



Interreg



EUROPEAN UNION

Danube Transnational Programme

URBforDAN

URBforDAN Mapping of Ecosystem Services
Country Serbia Belgrade

Developed by

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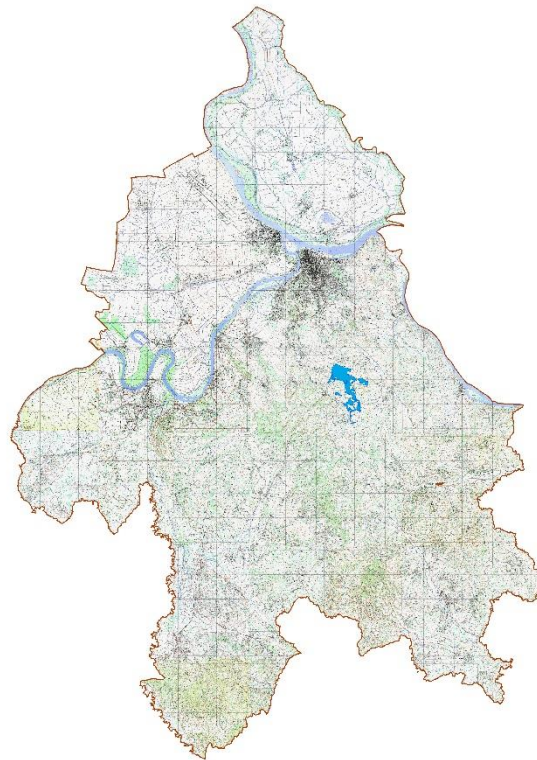
Belgrade

Serbia

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1. INTRODUCTION



Legend

-  Beograd
-  Avala

Management and Utilization of Urban Forests as Natural Heritage in Danube Cities (with acronym URBforDAN) is an EU co-financed project, which was designed to deliver a change in urban forest management and utilization of ecosystem services (ES). URBforDAN project is being implemented in 7 Danube Cities - Ljubljana (SLO), Vienna (AT), Budapest (HUN), Zagreb (CRO), Cluj-Napoca (ROM), Belgrade (SRB) and Ivano-Frankivsk (UA). Its' implementation is closely observed by 3 associated partner cities - Prague (CZE), Sarajevo (BIH) and Podgorica (MNE), as well as by Food and Agriculture Organization of the United Nations. Urban and Peri-urban Forests (UPF) in Danube Cities play extremely important role as "green city lungs" - preserving rich biodiversity of Europe and its vivid landscape. They also deliver many economically and socially important ecosystem services - UPF are key areas for experiencing natural and cultural heritage within cities, important tourist attractions, areas for recreation and high quality of living. All URBforDAN Cities face similar challenges - all manage substantial NH areas (mostly UPF) within their city limits. Due to their characteristics they attract many users (citizens, tourists...), but also have many stakeholders (managers, owners, interest groups...) trying to manage those activities. Today, this is usually done without proper coordination of all stated key actors. UPF also lack appropriate infrastructure and equipment to cope with ever increasing number of users. Thus, UPF are under increasing pressure from diverse set of activities, arising conflicts and unsustainable use of resources - all leading to poor state of NH. Management of UPF in some cities is further challenged by the extreme fragmentation of the ownership (which is often mostly private). This is why URBforDAN takes on the challenge of mobilization of key actors in URBforDAN Cities to ensure their active participation in integrated planning/management. Protection regimes, mapping/valuation of ecosystem services and development ideas will be combined through a participatory process to deliver Integrated multi-use Management Plans for UPF on strategic and operational level. UPF Danube Network will be established to strengthen the cooperation between key actors, ensure timely knowledge/best-practice sharing, dissemination/transferability of project outputs and enable further capitalization. UPF managers, owners and users will be equipped with management tools supporting multi-purpose use of UPF and exploiting new opportunities for sustainable development. Participatory Planning & UPF Management Guidelines will be developed, based on lessons learned and best practices used. Strategic area of Avala is the northern forest of Sumadija. With its height of 506 m n.v. it stands out in the wider area of Belgrade. "Avala" consists of forests and land located on the territory of the administrative area of Belgrade, the city municipality of Vozdovac. The Gazda unit "Avala" consists of a forest complex consisting of two parts, a hill of Avala and a forest along the Belgrade-Ralja road. On it is the only cinnabarite spot in Serbia. In its vicinity in 1894, a new mineral named after the place of avalivity was discovered. It is well-known for its mineral deposits from the ancient and pre-Roman times. Today, there are numerous remains of mining activity (swamps, tricks, etc.). Although the low mountain, however, is characterized by a diverse and specific pedological structure and favorable climate. It is extremely rich in vegetation and floristic elements. It contains phytocenoses with about 597 plant species. Avala has numerous monuments related to the history of the Serbian people. The monument to the Unknown Hero (a cultural good of exceptional significance) stands out, a monument to Vasa Carapic and a Russian military delegation. The protected natural good belongs to the territory of the city of Belgrade, more precisely to the municipality of Vozdovac. It includes 4 cadastral municipalities Ripanj, Pinosava, Zuce and Beli Potok.

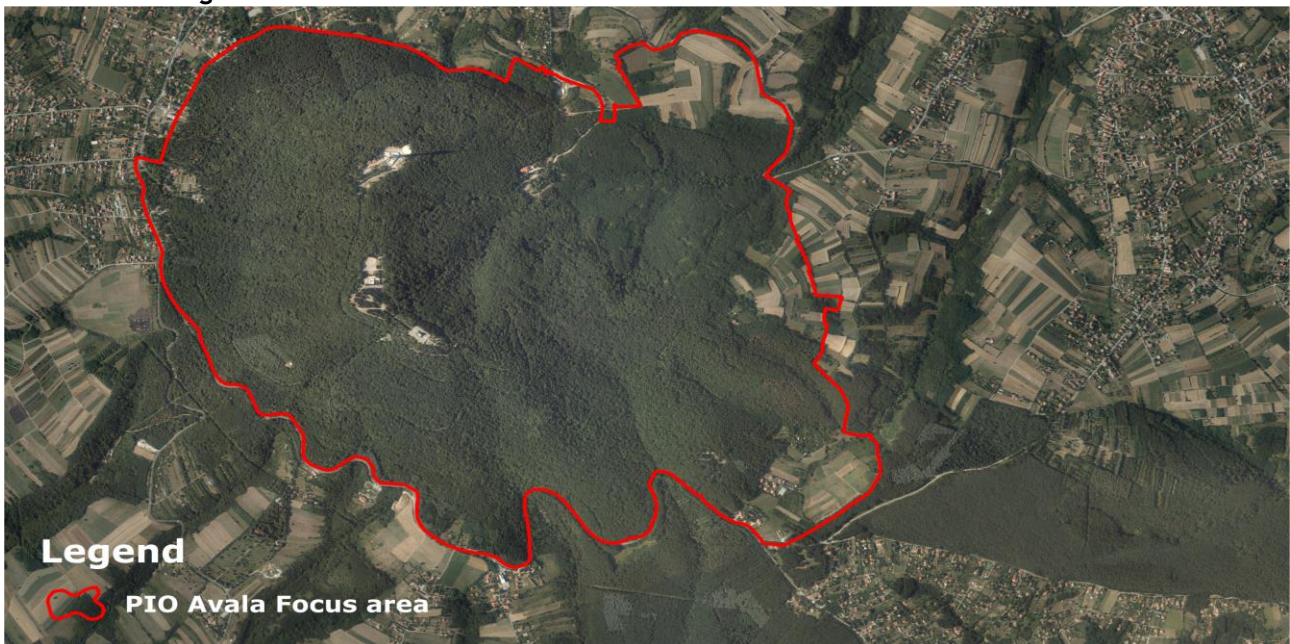
Geographical location, specific natural and landscape values, diverse possibilities of use, as well as organized management of the territory of forests, is the reason why Avala is still a part of preserved nature.

The total strategic area of the cashier's unit is 819.50 hectares. The total focus area is 489,13 ha.

Strategic area of Avala was separate into 32 departments. The number of sections in the Avala is 294 and 180 clearings. Average per section has 9 and 6 clearings. The total covered forest is 91% of the area. Untreated land participates with 9% of the surface. Starting from the current situation, considering the needs to improve forest ecosystems in order to preserve and protect the environment, as well as general useful functions for the needs of the inhabitants of Belgrade, a city characterized by industrialization, traffic development, population growth, it is necessary to bring the forest into their functional state.



The total strategic area of the cashier's unit is 819.50 hectares.



