Poučna staza Rimska park-šuma

Poučna staza Rimska park-šuma

Educational trail Roman park-forest

Dobro došli!

Projekt: „Poučna staza Rimska park-šuma", realiziran je tijekom 2014. godine. Ovo je prva poučna staza na području Daruvara. Cilj projekta, koji je nastao u suradnji Grada Daruvara, Hrvatske turističke zajednice i Turističke zajednice Daruvar - Papuk, je obogaćivanje turističke ponude Daruvara poučnom stazom, popularizacija Rimske park-šume među stanovnicima Daruvara, njegove okolice, kao i turističkih posjetitelja. Cilj projekta je i podizanje razine svijesti i edukacija posjetitelja, posebice djece i lokalnog stanovništva o lokalnim prirodnim i kulturnim atrakcijama, te o važnosti zaštite prirode.

Osnovne značajke:
Dužina staze: 2 km
Vrijeme obilaska: 1 h
Težina: lagana
Potrebna oprema: udobna sportska obuća
Način obilaska: pješačenje

Teme poučnih ploča:

1. Poučna staza Rimska park-šuma
2. Daruvar voli život
3. Geološka građa Zapadnog Papuka
4. Termalne vode na daruvarskom području
5. Klima Daruvara
6. Georaznolikost Zapadnog Papuka
7. Šuma – složeni ekosustav
8. Opće značajke Rimske park-šume
9. Stanovnici šume – vodozemci i kukci
10. Stanovnici šume – sisavci
11. Rimski izvor (Julijev izvor)
12. Julijev izvor – analiza vode
13. Stanovnici šume - ptice
14. Daruvarsko vinogorje
15. Židovsko groblje
16. Dobri zeleni duh Jankovića daruvarskih
17. Rimski tabor II
18. Orhideje Rimske park-šume
19. Rimski tabor I

U realizaciji ovog projekta sudjelovali su:
In realisation of this project participated:

GRAD DARUVAR

TURISTIČKA ZAJEDNICA DARUVAR – PAPUK

HRVATSKA TURISTIČKA ZAJEDNICA

HRVATSKE ŠUME d.o.o.

RAZVOJNI CENTAR DARUVAR

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ULAZ NA VLASTITU ODGOVORNOST!

Welcome!

The project "Educational trail Roman park-forest" was made during 2014. This was the first educational trail in the area of Daruvar. The project's main goal, which was conducted in the collaboration of Daruvar city, Croatian National Tourist Board and Tourist Board Daruvar - Papuk, is to expand tourist offer of Daruvar with educational trail, popularization of Roman-park forest among Daruvar citizens, its area and the tourist visitors. The project goals are to raise awareness and educate visitors, especially children and local residents about the natural and cultural attractions, also the general importance of nature protection level.

Basic features:
Trail length: 2 km
Hiking time: 1 h
Level of difficulty: easy
Needed equipment: Comfortable sporting footwear
The way of tour: hiking

Educational board themes:

1. Educational trail Roman park-forest
2. Daruvar love life
3. The geological structure of Western Papuk
4. Thermal water in Daruvar area
5. Climate of Daruvar
6. Geodiversity of Western Papuk
7. Forest – a complex ecosystem
8. General features of Roman park-forest
9. Forest inhabitants – amphibians and insects
10. Forest inhabitants – mammals
11. Roman spring (Julije's spring)
12. Julije's spring – water analysis
13. Forest inhabitants – birds
14. Daruvar's vineyards
15. Jewish cemetery
16. The good green spirit of the family Janković de Daruvar
17. Roman camp II
18. Orchids of Roman park-forest
19. Roman camp I

DARUVAR VOLI ŽIVOT

DARUVAR LOVE LIFE

Daruvar voli život i zato je grad koji svojim posjetiteljima nudi brojne mogućnosti za uživanje. Zabava, kultura, prirodne ljepote, gastronomija, sportska rekreacija, wellness. Sve to u novom ruhu, ali s duhom autentične bogate prošlosti dio je naše raznovrsne ponude u kojoj ćete sigurno pronaći i nešto za sebe.

Daruvarske toplice s dugogodišnjom tradicijom, bogata turistička ponuda, Daruvarska vinska cesta, Termalni vodeni park „Aquae Balissae", izletišta, uređeni perivoji i Rimska park-šuma u samom centru grada čine grad zanimljivim mjestom mnogim domaćim i stranim posjetiteljima.

Daruvar je smješten na zapadnom dijelu Papuka, odnosno na zapadnim padinama gorskog hrpta Lisine. Zahvaljujući geotermalnim izvorima koje ovdje nalazimo, Daruvar ima dugu urbanu tradiciju. U starom vijeku bio je središte Ilirske republike Jasa, u rimsko doba poznato termalno lječilište Aquae Balissae, u vremenu turskih pohoda bio je važno geostrateško središe Ilidža, a u novom vijeku, zahvaljujući grofovskoj obitelji Janković, Daruvar dobiva svoj današnji naziv te postaje trgovačko središte, dok je danas funkcionalno središte svoje mikroregije.

Grad Daruvar nalazi se u jugoistočnom dijelu Bjelovarsko-bilogorske županije. Prema političko - administrativnoj podjeli gravitacijski pripada Središnjoj Hrvatskoj, ali se zapravo nalazi u Zapadnoj Slavoniji, budući da je granica Slavonije rijeka Ilova koja protječe sjeverozapadno od grada. Istočno od grada, u podnožju Vranog kamena izvire rijeka Toplica koja protječe kroz centar grada.

Administrativno se dijeli na 9 naselja: Daruvar, Donji Daruvar, Gornji Daruvar, Daruvarski vinogradi, Vrbovac, Markovac, Doljani, Ljudevit selo i Lipovac Majur.

Četiri zlatna, dva srebrna i jedno brončano priznanje Hrvatske turističke zajednice potvrdili su da je slikoviti Daruvar najuređeniji mali grad kontinentalne Hrvatske. Grad je tri godine za redom proglašen najboljim turističkim odredištem s toplicama u akciji Hrvatske gospodarske komore i Hrvatske radiotelevizije: „Turistički cvijet - kvaliteta za Hrvatsku". Grad je 2013. godine proglašen prvim pratiteljem nacionalnog pobjednika u akciji : „Europska destinacija izvrsnosti - Pristupačni turizam", što dokazuje da je infrastruktura našega grada prilagođena i osobama s invaliditetom. Spoj zelenila i gradske arhitekture, kulturološka raznolikost, plodna vinogorja i ljubazni ljudi samo su neki od razloga koji su pridonijeli tim laskavim titulama.

Posjetite nas u vrijeme održavanja jedinstvenih događanja tijekom godine; kušajte kvalitetna vina i uživajte u gastronomskoj ponudi u sklopu međunarodne izložbe vina: "Vinodar", u manifestaciji koja je prerasla u središnju vinsku i turističku razglednicu grada Daruvara. Na području Daruvarskog vinogorja tradicionalno kao i u ostalim dijelovima Slavonije obilježava se svetkovina sv.Vinka, tzv. posveta vinograda na samom početku vinogradarske godine u želji da se prizove božji blagoslov za vinograde i sve one koji u njima rade tijekom cijele godine. Isto tako posljednjih godina obilježava se dan Sv.Martina – mošt se krsti u vino, a vesele vinske družine okupljaju se u brojnim vinskim podrumima i klijetima.

Zatim, istražujte svemirska prostranstva tijekom 10 dana astronomije u Daruvaru, kada grad postaje centar svemira ili pak uživajte u raznolikoj glazbi tijekom održavanja „Darfesta" ili „FLIG-a" – međunarodnog festivala limenih glazbi. Na Danima češke kulture upoznajte se sa bogatim kulturnim nasljeđem koja njeguje češka nacionalna manjina u Daruvaru, a ako više volite pivo spravljeno prema češkoj recepturi - gušatjte na „Danima piva" ili se oduševite kvalitetnom šljivovicom na „Danima šljiva i rakija" u Siraču.

Autor tekstа / text author:
TZ Daruvar - Papuk

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Foto: Predrag Uskoković


Foto: Predrag Uskoković


Foto: Damir Bakarić


Foto: Predrag Uskoković


Foto: Arhiva Termalni vodeni park „Aquae Balissae"


Foto: Damir Bakarić


Foto: Arhiva TZ Daruvar - Papuk


Foto: Marko Čalić


Foto: Predrag Uskoković


Foto: Predrag Uskoković


Foto: Arhiva TZ Daruvar - Papuk

Daruvar love life and therefore it is a city that offers its visitors many opportunities for enjoyment; entertainment, culture, natural beauties, gastronomy, sports, recreation and wellness are just some of them. All this in a new look, but with the spirit of authentic rich history is part of our various offer in which you will surely find something for yourself. Daruvar spa with its long tradition, rich tourist offer, Daruvar Wine Route, thermal water park "Aquae Balissae", excursion sites, landscaped gardens and Roman Park Forest in the city centre make the town an interesting place for visit, not just for local visitors but also for foreign visitors.

Daruvar is located in the western part of Papuk, actually on the western slopes of the mountain ridge Lisine. Thanks to geothermal springs that we can find here, Daruvar has a long urban tradition. In ancient times it was the centre of the Illyrian Republic of Iassi, in Roman times it was well-known thermal spa resort named Aquae Balissae; during the Ottomans it was an important geostrategic point known as Ilidža. In the new centrury, thanks to noble family Janković, Daruvar has received its present name and it became a commercial point, while today it is a functional centre of its micro region.

The city of Daruvar is located in the south eastern part of Bjelovarsko-bilogorska County. According to the political-administrative division and geographical division, Daruvar belongs to Central Croatia, but actually it is located in Western Slavonia, since the river Ilova is a Slavonian border- this river flows northwest of the city. East of the city, at foothill Vrani kamen wells river Toplica and it flows through the town centre.

Administratively, the city is divided into nine villages: Daruvar, Donji Daruvar, Gornji Daruvar, Daruvarski vinogradi, Vrbovac, Markovac, Doljani, Ljudevit Selo and Lipovac Majur.

Four gold, two silver and one bronze award given by Croatian National Tourist Board confirmed that the picturesque city Daruvar is one of the most decorated small cities in Croatian mainland. For three times in a row it was voted for the best spa tourism destination by the Croatian Chamber of Economy and the Croatian Radio and Television in campaign called "Tourist flower-Quality for Croatia". Also, the city was declared in 2013th year as the first winner companion in campaign by European Destinations of Excellence-Accessible Tourism; which has proved that our destination is suitable for people with disabilities. The compound of greenery and urban architecture, cultural diversity, fertile vineyards and friendly people are just some of the reasons that contributed to this flattery titles.

Visit us as we celebrate unique events that take place during whole year: taste some quality wines and enjoy in gastro offer within the international wine exhibition"Vinodar", an event that became a central wine and touristic event of town Daruvar. In the area of Daruvar vineyards traditionally, like in other parts of Slavonia, celebrate a feast called Vincekovo (St. Vincent's day) - a tribute to the vineyards at the beginning of a winegrowing year in an effort to invoke God's blessing for vineyards and all those who work throughout the year. Also in recent years there is a ceberation of the day of St. Martin - ancient folk custom of blessing young wine and cheerful wine troupes gather in many wine cellars to celebrate.

Then explore the expanses of universe during 10 days of astronomy when Daruvar becomes the centre of the universe or enjoy in different kinds of music during the music festivals Darfest od FLIG - international brasss music festival. During the Days of czech's culture get to know the tradition and cultural heritage that cherish Czech minority in Daruvar, and if You prefere beer that is made according to traditional Czech recipe enjoy in the Beer days or just be delighted with quality plum brandy at the Days of plum and brandy in Sirac.

GEOLOŠKA GRAĐA ZAPADNOG PAPUKA

THE GEOLOGICAL STRUCTURE OF WESTERN PAPUK

Krajnji zapadni obronci papučkog gorja nazivaju se zapadnim Papukom. Geografski gledano, zapadni Papuk prostire se od Daruvara na zapadu, dok je na istoku od glavnog grebena Papuka odijeljen uskim dolinama Brzaje i Vočinske rijeke. U geomorfološkom smislu to je brdsko-planinski teren s vrlo razvedenim reljefom.

Planina Papuk geotektonski pripada tektonskoj mikroploči Tisiji, točnije njezinom južnom dijelu koji također obuhvaća i okolne planine Psunj, Krndiju i Moslavačku goru.

Zapadni Papuk odlikuje se kompleksnom geološkom građom i sačinjen je od stijena raznolike litologije, čija starost varira od paleozoika do kvartara.

Paleozojske stijene grade najveći dio zapadnog Papuka i tvore tzv. kristalinsku jezgru koja je građena uglavnom od migmatitskih gnajseva i u manjoj mjeri od škriljevaca različitog stupnja metamorfizma. Kroz navedene stijene probijaju se manje ili veće mase granitoidnih stijena od kojih su najzastupljeniji varijeteti granodiorit i adamelit. Uz granitoidne stijene pojavljuju se i prateće žične stijene predstavljene pegmatitima, aplitima i kvarcnim žilama. Pored spomenutih vrsta stijena mjestimično su prisutne i manje pojave dijabaza. Navedene paleozojske stijene najbolje su otkrivene u gornjem toku rijeke Pakre i na južnim padinama Ravne gore.

Na paleozojski kompleks stijena transgresivno se talože naslage permotrijasa koje se generalno mogu podijeliti u dva paketa. Donji paket čine konglomerati Toplice i filitni konglomerati koji predstavljaju dva istovremena, ali prostorno odvojena facijesa. Konglomerati Toplice imaju znatno veće rasprostiranje od filitnih konglomerata, izgrađeni su pretežito od valutica granitoidnih stijena, a najbolje su otkriveni u izvorišnom dijelu rijeke Toplice. Filitni konglomerati izgrađeni su, kao što im ime govori - uglavnom od filitnih valutica, a nalazimo ih na jugozapadnim padinama Ravne gore. Navedeni konglomerati postupno prelaze u kvarcne pješčenjake koji čine gornji paket permotrijaskih naslaga. Ovi pješčenjaci najbolje su otkriveni na Poganom vrhu i u dolini potoka Željnak kod Sirača.

Na permotrijaske naslage kontinuirano se talože naslage donjeg trijasa koje su izgrađene od pješčenjaka i šejlova. Ove naslage relativno su malog rasprostiranja a najbolje su otkrivene u kanjonu Lipovog potoka sjeverno od vrha Veliki Javornik.

Na donjotrijaske naslage kontinuirano se talože naslage srednjeg i gornjeg trijasa koje su najvećim dijelom izgrađene od raznih tipova dolomita i vapnenaca. Unutar ovih naslaga mjestimično su prisutne i dolomitne breče, a pojavljuju se i manji proslojci šejlova, pješčenjaka i tufova koji su posljedica vulkanske aktivnosti u doba trijasa. Naslage srednjeg i gornjeg trijasa široko su rasprostranjene i grade najzapadnije obronke Papuka, a najbolje su otkrivene u kanjonu rijeke Pakre na području oko manastira Pakra.

Na zapadnom Papuku sedimentacija se kontinuirano nastavlja iz trijasa u juru. Jurske naslage izgrađene su od tankopločastih vapnenaca i u njima je pronađen bogat fosilni sadržaj. Ove naslage najbolje su sačuvane na području vrha Kik i na lokalitetu Razvale.

Jurske naslage kontinuirano prelaze u naslage najdonje krede koje također čine tankopločasti vapnenci. Stijene gornjokredne starosti nalazimo samo u okolici Voćina. Izgrađene su najvećim dijelom od vulkanskih stijena, bazalta i riolita, a u mnogo manjoj mjeri prisutne su i sedimentne stijene. Navedene stijene predstavljaju tektonski fragment podmorskog vulkanskog izljeva iz razdoblja krede. Poznati geološki spomenik prirode Rupnica kod Voćina pripada ovoj formaciji stijena.

Nakon razdoblja Krede na području zapadnog Papuka dolazi do okopnjavanja koje traje sve do neogena.

Neogenski sedimenti izgrađuju okolno ravničarsko područje, a samo svojim manjim dijelom izbijaju na površinu na obroncima zapadnog Papuka. Donji dio neogenskih naslaga grade jače ili slabije vezani konglomerati, pješčenjaci, lapori i vapnenci s mjestimičnim proslojcima ugljena. Dok je gornji dio neogenskih naslaga izgrađen uglavnom od slabo vezanih, klastičnih glinovito-pjeskovitih sedimenata. Naslage neogena najbolje su otkrivene na sjevernim padinama zapadnog Papuka i na području oko sela Grahovljani kod Sirača.

Kvartarne naslage slabo su rasprostranjene na masivu zapadnog Papuka. Nalazimo ih uglavnom u vidu manjih naslaga prapora ili lesa i aluvijalnih nanosa koji su istaloženi uz veće vodene tokove.

U strukturno-tektonskom pogledu recentni strukturni sklop formirao se u više tektonskih faza koje su se odvijale u periodu od paleozoika pa sve do današnjih dana. Za formiranje recentnog reljefa i strukturnog sklopa najvažnija su najmlađa tektonska zbivanja koja su se dogodila tijekom neogena.

Interesantno je napomenuti da krajnji zapadni dio masiva Papuka, izgrađen od mezozojskih i neogenskih karbonatnih stijena, predstavlja područje kontinentalnog, tj. prekrivenog krša. Na ovom području, iako je prekriveno gustom šumskom vegetacijom, mogu se prepoznati razni krški fenomeni poput vrtača, ponikvi, ponora, krških špilja te recentnih i fosilnih sedrenih barijera. Najznačajnije špilje su Trbušnjak i Rastik kod Grahovljana, najljepše recentne sedrene barijere nalaze se na potoku Gržina kod Sirača, dok se najljepše fosilne sedre nalaze na grebenu Vranjevina kod Daruvara.

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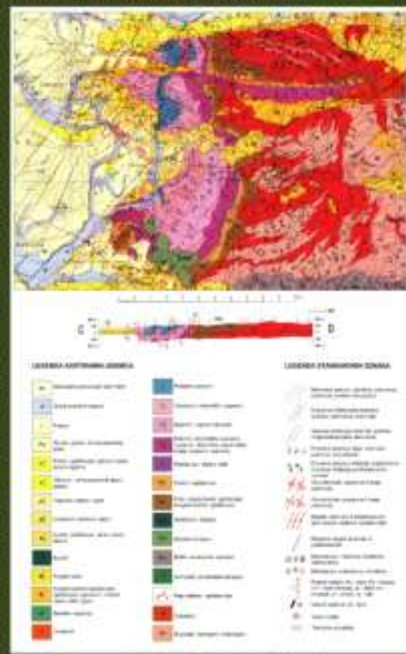
Panorama dijela Zapadnog Papuka. Foto: Matej Manjarić


Geološka karta zapadnog Papuka. Prema Jamičić (1983.)


Granitoidne stijene u gornjem toku rijeke Pakre. Foto: Matej Manjarić


Permotrijaski pješčenjaci u kanjonu rijeke Toplice. Foto: Matej Manjarić


Trijaski dolomiti kod manastira Pakra. Foto: Matej Manjarić


Naslage donjeg trijasa u blizini utvrde Dobra Kuća. Foto: Matej Manjarić


Sedrene barijere na potoku Gržini. Foto: Matej Manjarić

The westernmost slopes of Papuk Mountain are called Western Papuk. From the geographical point of view, Western Papuk extends from Daruvar on the west, while at eastern side it is separated from the main Papuk ridge by narrow valleys of Brzaja and Vočin River. In geomorphology terms, this is a hilly-mountainous terrain with very indented relief. The Papuk Mt. geotectonically belongs to the tectonic micro plate Tisia, more specifically to its southern part, which also includes the surrounding mountains Psunj, Krndija, and Moslavačka gora. Western Papuk is characterized by a complex geological structure and the rocks are composed of various lithologies, whose age ranges from Palaeozoic to Quaternary.

Most of the Western Papuk is built up of Palaeozoic rocks and they form so-called crystalline core which is built mainly of migmatite gneisses and to a lesser extent of schists with varying degrees of metamorphism. These rocks are pierced by smaller or larger granitic rock masses, of which the most common varieties are granodiorite and adamellite. Within the granites there are also embedded pegmatite, aplite and quartz veins. Alongside the mentioned rock types in some places also the diabase is present. Previously mentioned Palaeozoic rocks are best detected in the upper stream of Pakra River and on the southern slopes of Ravna Gora.

