# Information Sheet on Ramsar Wetlands (RIS) – 2006 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

*Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).*

**Notes for compilers:**

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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**1. Name and address of the compiler of this form:**

FOR OFFICE USE ONLY.

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| | | | | | | | | |

Designation date | Site Reference Number

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**2. Date this sheet was completed/updated:**

November 2006

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**3. Country:**

Serbia

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**4. Name of the Ramsar site:**

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

"Peštersko polje"

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**5. Designation of new Ramsar site or update of existing site:**

**This RIS is for** (tick one box only)**:**
**a) Designation of a new Ramsar site** X; or
**b) Updated information on an existing Ramsar site** ❑

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**6. For RIS updates only, changes to the site since its designation or earlier update:**

**a) Site boundary and area**

**The Ramsar site boundary and site area are unchanged:** ❑

or
**If the site boundary has changed:**
i) the boundary has been delineated more accurately ❑; or
i) the boundary has been extended ❑; or
iii) the boundary has been restricted** ❑

and/or

**If the site area has changed:**
i) the area has been measured more accurately ❑; or
ii) the area has been extended ❑; or
iii) the area has been reduced** ❑

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

**b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:**

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**7. Map of site:**
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

**a) A map of the site, with clearly delineated boundaries, is included as:**
i**) a hard copy** (required for inclusion of site in the Ramsar List): X;

ii**) an electronic format** (e.g. a JPEG or ArcView image) X;

iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** ❑;

**b) Describe briefly the type of boundary delineation applied:**
e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

Boundary follows a boundary of wetland habitats.

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**8. Geographical coordinates** (latitude/longitude, in degrees and minutes):
Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

| | | |
|---|---|---|
| Greenwich: | Central | 43 o 05' 39" N |
| | | 20 o 07' 00" E |
| | West | 20o 05' 02" E |
| | South | 43o 01' 45" N |
| | East | 20o 10' 45" E |
| | North | 43 o 07' 12" N |
| Gauss-Krieger: | Central | 4772.600 |
| | | 7428.125 |
| | West | 7425.450 |
| | South | 4765.400 |
| | East | 7433.050 |
| | North | 4775.475 |

**9. General location:**
Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

"Peštersko polje" is situated on the Sjenica-Pešter Plateau in south-western Serbia, near the border with Montenegro. It belongs to the region of Stari Vlah and Raška, and to the municipalities of Sjenica (60%) and Tutin (40%). Peštersko polje includes several villages of mountainous type, and the nearest urban centres are Sjenica, Novi Pazar and Tutin.

**10. Elevation:** (in metres: average and/or maximum & minimum)

Ranges from 1,155 m to 1,351 m above mean sea level.

**11. Area:** (in hectares)

3454.78 hectares

**12. General overview of the site:**
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Peštersko polje is situated on the Pešter Plateau, at altitude of approx. 1150 m above mean sea level, and it is the largest karst field in Serbia and Montenegro, covering a surface of approx. 50 km². It is considered to be the most elevated karst field on the Balkan Peninsula. In the recent geological era the whole plateau (Peštersko polje) was field with water, and the former lake was drained through the shafts, so that the flood zone remained only in the lowest depression in the NE and SE parts of Peštersko polje.

Peštersko polje represents an excellent example of a specific wet peatbog habitat, extremely rare and endangered in this biogeographic region, and the most important example of a conserved peatbog in Serbia and Montenegro.

The disappearing river Boroštica flows through this typical karst field with many shafts, along the course of which mineral-marshy soil and peat are being formed. The largest peatbog on the Pešter Plateau spreads through Peštersko polje, at altitudes of 1,156 to 1,162 m (GIGOV, 1960). According to PAVIĆEVIĆ *et al.* (1968), besides the mineral-marshy soil, the whole areas of the Peštersko polje are covered with peat.

