o botaničkom vrtu, lokalnoj povijesti i nekadašnjem životu stanovnika.

## Jeste li znali?

Kotišina je toponim vezan uz stočarstvo. Etimološki kotišina se povezuje s rumunjskim terminom coteş što znači - staja, pastirska koliba te je ovaj toponim najvjerojatnije vlaškog porijekla. U povjesnim dokumentima Kotišina se prvi put spominje 1434. godine.

# 10. BIOKOVO BOTANICAL GARDEN KOTIŠINA & INTERPRETATION CENTER VELIKI KAŠTEL

**Biokovo Botanical Garden Kotišina** is located just above the Makarska town, above the village Kotišina at 350-500 m. It was founded according to the idea of Dr. Fr. Jure Radić in 1984, with the purpose of scientific research, preservation & recognizing the flora of the mountain Biokovo. There are several hiking trails through the garden, and about 300 wild plant taxa grow there, from typically Mediterranean to mountain, and a small number of introduced exotic plants too. The large castle from the 17th century, located nearly, was converted into an **Interpretation Centre**.

**The Great Castle** is under the jurisdiction and organization of the Makarska City Museum. It is the central place of interpretation and presentation of the cultural and natural heritage of Kotišina through three themes of the exhibition: archaeological, ethnological, and natural heritage, through which one can learn all about the botanical garden, local history and the former life of the inhabitants.

## Did you know?

Kotišina is a toponym related to animal husbandry. Etymologically, Kotišina is associated with the Romanian term coteş, which means - stable, shepherd's hut, and is most likely of Vlach origin. Kotišina was firstly mentioned 1434 in historical documents.

<b>Pristup Access</b>	Za Botanički vrt Kotišina i Interpretacijski centar Veliki kaštel skrećemo nakon izlaza iz Makarske na sjever u pravcu grada Vrgorca, s iste ceste kao i za Glavni ulaz u Park prirode Biokovo, ali oko 5 km prije. Uskom cestom nakon oko 1,5 km dolazimo do vrta i interpretacijskog centra. Još je atraktivniji posjet pješice iz centra Makarske, iznad gradske tržnice kojim stižemo do Botaničkog vrta za oko 45 minuta.	For the Kotišina Botanical Garden and the Veliki Kaštel Interpretation Centre, we turn north after exiting Makarska in the direction of the town of Vrgorac, from the same road as for the main entrance to the Biokovo Nature Park, but about 5 km before. A narrow road after about 1.5 km leads to the garden and interpretation centre. Even more attractive is the visit on foot from the centre of Makarska, above the town market, takes us to the Botanical Garden in about 45 minutes
<b>Koordinate Coordinate</b>	43.290170 N 17.046195 E	43.290170 N 17.046195 E
<b>Radno vrijeme Working time</b>	Radnim danom dvokratno: 08.00-13.00 / 15.00-20.00 subotom: 15.00-20.00 nedjeljom i praznikom ne radi	on weekdays twice: 08.00-13.00 / 15.00-20.00 Saturdays: 15.00-20.00 it does not work on Sundays and holidays
<b>Cjenik Price list</b>	Biokovski botanički vrt Kotišina – besplatan Interpretacijski centar Kotišina provjeriti na: <a href="https://www.kotisina-makarska.com/interpretacijski-centar-veliki-kastel/">https://www.kotisina-makarska.com/interpretacijski-centar-veliki-kastel/</a>	Biokovo Botanical Garden Kotišina - free Kotišina Interpretation Centre check on: <a href="https://www.kotisina-makarska.com/interpretacijski-centar-veliki-kastel/">https://www.kotisina-makarska.com/interpretacijski-centar-veliki-kastel/</a>
<b>Kontakt Contact</b>	Javna ustanova Park prirode Biokovo Franjevački put 2a HR-21300 Makarska	tel: 021/616-924 E-mail: <a href="mailto:info@pp-biokovo.hr">info@pp-biokovo.hr</a> web: <a href="https://pp-biokovo.hr">https://pp-biokovo.hr</a>

Ulaz botaničkog vrta Kotišina / The entrance to Kotišina botanical garden,  
foto Plamenko Cvitić



Interpretacijski centar Veliki kaštel / Veliki Kaštel Interpretation Centre, foto Plamenko Cvitić



# 11. POUČNE STAZE

## 11.1. Poučna geološka staza pod Vilovikom

Poučna geološka staza pod Vilovikom počinje na 9. km biokovske ceste, između lokaliteta Lemišini doci i Jakičuša. Staza nije teška, označena je planinarskom markacijom, a njen obilazak laganim hodom traje do 45 minuta. Pozivna poučna ploča nalazi se na samoj biokovskoj cesti, dok su još dvije poučne ploče postavljene duž staze i objašnjavaju postanak vapnenca i geomorfoloških fenomena Biokova.

Geološka staza pod Vilovikom / Geological path beneath Vilovik, foto arhiva PP Biokovo



Poučna staza Topnički put / Educational trail Topnički put, foto, arhiva PP Biokovo

# 11. EDUCATIONAL TRAILS

## 11.1. Educational geological trail under Vilovik

The educational geological trail under Vilovik begins on the 9th km of the Biokovo road, between the localities Lemišini doci and Jakičuša. The trail is not difficult, it is marked with hiking markings, and its tour takes up to 45 minutes. The invitational educational board is located on the Biokovo road, while two more educational boards are placed along the path and explain the origin of limestone and geomorphological phenomena of Biokovo.