Overlaying the Palaeozoic rock complex are transgressively deposited sediments of Permian-Triassic age which can generally be divided into two rock packages. The lower package consists of Toplica conglomerates and phyllite conglomerates which represent two simultaneously deposited, but spatially separated facies. Toplica conglomerates have much wider distribution than phyllite conglomerate; they consist mainly of granitoid rock pebbles and they are found in the spring area of river Toplica. Phyllite conglomerates consist, as their name suggests, mainly from phyllite pebbles and they can be found in south-western slopes of Ravna Gora. The mentioned conglomerates gradually change into quartz sandstones that form the top package of Permian-Triassic sediments. These sandstones are best visible on Pogani vrh and in the valley of Željnak creek near Sirač.

On top of the Permian-Triassic sediments layers of Lower Triassic sandstone and shale were continuously deposited. These sediments cover relatively small area and they are found in the Lipovo creek canyon north of the Veliki Javornik peak.

Sedimentary rocks of the Middle and Upper Triassic have been continuously deposited on top of the Lower Triassic sediments. They mostly consist of various types of dolomite and limestone. Inside these sediments there are sporadically present also the dolomite breccia and small layers of shale, together with sandstones and tuffs from volcanic activity in the Triassic period. The Middle and Upper Triassic sediments are widespread and they build the westernmost slopes of the Western Papuk. The best examples are found in the Pakra River canyon and in the area around the Pakra Monastery.

Sedimentation on Western Papuk continues from the Triassic into Jurassic period. Jurassic layers are built of thin-platy limestone rich in fossil content. These sediments are best preserved in the area of the peak Kik and at the site Razvale. Jurassic sediments gradually turn into the layers of Lower Cretaceous which also consist of thin-platy limestone. The rocks of Upper Cretaceous age are found only in the surroundings of Voćin. These are mostly volcanic rocks, basalts and rhyolites, and much less sedimentary rocks. These rocks represent a tectonic fragment created by active underwater volcanism from Cretaceous period. The famous geological nature monument Rupnica near Voćin belongs to this rock formation.

After the Cretaceous came the period of weathering in the Western Papuk area, that lasted until the Neogene. Neogene sediments build up the surrounding lowland region, and in minor part they crop out on the slopes of Western Papuk. The Lower Neogene sediments consist of more or less lithified conglomerates, sandstones, marls and limestones with occasional coal layers, while the Upper Neogene sediments are loose clastic clayey-sandy sediments. The Neogene sediments are best preserved on the northern slopes of Western Papuk and in the area around Grahovljani village near Sirač.

Quaternary sediments are sparsely present in the Western Papuk. They can be found mainly in the form of smaller appearances of loess and alluvial sediments that are deposited near larger watercourses.

In the structural-tectonic terms, the recent structural complex was formed in several tectonic phases that have lasted from Palaeozoic period until present days. For recent relief and structural complex formation the most important were tectonic movements which occurred during the Neogene. It is interesting to mention that the westernmost Papuk is built up of Mesozoic and Neogene carbonate rocks; this represents the area of continental or so called covered karst area. In this area, although it is covered by dense forest vegetation, various karst phenomena such as sinkholes, caves and recent and fossil tufa barriers can be recognized. The most significant caves are Trbušnjak and Rastik near Grahovljani, the most beautiful recent tufa barriers are located on the Gržina creek near Sirač, while the best examples of fossil tufa are found on the Vranjevina ridge near Daruvar.

Literatura / literature:

TERMALNE VODE NA DARUVARSKOM PODRUČJU

THERMAL WATER IN DARUVAR AREA

Termalne ili geotermalne vode su one čija je temperatura viša od srednje godišnje temperature bliže okolice izvorišta. Sa stanovišta balneologije, za potrebe terapije i rekreacije, termalnom vodom smatra se voda čija je temperatura viša od 20 °C.

Izvori termalne vode pojavljuju se u samom gradu Daruvaru, na području Julijevog parka u neposrednoj blizini toka rijeke Toplice. Termalna voda ovdje izvire na četiri prirodna izvora: Ivanovo vrelo, Antunovo vrelo, Centralno blatno kupalište i Marijina vrela koja su sačinjena od više manjih izvorišta. Pored prirodnih izvora, u svrhu povećanja izdašnosti izbušeno je više bušotina od kojih su najznačajnije D-1 dubine 119 m u Julijevom parku i Dar-1 dubine 191 m na području Rimske šume.

Što se tiče količine podzemne vode koja izvire na prodručju Daruvara, procjenjuje se da ukupna izdašnost svih navedenih izvora i bušotina iznosi oko 30 l/s. Temperatura termalne vode varira u rasponu od 40 do 49 °C ,a kao prosječna temperatura termalne vode na području Daruvara uzima se temperatura od 46, 6 °C. Temperatura termalne vode viša je u toplijem dijelu godine, a niža u hladnijem. Do varijacija u temperaturi dolazi zbog miješanja termalne vode s površinskim vodama, kao i zbog razlika u količinama crpljenja voda.

Geološki gledano, područje termalnih izvora grade aluvijalni nanosi rijeke Toplice i neogenske sedimentne stijene koje su uglavnom nepropusne. U podlozi navedenih stijena nalaze se trijaski dolomiti. Na širem području izvorišta utvrđena je i prisutnost više rasjeda generalnih smjerova pružanja S-J, I-Z i SZ-JI. Termalna voda izvire iz trijaskih dolomita. Oni su zbog svojih litoloških svojstava i tektonske razdrobljenosti, koja je posljedica djelovanja navedenih rasjeda, vrlo propusni. Ovi dolomiti su najvažnije stijene za genezu termalnih voda i predstavljaju tzv. termalni vodonosnik.

Pojava termalne vode u Daruvaru posljedica je geološke građe šire okolice. Naime, termalne vode koje izviru na području Daruvara započinju svoj put kao oborina na masivu zapadnog Papuka istočno od Daruvara. To je brdski-planinsko područje sa nadmorskim visinama od 400 od 650 m. U geološkoj građi ovog područja dominiraju karbonatne stijene jure i trijasa, permotrijaski klastiti i paleozojske magmatske stijene. Navedene stijene su zbog svojih litoloških osobitosti i tektonske razdrobljenosti vrlo dobro propusne te se u njima oborinske vode akumuliraju i poniru duboko u podzemlje, na dubinu veću od 1000 m. Budući da je na daruvarskom području termalni gradijent povišen, poniranjem u dubinu podzemne voda se zagrijava na temperaturu od 35-66°C. Tonjenje geoloških struktura prema zapadu usmjerava i tok podzemnih voda prema zapadu, odnosno prema Daruvaru. Na području Daruvara su paleozojske i mezozojske stijene kroz koje cirkulira termalna voda tektonski dovedene u kontakt s mlađim neogenskim stijenama. One su uglavnom građene od slabopropusnih glinovito-pjeskovitih sedimenata te čine barijeru i onemogućuju daljnji tok podzemne vode prema zapadu pa se termalne vode izdižu i izviru na površinu. Izlazak vode na površinu omogućava hidrostatski pritisak koji nastaje zbog visinske razlike između mjesta akumulacije i izviranja.

Budući da je na području izvorišta vodonosnik izgrađen od vrlo propusnih stijena, prilikom izdizanja termalne vode na površinu dolazi do njenog miješanja s površinskim vodama što utječe na kemijski sastav i temperaturu vode.

Postavljalo se i pitanje koliko je vremena potrebno za cirkulaciju podzemnih voda od područja prihranjivanja na obroncima zapadnog Papuka do izvorišta u Daruvaru. Pomoću metode radiaktivnog raspada ugljika ^{14}C ,utvrđeno je vrijeme cirkulacije od otprilike 20 000 godina, dok je na temelju frakcionacije stabilnih izotopa kisika i vodika utvrđeno vrijeme cirkulacije 10 000 - 20 000 godina. Temeljem navedenih metoda može se utvrditi da termalna voda koja izvire u Daruvaru predstavlja oborine koje su u razdoblju zadnjeg ledenog doba, prije otprilike 10 000 do 20 000 godina pale na području zapadnog Papuka.

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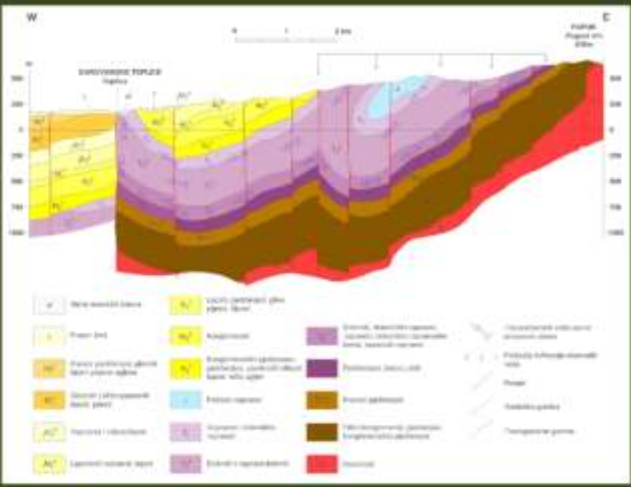

Foto: Predrag Uskoković

Foto: Predrag Uskoković

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Thermal or geothermal water is water whose temperature is higher than the annual average temperature in the spring vicinity. From the balneological point of view, for therapy and recreation, water warmer than 20 ° C is considered as thermal water.

Thermal water springs appear in Daruvar city centre, in the area of Julius Park near the river Toplica. Geothermal water springs forth here on four natural springs: Ivan's Bathouse, Antun's Bathouse, Central Mud Bath and Marija's Bathouse-these springs were made from several smaller water springs. In addition to natural resources, in order to increase the flow rate, more boreholes was drilled; among them the most important are D-1 with depth of 119 m, located in Julius Park and Dar-1 with depth of 191 m located on the area of Roman Forest.

As far as we consider the amount of groundwater that flows in Daruvar area, it is estimated that the total flow rate of all springs and boreholes amounts approximately 30 l/s. Thermal water temperature varies in the range from 40 to 49 °C, the temperature of 46 °C is considered as an average temperature of thermal water in Daruvar. Thermal water temperature is higher during warmer months and lower during colder months. Variations in temperature are result of mixing the thermal water with surface water, as well as due to differences in the amount of pumped water.

Geologically speaking, the area of thermal water springs is made due to alluvial fans from river Toplica and from Neogene sedimentary rocks which are largely impermeable. In the basis of the above mentioned rocks are located Triassic dolomites. The presence of more faults towards the general position towards N-S, E-W and NW-SE is determined in the wider spring area.

The occurrence of thermal water in Daruvar is a result of geological structure in surrounding region. In fact, the thermal water which springs in the Daruvar area begins its journey as precipitation on the western Papuk massif east of Daruvar. It is a hill and mountain region with altitude from 400 to 650 m. Jurassic and Triassic carbonate rocks, Permo-Triassic clastic and Palaeozoic magmatic rocks dominate in the geological structure of this area. These mentioned rocks are due to their lithological characteristics and tectonic fragmentation very permeable; they accumulate rainwater and sink deep in underground, even to a depth which is deeper than 1000 m. Since the Daruvar area has an increased thermal gradient, as the water sinks into the depth it is heated to a temperature of 35-66 ° C. Subsidence of geological structures to the west directs the groundwater flow towards west, actually towards Daruvar. In the area of Daruvar, the Palaeozoic and Mesozoic rocks through which the thermal water circulates are brought tectonically into together contact with younger Neogene rocks. They are mostly composed of low permeable clayey-sandy sediments and they form a barrier in order to prevent further groundwater flow to the west; in that way the thermal water is raising towards surface and springs on surface. The rise of water on the surface is enabled due to hydrostatic pressure that occurs because of the height difference between the accumulation place and spring position. Since the aquifer in the spring area consists of highly permeable rocks, during the uplift of thermal water to the surface comes to its mixing with ground water which effects on the chemical composition and water temperature.

There was another question regarding how long it takes for underground water to circulate from recharge area on the slopes of Western Papuk to spring area in Daruvar. Using the radioactive carbon 14 C disintegration method, it was determined the circulation time of about 20 000 years, while based on the stabile oxygen and hydrogen isotopes fractionation it was determined the circulation time of 10 000 to 20 000 years. Based on the above mentioned method it can be determined that thermal water which springs in Daruvar represent precipitations that have fallen in the area of Western Papuk during last Ice Age-before 10 000 to 20 000 years.

KLIMA DARUVARA

CLIMATE OF DARUVAR

Vrijeme je trenutno stanje atmosfere, a klima je prosječno stanje atmosfere na nekom prostoru.

Na panonski prostor utječu maritimne i kontinentalne zračne mase koje na ovo područje pritječu iz sjevernog Atlantika, sjeverne Azije i Sibira. Stoga, ovaj prostor je pod stalnim udarom akcijskih središta atmosferskog tlaka osobito s Atlantskog oceana (azorska anticiklona i islandska ciklona), pa tako i sibirska anticiklona.

Prema Köppenovoj klasifikaciji, na temelju podataka Državnog hidrometeorološkog zavoda (DHMZ) za razdoblje od 1978. do 2012. godine, područje Daruvara pripada klimi umjerenog toplog kišnog tipa (C) u kojem srednja temperatura najhladnijeg mjeseca nije ispod -3°C, a najmanje jedan mjesec ima srednju temperaturu višu od 10°C. Padaline su podjednako raspoređene tijekom cijele godine, a najsuši mjesec ima više od 60 mm padalina (Cf), s tim da manje količine padnu u hladnom dijelu godine (Cfw). Srednja temperatura najtoplijeg mjeseca nije veća od 22°C, a najmanje 4 mjeseca imaju srednju temperaturu veću od 10°C. (Cfwb). Tijekom godine izražena su dva maksimuma padalina - rano ljeto i kasna jesen (x). Potpuna definicija ovog klimatskog tipa je **Cfwbx**.

Godišnji hod temperature u Daruvaru ima obilježja tipičnog kontinentalnog hoda kakav prevladava u umjerenim širinama sjeverne polutke. Ta obilježja uočavaju se na klima-dijagramu godišnjeg hoda temperature i padalina postaje Daruvar. Krivulja temperature ima izražen maksimum koji se javlja u srpnju i minimum u siječnju, odnosno temperaturni ekstremi javljaju se oko mjesec dana nakon ljetnog, odnosno zimskog solsticija. Najhladniji mjesec je siječanj, sa srednjom mjesečnom temperaturom u promatranom razdoblju od 0,5°C, dok je najtopliji mjesec srpanj sa srednjom mjesečnom temperaturom od 21,2°C. Maksimalna temperatura izmjerena u Daruvaru iznosila je 39°C (20. srpanj 2007. i 24.08.2012.), dok minimalna izmjerena temperatura iznosi -22,4°C (02. veljače 2012.)

Padaline su podjednako raspoređene tijekom cijele godine, no izražena su dva maksimuma – jedan u lipnju i jedan u rujnu. Prosječna godišnja količina padalina u razdoblju od 1978. do 2012. godine iznosila je 883,9 mm. U promatranom razdoblju 2010. godina je bila rekordna s 1312,1 mm padalina, dok je godina nakon nje, odnosno 2011. bila izrazito sušna sa 532,7 mm padalina.

Snijeg se u Daruvaru bilježi od studenog do travnja, a rijetko kada u listopadu, svibnju i lipnju. U promatranom razdoblju, prosječno se 34 dana u godini pojavljuje snježni pokrivač. Maksimalna visina snijega zabilježena u Daruvaru u promatranom razdoblju iznosila je 47 cm, a izmjerena je 12. veljače 1999. godine.

Mraz je vrsta oborine koja nastaje brzim ohlađivanjem tla i predmeta na njemu. Kada je temperatura zraka 0°C ili manja, vodena para sublimacijom prelazi u kruto stanje, odnosno ledene kristaliće vode koji se talože na tlu i predmetima na tlu. U Daruvaru se mraz pojavljuje od listopada do travnja, prosječno 62 dana u godini.

Magla se sastoji od vrlo sitnih kapljica vode ili ledenih kristala, koji su tako lagani da lebde u zraku. Magla se u Daruvaru bilježi tijekom cijele godine, prosječno 28,8 dana godišnje. U zimskim mjesecima, položaj Daruvara u kotlini uvjetuje nakupljanje hladnog zraka na dnu kotline, te stvaranje radijacijskog tipa magle te njezino dulje zadržavanje.

Vjetar je strujanje zraka paralelno sa Zemljinom površinom, a određuje se brzinom i smjerom. U Daruvaru najčešći je vjetar iz sjevernog i južnog kvadranta. Otvorenost daruvarske kotline prema sjeverozapadu uvjet je češćih sjevernih vjetrova, dok reljefna barijera Papuka štiti Daruvar od istočnog strujanja, također, otvorenost daruvarske kotline prema sjeveru razlog je tome što srednji najbrži vjetar od 2,6 m/s dolazi iz sjevernog kvadranta.

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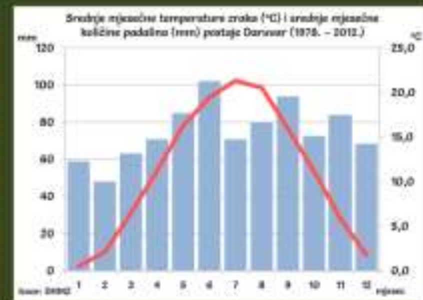
Foto: Damir Bakarić



Prosječne srednje, apsolutno maksimalne, apsolutno minimalne mjesečne i godišnje temperature zraka (°C) postaje Daruvar (1978. – 2012.)

mjesec	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	sred
srednje	0,5	1,9	6,6	11,1	16,1	19,5	21,2	20,5	16	11	5,7	1,8	11
maks.	18,6	22,5	26,2	31,3	33,5	35,5	39	39	35,1	29,9	24,5	23,3	39
godina	1985	2008	1989	2012	1983	2003	2007	2012	2008	1985	2002	1989	2007
dan	23.01.	25.02.	31.03.	29.04.	16.05.	13.06.	20.07.	24.08.	06.09.	03.10.	18.11.	17.12.	20.07.
min.	-21,4	-22,4	-18,7	-4	-1,2	2,8	6,7	5,1	1,7	-8,1	-18,1	-21,4	-22,4
godina	2003	2012	2005	1997	1978	1997	1998	1995	1987	1997	1988	1996	2012
dan	13.01.	09.02.	02.03.	14.04.	12.05.	01.06.	20.07.	31.08.	30.09.	30.10.	24.11.	31.12.	09.02.

Izvor: DHMZ

Foto: Damir Bakarić

Weather is the current atmospheric state; climate is the average state of the atmosphere at a certain place.

The main influence on the climate of the Pannonian area are affecting maritime and continental air masses which flows to this area from the North Atlantic, northern Asia and Siberia. Therefore, this area is under constant impact of atmospheric action pressure - particularly from the Atlantic Ocean (Azores and Iceland cyclones), including the Siberian anticyclone.

According to Köppen climate classification, based on data from Meteorological and hydrological institute of Croatia (DHMZ) for a time period 1978-2012, the area of Daruvar belongs to moderate warm rainy-type climate / temperate-mesothermal climate (C) where the average temperature of the coldest month isn't below -3°C, and at least one month has an average temperature higher than 10°C. Precipitations are equally distributed throughout entire year, the driest month has more than 60 mm of precipitation (Cf), but smaller amounts fall during the coldest time of the year (Cfw). The average temperature of the warmest month is not higher than 22°C, and at least four months have average temperature higher than 10°C (Cfwb). During the year, a two precipitation maximums are expressed - early summer and late autumn (x). A complete definition of this climate type is **Cfwbx**.

Annual air temperature course in Daruvar has typical characteristics of a continental type which prevails in the temperature latitudes of the Northern Hemisphere. These features can be observed on annual course climate diagrams made by meteorological station Daruvar. The temperature curve has expressed maximum which can occur in July, the minimum is occurred in January; actually the temperature extremes occur for about one month after the summer or winter solstices. The coldest month is January, with an average monthly temperature during the observed period of 0,5°C; the warmest month is July with average monthly temperature of 21,2°C. The maximum temperature that has been measured in Daruvar was 39°C (July 20th 2007 and on August 24th 2012), while the minimum temperature that was measured is -22,4°C (February 2nd 2012).