Pešter is distinguished with a specific temperate-continental climate, modified with elements of the mountainous climate, unique on the Balkans, for which this area is called the "*Balkan Siberia*". This is the coldest region in Serbia and Montenegro during the winter, with the minimum temperature of -39°C.

The main wetland types are non-forested peatlands, permanent rivers and seasonal freshwater marshes on inorganic soils.

Aquatic vegetation grows in the newly-formed lake, channels and watercourses, and the fossil riverbed of the Boroštica River has a particular significance, with parts that are covered with water for most time of the year. Emersed vegetation grows in the coastal area of the lake and along the channels, levees, pools etc. The vast peatbog area represents a particular feature of Peštersko polje, and it is probably the largest peatbog in Serbia.

Peštersko polje provides survival for a number of vulnerable, endangered and critically endangered species (IUCN).

Endangered plant species: *Fumana bonapartei* (R), *Halacsya sendtneri* (R), *Linum tauricum* subsp. *serbicum* (I (nt)), *Potentilla visianii* (R), *Verbascum nicolai* (R). Orchid species should also be added to this list: *Orchis morio* (nt), *Orchis tridentata* (R), *Orchis laxiflora* (R), *Orchis coriophorus* (R), *Dactylorhiza incarnata* (R), which are included in the CITES Convention as well (ANNEX B).

The most important representative of endangered animal species is corncrake *Crex crex* (Threatened: Vulnerable).

The entire existence of the Pešter local population is based on traditional cattle breeding, due to the natural characteristics of this area. The best pastures and mown meadows can be found in Peštersko polje, the waters of which determine the productivity of pastures in wider hinterland area. The local culture of the Sjenica-Pešter Plateau is determined by several principal characteristics. These characteristics are isolation, economy based on cattle breeding, and Islam and Christianity as two dominant confessions.

A marked negative anthropogenic influence exists in the surrounding boggy area, which is observed through the commercial exploitation of peat with annual dynamics of 20,000 $m^3$, and through activities on surface water removal. Intensive grazing of cattle and sheep is present on pastures, and the meadows are mown.

According to the official programme of the Institute for Nature Conservation of Serbia for 2005-2006, the area of Peštersko polje is among priorities for data collecting, valorisation and preparation of a study for protection and nomination for a new Ramsar site in Serbia, first in the country south from the Sava and the Danube.

**13. Ramsar Criteria:**

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

| 1 • | 2 • | 3 • | 4 • | 5 • | 6 • | 7 | 8 • | 9 |
|---|---|---|---|---|---|---|---|---|
| X | X | X | X | ❑ | ❑ | ❑ | ❑ | ❑ |

**14. Justification for the application of each Criterion listed in 13 above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1: Peštersko polje is an outstanding example of a specific wet peatbog habitat, extremely rare and endangered in corresponding biogeographic region and the most important example of a conserved peatbog in Serbia and Montenegro.

Criterion 2: Peštersko polje provides survival for a number of vulnerable, endangered and critically endangered species and endangered ecosystems (**IUCN RED LIST (2000**), such as: *Crex crex* (Threatened: Vulnerable).

Plant taxa that are of international significance (with **IUCN** threat categories) are: *Fumana bonapartei* (R), *Halacsya sendtneri* (R), *Linum tauricum* subsp. *serbicum* (I (nt)), *Potentilla visianii* (R), *Verbascum nicolai* (R). Orchid species should also be added to this list: *Orchis morio* (nt), *Orchis tridentata* (R), *Orchis laxiflora* (R), *Orchis coriophorus* (R), *Dactylorhiza incarnata* (R), which are included in the **CITES** Convention as well (ANNEX B).

Criterion 3: Peštersko polje provides survival for valuable populations of plants and animals significant for conservation of biodiversity in this biogeographic region, such as: species of the genus *Sphagnum*, *Galium boreale*, *Menyanthes trifoliata*, *Pedicularis palustris*, *Scorzonera purpurea*, *Ciconia ciconia*, *Circus pygargus*, *Vanellus vanellus*, *Tringa totanus*, *Asio flammeus*, *Lutra lutra*, *Canis lupus* etc.