The total focus area is 489,13 ha

An overview of the total area and population per municipality Vozdovac, as well as a comparative view of agricultural land, the total forested and structured structure of the employed population is give in the following tables:

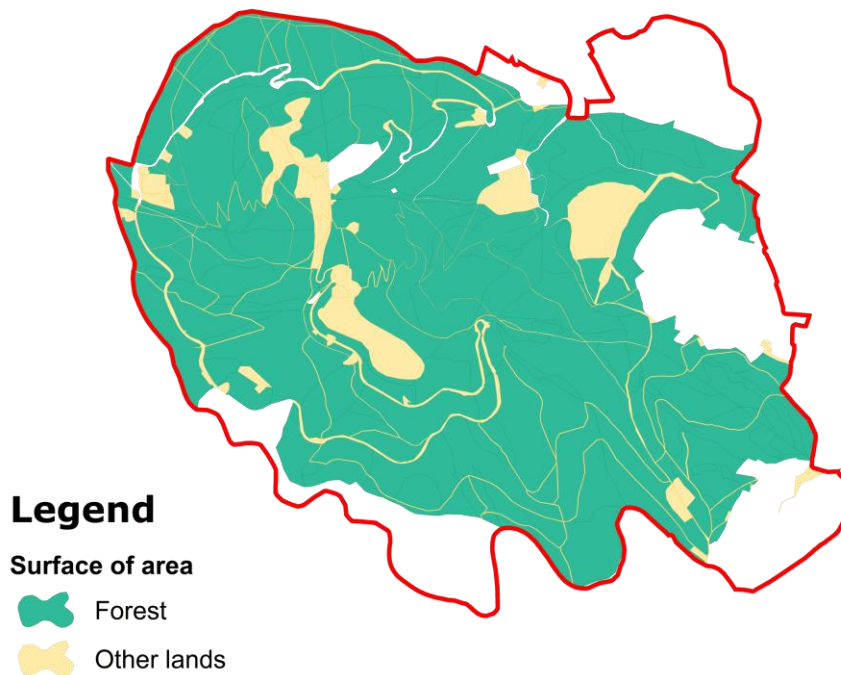
Table no.1. General data

municipality	area	habitat	forest land	agrycultural land	Building land and other land	
	km ²	no	ha	ha	ha	
Vozdovac	149	158213	2598	8717	3585	

Table no. 2 Forest land

municipality	forest land	wood production			
		total m ³		tehcnical wood m3	
	ha	leafwood	coniferous wood	leafwood	coniferous wood
Vozdovac	2589	14032	116,9	/	54,6

The total forest area of municipality of Vozdovac is 17.4%, and the forest area per inhabitant is 0.016 hectares.



Avala is a Belgrade outpost for satisfying the recreational and tourist needs of the inhabitants of Belgrade. The most noteworthy monuments are the Neznamom junaku, erected in 1938, a monument to Russian veterans erected in 1964 and a monument to Vasa Čarapić. The symbol of the city of Belgrade, the Avala tower built in 1964, was demolished in NATO bombed, and then rebuilt in 2010. The first mountaineering house was built in Avala in 1924 (Mitrović dom). Recognizing the natural and cultural values of Avala, the Institute for Nature Protection declared in 2007 the cup of Avala for "Area of exceptional qualities Avala".

2. METHODOLOGY

The forest management plan determines the type and scope of works on reconstruction and raising of new forests. The works on regular management are financed from own funds, reconstruction works are conditioned by the provision of funds from the wider community. In the case of regular maintenance, priority should be given to forest care.

Following position and importance we defined a forest functions of this strategic area of Avala:

1. protection of nature (the area of exceptional qualities "Avala", (regime I and II and III degree of protection),
2. production,
3. health,
4. Recreational-tourist,
5. Educational-scientific,
6. land protection.



protection area (the area of exceptional qualities "Avala", (regime I and II and III degree of protection)

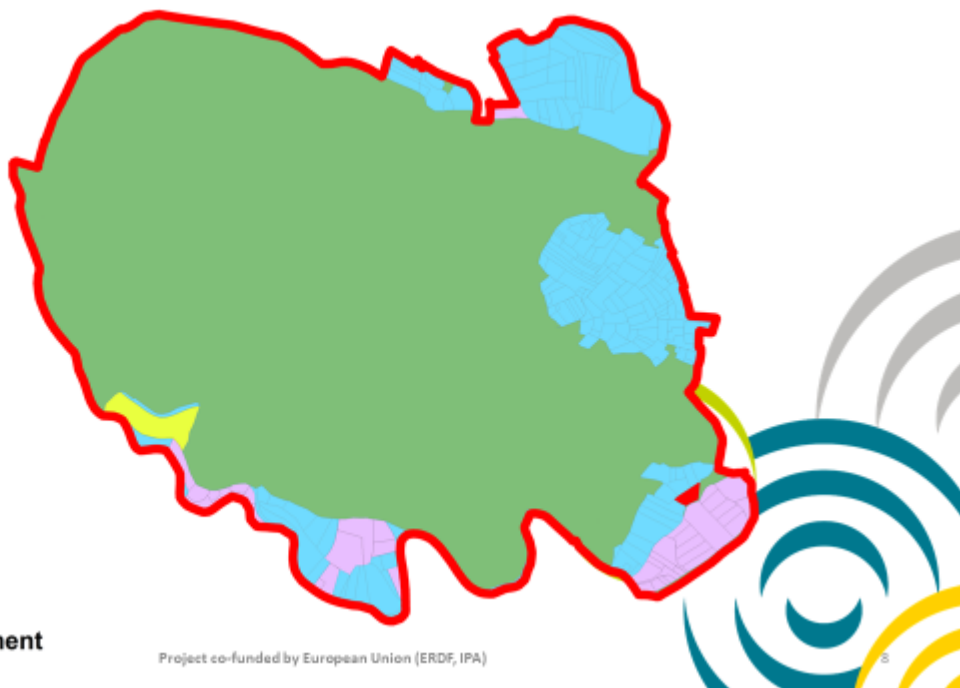
AREA	SURFACE AREA (ha)	SURFACE PROTECTION AREA (ha)	%
I	8,06	489,13	1,6
II	121,78	"	24,9
III	359,29	"	73,5

According to the ownership structure, from the total area of the protected property, the area of 74.35 ha (15.2%) is privately owned and 414.78 ha (84.8%) in other forms of ownership. Out of the total area of the property KO Beli Potok belongs to 93%, KO Ripanj 3.7%, KO Zuce 2.3% and KO Pinosava 1.0% of the surface.

According to the data from the cadastre in the structure of the land of exceptional qualities agricultural land occupies an area of 97.21 ha, forest 368.65 ha and infertile land 4.0 ha. The share of agricultural land area in the total area of PIO is 19.9%. In the total area of agricultural land (97.21 ha), the fields cover 76.17 ha or 78.36%, orchards 2.86 ha (2.94%), vineyards 13.07 ha (13.44%) pastures 4, 48 ha (4.61%) and meadows 0.63 ha (0.65%).

Legend

-  PE Srbija Sume
- Others**
-  State owned
-  Private owned
-  PE Srbijavode
-  Military department



Cadastral numbers of parcels from RGZ

a) KO BELI POTOK

1964/1, 1964/2, 1964/3, 1964/4, 1964/5, 1964/6, 1964/7, 1964/8, 1964/9, 1964/10, 1964/11, 1964/12, 1964/13, 1964/14, 1964/15, 1964/16, 1964/17, 1964/19, 1964/20, 1964/21, 1964/22, 1964/23, 1964/24, 1964/25, 1964/26, 1964/27, 1984/18, 2137/2, 2168/2, 2169/1, 2169/3, 2169/4, 2170/1, 2170/2, 2171, 2213, 2214, 2215/1, 2215/2, 2216, 2217, 2218, 2219, 2220/1, 2220/2, 2221, 2222, 2223/1, 2223/2, 2223/3, 2223/4, 2223/5, 2223/6, 2224, 2225, 2226, 2227/1, 2227/2, 2228, 2229, 2230, 2237/1, 2237/2, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246/1, 2246/2, 2247/1, 2247/2, 2248, 2249/1, 2249/2, 2249/3, 2249/4, 2249/5, 2249/6, 2250/1, 2250/2, 2251, 2252, 2253, 2254, 2255/1, 2255/2, 2255/3, 2255/4, 2256/1, 2256/2, 2257, 2258, 2259/1, 2259/2, 2259/3, 2259/4, 2259/5, 2260, 2262/1, 2262/2, 2263/1, 2263/2, 2264, 2265/1, 2265/2, 2265/3, 2266/1, 2266/2, 2267, 2268, 2269/1, 2269/2, 2270, 2271, 2299/1, 2299/4, 2300/1, 2300/2, 2301/1, 2301/2, 2391/2, 2392/1 део, 2393, 2394, 2395, 2396, 2397, 2398, 2399/1, 2399/2, 2400/1, 2400/2, 2401, 2402, 2403, 2405, 2406, 2407/1, 2407/2, 2407/3, 2407/4, 2407/5, 2407/6, 2407/7, 2408/1, 2408/2, 2409/1, 2409/2, 2410/1, 2410/2, 2411, 2412, 2413/1, 2413/2, 2413/3, 2414/1, 2414/2, 2414/3, 2415/1, 2415/2, 2416/1, 2416/2, 2417/1, 2417/2, 2417/3, 2417/4, 2417/5, 2417/6, 2417/7, 2418/1, 2418/2, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427/1, 2427/2, 2428, 2429/1, 2429/2, 2429/3, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438/1, 2438/2, 2439/1, 2439/2, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457/1, 2457/2, 2458/1, 2458/2, 2459, 2460, 2461, 2462, 2463, 2464/1, 2464/2, 2464/3, 2464/4, 2465/1, 2465/2, 2465/3, 2465/4, 2465/5, 2465/6, 2465/7, 2466, 2467, 2468, 2469, 2470, 2471, 2472/1, 2472/2, 2472/3, 2472/4, 2472/5, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480/1, 2480/2, 2480/3, 2480/4, 2480/5, 2481.