The precipitation are evenly distributed throughout the entire year, but two maximums can be occurred - one in June and another in September. The average annual precipitation amount in the period from 1978 to 2012 was 883,9 mm. During the observed period 2010th year was a record year with 1312,1 mm of precipitation, while the year after it, 2011 was extremely dry year with 532,7 mm of precipitation.

Snow in Daruvar is recorded from November to April, and rarely in October, May and June. During the observed period, 34 days in average the snow cover appears. During this period, the maximum recorded snow height was 47 cm, measured on February 12th 1999.

Frost is a type of precipitation that occurs with rapid earth cooling and as well as the objects located on it. When the air temperature reaches 0°C or lower, then a water steam sublimates into a solid state; or water and ice crystals which stay on the ground and objects that are located on the ground. In Daruvar, frost occurs from October to April, averagely for 62 days per year.

A fog consists of very fine water droplets or ice crystals, which are so light that they are floating in the air. In Daruvar, fog is recorded during the entire year, averagely 28,8 days per year. In the winter months, the position of Daruvar as a city in the valley causes the accumulation of cold air at the bottom of the valley, and the creation of radiation fog type with its longer retention.

The wind is air circulation which is parallel to the Earth's surface, and this is determined by the speed and direction. In Daruvar, the most common wind comes from the north and south quadrant. The openness of Daruvar valley to the northwest is one of the conditions for frequent northerly wind blowing, while Papuk relief barrier protects Daruvar from eastern flows. Also, the openness of Daruvar valley to the north side is one of the reasons that the fastest middle wind of 2,6 m/s comes from the northern quadrant.

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GEORAZNOLIKOST ZAPADNOG PAPUKA

GEODIVERSITY OF WESTERN PAPUK

Georaznolikost je prirodna raznolikost krajolika, a predstavlja skup geoloških (stijene, minerali, fosili.), geomorfoloških (reljefni oblici i procesi) i pedoloških osobina Zemljine kore. Georaznolikost je, dakle, kompleks prirodnih procesa i njima nastalih pojava koje nastaju kroz cijelu geološku prošlost Zemlje.

Istočno od Daruvara nalazi se Zapadni dio Papuka s hrptom Lisine, na kojem se smjestio najviši vrh Bjelovarsko - bilogorske županije: Crni vrh (863 m) te Petrov vrh (614 m) i hrbat Ravna gora sa vrhom V. Javornik (718 m).

U geološkom pogledu Papuk predstavlja kompleksnu strukturu koju karakterizira izuzetna geološka raznolikost. Čine je stijene čija starost varira od paleozoika do kvartara. Krajnji dio Zapadnog Papuka, odnosno prostor od Daruvara do Vranog kamena, predstavlja područje kontinentalnog, odnosno tzv. prekrivenog krša budući da je građen od trijasnih i jurskih vapnenaca i dolomita, te neogenskih vapnenaca prekrivenih slojem tla.

Tip krša koji nalazimo na ovom području nazivamo *fluviokrš*. Fluviokrš je oblikovan kombiniranim djelovanjem krških, fluvijalnih i padinskih procesa. U njemu su oblikovani blagi reljefni oblici s zaobljenim vrhovima, u kojem rijetko nalazimo stjenovite površine, duboko usječene, tektonski uvjetovane jaruge i doline. Pojavu krša dokazuje dolina potoka Stančevac, te brojna istaložena sedra na geomorfološkom lokalitetu Vranjevina, te u brojnim potocima u slivu rijeka Toplice i Pakre.

Geomorfološki lokaliteti

Reljef je sastavni dio prirodne ili kulturne baštine određenog područja te ima isti značaj kao povijesni spomenici ili umjetnička djela. Prema tome, geomorfološki lokaliteti su reljefni oblici i procesi koji samostalno ili zajedno s nekim drugim bioekološkim ili antropogenim elementima mogu postati objekt baštine.

Geomorfološki lokaliteti posjeduju znanstvenu, kulturnu, socio-ekonomsku ili estetsku vrijednost. Takvi lokaliteti čine najreprezentativniji rezultat procesa i čimbenika koji oblikuju Zemljinu površinu. Upravo zbog toga, znanstvenici su tu da turistima koji se dive lokalitetima ili krajoliku objasne genezu i evolucijski trend. Oni imaju i socio-ekonomsku značajku ako se mogu koristiti u turizmu ili u sportske svrhe, npr. uživanje u prirodi ili rekreacija. S kulturne strane, geomorfološki lokaliteti mogu pripadati svijetu umjetnosti ili kulturnoj tradiciji. Primjerice, mnogi krajolici prikazani su u opusima brojnih svjetski poznatih umjetnika ili su pak dio vjerske ikonografije, kao npr. planina Olimp koju smatraju prebivalištem grčkih bogova ili planina Sinaj gdje je Mojsije primio Božje zapovijedi. Geomorfološki lokaliteti određuju se i na temelju njihovih estetskih komponenti. Ova značajka je intuitivne prirode. Pristup prirodi ovisi o pojedincu koji je podložan subjektivnosti , stoga je ovu vrijednost teško ocijeniti i usporediti s osjećajima i percepcijom drugih.

Na području Zapadnog Papuka nalazi se nekoliko geomorfoloških lokaliteta specifičnih geomorfoloških oblika i procesa. Najistaknutiji lokalitet je Vranjevina, čija je specifičnost tektonski uvjetovan strmac preko kojega potok, koji nedaleko izvire, tvori vodopad i na kojem se istaložila sedra. Blizu naselja Škodinovac nalazi se vodopad koji također tvori sedrene oblike. Dolina potoka Stančevac školski je primjer doline u kršu (kanjon). Greben Vranog kamena sa svojim stjenskim blokovima nikoga neće ostaviti ravnodušnim. Također, dolina rijeke Toplice je izniman geomorfološki lokalitet.

Geomorfološka karta

Za grad Daruvar i njegovu užu okolicu izrađena je geomorfološka karta. Analiza morfometrijskih parametra ovog prostora navodi na zaključak da su reljefni oblici i procesi velikim dijelom odraz neotektonske aktivnosti. Grad Daruvar smješten je na prijelazu Papuka u lesne zaravni i naplavnu nizinu rijeka Toplice i Ilove. Najveći dio prostora karakteriziraju fluviodenudacijski procesi i oblici. Najistaknutiji je proces jaruženja koji je na terenu oblikovao brojne jaruge. Središnjim dijelom prostora dominira rijeka Toplica, te je ovdje oblikovan fluvijalni tip reljefa. Na području izgrađenom od karbonatnih stijena je osim fluviodenudacijskog tipa, izražen i fluviokrški tip reljefa.

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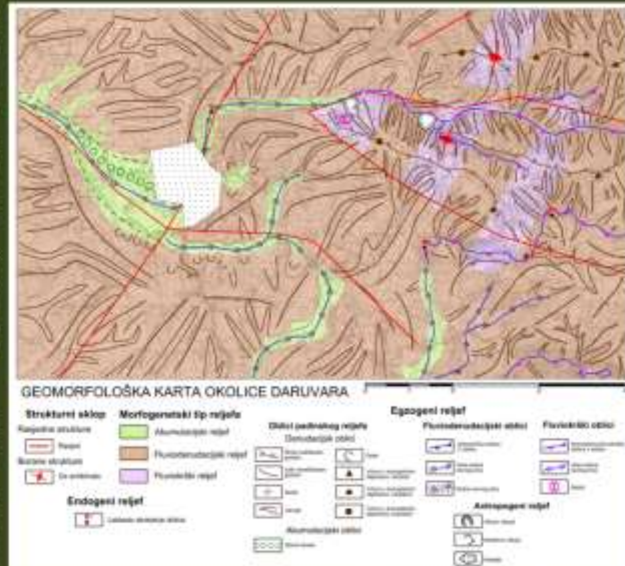


Aluvijalna dolina rijeke Toplice
Foto: Marko Čulić


Geomorfološki lokalitet Vranjevina


Foto: Boris Vanić

Geodiversity is the natural landscape variety, and it represents a set of geological (rocks, minerals, fossils), geomorphological (landforms and processes) and pedological features of Earth's crust. Therefore, geodiversity is a complex of natural processes along with their occurrences which arise throughout the geological history of Earth.

Western part of Papuk with Lisine ridge is located east of Daruvar; here is the highest peak of Bjelovarsko-bilogorska County – Crni vrh (863 m), Petrov vrh (614 m) and ridge Ravna gora with the peak V. Javorik (718 m).

In geological terms Papuk represents a complex structure which is characterized by an exceptional geological diversity. It consists of rocks whose age ranges from Precambrian to Quaternary. The ending part of Western Papuk, actually the area from Daruvar to Vrani kamen represents an area of continental or so called karst covered area since it is composed of Triassic and Jurassic lime stones with dolomite which is covered with a layer of soil. The type of karst which can be found in this region is called *fluviokarst*. Fluviokarst is formed with combined action of karst, fluvial and slope processes. Slight relief forms with rounded peaks are shape in it, rocky surfaces can be rarely found inside along with deep incised, tectonically conditioned ravines and valleys. The occurrence of karst is proven with numerous precipitated tuff located on geomorphosite Vranjevina, and in the riverbeds of rivers Toplica and Pakra and as well as the valley of Stančevac creek.

Geomorphosites

Relief is an integral part of the natural or cultural heritage in a particular area, and it has the same significance as a historic monuments and art works. Accordingly, geomorphosites are landforms and processes which individually or together with other bioecological and anthropogenic elements can become an object of heritage.

Geomorphosites possess scientific, cultural, socio-economic or aesthetic value. These locations do the most representative result of the processes and factors that shape the Earth's surface. Because of that, scientists are here to explain the genesis and evolution trend to those tourists who admire to the sites or landscapes. They have also a socio-economic feature if they can be used for tourism purposes or sporting purposes, for example to enjoy in nature or recreation. On the cultural side, geomorphosites can belong to the world of art or cultural tradition. For example, many landscapes are shown in the works of many world famous and renowned artists, or they are part of religious iconography; such as mountain Olympus which is considered as a residential place for Greek gods, or Mount Sinai where Moses received God's commandments. Geomorphosites are determined also on the basis of their esthetic components. This feature is largely based upon intuitive nature. Nature approach depends upon the individual, and this is very subjective, so this value is difficult to rate and compare with the feelings and perceptions of others.

On the area of Western Papuk there are several geomorphosites with specific geomorphological forms and processes. The most prominent site is Vranjevina which is specific according to tectonically influenced cliff with creek that springs in the proximity, forming a waterfall in which was tuff precipitated. Near the village Škodinovac is a waterfall that also forms the tuff shapes and forms. The Stančevac creek valley is a typical example of karst valley (canyon). The reef of Vrani kamen with its rock blocks will not leave anyone indifferent. Also, the valley of river Toplica is an extraordinary geomorphosite.

Geomorphological map

For the city of Daruvar and his immediate surroundings the geomorphological map was made. Analysis of the morphometric parameters of this area suggests that the landforms and processes in this area are largely a reflection of the tectonic activity. The city of Daruvar is located at the transition of Papuk Mountain into loess plateau and floodplain of rivers Toplica and Ilova. The largest part of the area is characterized by fluvial denudation processes and forms. The most prominent is the process of dredging, which has formed numerous ravines on the ground. The central part of the area is dominated by river Toplica, so here was shaped the fluvial type of relief. In the area built of carbonate rocks, apart from the fluvial denudation type of relief, a fluviokarst type or relief is also expressed.

ŠUMA – SLOŽENI EKOSUSTAV

FOREST – A COMPLEX ECOSYSTEM

Posjetitelju se prostor na kojem stoji i koji ga okružuje možda čini kao zajednica stabala slučajno izniklih na strmoj šumskoj padini. No, zaljubljeniku u prirodu i njenom poznavatelju jasno je da ima privilegiju kročiti i istinski uživati u prostoru koji samo naizgled svojim jednostavnim izgledom, a zapravo svevremenskim savršenstvom, budi osjećaj divljenja i poštovanja, mjestu koje pruža suživot malenoj orhideji i stoljetnome hrastu te se prepoznaje kao iznimno složen i vrlo osjetljiv ekosustav u kojem vladaju neki posebni, oku nevidljivi biološki mehanizmi… Takav čovjek zna cijeniti trenutak boravka u šumi.

Hrvatska pripada u šumovitije zemlje Europe s više od 0,50 ha po stanovniku, a šume su jedno od naših najznačajnijih nacionalnih obilježja i bogatstava. One **zauzimaju površinu od 2.688.687 ha, što čini gotovo polovicu ukupnog državnog teritorija.** Od toga je 2.106.917 ha u vlasništvu RH, dok je 581.770 ha u vlasništvu privatnih šumoposjednika. Šume razvrstavamo i prema njihovoj namjeni te ih svrstavamo u gospodarske (uz očuvanje i unapređenje njihovih općekorisnih funkcija koriste se za proizvodnju šumskih proizvoda), zaštitne (u prvom redu služe za zaštitu zemljišta, voda, naselja, objekata i druge imovine) te šume s posebnom namjenom (strogi rezervati, nacionalni parkovi, posebni rezervati, spomenici prirode, značajni krajobrazi, park-šume). Ukupna drvna zaliha svih šuma u Republici Hrvatskoj iznosi oko 400 milijuna m³. Godišnje priraste 10,5 milijuna m³, što je znatno više od etata ili ukupne sječive drvne mase koja iznosi oko 6 milijuna m³.

Kontinentalne šume rasprostiru se od poplavnih nizinskih riječnih dolina u kojima rastu poljski jasen, nizinski brijest te razne vrste vrba i topola. Tu ipak dominira **hrast lužnjak**, naša najvrednija vrsta drveća te je *slavonska hrastovina* kvalitativni pojam poznat diljem svijeta. Nešto više brdske i prigorske terene zauzimaju **obična bukva** kao naša najrasprostranjenija vrsta šumskog drveća, potom **hrast kitnjak, obični grab, divlja trešnja, lipa, hrast cer** te mnoge druge listopadne vrste. Također, u šumskim kulturama ili umjetno podignutim sastojinama, možemo pronaći **običnu smreku, ariš, zelenu duglaziju** te razne **vrste borova** (5% šumske površine Hrvatske). Više brdske i planinske predjele panonskog masiva, središnje Hrvatske, te krškog dijela Like i Gorskog kotara obrastaju iznimno kvalitetne **šume bukve i jele (vrste tame ili skiofiti) kojima se gospodari specifičnim, tzv. prebornim načinom gospodarenja.** U njima još pridolaze gorski javor i jasen, javor mliječ, gorski brijest i obična smreka. **U primorskom dijelu Hrvatske** nalazimo sastojine **hrasta medunca, bjelograbića** te čitavog niza ostalih termofilnih vrsta drveća. Dalmaciju obrastaju razni oblici takozvanih degradiranih šuma (makija, garig), u kojima se još mogu naći očuvane prirodne šume **hrasta crnike** te brojnih vrste **mediteranskih borova (alepski bor, brucijski bor, pinija itd.).** Dio svih navedenih šuma je i sloj grmlja i prizemnog rašća kojega čini široki spektar biljnih vrsta što dodatno govori o osebujnom bogatstvu i bioraznolikosti našeg podneblja. Osobit značaj i važnost imaju vrste s izrazito malom brojnosti koje nalazimo na uskim lokalitetima ili tzv. **endemske vrste** (preko 300 vrsta) od kojih su najpoznatije velebitska degenija, hrvatska sibireja, crna jela, hrvatska perunika i kockavica.

Osim već spomenute biološke raznolikosti i bogatstva cjelokupnog šumskog potencijala, jedno od glavnih obilježja šuma u Hrvatskoj je **prirodni način postanka** što ih čini jedinstvenima u Europi. Takav način postanka postiže se pomlađivanjem šuma – tzv. **oplodnim sječama** koje započinju već u ranoj fazi postanka šume prepoznavanjem najkvalitetnijih jedinki ili „stabala budućnosti". Tijekom čitavog razdoblja rasta i razvoja cijele sastojine, takvim se stablima pogoduje stručnim uzgojnim zahvatima (**njega sastojina**), kako bi upravo ona dočekala kraj ophodnje - odnosno ukupnog životnog vijeka cijele šume i svojim sjemenom omogućila nastanak nove, još kvalitetnije mlade sastojine. Sve to počiva na principima **potrajnog te nadasve planskog i odgovornog gospodarenja šumama** za što je zadužena šumarska struka koju resi dugogodišnja tradicija i međunarodno priznati rezultati rada. Bitno je podsjetiti da svojim postojanjem i djelovanjem na širu i užu okolicu šume povoljno utječu na zaštitu zemljišta od razornog djelovanja oborina i vjetrova, na režim voda, klimu, prinos poljoprivrednih kultura, stanje vodnih akumulacija, na odvijanje prometa, na zdravstvene i higijenske uvjete života, na razvoj turizma, ljepotu krajolika, pa čak i na dužinu ljudskog života. Šume su, osim što su neiscrpan izvor drveta i drugih šumskih proizvoda, jedan od bitnih uvjeta egzistencije društvene proizvodnje i života ljudi uopće. Ono što šumu čini nezamjenjivom za zaštitu i unapređenje čovjekova okoliša jest činjenica da se općekorisne funkcije šuma, koje su od vitalnog značenja za održavanje zraka, vode i zemljišta kao najvažnije komponente životne sredine, ne mogu nadoknaditi nikakvim drugim načinima.

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Šuma hrasta lužnjaka
Foto: Arhiva Hrvatskog šumarskog društva


Bukova šuma
Foto: Arhiva Parka prirode Papuk


Hrvatska perunika (Iris croatica)
Foto: Dunja Kolar


Bukova i jelova šuma
Foto: Dunja Kolar


Jelova šuma
Foto: Arhiva Hrvatskih šuma


Češer alepskog bora
Foto: Dunja Kolar


Foto: Arhiva Hrvatskih šuma


Rimska park-šuma
Foto: Damir Bakarić


Kockavica (Fritillaria)
Foto: Dunja Kolar

A visitor may seem the area on which he stands and that surrounds him like a community of trees that have accidentally emerged on a steep forest slope. However, for the nature lover and for someone who is acquainted it will be perfectly clear that he has a privilege to step into unique area and to truly enjoy in timeless perfection; this will evoke a feeling of admiration and respect in a place that offers coexistence to small orchid and to an oak tree which is centuries old. This is recognized as an extremely complex and highly sensitive ecosystem, in which some special and unseen biological mechanisms dominate…. Such man, can highly appreciate the moments spent in the woods.

Croatia belongs to the most forest covered countries in Europe with more than 0,50 ha of woods per capita, and forest are one of the most important national features and national wealth. They cover an area of 2.688,687 ha, which makes almost half of the total national territory. Out of that number 2.106,917 ha is state-owned, while 581.770 ha is property in private ownership. Forests can be classified according to their role- we divide them into: industrial forests (along with the preservation and enhancement of their beneficial functions they are used for production of forest products), protective forests (its primary purpose is to protect the land, water, settlements, buildings and other assets), and forests with special purposes (strict nature reserves, national parks, special reserves, natural monuments, significant landscapes, park-forests). The total forest timber stock in Republic of Croatia amounts about 400 million m³. The annual increment amounts about 10.5 million m³ which is significantly more than the total annual cut or timber cutting; this amounts about 6 million m³.

Continental forests spread along lowland flood river valleys – where the leaved ash, elm and various kinds of willow and poplar are growing. But here still dominates the oak, our most valuable tree species; the Slavonian oak is highly qualitative concept known all over the world. Those mountain and foothill terrains are occupied by common beech tree as our most widespread forest tree species, than sessile oak, hornbeam, wild cherry, linden, oak and many other deciduous species. Also, in some forest cultures or artificially established stands we can find common spruce, larch, Douglas green fir and various species of pine (5% of the Croatian forest area). In the higher hill and mountain regions of the Pannonian Massif, central Croatia and karst part of Lika with Gorski Kotar are overgrowing high-quality beech and fir forests (shadows trees or skiofit) which are managed through specific, so-called selection management way. They are still accompanied by sycamore and ash, maple, elm and common juniper. In the coastal part of Croatia, we can found stands of downy oak, hornbeam and a range of other thermophile species. Dalmatia is overgrown with various forms of so-called degraded forests (bushes, garrigue) in which can still be found preserved natural forests of holm oak and numerous species of Mediterranean pines (Aleppo pine, Brutian pine, small pine, etc..). Part of the all above listed forests is also shrub layer and ground vegetation; this makes a wide range of plant species and also further discusses of the peculiar richness and biodiversity of our region. The particular significance and importance have species with very small existing number which can be found on few locations; they are so-called endemic species (over 300 species) – the most famous are: velebitska degenija, croatian sibiraea, black fir, croatian orris and kockavica.