### Poučna geološka staza pod Vilovikom Educational geological trail under Vilovik

Dužina Length	0,5 km
Trajanje obilaska Duration of the tour	45 min
Visinska razlika Height difference	20 m (1050 m –1070 m)
Optimalni period za posjet Optimal visit period	Proljeće, ljeto, jesen Spring, summer, autumn
Individualni/grupni posjeti Individual / group visits	Individualni i grupni posjeti Individual and group visits
Prilagodenost za invalide Disabled accessibility	Ne No
Vrsta staze Trial type	Šumski put Forest road
Interpretativne ploče Interpretive plates	3

## 11.2. Poučna povijesna staza „Topnički put“

Poučna povijesna staza Topnički put vodi od prijevoja Staza (897 m/nv) do obronaka vrha Supin (1033 m/nv) na kojoj se nalaze topnička i mitraljeska gnijezda, rovovi te ostaci gustirni i baraka koji su korišteni kao utvrde u Prvom svjetskom ratu za obranu od napada sila Antante. Kroz 7 poučnih tabli duž staze možete se upoznati s povijesnim značenjem crkve sv. Ilike, života u rovu, sarajevskog atentata, Topničkog puta, Prvog svjetskog rata i Rodićeve ceste.

Poučna geološka staza Topnički put  
Educational geological trail The artillery road

Dužina Length	0,5 km
Trajanje obilaska Duration of the tour	45 min
Visinska razlika Height difference	20 m (1050 m - 1070 m)
Optimalni period za posjet Optimal visit period	Proljeće, ljeto, jesen Spring, summer, autumn
Individualni/grupni posjeti Individual / group visits	Individualni i grupni posjeti Individual and group visits
Prilagodenost za invalide Disabled accessibility	Ne No
Vrsta staze Trial type	Šumski put Forest road
Interpretativne ploče Interpretive plates	3

## 11.3. Poučna staza Sridivice

Poučna staza Sridivice nastavlja se na postojeću poučnu stazu "Putovima drevne Berulije" i tako čini kružnu poučnu stazu koja kreće od prezentacijskog centra Brela Gornja, a nalazi se u blizini zapuštenog starog pašnjaka Sridivice. Staza je uređena kroz projekt BBio "Održivi razvoj pograničnih područja kroz očuvanje autohtonih pasmina i uspostavu gen-centara u Buhovu i na Biokovu". Sastoji se od 3 poučne table koje prikazuju kartu pašnjaka Sridivice s pješačkim stazama te uče posjetitelje o nomadskom stočarstvu i važnosti poljoprivredno-biološke raznolikosti u očuvanju pašnjaka i održivom razvoju Biokova.

## 11.2. Educational historical trail „The artillery road“

Educational historical trail „The artillery road“ leads from the Trail pass (897 m) to the slopes of the peak Supin (1033 m) to the artillery and machine gun nests, trenches, and the remains of cisterns and barracks that were used as fortifications in the First World War to defend against the attack of the Entente forces. Through 7 educational boards along the trail you can get acquainted with the historical significance of the church of St. Ilija, life in the trench, the Sarajevo assassination, Artillery Road, the First World War and Rodić Road.

Poučna geološka staza Sridivice  
Educational geological trail Sridivice

Dužina Length	3 km
Trajanje obilaska Duration of the tour	2,5 h
Visinska razlika Height difference	225 m (325 m - 550 m)
Optimalni period za posjet Optimal visit period	Proljeće, ljeto, jesen Spring, summer, autumn
Individualni/grupni posjeti Individual / group visits	Individualni i grupni posjeti Individual and group visits
Prilagodenost za invalide Disabled accessibility	Ne No
Vrsta staze Trial type	Šumski put Forest road
Interpretativne ploče Interpretive plates	3

## 11.3. The educational trail Sridivice

The educational trail Sridivice continues to the existing educational trail Paths of Ancient Berulia and thus forms a circular educational trail that starts from the Presentation centre of Brela Gornja, and is located near the neglected old pasture of Sridivice. The trail was arranged through the BBio project "Sustainable development of border areas through the preservation of indigenous breeds and the establishment of gene centres in Buhovo and Biokovo." It consists of 3 educational boards that show a map of Sridivice pastures with hiking trails and teach visitors about nomadic livestock and the importance of agricultural and biological diversity in the conservation of pastures and sustainable development of Biokovo.

## 11.4. Poučna staza "Putovima drevne Berulije"

Poučna staza "Putovima drevne Berulije", u dužini od 2,7 km, vodi od Prezentacijskog centra Park prirode Biokovo "Brela Gornja" u Subotiću do crkve Sv. Nikole. Riječju i slikom, kroz 9 poučnih tabli prikazan je život stare Berulije i njenih stanovnika. **Crkva Gospe od zdravlja** iz 17. st. je zaštićeno kulturno dobro; **Tomaševo guvno** za vršidbu žita; **Gorčina** - lokalitet na kojem su rasle bajam gorčica i višnja maraska; **Klešići** - staro naselje na kamenim liticama, **bunar Vodice** - vrelo „žive vode“, **vidikovac Mrkore** - lokalitet na stijenama posebne strukture i boje, **Dubrava** - nekadašnji plodni vinogradri i nasadi višnje maraske, danas gusta borova šuma; **crkva Sv. Nikole**, evidentirano kulturno dobro iz 13. st. Staza nije teška, a za njen obilazak potrebno je barem 60 minuta.