б) KO ZUCE

1367/3, 1370, 1371/1, 1371/2, 1372/1, 1372/2, 1373, 1374/1, 1374/2, 1374/3, 1374/4, 1375/1, 1375/2, 1375/3, 1375/4, 1376, 1377/1, 1377/2, 1377/3, 1377/4, 1377/5, 1377/6, 1378/1, 1378/2, 1378/3, 1378/4, 1378/5, 1379/1, 1379/2, 1379/3, 1379/4, 1379/5, 1379/6, 1379/7, 1379/8, 1379/9, 1379/10, 1379/11.

в) KO RIPANJ

27/1, 27/2, 27/3, 27/4, 27/5, 28, 39/1, 39/2, 39/3, 39/4, 39/5, 40/1, 40/2, 40/3, 40/4, 40/5, 41/1, 41/2, 41/3, 41/4, 41/5, 41/6, 42/1, 42/2, 43, 44/1, 44/2, 53, 54/1, 54/2, 54/3, 54/4, 55/1, 55/2, 55/3, 9674.

г) KO PINOSAVA

1494, 1495, 1511, 1512, 1598.

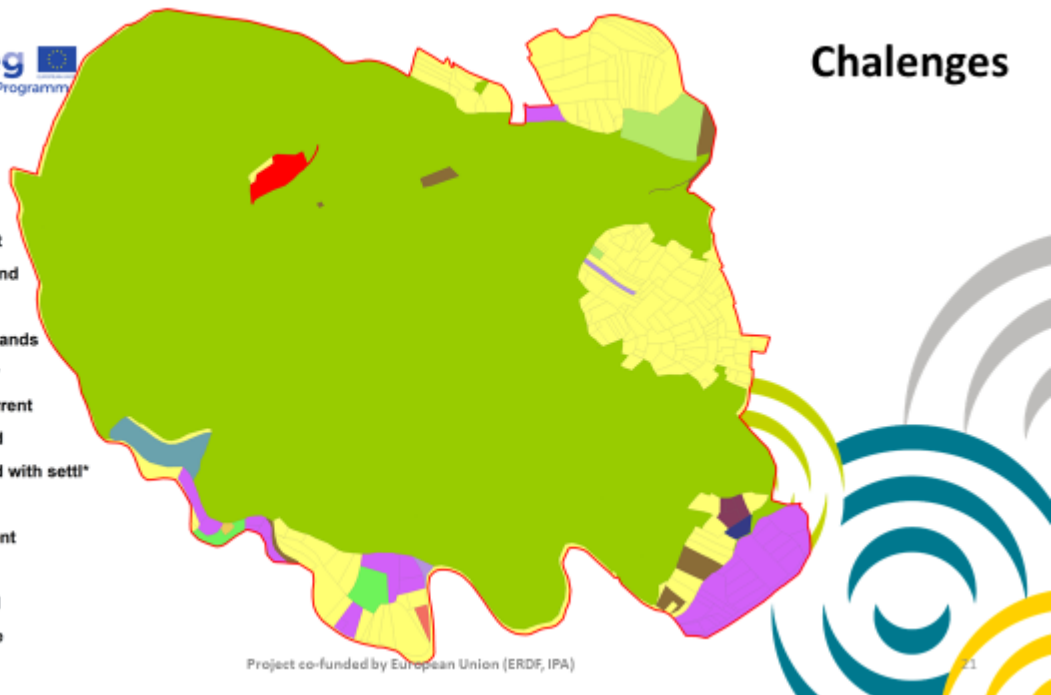
Legend

Property, Usage

-  Military, Forest
-  Private, Cropland
-  Private, Forest
-  Private, Other lands
-  Private, Quarry
-  Srbijavode, Torrent
-  State, Cropland
-  State, Cropland with settl*
-  State, Forest
-  State, Settlement
-  State, Tower
-  State, Vineyard
-  PE Srbija Sume

13/05/2019

Project co-funded by European Union (ERDF, IPA)



The total area under forest protection is 373.35 hectares, while state forests on the surface of 370.35 hectares are managed by JP "Srbijašume" ŠG Belgrade - Avala Forestry Authority. forests represent one of the basic elements of protection, since these parts have retained indigenous communities that characterize the wider forest area. The terms of planning and management of forest areas are carried out on the basis of the Forest Law.

Agricultural areas within a protected natural good are represented in the northeast, east and south-east and are at lower altitudes. According to the data from the cadastre, the agricultural land area occupies a total area of 97.21 ha. Of this, it is privately owned 70,75 ha (72,78%), and in other forms of ownership 20,46 ha (27,22%). Animal husbandry, viticulture, fruit growing and vegetable production in Avala and in the villages of Avala represented the traditional way of using agricultural land. Today, however, many of these agricultural branches are almost dead (livestock breeding, viticulture), so that agricultural production is reduced to a variety of small-scale production of individual farms with holdings up to 3 ha in size.

The productive function of the forest as a renewable natural resource with high biomass production ability gives an exceptional significance to forestry in Serbia's economic development. The forest as a traditional source of raw material, in conditions of faster draining of numerous economic resources in the world, is gaining evermore importance. The production of wood assortments has a considerable advantage when compared to the production of other materials because it does not cause environment pollution with low energy consumption for acquiring sawnwood; the tree is a forest product which is renewable, so the existence of forest and wood production affects the living environment in a positive way. Forests are an important factor of environmental economics, which implies energy production from renewable resources of forest mass, the biomass. In the world there is an evermore growing demand for biomass because wood is too valuable as raw material and should be used for some other, higher purposes and not merely like an energy-generating product in the form of biomass - the by-product of forestry (lower-mass fuelwood, small round billets, stockwood and wastewood).

With the Energetics Development Strategy of the Republic of Serbia, the need for organized utilization of renewable energy resources in heating and electric power production has been defined until 2015. The priority is to slow down the import rate of energy-generating products through forest biomass utilization and minimizing of negative effects on the environment.

The product range - wood assortments of SE "Srbijašume" - includes: **roundwood**, **logs** (classified according to classes and adequate diametres, as well as to purpose) of different deciduous kinds (especially beech,

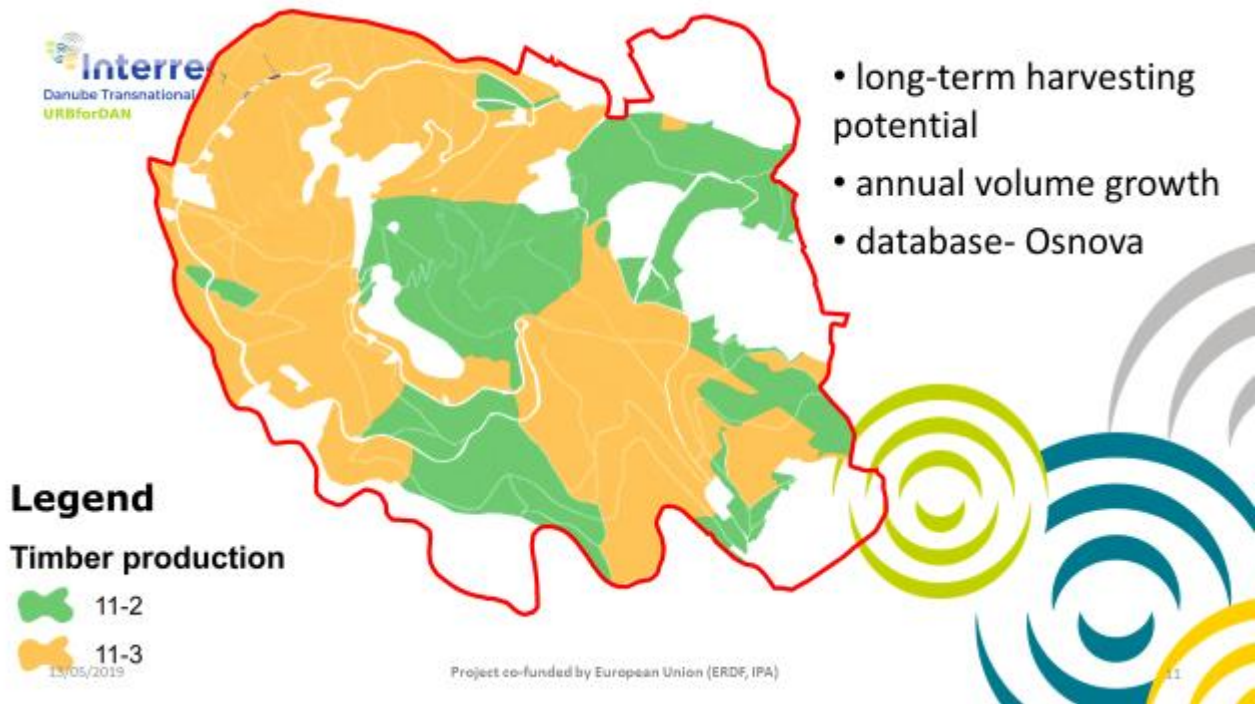
oak, poplar, domestic poplar, willow) and conifers (fir-spruce, scots pine, black pine), **pitprops, small roundwood, poles, round legs for roof construction, etc.**

Cordwood consists of technical round sticks and cleft short logs (beech, oak, other hard and soft broadleaves and conifers), pulpwood and board wood (hard and soft broadleaves and conifers), hard and soft broadleaved and coniferous fuelwood adequately classified.

Under construction land we mean built areas, that is, individual parcels with facilities, roads, infrastructure and other facilities, infertile areas (according to the cadastre) and special purpose areas. The built areas are located in the northwestern part (forest management building, hotel "Belgrade"), on the ridge Avala (hotel "Avala", monument to the Unknown Hero, monument to the disappeared Russian military delegation and TV tower) and to the north (Mitrovicev restaurant) . The built objects are registered in the cadastral opera. As you can see, the coefficient of construction is small, practically negligible.