Except that biological diversity which has been already mentioned as well as richness of the whole forest potential, one of the main forests characteristics in Croatia are their ways of genesis; a natural way of genesis which make them as a unique kind in Europe. This way of genesis is achieved through the regeneration of forests – with so-called seed cuttings which may start at an early stage of the forest planting by recognizing the finest specimens, or "future trees". During the entire stand growth and development period with professional expert operations (the care for stands) is being favoured so they could live long enough to wait for the end of this care to end: actually these trees are going through entire lifetime of whole forest and with their seed they are enabling the formation of a new, even better young stand. All this is based on the principles of sustainable, planned and responsible forest management for which the main responsibility has the forestry profession that is marked with long-standing tradition and internationally recognized work results. It is important to remind us that various activities have influence on the existence of wider and narrower forest area: land protection from rainfall and wind ravage, water regime, climate, agricultural crops yield, the state of water reservoirs, traffic flow, the health and hygienic living conditions, tourism development, landscape beauty-and even to the length of human life. Except an inexhaustible reservoir of timber and other forest products, forests are also one of the essential conditions for social production existence and life of the people in general. What makes the forest so indispensable for protection and the improvement of the human environment is the fact that beneficial functions of forests which are vital for the air maintenance, water and land as the most important environment component can't be recovered by any other means.

OPĆE ZNAČAJKE RIMSKE ŠUME

GENERAL FEATURES OF ROMAN FOREST

Rimska šuma dio je iznimno vrijednih i osobito sačuvanih panonskih šuma Psunjsko-papučkog gorskog masiva. Smještena je na krajnjim sjeverozapadnim obroncima planine Papuk u neposrednoj blizini središta grada Daruvara. Stanišni uvjeti, prvenstveno nadmorska visina (170-200 m.n.v.), matični supstrat, sastav tla, ekspozicija, režim podzemnih voda, konfiguracija terena bili su preduvjet za postanak i razvoj šume koju s fitogeografskog stajališta svrstavamo među šume Eurosibirsko-sjevernoameričke šumske regije odnosno perilirske vegetacijske zone te je s fitocenološkog gledišta možemo definirati kao **sastojinu hrasta kitnjaka i običnog graba s bukvom (Querco petraeae – Carpinetum illyricum var Fagus sylvatica / Horvatić 1938.)**. To je široko rasprostranjena šumska zajednica koja u Republici Hrvatskoj raste na brdskim terenima i nižim gorjima do 500 metara nadmorske visine u humidnim klimatskim uvjetima, na eutričnim kambisolu, obronačnom pseudogleju te luvisolu odnosno lesiviranom šumskom tlu na kojem je nastala i naša *Rimska šuma*.

Šuma se odlikuje bogatim flornim sastavom i vrstama tipičnim za ilirski florni element. Tako u sloju drveća uz **hrast kitnjak (*Quercus petraea* L), obični grab (*Carpinus betulus* L.) te običnu bukvu (*Fagus sylvatica* L.)** kao glavne vrste drveća pridolaze još i **klen (*Acer campestre* L.), divlja trešnja (*Prunus avium* L.), lipe (*Tilia sp.*) i gorski javor (*Acer pseudoplatanus* L.)**. S obzirom na lokaciju šume te snažan utjecaj urbane sredine u pojedinim dijelovima *Rimske šume* mjestimično rastu još i bagrem (*Robinia pseudoacacia* L.), platana (*Platanus acerifolia Wild.*) obična smreka (*Picea abies* L.), zelena duglazija (*Pseudotsuga taxifolia*) te razne vrste borova (*Pinus sp.*)

U sloju grmlja rastu lijeska (*Corylus avellana* L.), svib (*Cornus sanguinea* L.), obična kurika (*Euonymus europaeus* L.), obična bazga (*Sambucus nigra* L.), glog jednoplodni (*Crataegus monogyna* L.), crni trn (*Prunus spinosa* L.), kozokrvina (*Lonicera xylosteum* L.) likovac obični (*Daphne mezereum* L.), klokočika (*Staphylea pinnata* L.) i divlja ruža (*Rosa canina* L.).

Sloj prizemnog rašća sačinjava čitav niz mezofilnih vrsta kao što su: mišjakinja velika (*Stellaria holostea* L.), šaš (*Carex pilosa* L.), mala pavenka (*Vinca minor* L.), jetrenka (*Anemone hepatica* L.), veprina (*Ruscus aculeatus* L.), pasji zub (*Erythronium dens canis* L.), volujsko oko (*Hacquetia epipactis*), kadulja (*Salvia glutinosa* L.), lječura (*Sanicula europaea* L.), lazarkinja mirisna (*Asperula odorata* L.), broćika (*Galium aparine* L.), brljan (*Hedera helix* L.), ženska paprat (*Athyrium filix femina* L.), ciklama (*Cyclamen purpurascens* L.), petrov križ (Paris quadrifolia L.), jaglac (*Primula vulgaris* L.), zečja soca (*Oxalis acetosella* L.), zečja stopa (*Geum urbanum* L.), gavez (*Symphytum officinale* L.) i šumska jagoda (*Fragaria vesca* L.). Poseban raritet *Rimske šume* čini postojanje pojedinih vrsta šumskih orhideja (*Epipactis, Neottia sp.*)

Rimska šuma u državnom je vlasništvu te se njome kao šumom s posebnom namjenom i općekorisnom sportsko-rekreativnom funkcijom gospodari temeljem važećeg Zakona o šumama. Dio je šumskogospodarske jedinice „Vrani kamen" (odjel 155, odsjeci a,b,c,d,e), **ukupne površine 20,58 ha** kojom sukladno postojećim propisima gospodari trgovačko društvo „Hrvatske šume" d.o.o. **Prosječna starost šume iznosi od 85 do 120 godina.** Šira društvena zajednica uvijek je prepoznavala njezin značaj te i danas općem izgledu *Rimske šume* značajno doprinosi Grad Daruvar kao jedinica lokalne samouprave uz uvijek prisutnu brigu i skrb svih građana Daruvara i posjetitelja šume. Dosadašnje gospodarenje šumom obuhvaćalo je provođenje tzv. sanitarnih sječa (izlučivanje iz sastojine oštećenih stabala, stabala zahvaćenih sušenjem, gljivičnim oboljenjima, vjetroizvala, snjegoloma) i održavanje postojeće infrastrukture unutar prostora šume. S obzirom na zrelost pojedinih cjelina *Rimske šume* i u skladu sa određenim biološkim i taksativnim pokazateljima (obrast, sklop, temeljnica, broj stabala po jedinici površine) u skoroj će budućnosti biti nužni zahtjevni zahvati koji će omogućiti njeno postupno pomlađivanje, a da se pri tom ne poremeti njena stabilnost, biološka raznolikost te nadasve općekorisna funkcija koju ona pruža.

Ovaj kratki edukativni sadržaj pruža tek osnovne informacije o ovoj osebujnoj prirodnoj blagodati, mjestu u čijem se ozračju može osjetiti kultura i povijest jednog naroda te prirodne ljepote jednog malenog, ali dragocjenog kutka naše domovine - *naše Rimske šume.*

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Ovjet ljeske (*Corylus avellana* L.)
Foto: Darja Kolar


Ovjet bezgovi/kozokrvine (*Lonicera xylosteum* L.)
Foto: Darja Kolar


Šumska jagoda (*Fragaria vesca* L.)
Foto: Darja Kolar


Foto: Darja Kolar


Brljan (*Hedera helix* L.)
Foto: Darja Kolar


Jaglac (*Primula vulgaris* L.)
Foto: Darja Kolar


Ciklamen (*Cyclamen purpurascens* L.)
Foto: Darja Kolar

Roman Forest is a part of extremely valuable and particularly preserved Pannonian woods of mountain range Psunj-Papuk. It is located at the end of north-western slopes of Papuk Mountain close to the Daruvar city centre. Habitat conditions, primarily the altitude (170-200 m), cell substrate, soil composition, exposure, groundwater regime, field configuration- those were all preconditions for the emergence and development of forest. According to the Phytogeographical point of view can classify this forest among the Euro Siberian – North American forest regions; or forest of Perilirian vegetation zones, and from the fitocenological point of view it can be defined as an oak and hornbeam stand with beech (Querco petraeae – Carpinetum Illyricum var Fagus sylvatica / Horvatić 1938.). It is a widespread forest community which grows in Croatia on mountain slopes and Lower Mountain hills up to 500 meters above sea level with humid climate; it grows also on the eutric cambisol and hillside pseudogley.

The main forest characteristic is that is rich with floral composition and species typical for Illyrian floral element. Among the typical trees that grow in forest, trees like sessile oak (Quercus petraea. L.), hornbeam (Carpinus betulus L.) and beech (Fagus sylvatica L.) as the main tree species; these species are also accompanied with maple (Acer campester L.), wild cherry (Prunus avium L.), lime (Tilia sp.) and sycamore (Acer pseudoplantatus L.) Due to the forest location and strong influence of the urban environment, in certain parts of the ROman forest are still growing trees like: black locust (Robinia pseudoacacia L.), plane tree (Platanus aceriafolia), ordinary spruce (Picea abies L.), green Douglas-fir (Pseudotsuga taksifolia) and various species of pine (Pinus sp.).

In the shrub layer are growing: hazel (Corylus avellana L.), dogwood (Cornus sanguinea L.), common spindle (Euonymus europaeus L.), common elderberry (Sambucus nigra L.), singleton hawthorn (Crataegus monogyna L.), black thorn (Prunus spinosa L.), honeysuckle (Lonicera xylosteum L.), ordinary daphne (Daphne mezereum L.), European bladdernut (Staphylea pinnata) and wild rose (Rosa canina L.).

A layer of ground vegetation is consisted of numerous mesophilic species such as: large chickweed (Stellaria holostea L.), sedge (Carex pilosa L.), lesser periwinkle (Vinca minor L.), hepatica (Anemone hepatica L.), ruscus aculeatus (Ruscus aculeatus L.), dogtooth violet (Erythronium dens canis L.), ox eye (Hacquetia epipactis), sage (Salvia glutinosa L.), wood sanicle (Sanicula europaea L.), smelling sweet woodruff (Asperula odorata L.), cleavers (Galium aparine L.), ivy (Hedera helix L.), female fern (Athyrium filix femina L.), cyclamen (Cyclamen purpurascens L.), Peter Cross (Paris quadrifolia L.), primrose (primula vulgaris L.), rabbit soca (Oxalis acetosella L.), rabbit feet (Geum urbanum L.), comfrey (Symphytum officinale L.), and wild strawberry (Fragaria vesca L.). A special rarity in the Roman Forest makes the existence of certain types of forest orchids (Epipactis, Neottia sp.).

Roman Forest is state-owned forest; it is used as a forest for special purposes and public beneficial sports activities; it is governed according to the valid Law of the forest. It is a part of forest management unit called "Vrani kamen" (sector 155, sections a,b,c,d,e), with total area of 20.58 hectares; according to existing regulation this sector is managed by company "Hrvatske šume " d.o.o. The average age of the forest is 85-120 years. Community in general has always recognized its importance and today the city of Daruvar as a local government contributes significantly towards the general layout of the Roman forest, along with the ever present concern and care of all citizens and forest visitors. A previous forest management included the implementation of the so-called sanitary logging (secretion from the damaged tree stands, trees affected by drying, fungal diseases, trees that were pulled down due to wind, snow-broken trees), and it also included a maintenance of existing infrastructure within the forest area. Considering the maturity of the individual units in Roman Forest and in accordance to certain biological and taxonomic indicators (overgrown condition, basal area, number of trees per area unit), in the near future it will be necessary to conduct some demanding procedures that will allow its gradual rejuvenation; under the condition that these procedure will not disturb its stability, biodiversity, and above everything, all the beneficial functions it provides.

This short educational content provides only basic information about this exceptional natural treasure, a place where you can feel the cultural atmosphere and history of one nation; here you can see all natural beauties of a tiny but precious corner of our country – our Roman Forest.

STANOVNICI ŠUME - VODOZEMCI I KUKCI

FOREST INHABITANTS- AMPHIBIANS AND INSECTS

VODOZEMCI

Prije mnogo milijuna godina na Zemlji su se pojavili prvi kopneni kralježnjaci. Riječ je o vodozemcima (grč. *amphi* i *bios* = dvostruki život) čiji hrvatski naziv upućuje da su se prilagodili životu na kopnu i vodi. U vodozemce pripadaju sljedeći redovi: **ANURA** – bezrepci (žabe), **CAUDATA** – repaši (vodenjaci i daždevnjaci) te **Gymnophiona** – beznošci. Hladnokrvni su organizmi (ektotermni) koji uglavnom polažu jaja u vodu, a veći dio vrsta prolazi kroz preobrazbu (*metamorfozu*) iz ličinačkog stadija u odrasle kopnene oblike čiji je život usko vezan uz vlažne uvjete u okolišu.

Jedan od najljepših, ali vrlo sramežljivih stanovnika naše šume pjegavi je daždevnjak (*Salamandra salamandra*). Prema narodnoj legendi ukoliko staneš na njega, od straha će proizvesti zvuk od kojeg možeš oglušiti, ali i da su toliko otrovni da možeš oslijepiti od samog pogleda na njega. Naravno, to su samo priče, ali je točno da su otrovni. Crno-žuta obojenost je upozorenje potencijalnim grabežljivcima (upozoravajuća obojenost), a otrovne žlijezde su smještene na zatiljku glave. Ukoliko ga diramo, neće nam naškoditi, ali je poželjno izbjegavati doticaj sa sluznicom oka, nosa, ranama na koži. Najaktivniji je noću nakon kiša kako bi se hranio slasnim gujavicama, puževima i kukcima. Dolaskom toplijih dana javlja se i kreket zelenih žaba (*Pelophylax spp.*). U doba parenja ih možemo vidjeti u ljubavnom zagrljaju, a oplodnja je vanjska - u vodi.

Zašto su nam važni?

Vodozemcima su primarna hrana kukci i ostali beskralješnjaci, uključujući i one koji su prijenosnici ljudskih bolesti, njihove žlijezde u koži proizvode mnogobrojne spojeve koji se koriste za dobivanje lijekova, važni su bioindikatori – ukazuju na kvalitetu okoliša.

Uzroci ugroženosti

Promjena staništa (fragmentacija i degradacija), prometnice koje uzrokuju masovna stradanja za vrijeme migracija, a posebno su opasne kemijske tvari koje završavaju u vodi ljudskim djelovanjem. Budući da im je koža vrlo propusna te kroz nju dišu i uzimaju vodu vrlo su podložni utjecaju raznih zagađivača.

Zaštita

U Hrvatskoj je zabilježeno 20 vrsta i svi su zaštićeni Zakonom o zaštiti prirode.

KUKCI

Kada govorimo o najvažnijim stanovnicima šume, kukci (Insecta) su često zaboravljeni. Najveća su životinjska skupina koju možemo naći gotovo u svim kopnenim i vodenim ekosustavima. Ovisno o načinu prehrane prilagodili su usne organe. Mnogi kornjaši se hrane lišćem, stoga imaju organe za grizenje. Komarci su se specijalizirali za bodenje, leptiri za sisanje slasnog nektara, a pčele za lizanje. One vrhom jezika mogu otopiti šećer, a potom ga usisati. Zajedno sa bumbarima su glavni oprašivači. Jelenku (*Lucanus cervus*) usni aparat služi i za borbu. Njegovi 'jelenji rogovi' su zapravo izrazito razvijene čeljusti koje mu pomažu u osvajanju ženki. **On je jedan od najvećih kukaca Europe i Zakonom je zaštićena vrsta u Republici Hrvatskoj**. Neki kukci se služe **mimikrijom** kao mehanizmom obrane (sposobnost oponašanja drugih organizama i neživih stvari iz prirode radi zaštite), poput nekih vrsta leptira koje pokušavaju nalikovati na vrstu neukusnu grabežljivcima. U toplim ljetnim noćima krijesnice (*Lampyridae*) oživljavaju našu šumu oslobađajući svjetlosne signale kojima privlače partnere, ali i upozoravaju da nisu najukusniji odabir. Kako to čine? Stanice u svjetlećem organu proizvode spoj **luciferin** koji svijetli samo u prisutnosti kisika. Svjetlost koju proizvode je gotovo bez topline. Važno je napomenuti da ih noćna rasvjeta zbunjuje i smeta u ljubavnom zovu. Izvrstan su primjer životinja koje mogu same proizvesti svjetlost, a takva pojava u prirodi se zove **bioluminiscencija**. Mnogo je ostalih prilagodbi koje su kukci usavršili kroz evoluciju, a znanost koja ih proučava je entomologija. Osim što bi mnoge vrste biljaka izumrle bez njih, važni su u održavanju plodnosti tla i biološke ravnoteže u svim ekosustavima.

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Pjegavi daždevnjak (*Salamandra salamandra*)
Foto: Matej Marjanić

Prugasto jedarce (*Iphiclides podalirius*)
Foto: Danja Kolar

Bumbar (rod *Bombus*)
Foto: Danja Kolar

Skakavac (*Omocestus viridulus*)
Foto: Danja Kolar

Žablja jajašca
Foto: Arhiva Parka prirode Papuk

Muha (*Muscidae*)
Foto: Danja Kolar

Pčela (porodica *Apidae*)
Foto: Danja Kolar

Obični jelenak (*Lucanus cervus*)
Foto: Kristina Čmrlec

AMPHIBIANS

The first terrestrial vertebrates have appeared on Earth millions of years ago. It's amphibians (greek – *amphi* and *bios* = double life) whose name implies that they have adapted to life on land and water. Amphibians are classified into three orders: **ANURA** amphibians – (frogs and toads), **CAUDATA** tailed amphibians – (salamanders and newts) and **Gymnophiona** – legless amphibians – caecilians. They are cold-blooded (ectotermic) and they mainly lay their eggs in water. Most kinds of those species go through metamorphosis from larva into terrestrial adult forms whose life is closely linked to humid conditions in its environment.

One of the most beautiful, but very shy inhabitant of our forest is a fire salamander (*Salamandra salamandra*). According to local legend, if you stand on it, he will produce a certain sound from which you can easily become deaf,and also they are so toxic that you could go blind just if you look at it. Of course, these are just stories but it is true that they are poisonous. Black and yellow coloration is a warning to other potential predators (warning coloration) and the toxic glands are located at the back of the head. If we touch it, it will not harm us, but it is very advisable to avoid contact with the eye and nose mucous membranes or even with wounds on the skin. He is most active at night after rain, so he could feed with delicious earthworms, snails and insects. With the arrival of warmer days we can hear the green frogs croaking (*Pelophylax spp*). During the mating season they can be seen in a love embrace so fertilization is external, in water.

Why are they important to us?

Amphibians feed themselves with insects and other invertebrates including those who are transmitters of many human diseases; their glands in the skin produce a varying number of compounds that are used for the medicament production. They are important bioindicators – they indicate the quality of the environment.

Causes of endangerment

Habitat fragmentation and degradation, roads that increase mortality during their migration and dangerous chemical substances that ends up in the water due to human activity. Since their skin is highly permeable to oxygen and water they are very susceptible to the influence of various pollutants.

Protection

It has been recorded 20 species in Croatia which are all protected by the Nature protection Act.