Poučna geološka staza "Putovima drevne Berulije"  
Educational geological trail "Paths of Ancient Berulia"

Dužina Length	2,7 km
Trajanje obilaska Duration of the tour	2 h
Visinska razlika Height difference	273 m (277 m – 550 m)
Optimalni period za posjet Optimal visit period	Proljeće, ljeto, jesen Spring, summer, autumn
Individualni/grupni posjeti Individual / group visits	Individualni i grupni posjeti Individual and group visits
Prilagodenost za invalide Disabled accessibility	Ne No
Vrsta staze Trial type	Šumski put Forest road
Interpretativne ploče Interpretive plates	9

### Jeste li znali?

Toponim Supin, područje na kojem se nalazi Poučna povijesna staza „Topnički put“, a možda u budućnosti i turistički uređena Jama za Supinom, dobilo je ime prema – bjeloglavom supu (*Gyps fulvus*). Naziv dokazuje kako su na ovom, preko 1000 m visokom brdu s kojeg se odlično vidi obala, ali i zalede Biokova, nekad redovito boravili, a možda se i gnijezdili supovi.

## 11.4. Educational trail "Paths of Ancient Berulia"

The 2.7 km long educational trail "Paths of Ancient Berulia" leads from the Presentation Centre of the BNP "Brela Gornja" in Subotiće to the church of Sv. Nicholas. In words and pictures, the life of old Berulia and its inhabitants is shown through 9 educational boards. The **Church of Our Lady of Health** from the 17th century is a protected cultural asset; **Tomaševo guvno** for threshing grain; **Gorčina** - a locality where bitter almond and sour cherry marasca grew; **Klešići** - an old settlement on stone cliffs, the **Vodice well** - a spring of "living water", the **Mrkore lookout** - a site on rocks of special structure and colour, **Dubrava** - former fertile vineyards and cherry orchards, today a dense pine forest; **Church of St. Nikola**, a recorded cultural asset from the 13th century. The trail is not difficult, and it takes at least 60 minutes to tour it.

Poučna staza Putovima drevne Berulije / Educational trail "Paths of Ancient Berulia", foto arhiva PP Biokovo



### Did you know?

The toponym Supin, the area where the Educational Historical Trail "Artillery Road" is located, and perhaps in the future also the tourist-arranged Pit behind Supin, was named after - the griffon vulture (*Gyps fulvus*). The name proves that on this, over 1000 m high hill with a great view of the coastal part, but also the hinterland of Biokovo, vultures used to stay regularly, and maybe even nests.

## 12. EDUKATIVNI PROGRAMI

Edukativni programi provode se isključivo uz prethodnu najavu. Svaki od edukativnih programa uz predavanja uključuje radionički program i terenski obilazak kako bi se Park prirode Biokovo osjetio i doživio. Edukativni programi potiču aktivno sudjelovanje svojih korisnika. Namijenjeni su prvenstveno učenicima osnovnih škola, ali postoje i za srednjoškolce i starije posjetitelje.

## 12. EDUCATIONAL PROGRAMS

Educational programs are conducted exclusively with prior notice. Each of the educational programs, in addition to lectures, includes a workshop program and a field trip to feel and experience the Biokovo Nature Park (BNP). Educational programs encourage active participation of their users. They are intended primarily for primary school students, but they also exist for high school students and senior visitors.

### 12.1. LEPTIRIĆ ŠARENIC / COLORFUL BUTTERFLY

Mjesto Place	Posjetiteljski centar po izboru (Kotišina, Adrion i dr.)	Visitor centre of choice (Kotišina, Adrion i dr.)
Vrijeme Period	Ožujak - lipanj	March – June
Ciljna skupina Target group	Djeca predškolske dobi (6-7 godina starosti)	Preschool children (6-7 years old)
Veličina grupe Group size	Najviše 22 učenika	Maximum 22 students
Ključne točke Key points	Vrijednosti Biokova, bogatstvo biokovskih leptira, oblici i vrste leptira, leptiri kao dio ekosustava, važnost i zaštita leptira, zaštita prirode i okoliša općenito	Biokovo values, Biokovo butterflies richness, butterflies forms & taxa, butterflies as a part of ecosystem, importance and protection of butterflies, protection of nature and environment in general
Cilj programa Program goal	Upoznati biokovske leptire i ukazati na njihovu važnost za očuvanje sveukupnih biokovskih vrijednosti i zaštite prirode općenito	Get to know Biokovo butterflies and point out their importance for the preservation of overall Biokovo values and nature protection in general

### 12.2. BIOKOVSKI GMAZO-ZNALAC / BIOKOVO REPTILO- CONNOISSEUR

Mjesto Place	Posjetiteljski centar po izboru (Kotišina, Adrion i dr.)	Visitor centre of choice (Kotišina, Adrion i dr.)
Vrijeme Period	travanj – listopad	April - October
Ciljna skupina Target group	1. razred osnovne škole	1 <sup>st</sup> grade of elementary school
Veličina grupe Group size	Jedan razred-grupa (cca 22)	One class-group (approx. 22)
Ključne točke Key points	Zaštita prirode, vrste gmazova i njihove prilagodbe, gmazovi kao važna karika unutar hranidbenog lanca, istraživanje gmazova, fosili, važnost i zaštita gmazova	Nature protection, reptiles taxa and their adaptations, reptiles as an important link within the food chain, reptile research, fossils, importance and protection of reptiles
Cilj programa Program goal	Upoznati svijet biokovskih gmazova i ukazati na njihovu važnost za očuvanje sveukupnih biokovskih vrijednosti i zaštitu prirode općenito	Recognize Biokovo reptiles and point out their importance for the preservation of overall Biokovo values & general nature protection