The built-up areas are spatially scattered, and within the natural good they are not formed by settlement. The stated areas in the cadastral balance sheet represent a real state of affairs on the ground, regardless of the non-availability of cadastre and the way of conducting it.

Avala is the "source" of numerous streams, which flow into the Sava River by the Topčider River and the Zavojnica River to the Danube. From the stream in this area are: Smrdanski potok, Dragušnica, Prača, Beli Potok, Rope, Vranovac and Glogovac. Most watercourses are seasonal.



The Serbian strategy of integral management of forests and forest areas is based on sustainable development. SE "Srbijašume" is putting maximum efforts into accomplishing its vision: to live with and for nature, and continuous forestry activities are in the interest of all citizens.

- harvesting potential
- local criteria, expert knowledge

Legend

Non-timber products



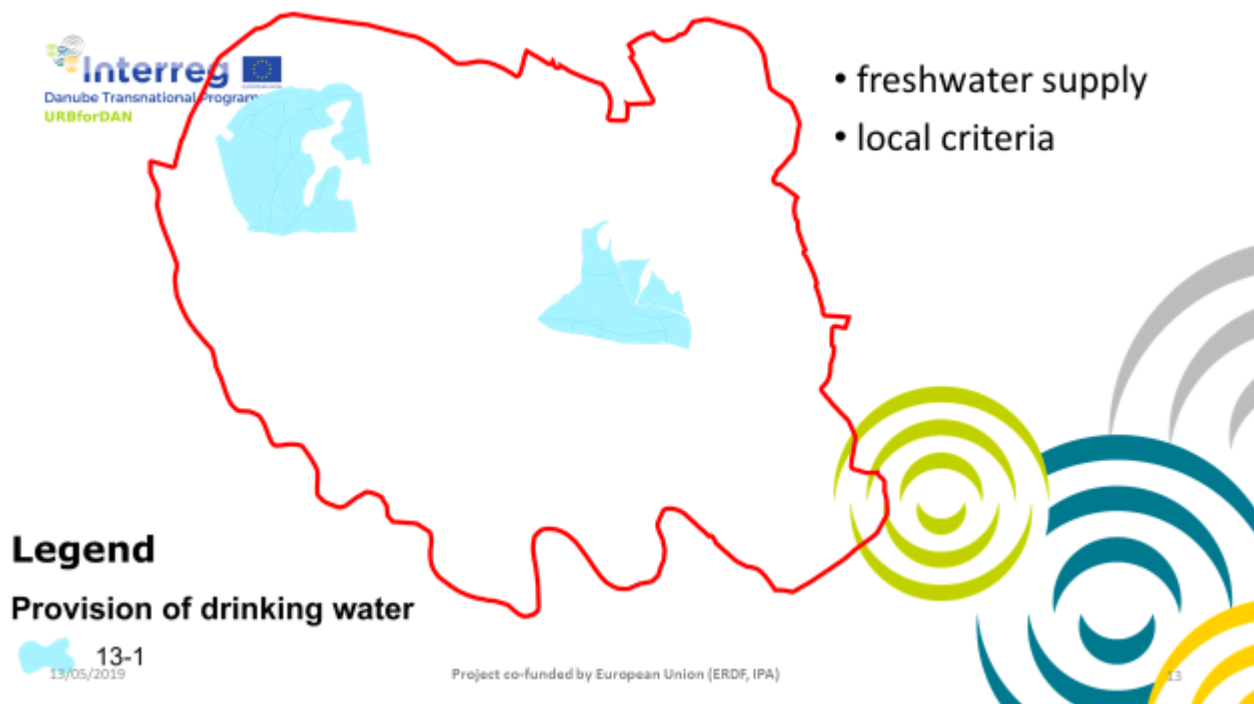
Project co-funded by European Union (ERDF, IPA)



With time, cities are constantly spreading and the living environment of urban communities is unsatisfactory. In order to enable people to eat healthy food and use medicinal plants with extra beneficial effects on human organism, foresters protect wild plants in forests and fields of our distinguished nature. There are certain plant species that have become really valued for their healing properties and necessary in every household.

Serbian forests also dispose of an abundance of edible mushrooms. SE "Srbijašume" collects and packages medicinal and other plants which grow wild, whose processing implies methods to keep all of their natural properties.

Nowadays medicinal plants also represent the main raw material for pharmaceutical production carried out through special technological processes, without which medical treatment would be hard to imagine. Our folk medicine has always relied upon medicinal plants.



The built facilities on Avala (hotels, homes, hikers' houses) are connected to the city water supply network.

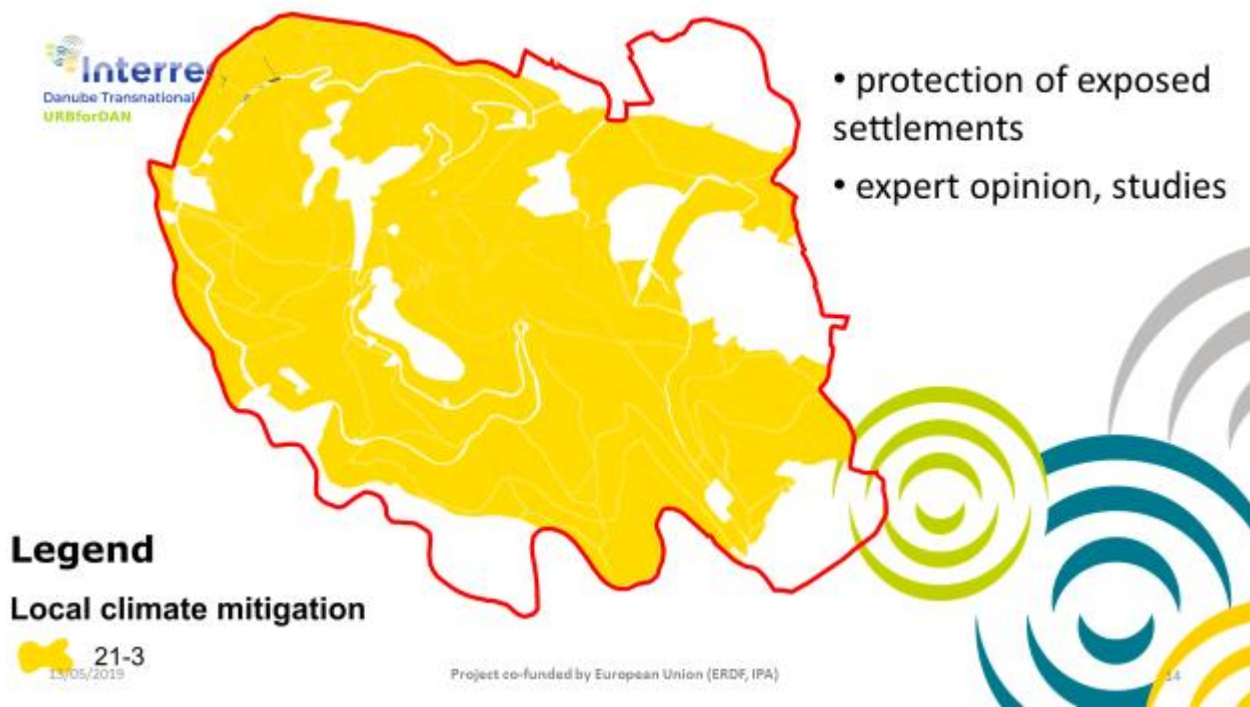
Drinking water supply - for visitors - is organized by the arrangement of two public fountains:

- "Sakinac" near the forest management office and
- "Ladne vode" in the valley of the Vranovac stream.

The villages surrounding the protected wells Beli Potok, Pinosava, Zuce and Ripanj are not fully connected to the city water supply network. Parts of these settlements are still supplied with drinking water from the source (small part of the settlement) and dredged and drilled wells of different depths. In order to provide better quality drinking water and sufficient quantities - regular supply of water for the Danube settlements, in 2002, the preparation of the planning and investment-technical documentation, as well as the phase construction of the new water supply network, began.

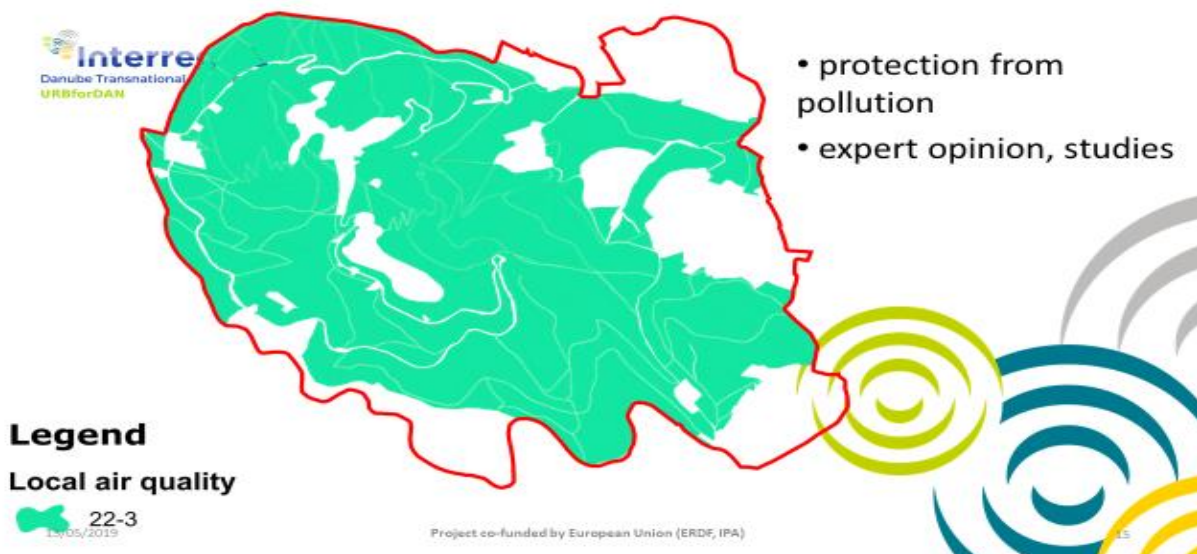
All built facilities within the protected natural heritage are not connected to the city sewerage network, but waste water is collected in biodisc sistem.