INSECTS

When we are talking about the most important forest inhabitants, insects (Insecta) have often been forgotten. They are the largest animal group that can be found in almost every land and water ecosystems. Their mouthparts are variable and related to their feeding habits. Many beetles are plant feeders so they have organs for chewing. The mosquitoes are specialized for piercing, butterflies for sucking delicious nectar and bees for licking. With the top of their tongue they are able to melt the sugar, and then to suck it up. They are the main pollinators with bumblebees. Stag beetle (*Lucanus cervus*) mouth organ is also used for fighting. It's so- called "deer horns" are actually highly developed jaws that help him to conquer a female. **He is one of the largest insect in Europe and it is protected in our country.** Some insects use **mimicry** as a defence system (the resemblance of one organism to another or inanimate object in nature for protection) e.g. some butterfly species imitate other that are tasteless to predators. During the warm summer nights the fireflies (*Lampyridae*) enliven our forest as they release light signals to attract their partners, but also to warn that they are not tasty choice for eating. How they do that? The cells in their light organ produce a substance (**luciferin**) that glows only in the presence of oxygen. Their light is almost with no heat. It is important to mention that the city light confuses them during their love call. They are an excellent example of an organism that can produce light. This phenomenon in nature is called **bioluminescence**. Many other adaptations they have developed during evolution and the science that studies them is called entomology. In addition to the fact that many plant species would become extinct without them, they are important in maintaining the soil fertility and biological balance in all ecosystems.

STANOVNICI ŠUME - SISAVCI

INHABITANTS OF THE FOREST - MAMMALS

Sisavci (*Mammalia*) pripadaju razredu kralježnjaka (*Vertebrata*) kojima je karakteristično da svoje mlade othranjuju mlijekom koje izlučuju majčine mliječne žlijezde. Bitno obilježje sisavaca je debela i čvrsta koža obrasla različitim tvorevinama (dlake, čekinje, bolje, ljuske, oklop), a zahvaljujući tome imaju sposobnost održavanja stalne tjelesne temperature. Karakteriziraju ih specijalizirani zubi, a imaju i dobro razvijen mozak, te su stoga vrlo prilagodljivi i mogu mijenjati ponašanje u skladu s promjenama životnih uvjeta.

Smatra se da su se prvi sisavci pojavili prije otprilike 220 milijuna godina, tijekom trijasa. Danas razlikujemo oko 5 500 vrsta, a većina vrsta danas živi na kopnu, dok su neke vrste naselile zrak i vodu.

Jedna od podjela sisavce dijeli u 3 razreda: jednootvore, tobolčare i prave sisavce. Jednootvori (čudnovati kljunaš) odlažu jaja i najprimitivniji su oblik razmnožavanja sisavaca. Tobolčari (klokan, koala) kote nerazvijeno mladunče, koje se dalje razvija u tobolcu, dok pravi sisavci na svijet donose razvijeno mladunče.

Prema nekim podjelama razlikujemo čak 26 redova sisavaca: jednootvori, tobolčari (koji obuhvaćaju 7 redova), krezubice, kukcojedi, verirovke, kožuškari, šišmiši ili netopiri, majmuni, zvijeri, kitovi, sirene, parnoprstaši, neparnoprstaši, pećinari, cjevozupci, ljuskavci, glodavci, dvojezupci i slonovske rovke.

Republika Hrvatska je s 90 autohtonih vrsta (od 101 ukupno) jedna od 8 europskih zemalja s najviše vrsta sisavaca.

U šumama Zapadnog Papuka od većih sisavaca obitavaju obični jelen (*Cervus elaphus*), srna (*Capreolus capreolus*), divlja svinja (*Sus scrofa*), lisice (*Vulpes vulpes*) i kune (*Martes sp.*). Od manjih sisavaca tu su: sivi puh (*Glis glis*), vjeverica (*Sciurus vulgaris*), poljska voluharica (*Microtus arvalis*), obični šumski miš (*Apodemus sylvaticus*), poljski miš (*Apodemus agrarius*) i mnoge vrste šišmiša (*Chiroptera*).

Obični jelen (*Cervus elaphus*) smatra se najvećom vrstom jelena, a nazivaju ga još i crveni jelen. Nastanjuje veći dio Europe, Male Azije, dijelove zapadne i središnje Azije, a može se naći i na području između Maroka i Tunisa u sjeverozapadnoj Africi. U Hrvatskoj je najbrojniji na području Slavonije, Baranje, Posavine, te Gorskog Kotara. Tjelesna masa jelena kreće se u rasponu od 125 do 300 kg, a kod košute od 70 do 130 kg. Zbog njegove ljepote nazivamo ga kraljem naših šuma. Hrani se travom, vrijeskom, žirom, gljivama, korom te raznim plodovima. Glavna karakteristika jelena su njegovi rogovi koji kod zrelog mužjaka mogu imati više od 130 cm u promjeru i težiti čak 20 kg. Jelenima rogovi nakon parenja otpadaju, no ponovno izrastu.

Srna (*Capreolus capreolus*) naseljava šire područje Europe i Azije, no nema ih u Irskoj, na Korzici, Siciliji, Sardiniji i u Grčkoj. Staništa srne su pretežno rubni dijelovi šuma uz livade i oranice. Srne su vrlo prilagodljive životinje te se vrlo često mogu vidjeti sasvim blizu naselja. Mužjaka srne nazivamo srndać ili srnjak, ženku srna, a mladunče lane. Po načinu života i ponašanju, srna je pretežno dnevna životinja i najviše se kreće popodne i u večernjim satima. Odrasli primjerci dosežu težinu i do 40 kg. Krzno se prilagođava vremenskim uvjetima te varira od ljetne boje žućkastocrvene, dok zimi krzno dobiva sivosmeđu boju. Tek rođena lanad imaju na krznu pjege. Mužjak ima rogove koje odbacuje svake godine u jesen, a novi se formiraju do ljeta sljedeće godine. Srne se pare u srpnju i kolovozu, a na svijet donose jedno lane, kasnije dva, a rijetko kada više lanadi.

Divlje svinje (*Sus scofa*) su bliski rođaci domaćih svinja koje žive u čoporima, a naseljavaju područje Europe i Azije. Po načinu ishrane spadaju u svejede, a hrane se korijenjem, žirovima, kestenom, kukuruzom, pšenicom, ali i crvima, kukcima, jajima, žabama, miševima. Imaju odlično razvijeno osjetilo njuha, zbog čega se koriste u pronalasku podzemnih gljiva tartufa pa čak i u policijske svrhe. Masa im varira ovisno o godišnjem dobu i može prijeći 300 kg kod mužjaka vepra, dok ženke mogu biti teže od 150 kg. Divlja svinja pretežno je noćna životinja, a danju se najčešće odmara skrivena u grmlju.

Sivi puh (*Glis glis*) živi u bjelogoričnim šumama Europe, a može se pronaći i u parkovima i voćnjacima. Dugačak je do 30 cm, te je pokriven gustim krznom, odozgo sivkaste, a odozdo bjelkaste boje. Gnijezdo radi od korijenja i mahovine u dupljama ili pukotinama stijena. Spava zimski san oko 7 mjeseci te živi u zajednicama. Hrani se voćem, bobicama, košticama, sjemenkama, kukcima, puževima, manjim sisavcima, mladim pticama i jajima, lišćem.

Vjeverica (*Sciurus vulgaris*) živi u šumama, parkovima i vrtovima, a aktivna je danju. U krošnjama gradi nekoliko loptastih gnijezda u kojima skriva hranu i mlade. Ne spava pravi zimski san, već se povremeno budi. Prehranjuje se bobicama, plodovima, gljivama, jajima, sjemenkama i mladim pticama.

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Jelen (*Cervus elaphus*)
Foto: Matej Manjarić

Vjeverica (*Sciurus vulgaris*)
Foto: Dunja Kolar

Lisica (*Vulpes vulpes*)
Foto: Matej Manjarić

Divlja svinja (*Sus scofa*)
Foto: Matej Manjarić

Poljska voluharica (*Microtus arvalis*)
Foto: Željko Kvočec

Sivi puh (*Glis glis*)
Foto: Arhiva Parka Prirode Papuk

Jež (*Erinaceidae*)
Foto: Arhiva Parka Prirode Papuk

Kuna zlatica (*Martes martes*)
Foto: Matej Manjarić

Mammals (*Mammalia*) belong to a class of vertebrates (*Vertebrata*) and its main characteristic is that they feed their young with the milk which is secreted from the mammary glands of the mother. The essential characteristic of mammals is that their skin is very thick and firm, covered with different formations (hair, bristles, spines, armour) and thanks to that they have the ability to maintain constant body temperature. They are also characterized by specialized teeth, well-developed brain; therefore they are very adaptable and they can change their behaviour as a response to change of the life conditions.

It is believed that the first mammals appeared before approximately 220 million years ago, during the Triassic period. Today we distinguish around 5500 species, and most species are living now on mainland, while some species have colonized air and water.

One of the divisions of mammals divides them into three grades: monotremes, marsupials and real mammals. Monotremes (*Platypus*) lay their eggs and they have the most primitive way of mammalian reproduction. Marsupials (kangaroo, koala) give birth to relatively undeveloped young, often residing in a pouch, while the real mammals give birth to a developed young.

By some divisions we distinct as much as 26 orders of mammals: monotremes, marsupials (which include 7 genres), toothless, insectivores, tree shrews, Dermoptera, bats, monkeys, beasts, whales, mermaids, even-toed ungulates, odd-toed ungulates, hyrax, Tubulidentata, pangolin, rodents, lagomorphs and elephant shrews.

With 101 mammal species, 90 of which are autochthonous, Croatia is among 8 European countries with the greatest mammal diversity.

In the forest of the Western Papuk, among the larger mammals lives deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), wild boar (*Sus scrofa*), foxes (*Vulpes vulpes*) and martens (*Martes sp.*). Among the small mammals you can find here: fat dormouse (*Glis glis*), squirrel (*Sciurus vulgaris*), field vole (*Microtus arvalis*), hedgehogs (*Erinaceidae*), common wood mouse (*Apodemus sylvaticus*), field mouse (*Apodemus agrarius*), and many species of bats (*Chiroptera*).

Deer (*Cervus elaphus*) is considered as the largest deer specie, and it is also called as a red deer. It inhabits most of Europe, Minor Asia, some parts of western and central Asia; it also can be found in the area between Morocco and Tunisia in north-western Africa. In Croatia, the largest number of this species inhabits the region of Slavonia, Baranja, Posavina and Gorski Kotar. Deer body weight ranges from 125 up to 300 kg, at doe from 70 up to 130 kg. Because of his beauty we call him the king of our forests. It feeds on grass, heather, acorns, mushrooms, bark and various fruits. The main deer characteristic are his horns, which can have more than 130 cm in diameter and weigh up to 20 kg at some male deer. After mating, deer horns fall off, but they grow later again.

Roe deer (*Capreolus capreolus*) inhabits a wider area of Europe and Asia, but there are none in Ireland, Corsica, Sicily, Sardinia and Greece. Roe deer habitats are predominantly located at the forest edges with meadows and fields. Roe deer are very adaptable animals and they can often be seen close to the village. The male deer is often called roebuck, female deer as a roe deer and their youngling-fawn. According to the way of life and behaviour, roe deer is mainly daily animal, and she is most active during the afternoon and in the evening hours. Adult specimens can reach a weight up to 40 kg. Their fur can adapt to all weather conditions and it varies from summer colour which is yellowish-red, while in winter fur gets a grey-brown colour. New-born fawns spots on their fur. Males have horns, which they discard every year in the fall, and the new ones are formed by the summer in next year. Roe deer mate in July and August; they bring one fawn to life, later two and rarely more than two fawns.

Wild boars (*Sus scofa*) are close relative of domestic pigs that live in packs, and they settle the area of Europe and Asia. By the way of their nutrition they belong to omnivores; they eat roots, acorns, chestnuts, corn, wheat, but also worms, insects, eggs, frogs and mice. They have developed a great sense of smell, which is used to find underground mushrooms like truffles and even they are used for police purposes. Their weight varies according to season and it can exceed 300 kg in case of the male wild boar, while females can be also heavier than 150 kg. Wild boar is mostly nocturnal animal; during the day it is usually resting hidden in the bushes.

Edible dormouse (*Glis glis*) lives in European deciduous forests, and it can be even found in parks and orchards. It is 30 cm long and covered with thick fur; this fur is grey from top and white from bottom. He makes his nest from roots and moss mostly in the deep hollows or rock crevices. His hibernation period lasts for 7 months, and he lives in community. He feeds on fruits, berries, seeds, kernels, insects, snails, small mammals, eggs and young birds, leaves.

Squirell (*Sciurus vulgaris*) lives in forests, parks and gardens; it is active during the day. It builds several nests in the treetops; this is a place for hiding the food and young squirrels. Squirrel don't hibernate during winter, they occasionally wake up. The main foods are: berries, fruits, mushrooms, eggs, seeds and young birds.

Literatura / literature:
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RIMSKI IZVOR (JULIJEV IZVOR)

ROMAN SPRING (JULIJE'S SPRING)

Rimski izvor (Julijev izvor), nalazi se u podnožju nekadašnjeg stambenog dijela rimskog municipija *Aquae Balissae*. Ime Rimski izvor dobio je po rimskim arheološkim nalazima koji su se ovdje pronalazili od sredine 18. stoljeća. Ime Julijev izvor (*Julius Brunnen*) zadobio je mnogo kasnije prema vlastelinu grofu Juliju Janković Daruvarskom (1820. – 1904.).

O rimskim arheološkim nalazima prvi svjedoči I. Csaplovics. Godine 1819. je zapisao:

„Iznad Rimskog bunara nalaze se tri zidana stara groba koja nisu presvođena, ali su ukrašena mozaikom. Prije 30 - 40 godina ovdje su pronađene razne rimske starine i poslane su u Pešту. Tu je bila jedna kruna, zlatne narukvice, jedna zlatna ogrlica s drugim kamenjem i jedna mrtvačka lampa..."

Za ovaj podatak treba zasigurno vezati arheološki nalaz diatretnog pehara, vrlo dragocjenog rimskog obrtničko-umjetničkog artefakta, prema svjedočanstvima pronađenog u nepoznatom grobu 1795. u Daruvaru. U nepoznatim okolnostima iz privatne zbirke u Budimpešti 1804. dospio je u Bečki dvorski muzej (Kunsthistorische Museum Wien). Daruvarski diatretni pehar kod nas je prvi publicirao G. Szabo 1932. i nazvao: „ *Vas diatretum Daruvarense*", odnosno i "najljepšim spomenikom rimskog Daruvara" i "divot kupom." Danas se diatretima smatraju pehari koji su obujmljeni rešetkastom košaricom koja je izbrušena iz dvostrukog staklenog tijela. Zbog teškog načina izrade takvih mrežastih pehara ovi su veoma rijetki. Rimski pravnik Ulpijan (oko 200 po. Kr.) navodi da su diatretni pehari rađeni i iz kamena te da obrtnici - umjetnici poradi rizičnosti izrade nisu htjeli naručiocima odgovarati za štetu ako bi se pehar koji su primili na brušenje prilikom posla slomio. Iz teksta jedne naredbe cara Konstantina iz 357. godine čita se o 35 vrsta raznih obrtnika i umjetnika koji se oslobađaju gradskih nameta da bi što slobodnije u svom umijeću mogli usavršavati sebe i svoj naraštaj, a među njima se navode i *diatretarii*. Dimenzije daruvarskog pehara su: visina 95 mm, promjer ruba 89 mm, visina slova 14 mm, dubina mreže 6-8 mm, debljina stijenke 1-1,5 mm. Pehar ima tri reda oka, a sadrži natpis *FAVENTI*... a mora se upotpuniti na *FAVENTIBVS* što znači "sklonima." Potpuna restitucija natpisa bi glasila *FAVENTIBVS DIIS* ili *FAVENTIBVS AMICIS* (Milostivim bogovima ili Sklonim prijateljima).

Okolnosti nalaza pehara nisu poznati, no sama njegova rijetkost i dragocjenost nam dopušta da ga dovedemo u vezu sa kakvim carskim posjetom upravnom ("jaškom") sjedištu panonskog plemena Iassa (*Municipium Iassorum*). Za daruvarski diatretni pehar postoji mogućnost da se veže uz put cara Konstantina 315.g. iz Sirmijuma u Petovij, kada je posjetio i *Aquae Iassae* (Varaždinske Toplice) i tom prilikom dao obnoviti terme. Da li je car Konstantin posjetio *Aquae Balissae* kao glavno središte naroda Iassa i pripadajući javno-termalno-kultni kompleks te poklonio pehar nekome lokalnom odličniku ne znamo točno, ali se diatretni pehari vežu uz najveći, upravo carski luksuz. Ipak drugi povijesni izvori ukazuju da je *Aquae Balissae* posjetio car Septimije Sever gotovo stotinu godina ranije 202. po. Kr.

O još jednom nalazu svjedoči G. Szabo koji 1932. piše: *„Nedaleko od tog zdenca, našlo se vrlo lijepo profilirano kamenje koje je vjerojatno nalik kamenu nimfeja u Varaždinskim Toplicama."* Prema crtežu G. Szaboa, zbog veličine kamenih blokova (jedan manji kameni blok ima širinu 175 cm), ovdje se vjerovatno nalazila neka monumentalnija građevina čiji su vanjski tragovi potpuno izgubljeni. Fragmenti blokova iskorišteni su za popločenje Rimskog izvora. Danas se većina vrijednih otkrivenih i sačuvanih daruvarskih rimskih arheoloških spomenika nalazi u Arheološkom muzeju u Zagrebu (AMZ).

Uz rimska gradska središta, izvan gradskih zidina, uz cesta koje su vodile izvan grada, prema rimskom običaju nastajale su nekropole – groblja. Rimski Zakon dvanaest tablica (*Leges Duodecim Tabularum*) izričito je navodio da se ukop pokojnika morao izvršiti izvan granica naselja. Taj se zakon poštivao sve do kraja kasne antike iako je bilo izuzetaka ukopa domaće populacije u naseljenim dijelovima grada, što su vjerojatno ostaci barbarskih vjerovanja i štovanja kulta mrtvih, ali i drugih okolnosti, širenja naselja ili smrtnih slučajeva za vrijeme npr. opsada. Na području Daruvara zabilježeni su samo inhumacijski ukopi u sarkofazima i jednostavnim zidanim grobnicama od cigle, ali prema nalazima nadgrobnih spomenika moralo je biti i luksuznih grobnica.

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Scan for more information:

Daruvarski diatretni pehar (Kunsthistorisches Museum Wien).

Motiv Rimskog izvora 1910. i arheoloških nalaza -reklamni plakat Daruvarskih Toplica (lijevčak) 1910.

Razglednica Daruvara s motivom Rimskog (nyne Julijevog izvora) i dvorca gr. obitelji Janković Daruvarskih 1922.

Otkriveni fragmenti kamenih blokova u popločanju Julijevog izvora 1994. Foto: B. Schejbal

Rimski kameni građevinski blokovi – G. Szabo 1932. (AMZ)

Roman spring (Julije's spring) is located at a foothill of former residential part of Roman *municipium Aquae Balissae*. The name Roman spring was given according to fact that many Roman archaeological finds were discovered here since the mid-18th century. Later was this spring named Julije's spring after the name of nobleman, count Julije Janković de Daruvar (1820-1904).

I. Csaplovics was first to witness about the Roman archaeological findings. In 1819 he wrote:

Above the Roman well are located a three old walled tombs that are not vaulted, but they are decorated with mosaics. 30-40 years ago here have been found various Roman antiquities and they were sent to Budapest. Some of these findings were: crown, gold bracelets, one gold necklace with precious stones and one death's lamp.

With this information we must surely bind an archaeological finding of the imperial cage cup, a very precious Roman craft and artistic artefact; according to some testimonies it was found in Daruvar in an unknown tomb during 1795. In the strange circumstances it ended up in a private collection, from Budapest it came in 1804 to the Kunsthistorisches Museum Wien. G. Szabo was first to publish information about imperial cage cup from Daruvar in 1932; he called this cup as a *Vas diatretum Daruvarense*, or "the most beautiful monument of Roman Daruvar" and as a "divot cup". Today as imperial cage cups are considered those cups that are covered with slatted basket which is made from double faceted glass body. Due to severe way of making such meshed cups they are extremely rare. Roman jurist Ulpian (ca. 200 A.D.) stated that the cage cups also were made from stone; the craftsmen-artists didn't want to responsible to the clients for damage because of the risk during its making - the cup that they've received for grinding could be easily broken during that work. From the text written in one command of Emperor Constantine dating from 337 A.D. we can read about 35 different kinds of craftsmen and artists who have been liberated of city taxes so they could freely improve their skills and skills of their descendants; among them are listed also the craftsmen which produced cage cups - *diatretarii*.