## 12.3. BIKOVSKI VODOLJUPCI / BIOKOVO WATERLOVERS

<b>Mjesto Place</b>	Posjetiteljski centar po izboru (Kotišina, Adrion i dr.)	Visitor centre of choice (Kotišina, Adrion i dr.)
<b>Vrijeme Period</b>	travanj – lipanj	April - June
<b>Ciljna skupina Target group</b>	2. i 3. razred osnovne škole	2 <sup>nd</sup> and 3 <sup>rd</sup> grade of elementary school
<b>Veličina grupe Group size</b>	Jedan razred-grupa (cca 24)	One class-group (approx. 24)
<b>Ključne točke Key points</b>	Vrste bikovskih vodozemaca, razvojni stadiji vodozemaca, glasanje i obojenost vodozemaca, važnost i zaštita vodozemaca, zaštita prirode	Biokovo amphibians, developmental stages of amphibians, voting and coloration of amphibians, importance and protection of amphibians, nature protection
<b>Cilj programa Program goal</b>	Upoznati svijet bikovskih vodozemaca i ukazati na njihovu važnost za očuvanje sveukupnih bikovskih vrijednosti i prirode općenito	Recognize Biokovo amphibians and point out their importance for the preservation of overall Biokovo values and nature in general

## 12.4. TAJANSTVENI LETAČI / MYSTERIOUS FLYERS

<b>Mjesto Place</b>	Posjetiteljski centar po izboru (Kotišina, Adrion i dr.)	Visitor centre of choice (Kotišina, Adrion i dr.)
<b>Vrijeme Period</b>	travanj – lipanj	April - June
<b>Ciljna skupina Target group</b>	3. i 4. razred osnovne škole	3 <sup>rd</sup> and 4 <sup>th</sup> grade of elementary school
<b>Veličina grupe Group size</b>	Jedan razred-grupa (cca 24)	One class-group (approx. 24)
<b>Ključne točke Key points</b>	Prirodne vrijednosti Park prirode Biokovo, izgled šišmiša, prilagodbe šišmiša na let, šišmiši kao važna karika unutar hranidbenog lanca, eholokacija, važnost i zaštita šišmiša, zaštita prirode	BNP natural values, appearance of bats, adaptations of bats to flight, bats as an important link within the food chain, echolocation, importance and protection of bats, nature protection
<b>Cilj programa Program goal</b>	Upoznati biokovske šišmiše i ukazati na njihovu vrijednost i važnost za očuvanje sveukupnih bikovskih vrijednosti i prirode općenito	Get to know Biokovo bats and point out their value and importance for the preservation of the overall Biokovo values and nature in general

## 12.5. BIOKOVO - OAZA ENDEMIZMA / BIOKOVO - AN OASIS OF ENDENISM

<b>Mjesto Place</b>	Biokovski botanički vrt Kotišina, Interpretacijski centar Veliko brdo, Spomen dom Marin Kovačević	Biokovo Botanical Garden Kotišina, Interpretation Centre Veliko brdo, Memorial Home Marin Kovačević
<b>Vrijeme Period</b>	travanj - lipanj, rujan - listopad	April - June; September - October
<b>Ciljna skupina Target group</b>	5. i 6. razred osnovne škole	5 <sup>th</sup> and 6 <sup>th</sup> grade of elementary school
<b>Veličina grupe Group size</b>	Jedan razred-grupa (cca 25)	One class-group (approx. 25)
<b>Ključne točke Key points</b>	Prirodne vrijednosti Biokova, bogatstvo bikovske flore, endemi Biokova, važnost botaničkog vrtta, invazivne vrste, visinska raspodjela bikovske flore, odgovorno ponasanju u parku, zaštita Parka prirode Biokovo	Natural values of Biokovo, richness of Biokovo flora, endemics of Biokovo, importance of botanical garden, invasive species, height distribution of Biokovo flora, responsible behaviour & protection in the Biokovo Nature Park
<b>Cilj programa Program goal</b>	Upoznati floru Biokova, njenu raznolikost i važnost te ulogu Parka prirode Biokovo u njenoj zaštiti	Recognize flora of Biokovo, its diversity and importance and the role of the Biokovo nature park in its protection

## 12.6. FLORA 1500+

Mjesto <b>Place</b>	PC u Župi, dio staze Takalo (sv. Ivan) - Čulija	VC in Župa, partly trail Takalo (St. John) - Čulija
Vrijeme <b>Period</b>	travanj - lipanj, rujan - listopad;	April - June; September - October
Ciljna skupina <b>Target group</b>	5. i 6. razred osnovne škole	5 <sup>th</sup> and 6 <sup>th</sup> grade of elementary school
Veličina grupe <b>Group size</b>	Jedan razred-grupa (cca 25)	One class-group (approx. 25)
Ključne točke <b>Key points</b>	Prirodne vrijednosti Biokova, bogatstvo biokovske flore, izrada herbarija, invazivne vrste, visinska raspodjela biokovske flore, odgovorno ponašanju u parku, zaštita parka prirode	Natural values of Biokovo, richness of Biokovo flora, production of herbariums, invasive species, height distribution of Biokovo flora, responsible behaviour & protection of Biokovo Nature Park
Cilj programa <b>Program goal</b>	Upoznati floru Biokova, njenu raznolikost i važnost te ulogu PP u njenoj zaštiti	Recognize flora of Biokovo, its diversity and importance and the role of the BNP in its protection