The surrounding settlements are also not fully integrated into the city sewerage network. Most of the buildings have only permeable septic tanks and pits for the lime without any purification.



Since there is no climatological station in the protected area, there is no climatological station from which to take measured or authentic values, the method of linear thermal gradient was applied for the analysis, and the analyzed data on basic climatic elements refer to air temperatures and precipitation.

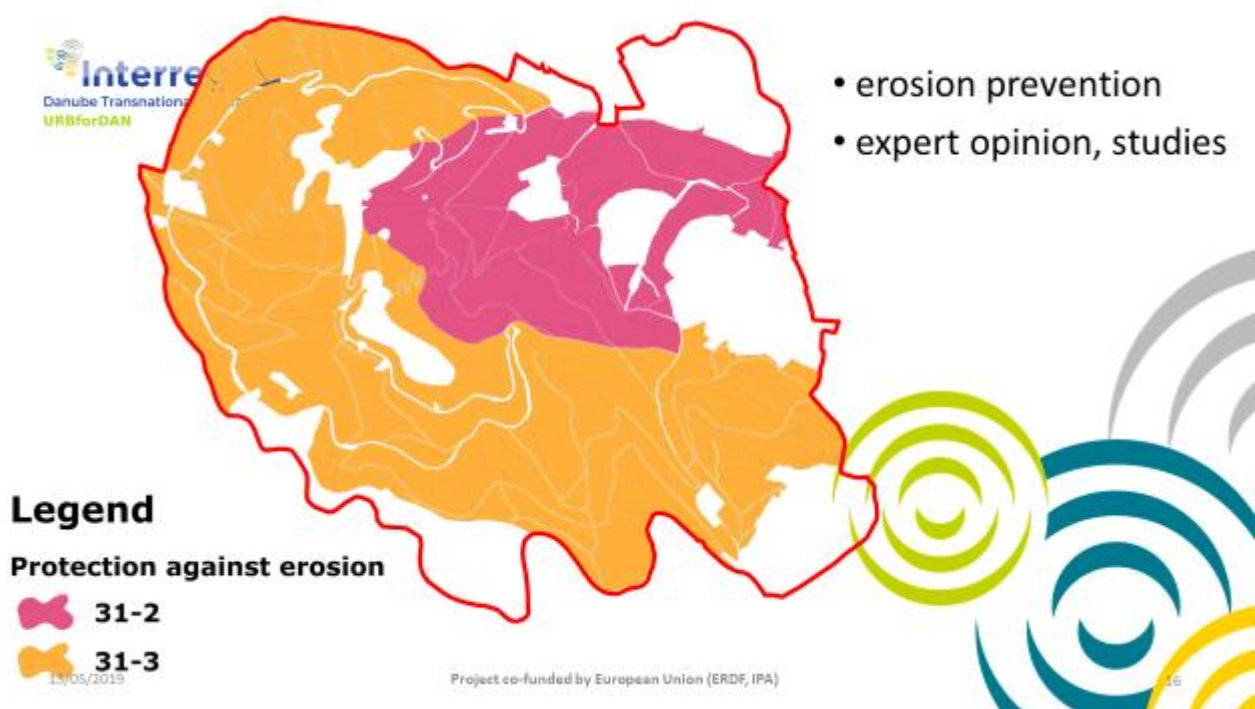
Avala belongs to the area of moderate-continental climate, in which the average annual air temperature amplitudes are less than 23°C and usually range from 20-22°C, and with an increase in altitude, they decrease. The precipitation distribution at Avala shows the characteristics of the continental pulmonary regimen. In the warmer part of the year (April-September), 396.9 mm is excreted, and in the cooler 313.5 mm (the difference is greater than 10%). The primary maximum is in June and the secondary in December. The primary minimum is in October, and the secondary in February. This indicates that the pluviometric rainfall regime on Avala belongs to the Danube variant of the continental pulsetric regime.



In order to make a realistic assessment of pollution, it is necessary to make a correlation between biological and physical-chemical methods. Different and often non-volatile data can be obtained depending on the location and pattern of sampling. From the point of view of environmental protection, we are primarily interested in the impact on the living world, which implies monitoring of the accumulation and mechanisms in which the organisms react to elevated concentrations of pollutants.

Based on the morphological characteristics, the lichens are classified into three groups of animals: crustacea, cerebrospinal fluid, and pharyngeal fluticosis. Buccaneal lichen are considered the best indicators of unpolluted air.

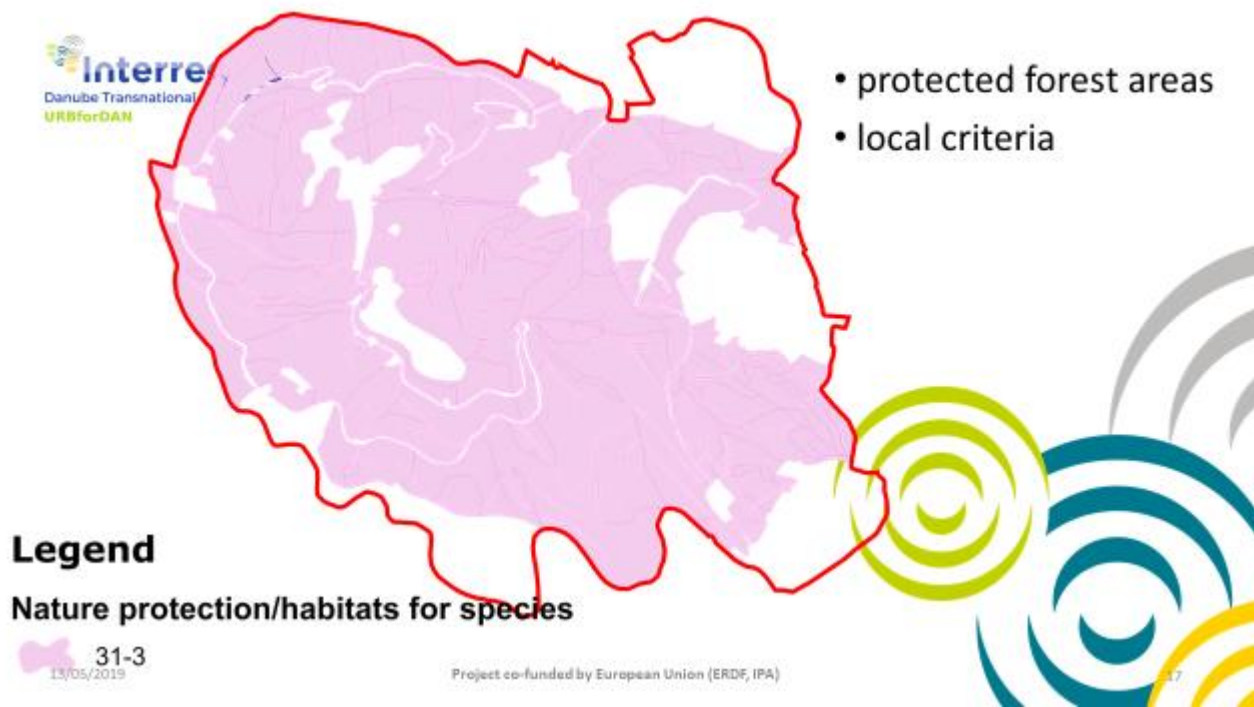
Due to the lack of a national list, it is difficult to make estimates of the vulnerability of certain species. The lichens are not sufficiently explored, so their special diversity can be spoken in a very general way. According to the qualitative scale of the air pollution assessment, ie the concentration of sulfur dioxide in the air, using epiphytic lichen (Hanjksnjorth & Rose, 1970), there are 10 lichen zones. According to this scale, most of the collected lichens inhabit a zone in which the concentration of sulfur dioxide is about $125\mu\text{g} / \text{m}^3$ to $40\mu\text{g} / \text{m}^3$.



In the purpose of protecting the land from erosion, the situation at the origin is unsatisfactory, most of the stands are 74% of the source. There are no tall stands, and artificially raised stands account for 26%. In the stands, a large part of the stands is an acre with which we are barking so that the large part of the stands is not a problem. By keeping the condition is good, 81% of the stand is preserved. There is little involvement devastated and they will be reconstructed in this period of time. The forests of this purpose fully meet their function, erosion protection.

For the purpose of erosion protection, most stands are 77% mixed. Such a relationship is desirable.

Forestry in Belgrade has completed the forest certification process that has been managed by them. All the forests of the "Avala" farms belong to high protected forests (HCV forests), semen stands, protected areas I, II and III degree of protection, protection of land from erosion and recreational and tourist forest.