The following plant species are threatened in Serbia, and are significant for corresponding biogeographic region.

According to LAZAREVIĆ (2005), the preliminary **"Red List of Flora of Serbia"** with estimated threat categories (STEVANOVIĆ *et al.*, 1995), includes the following plant taxa: *Dactylorhiza incarnata* NT-LC(DD), *Fumana bonapartei* NT-LC(DD), *Galium boreale* VU-NT(DD), *Halacsya sendtneri* VU-NT(DD), *Knautia midzorensis* NT-LC(DD), *Linum tauricum* subsp. *serbicum* VU-NT(DD), *Menyanthes trifoliata* VU , *Orchis coriophorus* VU-NT(DD), *Orchis laxiflora* EN-VU(DD), *Orchis morio* VU-NT(DD), *Orchis tridentata* NT LC(DD), *Pastinaca hirsuta* VU, *Pedicularis palustris* EN- VU, *Ranunculus flammula* VU, *Salix rosmarinifolia* EN-VU, *Utricularia australis*, EN-VU(DD), *Verbascum nicolai* VU.

The **"Decree on Protection of Natural Rarities"** (Serbian Official Register, No. 53/93 and 93/93) includes the following plant taxa: *Menyanthes trifoliata*, *Orchis laxiflora*, *Orchis coriophorus*, *Pedicularis palustris*, *Salix rosmarinifolia.*

The population abundance of Montagu's harrier *Circus pygargus* is significant. Besides the northern part of Vojvodina, this is the only nesting region of this species in Serbia and Montenegro.

White stork *Ciconia ciconia* is very rare in the mountainous parts of Europe, and Peštersko polje represents a feeding base for a large part of this species population in this biogeographic region, both during periods of nesting and migrating.

Criterion 4: Peštersko polje provides survival during unfavourable periods in the life cycle for corncrake (*Crex crex*), which is a nesting bird species of the wet meadows in the wider area of the Sjenica-Pešter Plateau. During drought years, most meadows in this area become unfavourable for corncrake, except the wettest one. Nesting is then limited to the narrower area of Peštersko polje, and its survival in the region depends directly upon this locality.

**15. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

The area of the Pešter Plateau belongs to the Central-South European Montane biogeographic region, Central European Montane subregion and the Dinaric province (STEVANOVIĆ, 1995).

**b) biogeographic regionalisation scheme** (include reference citation):

Stevanović, V. (1995): Biogeografska podela Jugoslavije (*Biogeographic regionalisation of Yugoslavia*) - In: Stevanović, V., Vasić, V. (eds): Biodiverzitet Jugoslavije sa pregledom vrsta od međunarodnog značaja (*Biodiversity of Yugoslavia with a review of internationally significant species*) -) – Faculty of Biology, Belgrade, Ecolibri, Belgrade

**16. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The proposed area has a widely spread geological structure, in which Cenozoic sediments dominate, represented with delluvial deposits, fluvial fans and alluvial sediments. A minor mass of Mesozoic serpentinite is distributed along the north-eastern rim.