## 12.7. \*FLORA 1500+

Mjesto <b>Place</b>	PC Adrija i obilazak Osejave	VC Adrija and Osejava visiting
Vrijeme <b>Period</b>	travanj - lipanj, rujan - listopad;	April - June; September - October
Ciljna skupina <b>Target group</b>	5. i 6. razred osnovne škole	5 <sup>th</sup> and 6 <sup>th</sup> grade of elementary school
Veličina grupe <b>Group size</b>	Jedan razred-grupa (cca 25)	One class-group (approx. 25)
Ključne točke <b>Key points</b>	Prirodne vrijednosti Biokova, bogatstvo biokovske flore, izrada herbarija, invazivne vrste, visinska raspodjela biokovske flore, odgovorno ponašanju u parku, zaštita PP	Natural values of Biokovo, richness of Biokovo flora, production of herbariums, invasive species, height distribution of Biokovo flora, responsible behaviour & protection of BNP
Cilj programa <b>Program goal</b>	Upoznati floru Biokova, njenu raznolikost i važnost te ulogu PP u njenoj zaštiti	Recognize flora of Biokovo, its diversity and importance and the role of the BNP in its protection

## 12.8. DRUŽINA SUROG ORLA / RAW EAGLE TROUPE

Mjesto <b>Place</b>	PC u Župi / VC Župa- Takalo (sv. Ivan) - Čulija – i nazad	PC u Župi / VC Župa- Takalo (sv. Ivan) - Čulija – and back
Vrijeme <b>Period</b>	travanj - lipanj, rujan - listopad;	April - June; September - October
Ciljna skupina <b>Target group</b>	7. i 8. razred osnovne škole	7 <sup>th</sup> and 8 <sup>th</sup> grade of elementary school
Veličina grupe <b>Group size</b>	Jedan razred-grupa (cca 25)	One class-group (approx. 25)
Ključne točke <b>Key points</b>	Prirodne vrijednosti Biokova, ornitofauna Parka prirode Biokovo, NATURA2000 (područja za ptice), prilagodbe za letenje, osnove istraživačkog rada, važnost i zaštita ptica, zaštita prirode	Natural values of Biokovo, ornithofauna of Biokovo Nature Park, NATURA 2000 (bird areas), adaptations for flying, basics of research work, importance and protection of birds, nature protection
Cilj programa <b>Program goal</b>	Upoznati ptice Biokova, njihovu vrijednost i ulogu Parka prirode Biokovo u njihovoj zaštiti	Get know the birds of Biokovo, their value and the role of the Biokovo Nature Park in their protection

## 12.9. OD MORSKOG PLIĆAKA DO PLANINE / FROM THE SEA SHELF TO THE MOUNTAIN

<b>Mjesto Place</b>	PC u Župi / VC Župa-Takalo (sv. Ivan) - Čulija – i nazad	PC u Župi / VC Župa-Takalo (sv. Ivan) - Čulija – and back
<b>Vrijeme Period</b>	ožujak - svibanj, rujan - listopad	March - June; September - October
<b>Ciljna skupina Target group</b>	Učenici srednjih škola, odrasli posjetitelji	High school students, adult visitors
<b>Veličina grupe Group size</b>	Jedan razred-grupa (cca 25)	One class-group (approx. 25)
<b>Ključne točke Key points</b>	Prirodne vrijednosti Biokova, nastanak Biokova, istraživanje u geologiji, fosili, krški oblici, podzemlje i njegov živi svijet, zaštita prirode	Biokovo natural values, Biokovo origin, research in geology, fossils, karst forms, underground and its living world, nature protection
<b>Cilj programa Program goal</b>	Upoznati georaznolikost PP te vrijednosti biokovskog podzemlja	Recognize geodiversity of the BNP and the values of the Biokovo underground

Žuti mukač / Yellow-bellied toad,  
foto Stjepan Mekinić



Dugokrili pršnjak / Schreiber's long-fingered bat, foto D. Grozdić



Biokovski kozlinac / *Astragalus Croaticus*, foto Z. Popović



Trobridni, trokutasti sijedac / *Fibrigria triquetra*, foto arhiva PP Biokovo

## 13. MOBILNA APLIKACIJA I INTERAKTIVNA SLIKOVNICA

U svrhu educiranja posjetitelja osnovnoškolske i srednjoškolske dobi o prirodnoj baštini Parka prirode Biokovo, razvijena je mobilna aplikacija u dvije razine. Edukativna mobilna aplikacija namijenjena je širem rasponu korisnika škoštoga uzrasta odnosno učenicima osnovne i srednje škole dok je interaktivna slikovnica namijenjena najmlađoj populaciji od predškolskog do mlađeg školskog uzrasta. Sadržaj mobilne aplikacije za djecu oslanja se na uspostavljene edukativne programe (Poglavlje 12.) te je dostupna i na engleskom jeziku.

Aplikacija i interaktivna slikovnica razvijene su kako bi potaknule informiranje, istraživanje, kritičko promišljanje o suživotu prirode i čovjeka, geo- i bioraznolikosti, dinarskom kršu, endemičnim vrstama i drugim osobinama Biokova, zbog kojih je proglašen Parkom prirode. Pri educiranju posjetitelja koristi se napredak tehnologije i sve veće korištenje pametnih telefona te potreba polaznika edukacija za interakcijom. Posredno, razvoj edukativnih sadržaja doprinosi promociji i atraktivnosti parka jer interpretira baštinu na neposredan način kroz korištenje pametnog telefona.

Ključno je potaknuti djecu od malih nogu da istražuju i informiraju se o prirodnoj baštini kako bi stvorili svijest i afinitete prema njoj.



Mobilne aplikacije su dostupne na Play trgovini, a QR kod na stranicama Parka i u okviru ovog Poglavlja.

Mobile applications are available on the Play Store, and a QR code on the BNP website and within this Chapter.