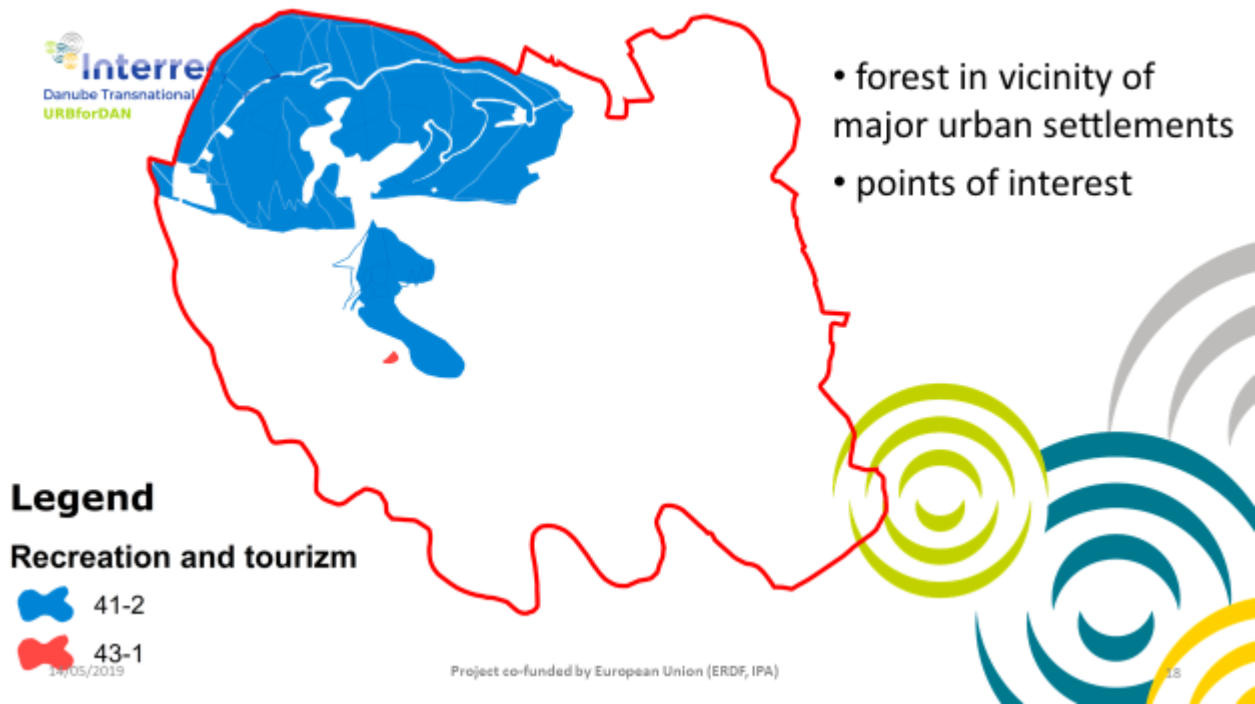


The specific needs of the population in relation to the forest are defined by different contents, protection of the population and property from floods, need for heating, hunting and fishing, rest and recreation. In addition to the permanent protection and conservation of forests by the river forest and foresters of the protected natural heritage, protection against phytopathological and entomological diseases of newly cultivated crop cultivation on the surface of 49.49 hectares will also be protected. Wildlife protection will be carried out on 51.34 hectares. Preserving, protecting and improving the state of forests, using all forest potentials and their functions and raising new forests in order to achieve optimum forestation are the overall goals to be achieved. The achievement of sustainability of yield and growth is a general goal of forest management.

The largest representation is in the group of Eurasian floral elements (169 species or 29.96%). These species have a wide area, continuous or disjunctive that connects the plant council of Europe, Asia and North Africa. Sub-Mediterranean floral elements as a group are represented on Avala with 77 species, or 14.73% of the total flora.

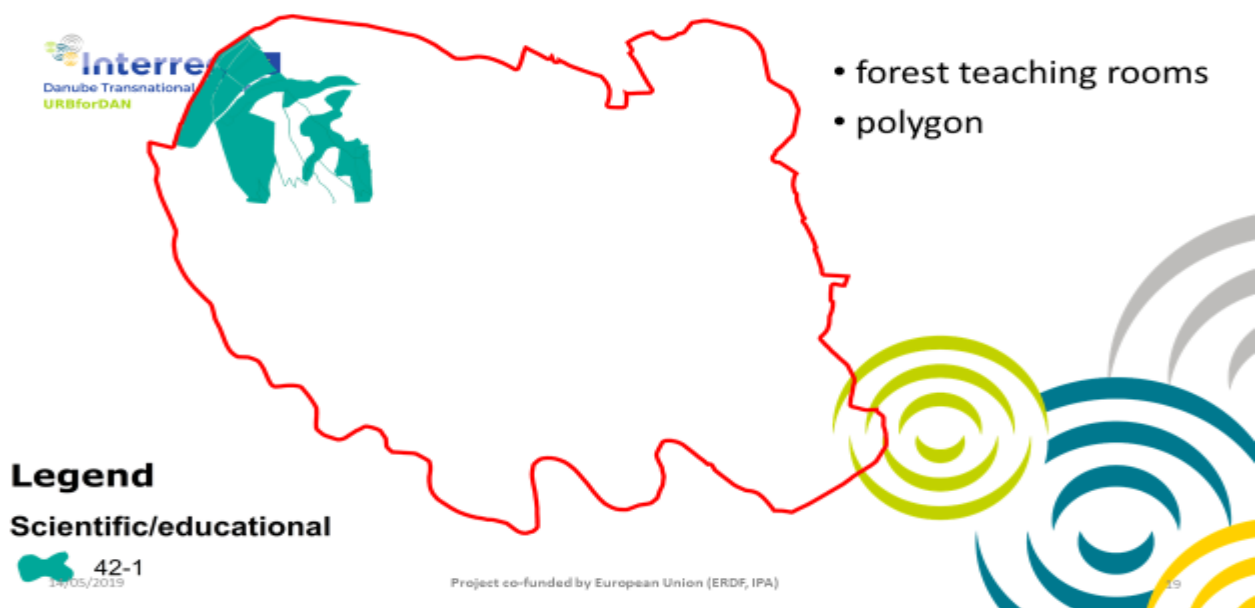
Circumpolar and cosmopolitan are represented on Avala with 56 species, or 9.94% of the total flora.

Avala is an isolated massif that has a vertical zone of vegetation. It belongs to the forest zone, although some authors are classified in the forest zone, due to the formation of stable thermophilic meadows after deforestation. Fortunately, the total logging of the forest on Avala has long been banned, and today's vegetation is mostly forestry. Livestock vegetation is reduced to a small number of sites and occupies fewer areas that gradually, faster or slower, grow over the types of surrounding forest vegetation.



From the standpoint of the involvement of the population in various activities related to the development of tourism, interesting information is about the existence of a household in which one of their members deals with old crafts, art, small business or something else that makes them known in the region. The old crafts were kept in 5.21% of the households of the respondents.

Most respondents expressed their willingness to engage in activities related to the protection and promotion of Avala as well as sustainable development programs. 32.29% respondents answered yes, if the participation of the salary was likely to include 36.46%, it is not certain that they are 17.70%, and if they are paid or obligatory 10.42%. Only one respondent stated that he does not want to get involved in these activities. From these data, it is clear that the inhabitants of these settlements are very interested in the protection and development of the area.



3. RESULTS

3.1. Summary of mapped ES

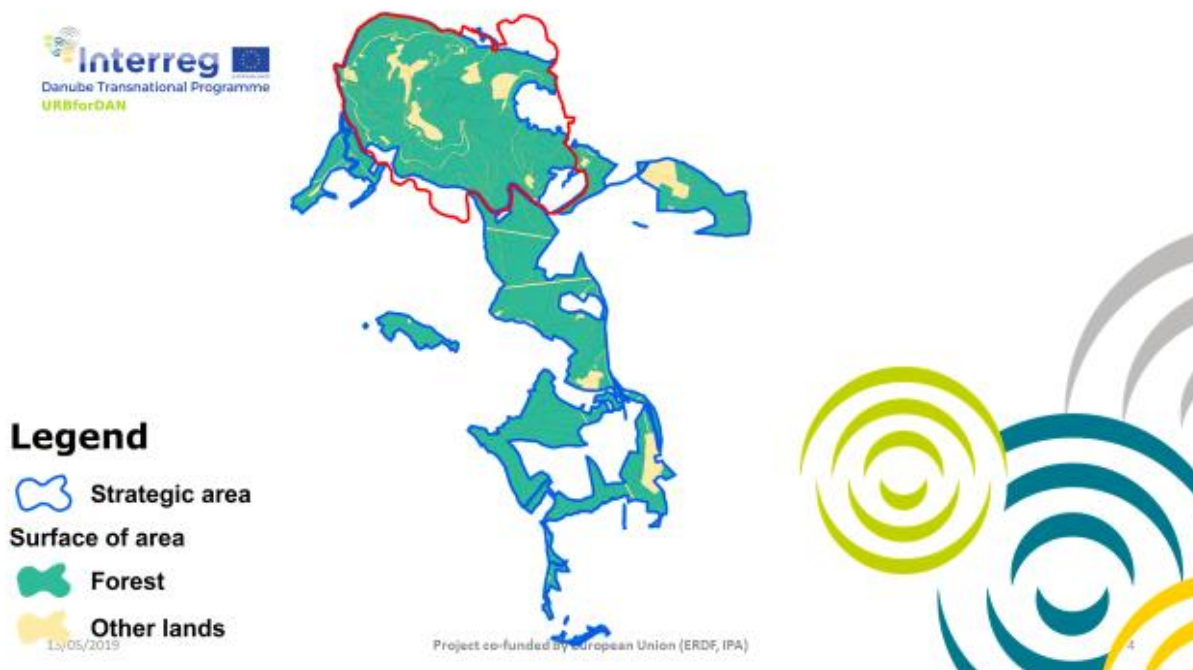


Table 1: Area and proportion of mapped ES given ranks of their importance (for the strategic area)