The dimensions of Daruvar cup are: 95 mm height, 89 mm edge diameter, 14 mm letter height, 6-8 mm net depth; 1-1, 5 mm net thickness. This imperial cage cup has three eye rows, and it contains the inscription FAVENTI....which has to be complemented as FAVENTIBVS; this means "prone to". A full restitution of label would be read as *FAVENTIBVS DIIS* or *FAVENTIBVS AMICIS* (To merciful goods or To prone friends).

The circumstances that led towards the finding of this cup are unknown, but its rarity and preciousness allows us to bring him in a connection with any imperial visit to administrative ("Iassian") seat of Pannonian tribe Iassi (*Municipium Iassorum*). For Daruvar imperial cage cup there is a possibility that it could be connected with trip of Emperor Constantine in 315 A.D. from Sirmium to Poetovio; when he also visited the *Aquae Iassae* (Varazdin Spa - Croatia) and during that occasion he decided to rebuild the thermal bath complex. We don't know exactly if the Emperor Constantine had visited *Aquae Balissae* as the main centre of Iassi people and public-thermal-cult complex also. Another possibility is that this imperial cage cup was an emperor's gift to someone as a sign of emperor's luxury. Nevertheless, other historical sources indicate that Emperor Septimius Sever visited *Aquae Balissae* almost hundred years earlier, around 202 A.D.

In 1952 G. Szabo testifies about another finding, and then he writes: *not far away from that well, a very nice shaped stones were found which are similar to nymphaeum stone found in Varazdin Spas.* According to a picture drawn by G. Szabo, because of the size of the stone blocks (one small stone block has a width of 175 cm); here was probably located some monumental building whose exterior traces are completely lost. Block fragments were used for paving of the Roman spring. Today, the most of valuable discovered and preserved Roman archeological monuments from Daruvar are keep in the Archaeological Museum of Zagreb (AMZ).

With the Roman city centres, outside the city walls, along with the roads which have led out of the city; according to Roman custom a necropolis – cemeteries have emerged. The Roman Law of Twelve Tablets (*Leges Duodecim Tabularum* or *Duodecim Tabulae*) explicitly stated that the burial of the deceased had to be made outside the settlement boundaries. This law was respected until the end of late Antique, although there were some exceptions regarding the burial of local population in urban city areas, which are probably the remains of some barbaric beliefs and worships of the cult of deads; but exceptions were also made in other circumstances like: expansion of settlement or deaths during the military siege. In Daruvar area were recorded only skeletal burials in sarcophagi and simple brick tombs; but according to the findings of tombstones there could be a few luxurious tombs.

JULIJEV IZVOR – ANALIZA VODE

JULI'S SPRING – WATHER ANALYSIS

NAZIV	MJERNA JEDINICA	MDK**	VRIJEDNOST	ISPRAVNO
FIZIKALNO-KEMIJSKI I KEMIJSKI POKAZATELJI				
Temperatura	°C	25	16	da
Mutnoća	NTU jedinica	4	1,8	da
Boja*	mg/l Pt/Co ska	20	(ph 7,4) <4	da
Miris	bez	bez	bez	da
Okus	bez	bez	bez	da
pH*	pH jedinica	6,5 – 9,5	(t.m. 24,8°C) 7,0	da
Elektrovodljivost*	µS/cm pri 25°C	2500	(t.m. 24,1°C) 863	da
Utrošak $KMnO_4$	mg/l O_2	5	1,3	da
Kloridi*	mg/l Cl	250	32	da
Nitriti*	mg/l NO_2	0,5	<0,14	da
Nitrati*	mg/l NO_3	50	18	da
Amonij*	mg/l NH_4^+	0,5	<0,12	da
MIKROBIOLOŠKI POKAZATELJI				
Escherichia coli	cfu/100ml	0	5	ne
Ukupni koliformi	cfu/100ml	0	15	ne
Enterokoki	cfu/100ml	0	0	da
Broj kolonija 37°C/48h	cfu/ml	20	3	da
Broj kolonija 22°C/72h	cfu/ml	100	30	da
Pseudomonas aeruginosa	cfu/100ml	0	0	da

*akreditirane metode
**maksimalno dozvoljena koncentracija prema zakonskim propisima

Ispitani uzorak „vode za piće" uzorkovan 30. srpnja 2014. godine, **NIJE** sukladan zahtjevima čl. 7. Pravilnika o parametrima sukladnosti i metodama analize vode za ljudsku potrošnju (NN 125/13, 141/13).

DALJNJA KONZUMACIJA NA VLASTITU ODGOVORNOST!

The tested sample „water for drinking" examined on July 30th, 2014 is **NOT** in accordance with the necessary requirements in law article nr. 7 of the Ordinance book on compliance parameters and water analysis methods for human consumption (NN 125/13, 143/13).

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Analizu izvršio Zavod za javno zdravstvo Bjelovarsko-bilogorske županije, Služba za zdravstvenu ekologiju, Odjel za higijensku ispravnost vode
Analitičari: [illegible], mag.ing. techn.aliment., [illegible], mag.ing.univ.spec.

STANOVNICI ŠUME – PTICE

FOREST INHABITANTS – BIRDS

Ptice (*Aves*) su dvonožni toplokrvni kralježnjaci koji polažu jaja sa čvrstom ljuskom, a tijelo im je prekriveno perjem. One su životinje koje mašu najviše privlačile zanimanje ljudi, od davnih vremena pa sve do danas. Ptice su odvajkada bile inspiracija umjetnicima i znanstvenicima, a danas ih proučava posebna grana biologije – **ornitologija**

Promatrajući kostur ptica, mnogi znanstvenici tvrde da su ptice nastale od dinosaura. Ptičje kosti ispunjene su zrakom i zahvaljujući tome, kao i prednjim udovima koji su se razvili u krila, te perju, ptice mogu letjeti.

Mnoge ptičje vrste svake godine kreću na selidbe u udaljene krajeve, a još više ih podužima migracije koje su kraće i manje redovne. Ptice su društvene životinje i komuniciraju vizualnim signalima, glasovnim pozivima i pjevanjem, sudjeluju u društvenom ponašanju što uključuje zajednički lov, pomoć pri odgajanju podmlatka i ponašanje karakteristično za jato.

Zanimljiva je činjenica da ptice jedu mnogo više od bilo kojeg drugog živog bića. Neke jedu cijelo vrijeme dok god su budne, a one koje se hrane kukcima, pojedu dnevno toliko da težina pojedene hrane dva ili tri puta premaši težinu tijela same ptice.

Oko 120 do 130 ptičjih vrsta izumrlo je kao rezultat ljudskog djelovanja od 1600. godine, a prije toga još i više. Danas mnogim vrstama ptica prijeti izumiranje zbog različitih ljudskih aktivnosti pa se ulažu napori kako bi ih se zaštitilo.

Po dosadašnjim saznanjima u Hrvatskoj stalno, povremeno ili rijetko boravi između 350 do 400 vrsta ptica, od čega su 240 do 250 stanarice, a ostatak od tog velikog broja otpada na preletnice i migracijske ptice koje nas posjećuju tijekom migracijskog perioda ili vrlo rijetko, jednom u nekoliko godina, poput plamenca. Zakonom o zaštiti prirode Republike Hrvatske sve su ptice zaštićene vrste.

Šume Zapadnog Papuka nastanjuju mnogobrojne vrste ptica. U Rimskoj park-šumi dosada je zabilježeno oko dvadesetak vrsta, a najzastupljenije vrste su kos, vrabac, čuk, zeba brithavica, crvendać, crna žuna, siva žuna, veliki djetlić, sjenica, gorska pastirica, te bjelovrata i mala muharica.

Kos (*Turdus merula*) je ptica koja spada u porodicu vrapčarki (*Passeriformes*). Rasprostranjen je u cijeloj Europi, a ima ga i u dijelovima Afrike, Azije i Australije. Gnijezdi se u šumama i na livadama, a sve češće ga se može naći u gradskim vrtovima i parkovima. Gnijezdo gradi na tlu, u grmlju ili na drveću. Mužjak ima crno perje i žuti kljun, dok je ženka smeđe boje s bijelim točkicama na trbuhu i kljunom crne boje. Kos je svežder koji se hrani kukcima, glistama, sjemenkama, bobicama i voćem, a prirodni neprijatelji su mu mačke i lisice. Ova ptica prekrasnog zvonkog pjeva može živjeti do 5 godina. Kos je djelomična ptica selica. Ptice iz priobalja i gradova se ne sele, dok druge odlaze uglavnom do Sredozemlja. Zimi u Hrvatsku dolaze ptice iz sjeverne Europe.

Zeba brithavica (*Fringilla coelebs*) je ptica pjevica iz porodice vrapčarki (*Passeriformes*). Živi gotovo u cijeloj Europi, Aziji i sjeverozapadu Afrike. Gnijezdi se većinom u listopadnim šumama, u polju, drvoredima i vrtovima. Gnijezdo gradi u grmlju ili na drvetu. Mužjak je smeđih boja sa plavo – sivom kapom, crnim čelom, a donji dio tijela mu je crvenkast. Ženka je zagasitijih boja sa svjetlijim trbuhom. Zeba je vedra, živahna i spretna, ali šestoka i svadljiva ptica.

Sivi čuk (*Athene noctua*) pripada u porodicu sova (*Strigidae*) a nastanjuje područje Europe i Sjeverne Afrike. Sivkastosmeđe je boje sa svjetlijim šarom i nogama. Hrani se miševima i voluharicama, kukcima, manjim pticama, žabama i gušterima. Aktivan je noću, a može živjeti 10 godina. Nije ptica selica.

Crvendać (*Erithacus rubecula*) pripada porodici vrapčarki (*Passeriformes*). Naseljava gotovo cijelu Europu i zemlje oko Sredozemnog mora, izuzev Islanda, južnih dijelova Španjolske i Francuske i sjevernih skandinavskih zemalja. Gnijezdi se na tlu ili na truloj panjevima i žbunju blizu površine zemlje. Gnijezdo gradi od suhih stabljika i mahovine. Odrasli crvendać je karakteristično narančast po čitavim prsima i preko čela. Obitava obično u vrtovima, šumama, parkovima i živicama te u bjelogoričnim i miješanim šumama. Hrani se kukcima, gujavicama, puževima, ali i sočnim plodovima. Crvendać nije prava selica, nego je više skitnica; sели se od viših predjela u podnožje planina i nizine.

Veliki djetlić (*Dendrocopos major*) nastanjuje cijelu Europu, Sibir do Kamčatke i Japan, te je najraširenija europska ptica. Nastanjuje šumarke i duboke šume, no možemo ga naći u poljima i vrtovima. Leđa su mu crna, ima krupnu bijelu plohu na krilima, sjajno crveni podrepak, a mužjak ima crvenu mrlju na tjemenu. Obitava u svim vrstama šuma, starim voćnjacima, vrtovima i parkovima. Hrana mu je različita, izraženiji je biljojed od ostalih djetlića, ali se velikim dijelom hrani kukcima koji žive pod korom drveća. Zimi se velikim dijelom hrani sjemenkama iz češera smreka i borova. Gnijezdi se u dupljama drveća koju sam izdubi. Veliki djetlić je ptica stanarica.

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Zeba brithavica (*Fringilla coelebs*)
Foto: Darija Kolar


Mali ušni čuk (*Athene noctua*)
Foto: Matej Marjanić


Crvendać (*Erithacus rubecula*)
Foto: Darija Kolar


Veliki djetlić (*Dendrocopos major*)
Foto: Darija Kolar


Kos (*Turdus merula*)
Foto: Matej Marjanić


Velika sjenica (*Parus major*)
Foto: Matej Marjanić


Bjelovrata muharica (*Ficedula albicollis*)
Foto: Željko Kuna

Birds (*Aves*) are two legged warm-blooded vertebrates that lay eggs with a hard shell, and their body is covered with feathers. They are animals which attract the most people interest, from ancient times until today. Birds have always been an inspiration to artists and scientists, and today they are examined by special branch of biology – ornithology.

If we look at the bird skeleton, many scientists will say that the birds originate from dinosaurs. The bird bones are filled with air and thanks to that, and as well as their limbs which they have developed into wings along with feather, they can fly.

Every year many bird species migrate to distant regions and even bigger number of them are taking migrations which last for very short time, and they are less regular. The birds are very social animals and they communicate with visual signals, voice calling and singing; they participate in social behaviour which includes hunting together, help with rising the offspring and they all behave the same way when they are in flock.

It is interesting fact that birds eat more than any other living being. Some of them eat all the time as long as they are awake, and those who feed on insects they can daily eat so much that the eaten food weights two or three times more than birds body.

Around 120 till 130 bird species have become extinct as a result of human activities since the year 1600, and before that even more. Today, many bird species are threatened with extinction because of human activities so the efforts for their protection are undertaken.

According to current knowledge, between 350 till 400 birds species stay in Croatia permanently, occasionally or rarely; 240 till 250 birds are residential birds, and the rest of this large number are migratory birds that visit us during the migration period or sometimes very rarely, once in every few year, like a flamingo. The Croatian Nature protection law considers all birds as a protected species. Western Papuk forests are inhabited by many bird species. In the Roman park-forest until now it has been recorded for about twenty species, and the most represented species among them are: blackbird, sparrow, owl, common chaffinch, European robin, black woodpecker, grey-headed woodpecker, great spotted woodpecker, small-breasted flycatcher and grey wagtail.

Common blackbird (*Turdus merula*) is a bird that belongs to the passerines family (*Passeriformes*). It is widespread throughout Europe, in some parts of Africa, Asia and Australia. It nests in forests and meadows; but nowadays it can be even more often found in urban gardens and parks. It builds its nest on ground, in the bushes or in a trees. The male specimen has black feather and yellow beak, while the female specimen is brown with white spots on its belly and black beak. Blackbird is omnivore that eats insects, worms, seeds, berries and fruits; its natural enemies are cats and foxes. This beautiful bird with nice singing can live up to 5 years. Blackbird is a partial migratory bird. The birds from coastal cities don't migrate, while others migrate mostly to the Mediterranean area. In winter, the birds from northern Europe are migrating to Croatia.

Common chaffinch (*Fringilla coelebs*) is a songbird that belongs to the passerines family (*Passeriformes*). This bird lives in entire Europe, Asia and north-western Africa. It nests mainly in deciduous forests, in fields, alleys and gardens. The nest is often built in bushes or trees. The male specimen is brown coloured with blue-grey cap, black forehead, and the lower part of his body is reddish. The female specimen is dark coloured with bright belly. Common chaffinch is very cheerful, lively and agile bird; but it can be also fierce and feisty.

Little Owl (*Athene noctua*) belongs to the owl family (*Strigidae*) and inhabits the area in Europe and North Africa. It is grey coloured bird with brighter face and legs. It feeds on mice and voles, insects, smaller birds, frogs and lizards. Little Owl is active during the night, and it can live for 10 years. It is not a migratory bird.

European robin (*Erithacus rubecula*) belongs to the passerines family (*Passeriformes*). It inhabits almost the entire area of Europe and countries around Mediterranean Sea (except Island), southern parts of Spain and France and northern Scandinavian countries. It nests on the ground or on rotten stumps and bushes near the surface of the earth. Its nest is made of dried stalks and moss. Adult European robin is characterized by an orange colour on entire chests and across its forehead. Normally it resides in the gardens, forests, parks and hedgerows or in the deciduous and combined forests. It feeds on insects, earthworms, snails, and tasteful fruits. European robin is not real migrate bird; it is more rogue bird, which moves from higher regions into mountain foothills and plains.

Great spotted woodpecker (*Dendrocopos major*) inhabits area of whole Europe, Siberia to Kamchatka and Japan; it is the most common European bird. Their habitats are woods and deep forests, but we can found them also in fields and gardens. Its back are black, with big white surface on wings, bright red tail; the male specimen has a red stain on his scalp. Great spotted woodpecker inhabits the area of all forest types, old orchards, gardens and parks. It eats different kinds of food; mostly because he eats more plants than the other woodpeckers, but mostly he feeds on insects that live under the tree bark. During winter, he feeds on seeds from pine and spruce cones. It nests in hollow trees which he carves out. Great spotted woodpecker is a resident bird.

Literatura / literature:
Hrvatske šume

DARUVARSKO VINOGORJE

DARUVAR'S VINEYARDS

Daruvarsko vinogorje jedno je od 10 čuvenih vinogorja bogate vinorodne podregije Slavonija. Vinogradi daruvarskog vinogorja nalaze se na pristrancima i podbrežjima srednje slavonskog gorja i Bilogore. To su brežuljkasti i nisko brdski tereni zapadnog Papuka na 180 -230 m nadmorske visine. Ekspozicije su uglavnom južne s relativno povoljnom inklinacijom. Prevladavaju tla kojima su u sastavu pleistocenski prapori, pijesci i različite ilovine, dok niži dijelovi pokrivaju šljunci i aluvijalne naplavine glinastog sastava.

Danas se na ovom području uzgajaju brojne sorte vinove loze za proizvodnju visokokvalitetnih vina. Prevladava sorta Graševina, sorta koja je postala sinonim za slavonsko čuveno vino. Uz nju su zastupljene i sorte Chardonnay, Pinot bijeli, Pinot sivi, Rajnski rizling, Sauvignon, Traminac, Pinot crni, Frankovka, Portugizac, Cabernet sauvignon te nešto stolnih sorti za konzumaciju u svježem stanju.

Vinogradarstvo kao zasebna grana gospodarstva na daruvarskom području dobiva na značaju u 3. st. nakon Krista. O tome nam svjedoče materijalni ostaci, od kojih je najpoznatiji sarkofag oslikan motivom grožđa i Diatretni stakleni pehar za vino – carski mrežasti pehar, imenom: „Vas diatretum Daruvarense", koji je pronađen 1789. godine u Rimskoj šumi, a danas se čuva u bečkom Kunsthistorisches Museum-u i postao je zaštitnim simbolom daruvarskih vinara.

Plemićka obitelj Janković, kupovinom zemljišta oko Daruvara, Sirača i Pakraca, poticala je naseljavanje stanovništva kao i uzgoj vinove loze. Već tada, u sklopu svoga dvorca, obitelj posjeduje vinski podrum površine 500m² koji je i danas jedan od nekoliko najljepših podruma iz tog vremena u Hrvatskoj te je vrlo često mjesto okupljanja posjetitelja i ljubitelja vinske kapljice.

Daruvarska vina osvajaju važna priznanja za svoju kvalitetu o čemu svjedoče Diplome Glavnog saveza vinogradara i voćara Kraljevine Jugoslavije iz 1933. godine za vina rizling iz berbe 1931. i 1932. godine, potom Diploma Saveza hrvatskih vinogradara i voćara iz 1938. godine

Novija povijest vinogradarstva počinje 1983. godine kada Badel Vinoprodukt preuzima vinograde na daruvarskom području i uspostavlja kooperativne odnose sa tadašnjim proizvođačima grožđa. Ubrzo počinje i širenje Badelovih vinograda na lokalitetu Đulovac.

Danas Badel 1862 d.d. posjeduje 140 hektara vinograda smještenih na dva lokaliteta: u Donjem Daruvaru i Đulovcu. Ostali vinogradi privatno su vlasništvo mnogih vinogradarskih obitelji. Isto tako došlo je do osnivanja nekoliko privatnih podruma koji se bave uz vinogradarsku i vinarskom proizvodnjom: Podrum Lotada, Vina Turić, OPG Kovačević, OPG Halupa, OPG Voborski, OPG Anula Štern Konjovoda, podrum obitelji Čop...

Daruvarska vinska cesta

Porastom vinske kulture pojavila se potreba za jačom promidžbom vinske ponude te obogaćivanja već postojeće turističke ponude Daruvara. Daruvarska vinska cesta utemeljena je 2008. godine u cilju udruživanja zainteresiranih vinarskih kuća sa područja Daruvara, objedinjavanja vinske ponude te zajedničke promocije.