## 13. MOBILE APPLICATION & INTERACTIVE PICTURE BOOK

As the goal of the application is the education of visitors of elementary and high school age on the natural heritage of Nature Park Biokovo, a mobile application with two levels was developed. The educational mobile application is intended for a broader scope of school-age users, i.e., elementary and high-school students, whereas the interactive picture book is intended for the younger population from pre-school to younger school age. The content of the mobile application for children as its basis has the established educational programs (chapter 12) and is available in English as well.

The application and the interactive picture book have been developed in order to encourage searching for information, research, critical thinking about the co-existence of nature and man, geo- and bio-diversity, the Dinaric karst, endemic species and other characteristics of Biokovo, which are the reason it is a nature park. Modern technology and the increased use of smartphones is used as a means of educating the users, as their need for interaction is acknowledged. The development of educational content contributes to the promotion and attraction of the Park, since the heritage is interpreted indirectly there by the means of using a smartphone.

It is crucial to inspire children from their young age to explore and inform themselves about the natural heritage in order to develop consciousness and affinities towards it.

# 14. KAKO SE ORIJENTIRATI U PRIRODI

Za orijentaciju u prirodi svakako treba imati **pouzdan zemljovid (kartu)**, tiskanu ili digitaliziranu koja je dio vašeg **GPS uređaja, mobitel ili fotoaparata** s integriranim GPS uređajem ili barem **kompas**.

GPS sustav je danas sve češće **integriran i u vašem pametnom mobitelu**, sve češće i u fotoaparatima te je prije odlaska u Park poželjno naučiti kako se na vlastitom uređaju može dobiti točan položaj. UZ GPS uređaj svakako je poželjno imati **novi Planinarsko-turistički zemljovid Parka prirode Biokovo**, izrađen od strane HGSS-a koji je moguće kupiti na ulaznoj recepciji Parka, u Info-centru Ravna Vlaška ili u sjedištu Javne ustanove Park prirode Biokovo (cijena 45 kn). Uz navedenu kartu je poželjno imati barem kompas kako bi se karta usmjerila i dobio što bolji točan položaj te utvrdio smjer kretanja.

Konačno, ukoliko zbog nekih razloga nemamo navedene zemljovide i uređaje, u prirodi se može okvirno orijentirati i bez njih:

<b>Po panju By the stump</b>	pogledajte godove na panju - gušći su na strani okrenutoj sjeveru	look at the rings on the stump - they are denser on the north side
<b>Po mahovini By the moss</b>	mahovina raste sa sjeverne strane panja ili stijene (uvijek provjerite više panjeva i stijena)	moss grows on the north side of a stump or rock (always check for more stumps and rocks)
<b>Po suncu By the sun</b>	suncе izlazi na istoku, u 12 sati je uvijek na jugu, a navečer je na zapadu	the sun rises in the east, at 12 o'clock it is always in the south, and in the evening it is in the west
<b>Po kori stabla By the tree bark</b>	na sjevernoj je strani drveća hraptavija i tamnija, dok je južna strana glatka i svjetlijaa	on the north side the trees are rougher and darker, while the south side is smoother and brighter
<b>Po krošnji By the treetop</b>	krošnje drveća obično su bujnije na južnoj strani	the treetops are usually lusher on the S side
<b>Po snijegu By the snow</b>	snijeg se uvijek brže topi na južnim obroncima, a duže zadržava na sjevernim	snow always melts faster on the southern slopes, and stays longer northern
<b>Po zvijezdama By the stars</b>	polozaj i smjer kretanja može se odrediti prema zvijezdi Sjevernjači, zadnjoj u kolu Malog medvjeda, koja pouzdano označava smjer sjevera	position and direction of motion can be determined by the North Star, ultimate in the Little Bear circle, which reliably marks the N direction.

# 14. HOW TO ORIENTATE IN NATURE

For orientation in nature, you should have **a reliable map**, printed, or digitized as part of your **GPS device, a mobile phone, or a camera** with an integrated GPS device, or at least a **compass**.

Today, the GPS system is increasingly **integrated in your smartphone**, often also in cameras, and before visiting the Park, it is advisable to learn how to get the exact position on your own device. Beside GPS device, it is certainly desirable to have **a new Mountaineering and Tourist Map of the Biokovo Nature Park**, made by CMRS, which can be purchased at the Park entrance reception, in the Ravna Vlaška Info Center or at the Public Institution "Biokovo Nature Park" (price 45 kn). Beside the map, it is desirable to have at least a compass to direct the map and get the best possible position to determine the direction of movement.

# 15. SERVISNE INFORMACIJE

U slučaju svih vrsta nesreće, krađe, pojave vatre ili drugih hitnih problema na području Parka prirode Biokovo nazovite sljedeće brojeve

Jedinstveni operativno-komunikacijski centar  
Unique operational-communication centre

Hrvatska gorska služba spašavanja

Croatian Mountain Rescue Service

Stanica Makarska, A.G. Matoša 1, 21 300 Makarska

Policija  
Police

Vatrogasci  
Firefighters

Hitna pomoć  
Emergency

# 15. SERVICE INFORMATIONS

In case of any kind of accident, theft, fire or other emergency problems in the Biokovo Nature Park, call the following numbers:

**112**

**+385 (0) 91 721 0011**

**192**

**193**

**194**

## Planinarske kuće i domovi / Mountain houses and lodges

### Planinarska kuća Bukovac

Lokacija <b>Location</b>	Bukovac (1030 m), Donja Brela, Biokovo istočno / east
Kapacitet <b>Capacity</b>	10 osoba/persons
Ponuda <b>Offer</b>	kreveti, voda, struja (solarna) / beds, water, power (solar)
Kontakt <b>Contact</b>	Željan Bekavac Mob.: 00385 (0)98 771 819