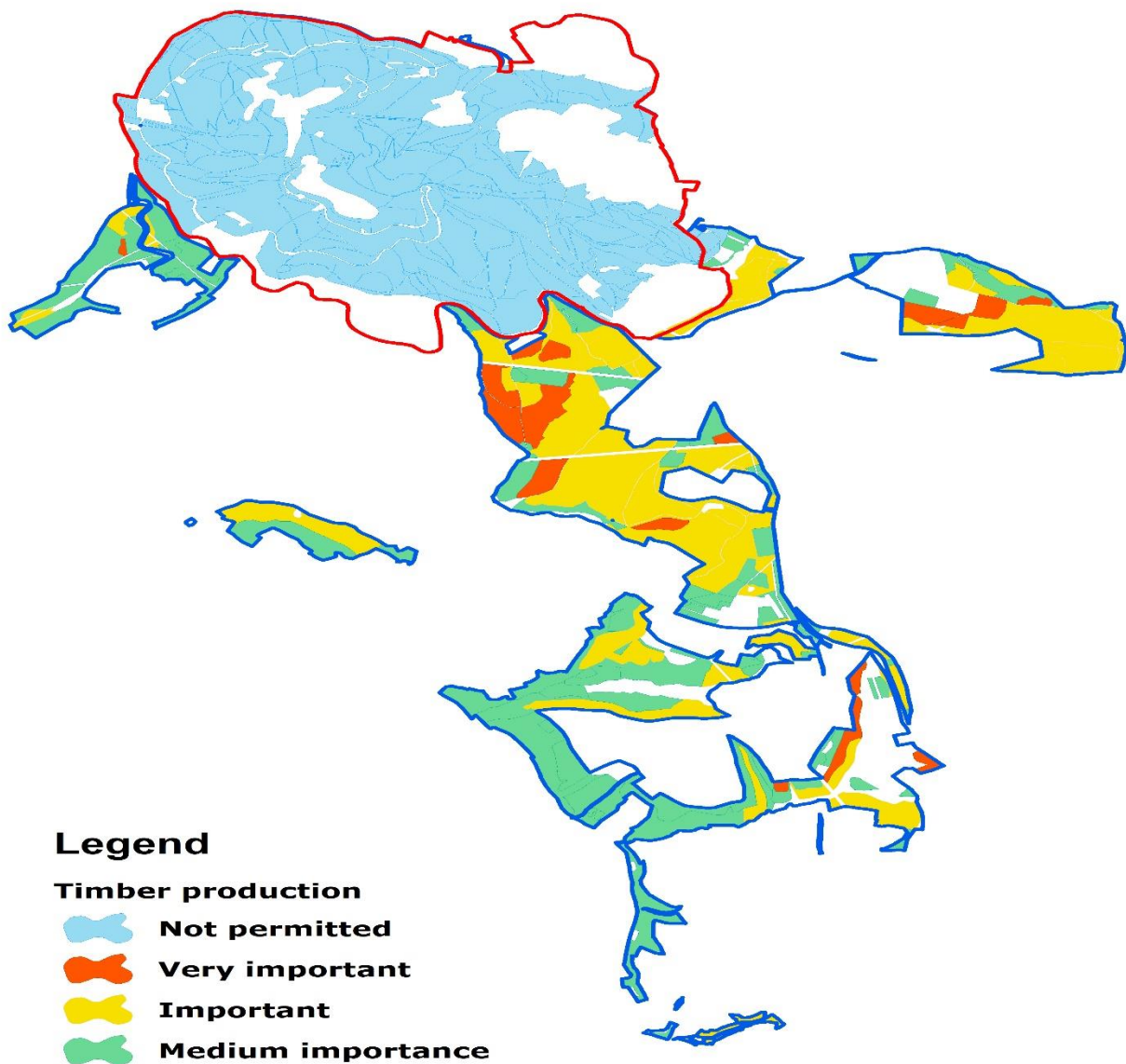
Landscape of exceptional features			
Type of ES	Rank	ha	%
Timber production	2	122.28	31.29%
	3	217.99	55.78%
Non timber products	3	177.04	45.31%
Provision of drinking water	1	38.18	9.77%
Local climate mitigation	3	340.27	87.08%
Local air quality	3	340.27	87.08%
Protection against erosion	2	148	37.87%
	3	192.27	49.20%
Nature protection/habitats for species	3	340.27	87.08%

Recreation and tourism	2	95.66	24.48%
	1*	0.02	0.01%
Scientific educational	1	24.82	6.35%
Cultural heritage	1	7.35	1.88%

3.2. Timber production

Works on forest protection were carried out through sanitary dry wood. In 2011 and 2012 the removal of gubarb's layer on the surface of 450 hectares was carried out. In order to protect the conifers in 2015 and 2016, the erection of pheromone traps and pheromones sexovit and acuwit, for the horseradish of *ips acuminatus* and *ips sexdentatus* was carried out. Five pheromone traps were placed in 21b, d, 10e and 13e. According to the records from 2013 to 2016, control and hunting trees (21d, c,) were placed. Illegal seizures are largely prevented by the organization of guard service, with the constant presence of forest on the ground. According to data recorded in the Forestry Administration in the period from 2011 to 2015, for the theft of 27.7m³, 7 applications were launched. In order to protect the forests, a sanitary plan was made after a stormy windmill in 2016 on a surface of 200 hectares.

Restitution, return of forests and land to other owners was carried out during the previous period. Total area reduction was 15.54 hectares. From the basics it was separated the area of forests and land returned to private persons. This reflected a lower volume than expected. The planned cultivation work was realized over planned for 20%. Due to the need for repair of vetroloma, sanitary ditches have been carried out on several occasions and on larger areas than planned.

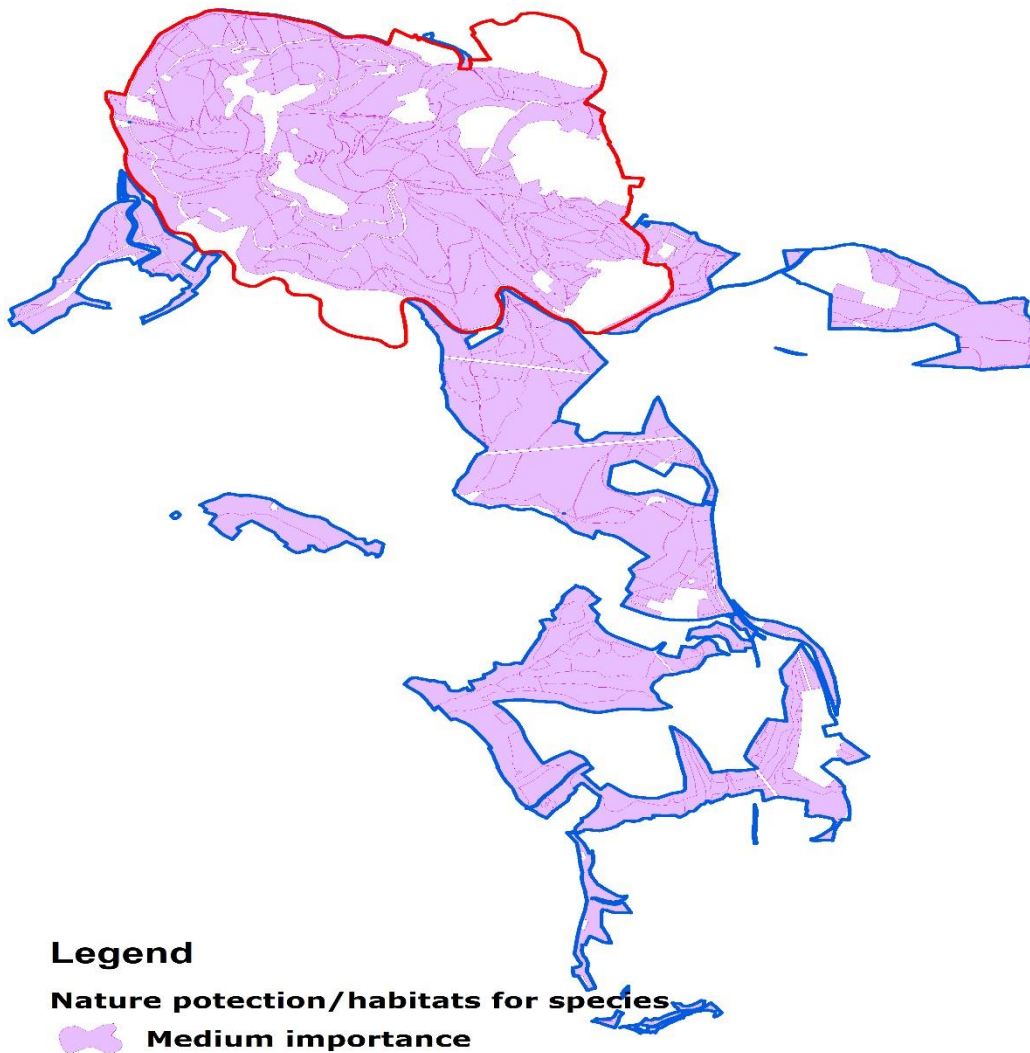


4. DISCUSSION

The goal of management is to preserve a coherent interaction of nature and culture through the protection of landscapes and the maintenance of traditional land use, construction methods and social and cultural manifestations; preservation of diversity of landscapes, habitats of associated species and ecosystems; the possibility of using recreation and tourism in accordance with the basic qualities of the area; contribution to the welfare of the local community through the provision of natural products and services, etc.