Daruvarsku vinsku cestu čini sedam različitih punktova, a slobodno možemo reći da započinje u samom centru grada. Svojim oblikom i svrhom spaja najudaljenije dijelove grada, počevši od daruvarskih vinograda gdje se nalazi Vinarija Lotada bračnog para Lneniček koja je ljubav prema lozi i vinu, znanja stečena kroz školovanje na Agronomskom fakultetu pretočila u svoju obiteljsku tvrtku. Potom za ljubitelje šetnje, lijepih krajolika tu je OPG Voborski koji se nalazi se na području Vrbovca i raspolaže kušaonicom vina u staroj drvenoj kući, a sa stare Vezmarove kule sagrađene1960. godine usred vinograda pruža se pogled na cijeli grad Daruvar i okolicu.. Na drugoj strani grada Daruvarska vinska cesta povezuje etno imanje OPG Matej Kovačević uređeno u stilu slavonskih vinara gdje se pružaju usluge seoskog turizma,vrše prikazi običaja i starih alata. U središnjem dijelu vinske ceste je podrum dvorca grofa Jankovića-punkt Badel 1862. U atraktivnim višestoljetnim prostorima podruma u dvorcu grofa Jankovića, Badel 1862 i Mini sirana Biogal svojim kvalitetnim i bogatim asortimanom proizvoda upotpunjuju priču o daruvarskom vinu i siru i zajedno nude jedinstvenu turističku ponudu sljubljivanja vina i sira pod nazivom Balada o vinu, siru i Daruvaru.

Naravno, za ljubitelje domaćih i čeških specijaliteta tu je i Kavana Queen – restoran gdje možete uz izvrsna jela uživati u daruvarskim vinima.

Živopisni vinogradi, dobri domaćini te prije svega birana i vina vrijedna pažnje postali su važan dio turističke ponude grada te vinski podrumi mjesta ugodnih druženja, odmora, opuštanja.

Danas, nakon bogate vinske povijesti ovog vinogorja, vina daruvarskog kraja više nisu anonimna, nagrađivana su unutar RH i van nje na brojnim međunarodnim izložbama. Vinarima ne preostaje ništa drugo nego i dalje svojim trudom i marom unaprjeđivati kvalitetu svojih vina i time iznova potvrditi izreku Benjamina Franklina:

„Vino je stalan dokaz da nas Bog voli i da nas voli vidjeti sretne"

Autor teksta / text author:
Suzana Jurišić, dipl. ing. agronomije

Skeniraj za više informacija:
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Foto: Damir Bubarić


Foto: Darko Marić


Foto: Arhiva Grada Daruvara


Foto: Marina Dimitrović

Daruvar vineyards are located at the foot slopes and in the middle of Slavonian and Bilogora foothills. These are very rolling hills and low mountain terrains of Western Papuk, located at 180-230 m above sea level. The exposures are mainly on southern side with more favourable inclination. Prevailing soils are composed with Pleistocene loess, sands and various loam soil, while the lower parts are covered with gravel and alluvial composited flooded clay.

Today, in this area grow many wine sorts that are used for production of high quality wines. The predominant wine sort is graševina-Riesling- which has become synonymous for famous Slavonian wine. Along with this wine sort, the other represented sorts are Chardonnay, Pinot Blanc, Pinot Gris, Riesling, Sauvignon Blanc, Traminac, Pinot Noir, Blue Franconian, Portugizac, Cabernet Sauvignon; and some table top varieties for consumption in a fresh condition.

Winegrowing as a separate economy branch gained its importance in Daruvar area during the 3rd century A.D. Today about this fact testify remainded materials, and the most famous is sarcophagus painted with grapes and Roman diatretre wine glass- imperial mesh cup called "Vas diatretum Daruvarense", which was found in 1789 in the Roman forest, and today it is kept in Vienna Kunsthistorisches Museum; it has become the symbol of winemakers in Daruvar.

The noble family Janković encouraged the settling of this area as well as the cultivation of vines. Even then, as a part of his castle, the family owned a wine cellar with area of 500 m² which is still one of the few beautiful cellars of that time in Croatia. It is very often a gathering place for visitors and fans of good wine drop.

Even then Daruvar wines have won important awards for its quality which was evidenced according to diplomas given by General Association of wine growers and fruit growers from Yugoslavia dating from 1933 for Riesling wines which were made in 1931 and 1932; then the diploma of Croatian wine and fruit growers Alliance from 1938.

The recent history of viticulture began in 1983 when company Badel Vinoprodukt overtook vineyards in Daruvar area and established the cooperative relations with local grape producers. Soon also began the expansion of Badel vineyards on the Đulovac locality.

Today company Badel 1862 Inc. owns 140 hectares of vineyards located on two sites in Donji Daruvar and Đulovac. Other vineyards are in private property of many wine-growing families. Also, some of private wine cellars were founded which are dealing with viticulture and wine production: Lotada Basement, Turić Wines, OPG Kovačević, OPG Halupa, OPG Voborski and OPG Anula Štern Konjovoda, family basement Čop.

Daruvar Wine Route

As the wine culture increased, suddenly a need for the stronger promotion of the wine offer occurred and as well a need of current Daruvar tourist offer enrichment emerged. Daruvar Wine Route was founded in 2008, with the purpose to associate the interested wine production houses in the Daruvar area, to unite the wine offer and joined promotion.

Daruvar Wine Route is consisted from seven different checkpoints, and we can easily say that it starts in the city centre. With its shape and purpose it connects the remote city parts, starting from Daruvar Vineyard where the Winery Lotada is located; it is owned by married couple Lneniček which have focused their love to viticulture and wine, the knowledge acquired through education at the Faculty of Agriculture into their family business. After that, for those who love to hike and beautiful scenery there is a family agricultural estate Voborski; located in the area of Vrbovac and it offers wine tasting in an old wooden house. From the old Vezmar tower built in 1960 in the middle of vineyard, stretches the view on the entire city of Daruvar and its surroundings. On the other side of the city, Daruvar Wine Route conect ethno family agricultural estate of Matej Kovačević; decorated in the style of Slavonian winemakers where you can enjoy in rural tourism services, presentations of old tools and customs. In the central part of the wine route is the castle basement of Count Janković-this is the checkpoint for Badel 1862. The centuries old attractive cellar areas in the basement of Count Janković castle, Badel 1862 and Mini dairy Biogal with its quality and extensive range of products- they complement the story about Daruvar wine and cheese called The Ballad of wine, cheese and Daruvar.

Of course, for those who love domestic and Czech specialities there is also Kavana Queen- a restaurant where you can enjoy in delicious meals together with Daruvar wines.

Picturesque vineyards, good hosts and after all, the primarily selected wines worth of attention have become an important part of the city tourism offer, along with the wine cellars for pleasant meeting, rest and relaxation.

Today, after the rich wine history of these vineyards, wines from Daruvar region are no longer anonymous; they have been awarded within the country and abroad on numerous international exhibitions. For winemakers there is nothing to left but to continue their effort and care to improve the quality of their wines; in that way they can again confirm the saying by Benjamin Franklin:

"Wine is a constant proof that God loves us and that he loves to see us happy"

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ŽIDOVSKO GROBLJE

JEWISH CEMETERY

Na istočnom dijelu Rimske park-šume, uz Vinogradsku cestu, još je 1860. godine ustrojeno Židovsko groblje s pravom vlasništva Izraelitske općine Daruvar. Groblje je površine 1670 m² i skladno je uklopljeno u šumski prostor, s prilazima sa sjeverne i istočne strane. Na istočnoj strani je dio neiskorištenoga zemljišta darovnicom 1972., u površini od 275 m², prenešen u vlasništvo Daruvarčanina Zlatka Bienenfelda. Time se samo groblje svelo na 1395 m². Rješenjem regionalnog Zavoda za zaštitu spomenika kulture, u Osijeku, 24. siječnja 1973. godine, ovo je groblje ubilježeno kao spomenik kulture žrtava fašističkog terora.

Groblje je 70 metara dugačko, a 20 široko. Sačinjeno je od 160 nadgrobnih spomenika, od kojih skoro sto imaju ostatke, ili cjelovite natpise na hebrejskome pismu, te oznake šesterokrake zvijezde, ili tužne vrbe.

Grobišta su skupno ili pojedinačno obrojana prema kriterijima nastajanja, odnosno čitljivosti, ili hijerarhijskoj istaknutnosti kojega člana židovske zajednice, što je vidljivo u priloženom nacrtu. Poteškoće glede pobližeg utvrđivanja samih skupina grobišta, odnosno spomenika, proizlaze iz činjenice da su noviji spomenici iz razdoblja između dva, kao i nakon II. svjetskog rata, ugrađivani unutar starijih, što je i razumljivo, jer se pokojnike ukapalo uz bliže pretke ili rodbinu. Jedan dio spomenika svjedoči natpisima na njemačkom jeziku, a drugi pak na njemačkom i hrvatskom.

Najstariji su spomenici, zacijelo iz prve polovice 19. stoljeća, bili prenešeni iz Ivanovog Polja („Staklane"), a na njima je prepoznatljivo tek pokoje slovo, ili brojka. Među očuvanima su i spomenici obitelji Pollak koja je, kao veleposjednička i trgovačka, bila do Drugog svjetskog rata među najistaknutijima u Daruvaru. Očuvan je i spomenik uglednoga daruvarskog rabina Grossa pa i spomenici u novijem zapadnom dijelu, gdje su grobišta obitelji Stern.

U središtu zapadnoga dijela groblja nalazi se spomenik žrtvama fašizma s tekstom: „Na spomen daruvarskim Jevrejima koji su poginuli u logorima 1941. – 1945. godine". Na njemu su 53 imena, a uz svako od njih i djeca, ili supruga te 92 Židova izbjeglice koji su se bili zatekli u Daruvaru, dospjevši ovdje iz Austrije i Mađarske. Ukupno oko 250 žrtava.

Groblje još od svoje mladosti, od 1970., održava sadašnji predsjednik židovske općine – gospodin Zlatko Bienenfeld sa sinovima. Prije njega je to činio Marko Fleischaker, a Bienenfeld mu je pomagao. Uz uređenje staza, ograde i prolaza, on djelomice uređuje i grobišta u spomenike, te tako groblje ostavlja dojam očuvane cjeline spomeničke kulture.

Ono je spomenička baština ne samo grada Daruvara, nego i cijele zemlje i pripada spomenicima sakralne i profane kulture, kako ovaj prostor i želimo označiti. Uklapa se ne samo u prirodni, nego i u povijesni i kulturni ambijent, jer je uloga Židova u gospodarskim djelatnostima grada Daruvara, a i drugih gradova u Hrvatskoj bila nedvojbeno značajna, što se može primijetiti po arhitekturi, a na ovome groblju i prema pismu, te sinagogi u gradu. Sve je to dalo svoj doprinos u razvoju našeg Daruvara, te smo ono što je ostalo dužni štovati kao dio hrvatske baštine.

Neka vas ne začude kamenčići na nadgrobnim spomenicima. Oni su znakovi dubokog i iskrenog poštivanja pokojnika kojima se, u duhu židovske vjere, odaje počast činom ostavljanja kamenčića na grobu. Ne oklijevajte, nego i sami ostavite kamenčić na grobu vaših rođaka, prijatelja ili čak i nepoznate osobe, jer time dokazujete blagost vlastite duše i veličinu srca.

David Frankfutrer

Svjetski poznata ličnost, David Frankfurter, rođen 1909. godine u Daruvaru, bio je sin daruvarskog rabina. Studirao je u Švicarskoj i 1936. ustrijelio nacističkog časnika i time se upisao u povijest, jer se njegov čin smatra jednim od prvih pokazatelja otpora prema teroru nacizma. Danas njegovo ime u svijetu nose trgovi, škole, ulice i parkovi.

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Židovsko groblje
Foto: Predrag Uskoković


Deset Božjih zapovijedi


Davidova zvijezda


Menora


Bivša sinagoga u Daruvaru, danas ... (desno) i rodna kuća Davida Frankfurtera (lijevo), ulica S. Radića 28.
Foto: Damir Bukarić


David Frankfurter

In the eastern part of Roman forest, along with Vinogradska road; in 1860 was founded a Jewish cemetery with the ownership rights by Israelite Municipality Daruvar. The cemetery has an area of 1 670 m² and it is harmoniously embedded in a forest area, with access from the northern and eastern side. On the eastern side, there is a part of the unused land; with a gift agreement in 1972 the area of 275 m² was transferred into the citizen ownership of Zlatko Bienenfeld. With that, the cemetery area was reduced to 1 395 m². According to the decision of the regional Institute for Protection of cultural monuments from Osijek, on 24th January 1973, this cemetery was marked as a cultural monument of the fascist terror victims.

The cemetery is 70 meters long and 20 meters wide. It is made of 160 gravestones, nearly hundreds of them have partial or complete inscriptions in Hebrew script, and they have mark of six-pointed star or weeping willow.

The graves are numbered collectively or individually based upon the formation criteria, or readability, or even according to the hierarchical importance of certain member in Jewish community; as you can see in the included drawing. The difficulties regardin to the precise determination of older graves or monuments group; arising from the fact that the newer gravestones date from period between two world wars, and after the World War II the gravestones were built within the older ones, which is understandable, since the deceased were buried close to their ancestors or relatives. One part of the gravestones has an inscription in German language, while others have inscriptions in German and Croatian language.

The oldest gravestones certainly date from first half of the 19th century, they were transferred here from Ivanovo Polje ("The Glass Factory), and only thing that is recognizable on these gravestones is just an occasional letter or number. Among the preserved gravestones are also those which belong to family Pollak, they were a landowner and merchant family; they were among the most prominent families in Daruvar until World War II. The gravestone of renowned Rabbi from Daruvar, Rabbi Gross is also preserved; along with the gravestones in the newer western part, where the graves of Stern family are located.

In the centre of the western cemetery part there is a monument dedicated to the victims of fascism with the text: "In memory of Jews from Daruvar which have died in concentration camps 1941-1945". It contains 53 names, with children names or husband names, along with the names of 92 Jewish refugees who had been found in Daruvar, as they came here from Austria or Hungary; quite about 250 victims.

The cemetery is maintained by current President of the Jewish community mr. Zlatko Bienenfeld and his sons, he do that since he was young boy, from 1970. Before him, this was done by Marko Fleischaker, with the help from Bienenfeld. With the decoration of paths, fences and gates, he partly cleaned gravestones, and turned them into graveyard, so the cemetery makes an impression as a preserved monumental unit.

It is not only the cultural heritage of Daruvar city, but also the entire country, and it belongs to religious and secular culture monuments; how we want to highlight this area. The cemetery fits in not only the natural, but also in the historical and cultural environment; because the role of Jews among the economic activities in the city, as well as like in other Croatian cities, were undoubtedly significant. This can be seen by city architecture, and on this cemetery according to letters, as well as in city synagogue. All of this contributed to the development of our Daruvar, and we are obliged to respect that what has left as a part of Croatian heritage.

Don't be astonished with the little stones on grave monuments. They are signs of deep and sincere respect for the deceased; in the spirit of the Jewish faith this is a way to pay a tribute to them with the act of leaving small stones on the grave. Don't hesitate; you can also leave a small stone on the grave of your relatives, friends, or even strangers because in that way you prove the gentleness and the size of your own heart and soul.

David Frankfurter

World's famous person – David Frankfurter, who was the son of a Daruvar rabbi, was born in 1909 also in Daruvar. He studied in Switzerland, and in 1936 he shot a Nazi officer. His act was remembered in history as one of the first indicators of resistance shown towards the Nazi terror. Today, in a loving memory, after his name were named many schools, squares, streets and parks across the whole world.

DOBRI ZELENI DUH JANKOVIĆA DARUVARSKIH

THE GOOD GREEN GHOST OF THE FAMILY JANKOVIĆ DE DARUVAR

Grad Daruvar s brojnim priznanjima kao najljepši zeleni grad, svoju prepoznatljivost uvelike temelji na svojim parkovnim i šumskim površinama. Ovo obilježje daruvarskog identiteta ponajviše možemo zahvaliti aristokratskoj obitelji Jankovića Daruvarskih.

To saznajemo iz više povijesnih izvora, jedan od njih je stručno-znanstveni putopis M. Pillera i L. Mitterpachera iz 1783. godine Ovaj zanimljivi putopis pun je stručnih detalja koji nam otkrivaju da su našim šumama žnjeli risovi, medvjedi i vukovi. Šume su od iznimnog značaja za ovaj kraj. U vrijeme grofa Antuna Jankovića (1729. – 1789.), kada drugi putopisac, F.W. Taube opisuje Slavoniju 1777. njome dominiraju mračne i ogromne šume. Ipak, one su osam mjeseci u godini svježe i zelene, ne venu, a zemlja se ukrašava neprestano novim cvijećem. Šume i dubrave sastoje se od hrasta, bukve, breze, topole, johe, turskog lješnjaka i drugih manje zastupljenih vrsta. Najveću korist su donosile hrastove šume, što zbog debla, što zbog žirenja koje su vlastelini naplaćivali seljacima. Fauna je raznolika: lisice, kune, vukovi, pokoji ris i medvjedi od grabežljivaca. Od ostalih životinja mogu se naći vidre, jazavci i mnogo pernate divljači.

Taube piše da ništa nije prijatnije od pogleda kroz prozore Antunove palače. Taj pogled obuhvaća park, zelene poljane, livade, šljivike, niske šume obrasle vinovom lozom, rasuta sela i salaše, stoku koja pase, potoke koji zmijoliko teku i na kraju pogled zatvaraju visoki brjegovi. Grof

Antun Janković prepoznao je i ustanovio glavne značajke daruvarskog identiteta: kupališno-lječilišnu dimenziju, idealne uvjete za razvoj perivoja i drvno gospodarstvo, multikulturalnost te funkcionalnu i estetsku arhitekturu. Njegov nasljednik i brat Ivan Janković (1731. – 1798) omogućio je privatnu inicijativu te se na njegovim posjedima stvaru jedna od kvalitetnijih staklana za čiji su rad bile neophodne šume daruvarskog kraja. Njegov sin Izidor Janković (1788. – 1857.) potiče naseljavanje i krčenje šuma, a usmjerava se na privredno jačanje gospodarstva. Grof Julije Janković (1820. – 1904.), istaknut političar i dobrotvor te promicatelj kulture, pokušava iskorištavanjem šumskih površina popraviti financijsko stanje, ali i kolonizirati puste krajeve. Međutim, njegova najveća zasluga, koju je Daruvar i prepoznao, odnosi se na njegovanje i očuvanje parkovnih i šumskih površina u samoj jezgri naselja. Julijeva ime nosi i najveći daruvarski perivoj, u kojem jedna od starih grabovih aleja vodi prema Julijevom izvoru (Rimskom izvoru), koji se nalazi u Rimskoj šumi.

Ova zelena „pluća" grada Daruvara zovu se tako zbog brojnih rimskih ostataka nađenih ispod višestoljetnog lišća (rimski bedem, antički grobovi i razni artefakti). U njezinom gornjem dijelu nalazi se i Židovsko groblje nastalo u Julijevo vrijeme.

Najveći perivoj s pravom nosi Julijevo ime jer je u njegovo vrijeme zapremao 10 jutara i 1087 četvornih hvati. Taj perivoj s Rimskom šumom, koje dijele cesta i pruga, pravi je ekološki biser koji privlači posjetitelje te ispunjava njegove svakodnevne posjetitelje. To zelenilo daje dojam kao da smo zalutali u Arkadiju, mitsku zemlju u središtu Peloponeza, arhetipsko mjesto u brdima, koje je plodno i okruženo šumom, a dom je boga Pana i nimfi. Zimi se možemo ogrijati vodom Antunovog izvora u Julijevom perivoju, a ljeti rashladiti svježinom Julijabruma.

Zbog krčenja šuma prilikom osnivanja novih naselja i kod iskorištavanja drvne građe smanjio se broj životinjskih vrsta, nestali su risovi, medvjedi i vukovi, tako da su se izgubila mnoga arkadijska svojstva ovog kraja. Ipak, i danas su sačuvane velike šumske površine, što predstavlja značajan ekološki i privredni resurs. To nam pokazuje da Silvan čija je kultna prisutnost otkrivena u perivoju 1968. i dalje nasmiješen grli nimfe u obliku izvora ovog kraja.

Posljednje počivalište Julija i Ljudevita Jankovića na groblju u Aachenkirchu u Austriji, kerasi pozlaćena grančica iz slavonskih šuma što pokazuje vezanost i zahvalnost Jankovića prema drveću i šumama ovog kraja.

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With its numerous awards as the most beautiful green city, the city of Daruvar is recognized largely because of the parks and forest areas that are located within the city. This feature of the Daruvar identity is mainly recognizable due to the aristocratic family Janković de Daruvar.