### Planinarski dom Toni Roso

Lokacija <b>Location</b>	Vošac (1422 m), Biokovo južno / south
Kapacitet <b>Capacity</b>	20 osoba/persons
Ponuda <b>Offer</b>	kreveti, voda, / beds, water
Kontakt <b>Contact</b>	Željko Medurečan 091/76-61-606, Toni Jović 098/16-99-395

### Planinarska kuća Slobodan Ravlić

(Lugarnica na Lokvi / Woodsman house on Lokva)

Lokacija <b>Location</b>	Lokva (1467 m), Biokovo srednje / middle
Kapacitet <b>Capacity</b>	18 osoba/persons
Ponuda <b>Offer</b>	kreveti, voda / beds, water
Kontakt <b>Contact</b>	Antiša Srzić 091/61-30-497 095/35-79-944, Josip Brailo 098/89-60-989

### Planinarsko sklonište Kale

Lokacija <b>Location</b>	Kale (1480 m), Biokovo istočno / east
Kapacitet <b>Capacity</b>	6 osoba/persons
Ponuda <b>Offer</b>	kreveti, voda, struja (solarna) / beds, water, power (solar)
Kontakt <b>Contact</b>	Željan Bekavac Mob.: 00385 (0)98 771 819

### Planinarski dom Velobrdski ledari

Lokacija <b>Location</b>	292 mnm, Velo brdo, Makarska, Biokovo južno/south
Kapacitet <b>Capacity</b>	20 osoba/persons
Ponuda <b>Offer</b>	kreveti, voda, struja / beds, water, power
Kontakt <b>Contact</b>	Jurica Turina 098/95-92-743, Jurica Klarić 091/53-77-740, Bruno Turina 098/360-670

### Planinarska kuća - Pod Jurom

Lokacija <b>Location</b>	uz Biokovsku cestu, ispod vrha Sv. Jure / up Biokovo road below the peak St. Jure (1594 m)
Kapacitet <b>Capacity</b>	18 osoba/persons
Ponuda <b>Offer</b>	kreveti, voda, struja (solarna) / beds, water, power (solar)
Kontakt <b>Contact</b>	Antiša Srzić 091/61-30-497, 095/35-79-944, Josip Brailo 098/89-60-989

# Agencije s ponudom za organizirano posjećivanje i razgledavanje

## TIP EXTREME

Zadarska 46b, 21300 Makarska  
098 197 9177 | info@tipextreme.hr

## BUDANKO travel

Kipara Meštrovića 2a, 21300 Makarska  
099 827 0185 | info@budankotravel.com

## EXPLORO

Jakova Dudana 15, 21300 Makarska  
098 179 5827 | info@exploro.hr

## FREJATRAVEL

A. Starčevića 32, 21300 Makarska  
021 678 203; 091 788 02 95 | info@frejatravel.com

## THEISER d.o.o.

Kraj 43, 21325 Tučepi  
021 623 780; 098 182 4854  
melita.pekas123@gmail.com

## MAKARSKA UNIMOG EXPERIENCE

Obrt "Jure", Donji Ratac 17, 21325  
Tučepi  
Ante 0981658808, Ivo 0995213132  
unimogmakarska@gmail.com

## SAFARI BUGGY d.o.o.

Podspilne 51, 21320 Baška Voda  
safaribuggy@gmail.com

## Roses & Grapes j.d.o.o.,

Primorska ul. 2, 21300 Makarska,  
Daniela Bohatá; 0915588649  
dicasata@gmail.com

## UP HIGH

Jakše Ravlića 33, 21000 Makarska  
098/2472797

## FOLLOW US travel

Izviđačka 6, 51000 Rijeka  
095 2020 294 | info@followustravel.hr

## VMD Travel Agency d.o.o.

Odranska 1, ZAGREB  
vmd@vmd.hr

## Makarska guide AGATA

098/1812747  
agataravlic@net.hr

## KREATIV Tours d.o.o.

Frane Petrića 2, ZAGREB  
01 4819 547 | incoming@kreativtours.hr

## RB travel

A. Mekulića 8, 51000 Rijeka  
051 316-010, info@rb-travel.hr

## KATARINA Line d.o.o.

Spinčićeva 13, 51410 Opatija  
051 603400 | luka@katarina-line.hr

## MERIDIAN Tours

I.G. Kovačića 27, PODGORA  
021 625060, 098 9116937 | alherceg@  
inet.hr

## Travel agency SOL-SKIN, SUNCE, SOL I MORE d.o.o.,

Prvomajska 5, 52442 Poreč  
098 535 465 | info@sol-skin.com

## EUROTRAVEL SOLUTIONS doo

Gospe Maslinske 1, Zadar  
023 250 838 | drazen.petkovic@topena.hr  
zadar@topena.hr

## TO & MA LELAS

A. Starčevića 32, MAKARSKA  
0912014499 | zvonko.lelas@st.t-com.hr

## Prijevoz putnika "ŠUCO-TOURS"

Vranjak bb, 20340 Ploče  
+385(0)91 6790133 | rtravel@suco-tours.com

## TRAVEL EUROPE

Unterdorf 37a, A-6135 Stans  
020322864, | valeria-vanda.pecotic@  
traveleurope.cc

## VIA MEA Travel d.o.o.

I. Skomerže 1, 51 260 Crikvenica  
051 781 799, 091 278 10 83 | info@via-meia.com

## Tourist Agency "SAFARI MAKARSKA"

Zagrebačka 43b, MAKARSKA  
safari.makarska@gmail.com  
098 962 6481; 098 942 5110