Protection of special natural values which implies protection of parts of nature of importance for scientific, cultural, educational, recreational and other purposes; landscape, ambience and landscape around cultural and historical monuments; specific natural values of geological heritage; characteristic representatives of particular ecosystems and others, and for their presentation and inclusion in the tourist offer.

Protecting biodiversity ie preservation, monitoring of the state and endangering biodiversity factors with the assessment of the tendency of possible changes and spontaneous succession.

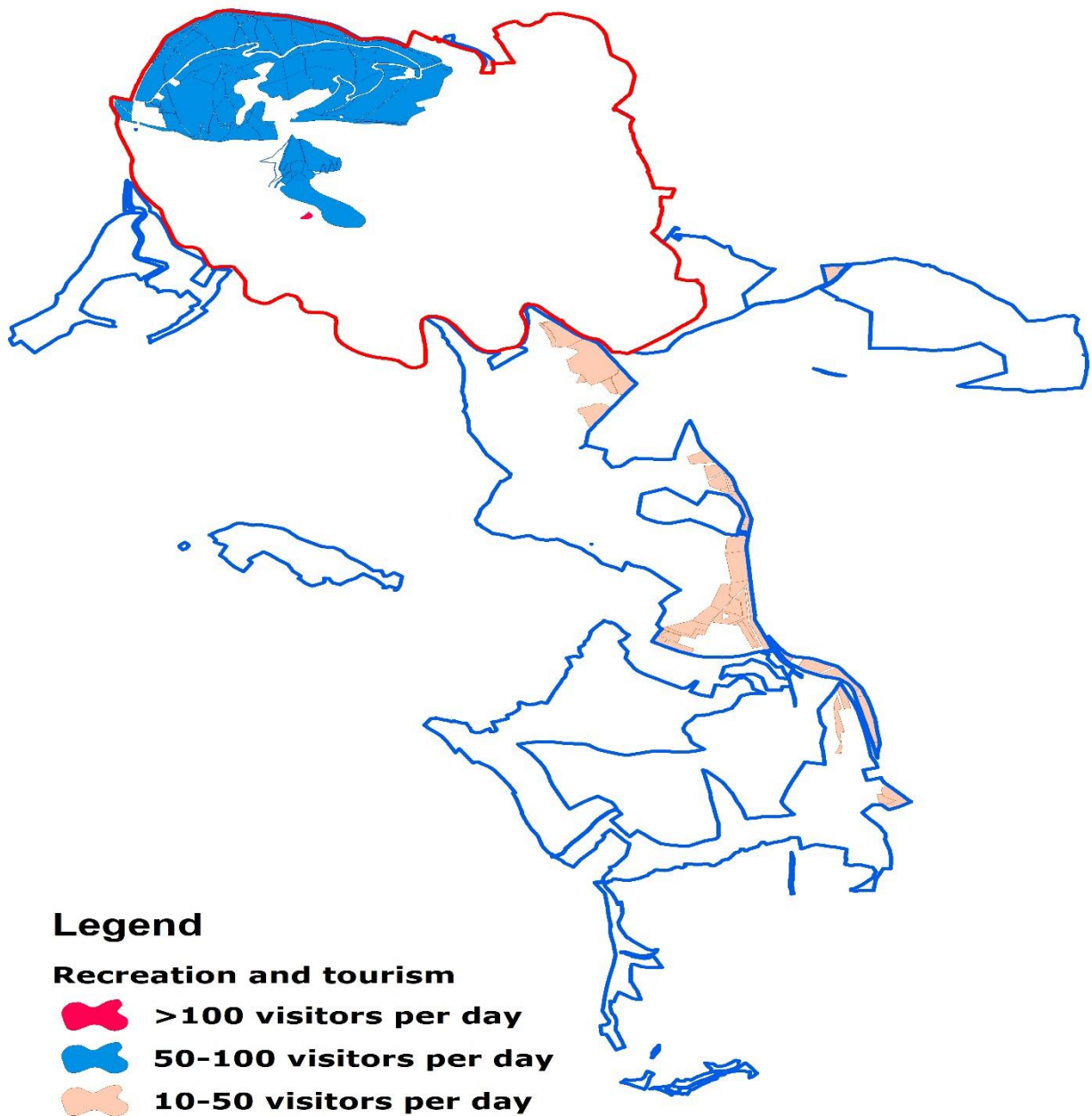


The protection and use of resources directed at the protection of watercourses and sources, the rational use of mineral resources (or their use only if they are of utmost importance and with the obligatory application of appropriate technology in order to eliminate or maximize the negative impact of exploitation), as well as the use of biological resources in accordance with the policy of sustainable development.

Protect cultural goods, which means preserving cultural monuments and arranging its surroundings.

Taking into account previous views, the priority space of the space should be in place:

- the protection of nature, natural and cultural-historical values and
- Recreation in the broader sense (sports, cultural, health, education, etc.)



In the vicinity of the natural heritage, at the foot of Avale, there are 4 settlements Beli Potok, Zuce, Pinosava and Ripanj, which have the status of a cadastral municipality within the municipality of Voždovac, which enters the territory of the city of Belgrade. In these settlements there are a total of 19,021 inhabitants, which is 12.53% of the total population of the Voždovac municipality. On the territory of the municipality of Voždovac, according to the census of 2001, there are 151768 inhabitants.

By age structure, settlements at the foot of Avale can be depicted as demographic old settlements, at the borderline to fall into the category of deep demographic strata. The average age of residents in these settlements ranges from 39.1 in the Beli potok to 40.2 years in the Zuce settlement, which already enters the category of deep demographic age, which is the age structure of the old structure on the entire territory of the Voždovac municipality. Average Age of Residents of Voždovac Municipality

The survey was conducted to examine the basic socio-demographic characteristics, opinions and interest of the inhabitants of the settlements near the boundaries of protected natural assets of Avale.

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The sample of respondents was selected according to the sample method, ie surveyed those who founded families and households located in settlements near the future protected natural assets of Avale. The sample was chosen because this group is most interested in developing the area and engaging in activities that can provide quality conditions and living standards, while preserving the living environment and natural resources for future generations. During the survey, 96 subjects were interviewed, ages 20 to 70 years.

The largest number of respondents belong to the age group 41-50 (44.57%) and 31-40 (32.64%), making almost 80% of those who responded to the survey (Graph 6). Secondary education is the largest (40.45%), followed by those with professional interest of III grade (25.84%), while higher education has 30.34% of respondents and only about 3% with incomplete or complete elementary school (Graph 7). Such an educational structure, where the vast majority are those with secondary, higher and higher education, is a positive factor for the implementation of development programs based on the principles of sustainable development.

From the point of view of inclusion of the population in various activities related to the development of tourism, it is interesting to note the existence of households in which one of their members deals with old crafts, art, small business or something that makes them known in the end. Old trades were kept at 5.21% of respondents' households. As old crafts are mentioned occupations: abadija, sarač, blacksmith, fur. That one of the members of the household deals with art has declared them 16.66%, citing the following branches of heights: poisoning, woodcutting, acting and gathering folk tales. Only 6.25% of the respondents stated that in a household one member engaged in economic activity.

The largest number of respondents expressed their willingness to engage in Avale's protection and promotion activities as well as sustainable development programs. To be sure, 32.29% of the respondents answered, if 36.46% would be involved, it is unlikely 17.70%, and if 10.42% is payable or compulsory. He does not want to be involved in these activities, only one respondent said. From these data it is clear that the inhabitants of these settlements are very interested in the protection and development of the area.

In this context, there are intertwined data that we have come up with regarding the activities to be undertaken so that young people do not go for employment and a better standard of living. Residents of these places have identified as the most important improvement of the infrastructure of the settlement: improving the road network, building ambulances and building the church, where they lack infrastructure planning, waste regulation, etc. Immediately after the construction of infrastructure elements, tourism was seen as an activity within which new workplaces for young people could be opened by building new facilities. The third place in the number of proposals is the construction of sports and recreational terrain and the design of a cultural entertainment program and content. The development of the small economy was seen only at the fifth place. Respondents saw education as one of the factors of sustainable development, primarily in terms of training for engagement and inclusion in specified activities. After the education, following the arrangement of Avale, and on the eighth place there is agriculture, then the management of forests and the engagement of professional staff in the Meat Offices offices.

In support of population readiness data to support and engage in sustainable development programs, the area also speaks about the expressed need to be educated in order to be able to engage in certain activities. Readiness for inclusion in such educational processes was expressed by more than 80% of respondents, with 27.08% saying that such training is necessary. However, most of them agree to additional training if certain conditions are met, such as the timing of their other obligations, employment opportunities or engagement and the abundance of other settlements.