Peštersko polje is a wide and flat plateau with the largest Pešter peatbog. The northern boundary of Peštersko polje, towards the Sjenica Valley, is the ridge Sekniš̌te (1232 m AMSL), which in the same time represents the watershed towards the Vapa River catchment. A serpentine hill, Trojan (1357 m AMSL), is positioned to the east. Ridges Jarut and Hum make the eastern and south-eastern boundaries, parts of Moravac (Borovo brdo and Crkvišt̀e) and steep hillsides of Kruščica and Žilindar make the southern and south-western boundaries. The aforementioned dry valley Duga dolina is positioned to the west, and the south-western boundary is made by hillsides of Giljeva, and more towards the north, this field gradually extends to the surface of Pešter. Peštersko polje was created by "lowering of the Pešter Plateau, under the influence of radial tectonic movements, and it is separated from the Vapa River catchment area. Therefore, this field by its morphogenesis represents a basin with deposited Neogene and Quaternary lake sediments, and it has a recent shape of a flattened karst field". It is naturally opened to the west through a narrow dry valley (Duga dolina 1190 m AMSL) towards the Đalovića klisura gorge. It is in fact a fossil valley, through which the water of Lake Pešter was once drained into the Bistrica River basin. Peštersko polje is also naturally passable through Tuzinjski stanovi (a ridge of 1232 m), towards Tuzinje and the Rasanska River. It declines from the north-east to the south-west, in direction parallel to the natural course and underground drainages of the Boroštica River. It has a shape of a triangle, 11 km long and 7 km wide, with a bottom the boundaries of which are sporadically not distinct. The bottom of this field is situated at altitude of 1160 m AMSL. A lake, which was loosing its water through outflow rivers and shafts, was formed during the Pleistocene. A small lake surrounded with pools and peatbogs represents its remnants.

Besides the mineral-marshy soil, large areas of the field are made of peat. The area of the peatbog covers approx. 450 ha, and the thickness of peat deposits reaches an average of 2 m. References show that there are many data on the composition of this peat, since it has been analysed by GIGOV (1960) and TEŠIĆ *et al.* (1960). According to GIGOV (1960) its characteristic profile is $T_1$-$T_2$-G. It contains around 80 % of organic matter. At certain places there is a layer of semi-peat below the layer of peat, and at depths below 2 m there is a layer of lake mud. The peat is acid (pH=5.58), and acidity rises with depth (pH=4.95 at depth of 2.75 m). There is no lime even in the mud layer. TEŠIĆ *et al.* (1979) cite that the peat is rich or very rich with organic matter (more than 80% or even more than 90 %). Its pH level ranges from acidity to mild acidity and low acidity.

Hydrography of the analysed area is predominantly karstic. The hydrographic network across the area has a different density. The most interesting part is certainly the bog complex of approx. 500 ha, with the locality Jezero and the river mouth of the Boroštica River. During low waters, the lake has a surface of 50-60 ha, out of which around 10% is open water, while the rest is covered with pondweeds (*Potamogeton*), and near the margins with stands of large sedges from the alliance *Magnocaricion*. Groundwater plays the essential role for the survival of this peatbog, as well as water that is being flushed from the surrounding higher terrains (although these are not widespread, since Giljeva and Ninaja are conditionally waterless areas). The disappearing river Boroštica, originating from the powerful Đerekare spring ($Q_{med}$ -95 l/s), runs along the outskirts of Peštersko polje. In the Đerekare depresssion, the Boroštica River disappears under the Gorica hill and after 18 m again appears at the surface. The Boroštica River meanders very much through Peštersko polje. Due to the changed water regime after the river has dried, the shafts that were active while receiving surface water through the riverbed today are turned into pits.

Peštersko polje is distinguished with temperate-continental climate, modified with elements of the mountainous climate, unique on the Balkans, for which this area is called the "*Balkan Siberia*". This is a mountainous landscape with harsh climate, characterised with very long winters, and it represents the coldest area in Serbia, with the minimum temperature of -39°C. The spring and autumn are short in comparison to the summer and winter, hence the climate changes are very abrupt. The average annual air temperature is 7°C, which is one of important ecological features significant for the development of specific vegetation. The summer is characterised with high temperature amplitudes between day and night. Night frosts are common during the summer months. However, temperature is sufficiently high in the summer (do +35°C), which prevents development of transition peatbogs into high peatbogs.

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**17. Physical features of the catchment area:**

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

Pešter is the area situated in SW Serbia, the name of which is probably derived from the Slavic word "*pešter*" – meaning "a cave". This indicates that the wider area has a karstic character, with a large number of pits and caves. The largest known cave in Serbia and Montenegro, "Vražiji firovi", is located nearby, and is more than 10 km long. However, the area mostly relates to a wide plateau surrounded with hills, with unique landscapes, climate and way of life of its inhabitants.