**Travel agency EKLATA d.o.o.**  
Osječka 11, 21000 SPLIT  
+385 95 1544 232  
branimir.ivkosic@eklata.com

**BAN TOURS**  
Kaptol 11, 10 000 ZAGREB  
+385 (0)1 48 14 808 | bantours@  
bantours.hr

**GAZ Travel**  
Glavina Donja 5, 21260 Imotski  
091 9593 525 | info@gaz-travel.hr

**MARAS**, obrt za usluge prijevoza i  
turizam, vl. Jakov Maras  
Blato 17, 21325 Tučepi  
021 623732, 098 9912020

**TERRA Travel**  
Matije Gupca 2a, Zadar  
099 205 9393, 023 337 294 | info@  
terratravel.hr

**Putnička agencija "R-travel"**  
Jadranska 31, Gradac 21330  
021 697-233, 091 5142756 | rtravel@  
net.hr

**Bonavia**  
Obala sv. Nikole 87, Baška Voda  
021620400, Maja 098 9655806  
www.bonavia-agency.hr | bonavia@  
st.htnet.hr

**Splitlicious**  
Dominisova 9, 21000 Split  
091 912 0225 | splitlicious@splitlicious.com

**CHEAP RIDE**  
V. Nazora 11, 21300 Makarska  
097 614 2824 | info@cheapride.com.hr

**Hektor**, obrt vl. Denis Vela  
Obala Petra Krešimira IV 105, 21327  
Podgora  
021 625 453

**Andadventure -Aktivni Odmor**  
Kralja Zvonimira 14/12, 21000 Split;  
021 277 344; 091 2280 089 | info@  
andadventure.com

**Delfin tours**  
Kačićev trg 16, 21 300 Makarska  
(0)21 612 248; (0)21 611 152  
delfin-tours@st.t-com.hr

**Duće Tours**  
Poljička cesta Golubinka 19  
21310 Duće  
B. Vojnović 098 970 5980  
duce.tours@gmail.com

**Agencija "MARE"**  
vl. Danica Vitlić, Blato 11, Tučepi  
091 5714397 | v3tucep@gmail.com

**PUTOKAZI putovanja d.o.o.**  
Mažuranićev Šetalište 14, 21000 Split  
021 455 038 | info@putokazi-split.com,

**Croatia Travel Service**  
V. Nazora 2, Metković vl. Katarzyna  
Vidović  
info@croatia-travel-service.com

**VIR**, obrt, vl. Mate Jerčić,  
Slikara Gojaka 10, 21300 Makarska  
098 929 5535

**Meridien Ten d.o.o.**  
Ivana pl. Zajca 7, Split  
021 388951 | info@meridien.hr

**Gulliver Travel**  
Poljička cesta 26, 21000 Split  
020 410888 | gulliver@gulliver.hr

**Ozon sport**, vl. Goran Zeljko  
Ilirska ulica 7, 21300 Makarska  
098 395 807 | info@ozonsport.hr

**Obrt za cestovni prijevoz Rašić**  
Zadarska 38 C, 21300 Makarska  
021 612960, 098/212-839

**Sinjal obrt**; vl. Zlatko Mendeš  
Dračevice 14, 21325 Tučepi  
092/2912661

**Soloturist d.o.o.**  
R. Boškovića 3, 21327 Podgora  
Tel. +385 21 625110 | soloturist@st.t-  
com.hr

**LEO I MARIN**, obrt, vl. Leo Radalj  
Vukovarska 72 A, 21300 Makarska  
099 501 4000 | radaljleo1@gmail.com

## Gastro informacije

Na području Parka prirode Biokovo postoji nekoliko konoba i restorana u kojima ćete uživati u bogatoj ponudi domaćih specijaliteta.

### Konoba "Roko"

Cesta domovinskog rata bb, Brela  
Gornja, 21255 Zadvarje  
021 729 175 | [www.brela.com/konoba-roko](http://www.brela.com/konoba-roko)

### Konoba "Opačak"

Gornje Tučepi, 21325 Tučepi;  
021 679 962; 098 433 961;  
[vina-opacak@st.t-com.hr](mailto:vina-opacak@st.t-com.hr)

### Konoba "Panorama"

Šošići bb, 21 327 Podgora;  
021 615 876; 091 582 5826

### Kuća seoskog turizma "Vrata Biokova"

Staza  
021 613 902; 098 924 5051  
[elvis.prgomet@gmail.com](mailto:elvis.prgomet@gmail.com)

### Restoran "Veza"

Gornji Tučepi bb, 21325 Tučepi  
021 623 224

## Gastro informations

In the area of the Biokovo Nature Park there are several taverns and restaurants where you'll enjoy a rich offer of local specialties.



Peka, tradicionalni način pripreme jela / Peka, traditional dish preparation method

Biočkovo

Karta  
Biočkova



## LEGENDA

- P** parking/parking place
  - benzinska postaja/gas station
  - botanički vrt/botanical garden
  - restoran/restaurant
  - odmorišta/resting place
  - vidikovci/viewpoints
  - penjalište Brela/climbing Brela
  - Uprava PP Biokovo/headquarters
  - info
  - poučne staze/educational trails
  - planinarski putevi/hiking trails
  - biokovska cesta/biokovo road
  - tunel/tunnel
  - autoput/highway
  - glavne ceste/main roads
  - sporedne ceste/secondary roads
  - granica PP Biokovo/boundary of Nature Park
  - vrhovi/peaks
- Prohibited symbols:**
- No swimming
  - No dogs
  - No fires
  - No littering
  - No climbing
  - No picnics
  - No dogs
  - No fires