We can learn this from several historical sources; one of them is an expert and scientific travelogue made by M. Pšer and Lj. Mitterpacher. This interested travelogue is full with technical and expert details; which reveal that our forests were inhabited with lynxes, bears and wolves. Forests had a great importance for this area, in the time of Antun Janković (1729 – 1789) - when another traveller F.W. Taube described Slavonia, dark and vast forests dominated in the area. However, they are fresh and green for eight months in a year, they don't vein, and the ground is continuously decorated with new flowers. Forests and avenues are consisted of oak, beech, birch, poplar, alder, Turkish hazelnut and other less abundant species. The biggest benefit can be brought from oak forests; in one part because of the log, and in the other part because the acorn collecting was charged to the farmers by noblemen. The fauna is very diverse: a fox, marten, and few lynxes and from predators- bears. Among the other animals that can be found here there are: otters, badgers and lot of feathered game.

Taube writes that nothing is more comfortable than a look through the windows of the Anton's palace. This view includes a park, green fields, meadows, plum orchards, low forests that are overgrown with grape vines, scattered villages and farms, grazing cattle, streams that flow in serpentines and in the end the view is closed with high hills. Antun has recognized and he established the main features of the city Daruvar identity: the spa and swimming dimension, the ideal conditions for the development of parks and wood industry, multiculturalism and above all the functional and aesthetic architecture. His successor and brother John Jankovic (1731 - 1798) has enabled private initiative and he created on his estates one of the most qualitative glassworks for whose work was necessary the forest in the Daruvar area. His son Isidor Jankovic (1789 – 1857) encouraged the colonization and deforestation of this area; his was mainly focused on the strengthening of the local economy and entrepreneurship. Julije Janković (1820 - 1904), a prominent politician, philanthropist and promoter of culture tried to improve his financial situation with exploitation of the local forest areas; he also managed to inhabit some of the abandoned areas in the region. However, his greatest merit, which was recognized by the city Daruvar, refers to the cultivation and preservation of parks and forest areas in the city centre. The largest park in Daruvar carries the name of Julije, where one of the old elm avenues leads to Julije's spring, which is located in the Roman Forest.

This green "lungs" of Daruvar are called so because many of the Roman artefacts were found here underneath the centuries old leaves (Roman rampart, ancient tombs and various artefacts). In its upper part there is located a Jewish cemetery founded during the life of Julije Janković.

The largest park therefore with reason carries the name of Julije, because in his time this park was spread across 10 acres and 1087 square fathoms of land. This park along with the Roman Forest is divided by the road and railway; it is the real ecological pearl that attracts the visitors and meets them every day. The compound of greenery gives the impression as if we had gone astray in Arcadia, the mythical land in the centre of the Peloponnese, an archetypal place in the hills, which is fertile and surrounded by forest; home of the god Pan and the nymphs. In winter you can warm yourself with warm water from Antun's spring, in the summer you will find refreshment at Julije's spring (Julijabrum).

Due to deforestation during the foundation of new settlements as well as during the exploitation of timber, the number of animal species was reduced; many of them, such as lynxes, bears and wolves have disappeared, so many of the Arcadian features of this area were lost. Nevertheless, today are preserved large areas of the forest, which represents a significant ecological and economic resource. It shows us that Silvan is still hugging nymphs with a smile on his face; nymphs in the form of resources in this region.

The final resting place of Julije and Ljudevita Janković is at the cemetery in Aachenkirch, Austria; it is adorned with gilded twigs from Slavonian forests, which is showing the connection and gratitude between family Janković and the trees and forests from this region.

ORHIDEJE RIMSKE PARK-ŠUME

OCHRIDS OF ROMAN PARK-FOREST

Posebno mjesto u flori Rimske park-šume pripada orhidejama. Sve orhideje spadaju u veliku porodicu *Orchidaceae*. Ona obuhvaća više od 600 rodova i čak 30 000 vrsta. U Europi je oko 600 vrsta orhideja, a u Hrvatskoj oko 150 autohtonih svojti. U Rimskoj park-šumi, na prostoru od samo 20,43 hektara, raste najmanje 9 vrsta orhideja.

Tijekom svibnja, a ponekad čak i krajem travnja, počinju u šumi cvasti prve orhideje – bijela naglavica (*Cephalanthera damasonium*) i dugolisna naglavica (*Cephalanthera longifolia*). Razlikuju se po dužini listova i po cvjetovima. Kod bijele naglavice listovi su kraći i širi nego u dugolisne, a cvjetovi su joj žućkasti. Dugolisna pak ima bjelje i manje cvjetove. Cvatu do srpnja. (Slika 1. i 2.)

Gotovo u isto vrijeme (V. mjesec) počinju cvasti jajoliki čopotac (*Listera ovata*) i šumska kokoška (*Neottia nidus-avis*). Cvatu u svibnju i lipnju.

Jajoliki čopotac ima dva jajolika lista između kojih raste stabljika na kojoj su sitni zeleni cvjetovi. Razvoj od sjemenke do odrasle biljke traje i do 15 godina. Najrasprostranjenija je u gornjem dijelu šume, a pojedini su primjerci viši od 50 cm. (Slika 3. i 4.)

Šumska kokoška neobična je po boji – nema klorofila pa su joj i stabljika i cvijet smećkasti te cijela biljka djeluje kao da je od voska. Naraste do 40 cm, a u posebnim uvjetima može cvjetati podzemno. (Slika 5.)

Po broju vrsta u šumi je najzastupljeniji rod kruščika (*Epipactis*). Tom rodu pripada 5 vrsta koje cvatu od svibnja do rujna.

Prva cvate sitnolisna kruščika (*Epipactis microphylla*), tijekom svibnja i lipnja. Rasprostranjena je u svim dijelovima šume. Listovi su joj malobrojni i uski, a mali zelenkasti cvjetovi jako mirišu poput vanilije. Visoka je od 10 do 40 cm. (Slika 6.)

Najrasprostranjenija je zanemarena kruščika (*Epipactis neglecta*). Raste u svim dijelovima šume, ponekad u skupinama od 20-ak jedinki. Pojedini primjerci visoki su i do 100 cm. (Slika 7.)

Od zanemarene kruščike veća je jedino širokolisna kruščika (*Epipactis helleborine*) koja može biti visoka i do 120 cm. I ona je rasprostranjena u svim dijelovima šume, a kao i zanemarena kruščika cvate od lipnja do kolovoza. (Slika 8.)

Vjerojatno najljepša među kruščikama je purpurna kruščika (*Epipactis purpurata*). Pojedini primjerci imaju izrazito ljubičastu stabljiku i listove, no cvjetovi su kao i kod ostalih kruščika zelenkasti, ali s ljubičastom mednom usnom. Cvate u srpnju i kolovozu. (Slika 9.)

Posljednja po redu cvatnje ujedno je i najmanja kruščika – Nordenova kruščika (*Epipactis nordeniorum*). Raste na vlažnim mjestima, a visoka je od 5 do 30 cm. Čak i najniži primjerci imaju po nekoliko cvjetića. Cvate od srpnja do rujna. (Slika 10.)

Svim našim samoniklim orhidejama zajedničko je da su zakonom strogo zaštićene (kategorija S3-strogo zaštićene svojte) i ne smije ih se brati ili na bilo koji drugi način uništavati.

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Slika 1. Bijela naglavica (*Cephalanthera damasonium*)


Slika 5. Šumska kokoška (*Neottia nidus-avis*)


Slika 6. Sitnolisna kruščika (*Epipactis microphylla*)


Slika 2. Dugolisna naglavica (*Cephalanthera longifolia*)


Slika 7. Zanemarena kruščika (*Epipactis neglecta*)


Slika 8. Širokolisna kruščika (*Epipactis helleborine*)


Slika 3. Jajoliki čopotac prije cvatnje (*Listera ovata*)


Slika 11. Nordenova kruščika prije cvatnje (*Epipactis nordeniorum*)


Slika 12. Nordenova kruščika (*Epipactis nordeniorum*)


Slika 4. Jajoliki čopotac u cvatu (*Listera ovata*)


Slika 9. Purpurna kruščika (*Epipactis purpurata*)


Slika 10. Purpurna kruščika prije cvatnje (*Epipactis purpurata*)

A special place among the flora of the Roman park-forest belongs to the orchids. All orchids belong to the large family of *Orchidaceae*. It includes more than 600 genres and even 30 000 sorts. In Europe, you can find around 600 sorts of orchids, and in Croatia there are about 150 indigenous sorts. In Roman park-forest, on the area of only 20.43 hectares, at least 9 sorts of orchids are growing at the same time.

During May and sometimes even at the end of April, the first orchids in the forest begin to blossom – White Helleborine (*Cephalantera damasonium*) and Sword-leaved Helleborine (*Cephalanthera longifolia*). They are different in the length of the leaves and flowers. White Helleborine has shorter and wider leaves than Sword-leaved Helleborine, and her flowers are yellowish. Sword-leaved Helleborine has more flowers, and they are much whiter. They bloom until July (Picture 1 and 2).

Almost at the same time (in May) Common Twayblade (*Listera ovata*) and The Bird's-nest Orchid (*Neottia nidus-avis*) begin to blossom. They bloom in May and June.

Common Twayblade has two oval leafs and between them grows the stalk which has tiny green flowers on it. The growth of the plant, from seed to mature plant, lasts up to 15 years. This sort is most frequent in the upper part of the forest, and some of the specimens were taller than 50 cm (Picture 3 and 4).

The Bird's-nest Orchid (*Neottia nidus-avis*) is very unusual plant because of its colour- it has no chlorophyll, so her stalk and flower are brown; that's why the whole plant looks like it was made of wax. It grows up to 40 cm, and in special conditions it can flourish in the underground. (Picture 5)

According to the number of sorts in the forest, the most common kind is Helleborine (*Epipactis*). Five sorts which bloom from May to September belong to this kind.

Small-leaved Helleborine (*Epipactis microphylla*) blooms first, during May and June. This sort is widespread in all parts of the forest. It has a few narrow leaves, and small greenish flowers which smell very like vanilla. It is tall from 10 to 40 cm. (Picture 6).

The most widespread orchid is the forgotten Neglected Helleborine (*Epipactis neglect*). It grows in all parts of the forest, sometimes even in groups made from 20 individual plants. Some of the examples are up to 100 cm tall. (Picture 7)

Only Broad-leaved Helleborine orchid (*Epipactis helleborine*) is bigger than the Forgotten or Neglected Helleborine,it can reach its high up to 120 cm. This orchid is also widespread in all parts of the forest, and as well as the Neglected Helleborine it blooms from June to August. (Picture 8)

Probably the most beautiful among the Helleborine orchids is the Violet Helleborine (*Epipactis purpurata*). Some specimens have distinctively purple stalk and leaves, but the flowers are greenish just like the other Helleborine kinds have, but only with a purple honey lip. It blooms in July and August. (Picture 9 and 10)

The last in a row of flowering is also the smallest Helleborine – Norden Helleborine (*Epipactis nordeniourum*). It grows in moist places; it is tall from 5 to 30 cm. Even the smallest specimens have few flowers. It blooms from July to September. (Picture 11 and 12)

A common thing for all of our wild orchids is that they are strictly protected by law (category S3- strictly protected species) and they should not be picked from the park or destroyed in any other way.

Literatura / literature:
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RIMSKI TABOR I

ROMAN CAMP I

Brežuljak – plato Rimski Tabor (Stari Slavik) je prapovijesni, rimski i srednjovjekovni arheološki lokalitet gdje se nalazilo naselje *Oppidum* panonsko-keltskog naroda *Iassa*, stambeni dio naselja rimskog municipija *Aquae Balissae* i položaj srednjovjekovnog trgovišta Toplica (*Thoplica*, mađ. *Hewyz / Höwiz*), s utvrdom Kamengrad (mađ. *Kuwar / Kö / Kw*). Nakon protjerivanja Turaka 1691. godine, dio Rimske Šume od 18. stoljeća je iskrčen i izložen intenzivnoj poljoprivrednoj obradi, a kasnije i radu Daruvarske ciglane te od 1955. suvremenoj stambenoj izgradnji, što je uništilo arheološku stratigrafiju. Mjestimično su ostali sačuvani samo tragovi kasnoantičko-srednovjekovnih utvrda (fortifikacija), o kojima postoje kratki zapisi raznih učenih posjetilaca Daruvara i Daruvarskih Toplica u 18. i 19. stoljeću. Prva rekognosciranja terena na ovom lokalitetu od 1905.-1907. proveo je G. Szabo, konzervator, muzealac, pisac o umjetnosti i povijesti. U svojim zapisima spominje da je pronašao ostatke rimskih temelja, zidove, crijepove, novce rimskih careva i „cigle s legionarskim znakovima i slovima." Uz svoje zapise priložio je djelomični situacioni plan zidova na Rimskom Taboru i Rimskoj Šumi kao i temelja bedema koji se prostire od željezničke pruge do Židovskog groblja i danas služi kao šumska staza u Daruvarske vinograde. Na situacionom planu zapadnog dijela brežuljka iz 1905. ucrtao je djelomični pravac prostiranja uočenih fortifikacija kao i toponim Kamenolom, zapravo strmi zasjek koji je nastao 1880. prilikom izgradnje željezničke pruge Barcz – Daruvar. U građevinskim radovima zapadna padina brežuljka je uklonjena zbog izgradnje trase željezničke pruge i tom prilikom otkriveni su profil i temelji kamenih fortifikacija. U kasnijem periodu ostaci fortifikacija korišteni su od strane lokalnog stanovništva kao izvor građevinskog materijala, pučki nazvan - "Kamenolom". Prilikom gradnje pruge i uklanjana najzapadnijeg dijela padine brežuljka Rimski Tabor srušena je i Sienghentalova kupka (izgrađena prije 1862.), koja je pripadala lječilišnom kompleksu Daruvarskih Toplica. Prema skici, na brezuljku su se nalazile i dvije popularne uzivisne, odnosno vidikovca - *Heksa Höhe* i *Margit Höhe*.

Izgradnjom ulice pod današnjim nazivom Podborje koja se proteže uz željezničku prugu, srušena je 1930. i daruvarska ledara. Led je koristila daruvarska industrija posebice pivovara, ugostitelji i obrtnici u vremenu 19. i 20. stoljeća. Na padini brežuljka u blizini ledare 1968. pronađen je rimski ženski skeletni grob. Nalazio se samo jedan metar ispod zemlje orijentiran SI-JZ. Grobna konstrukcija sastojala se od kamena, crvene i bijele žbuke, s krovištem od cigle. Prema zapisima arheologa amatera, na kosturu su pronađeni ostaci paljevine, te jedna „naušnica" pronađena na prsima pokojnice. Brežuljak – plato Rimski Tabor (Stari Slavik) nalazi se u Registru kulturnih dobara RH kao zaštićeni arheološki lokalitet. Ime brežuljka tumači se kao "mjesto rimskog vojnog logora", odnosno: „obitavalište Starih Slavena."

Na uređenju Rimske Šume - Projekt "TASK FORCE 99 – Dođite i sudjelujte u obnovi Hrvatske" (17. 7. - 7. 8. 1999.) radila je i mladež hrvatske dijaspore u organizaciji Hrvatske matice iseljenika Republike Hrvatske i Gradskog poglavarstva Daruvara – Odjela za zaštitu kulturne baštine. U Daruvaru je boravilo dvadesetak mladića i djevojaka iz Švedske, Austrije, Njemačke, Francuske, SAD-a, Čilea, Perua, Kanade, Australije, Bosne i Hercegovine i Vojvodine. Projekt TASK FORCE okupljao je hrvatsku mladež iz dijaspore koja je volonterski radila na obnovi područja zahvaćenih Domovinskim ratom i stradanjima u Republici Hrvatskoj.

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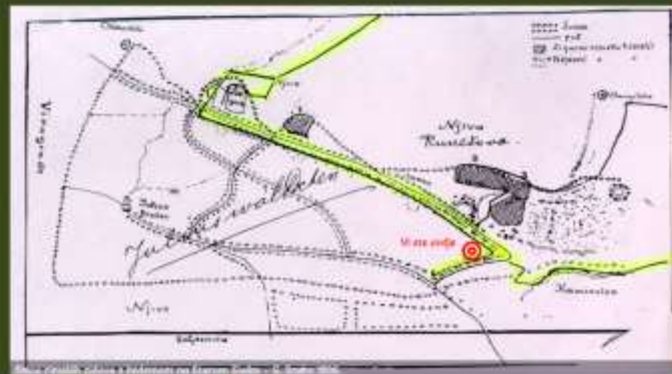

Željeznica u podnožju brežuljka Rimski Tabor (Stari Slavik) 1910.

Pomažu i pomagat će obnovu

ISELJENIČKA MLADEŽ U OBNOVI DOMOVINE

Hill – a plateau Rimski Tabor (Roman Camp) or Stari Slavik (Hill of the Old Slavs) is a prehistoric, Roman and medieval archaeological site where was located a settlement - *Oppidum* of the Pannonian – Celtic tribe Iassi, residential settlement part of the Roman municipality *Aquae Balissae* and position of the medieval market town called Toplica (*Thoplica*, Hung. *Hewyz / Höwiz*) with a fortress Kamengrad (Hung. *Kuwar / Kö / Kw*). After the expulsion of the Ottomans in 1691 one part of the Roman Forest has been cleared and exposed to intensive agricultural treatment; later it was used for the claymine of Daruvar's brickyard factory and since 1955 to contemporary residential construction which has led to destruction of the archaeological stratigraphy. In some place preserved only traces of late antique-medieval fortresses, there are some brief notes about it which were made by various educated visitors that came to Daruvar and Daruvar spa during the 18th and 19th century. The first field survey of this archaeological site was conducted by G.Szabo during 1905-1907, a famous conservator, museologist, art and history writer. In his notes is mentioned that he had found the remains of Roman foundations, walls, tiles, coins of Roman emperors and bricks with "Legionnaires signs and letters". Along to his records he attached a partial situational plan of the walls positioned at the Roman Camp and Roman Forest, as well as the plan of foundation walls which extends from the railroad track to the Jewish cemetery and today serves as a forest trail which leads to Daruvar vineyards. On the situational plan of the western part of the hill from 1905 he draw a partial direction of observed spread fortifications charted along with the toponym Kamenolom ("Stonemine") - which is actually a very steep kerf which was created in 1880 during the construction of the railway Barcz-Daruvar. In the construction works the western hill slope was removed because of the construction of railway route; on that occasion the profile of stone fortification with foundations were discovered. In the later period the remains of the fortifications were used by local people as a source of building materials, among the common people this was called "Stonemine". During the railway construction and removal of the western hill slope of the Roman Camp, Siegenthal bath (built before 1862) which belonged to old health resort complex of Daruvar spa was also demolished. According to the sketch two viewpoints were located on the hill top – Heksa Höhe and Margit Höhe.

With the street construction under present name Podborje - that runs along the railway line, in 1930 a Daruvar Icehouse Manufacture was demolished. Ice was used by the Daruvar industry - especially brewery, caterers and tradesmen during 19th and 20th century. In 1968 near the Icehouse Manufacture on a hill slope a Roman tomb with female skeleton was found. It was located only one meter below the ground, orientated to NE-SW. The grave structure was consisted of stone, red and white plaster, with the brick roof. According to some amateur archaeologist notes, remains of burning were found on skeleton, and one "earring" was found on the chest of the deceased. The hill – a plateau Roman Camp (Old Slavik) is cultural heritage monument and it is registered as a protected archaeological site. The name of the hill is interpreted as "a place of the Roman military camp" or "the abode of old Slavs".

On the arrangement of the Roman Forest – Project "TASK FORCE 99 – Come and participate in the reconstruction of Croatia" (17.7.-7.8.1999) also a youth from Croatian diaspora took part; this was organised by the Croatian Heritage Foundation and Daruvar City Government – Department for Protection of Cultural Heritage. For about twenty young men and women stayed in Daruvar, they were from Sweden, Austria, Germany, France, USA, Chile, Peru, Canada, Australia, Bosnia and Herzegovina and Vojvodina. Project TASK FORCE gathered the Croatian youth from Diaspora who voluntarily worked on the restoration of areas affected by Croatian Homeland War and areas which suffered the most during the war in Republic of Croatia.