The Sjenica-Pešter Plateau, i.e. the Pešter Plateau with the Sjenica Valley, is situated at the farthest south-western part of Serbia, in the region of Stari Vlah and Raška. This area was part of the sanjak of Novi Pazar until the end of the 19$^{th}$ century. It is a mountainous region with harsh climate characterised with very long winters.

The slopes of this plateau were in the past covered with rich forests. The dominant coniferous species were Scots pine, fir, spruce and juniper, and dominant deciduous species were hazel, birch, cornelian cherry, hornbeam, beech, maple and willow. Many of the toponyms indicate the former diversity of forest trees: Lešnica, Borići, Breza, Krnja jela, Borje etc. Uncontrolled cutting and insufficient planting of young trees, together with harsh climate and cattle grazing, contributed to the scarce presence of woodland on the plateau in more recent times.

This region belongs to the Inner Dinarids, predominantly built of Mesozoic limestone. The geological structure is represented with Mesozoic and Cenozoic sediments and rocks. The largest part of the area is built of Triassic limestone sediments, followed by diabase-chert formation of Jurassic age. Lesser masses of sandstone and conglomerates of Perm-Triassic age are also present. The Cenozoic period is represented with delluvial deposits, fluvial fans and alluvial sediments.

The Pešter Plateau with the Sjenica Valley occupies the central part of Stari Vlah, and it is surrounded with mountains from all sides. Starting from the north-east, mountains line up as follows: Golija, Radočelo, Pometenik, Ninaja, Hum, Jarut, Mokra gora, Mokra planina, Ozren, Jadovik, Zlatar and Mučanj. The Giljeva Mt. separates the Sjenica Valley from the Pešter Plateau. According to PAVIĆEVIĆ *et*

*al.* (1968), the entire surface is wavy, with an average height of 700 – 1300 m AMSL, and on mountains up to 1700 m. The only exception is the wide and flat Peštersko polje, where the largest Pešter peatbog is positioned.

Water is filtered through the karst via shafts and grabens, making the terrain very porous. Hence, in spite of the large number of watercourses (Boroštica, Đerekarska reka, Vapa, Uvac, Veljušnica, Dubočica, Grabovica, Jablanica, Štavaljska reka etc.), the vegetation cover mostly craves for water, and some areas like Giljeva and Ninaja resemble waterless terrains. The only exception is the Vapa River (at altitude of 993 m AMSL), distinguished with a quiet, meandering course through the Sjenica Valley, causing a formation of mineral-marshy soils along its course. Contrary to that, some smaller areas at several localities throughout the Sjenica-Pešter Plateau are characterised with specific marshy, peaty habitats of a very confined distribution (such as the peatbog near the village of Kneževac), or with fragments of marshy meadows (such as Ljuta bara at the bottom of Caričina). Nevertheless, the Sjenica-Pešter Plateau ranks among the most dry areas in the region of the Dinaric karst for its lack of water.

In recent times, the area of Pešter is used primarily for extensive cattle breeding. Agriculture is also present, to a lesser extent, first of all in the form of potato and grain growing.

## 18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The Boroštica River and Jezero are the most important hydrographic units of Peštersko polje, and the state of surrounding pastures and natural ecosystems depend on them.

Until 1972, the Boroštica River run through Peštersko polje and influenced the main hydrographical conditions in the area. Through hydro-ameliorative activities, a levee was built in order to protect parts of the terrain from spring floods, a channel was dig through to change the river course towards another direction, and a tunnel was made to direct waters into catchments of the Vapa River and the Uvac River for the purposes of hydroelectric power plants. Borrow pits for the construction of the levee in Peštersko polje were sited on the very terrain, and a depression, formed in this way, was filled with water, creating a "lake", which now represents on of the most distinct characteristics of the area. Stones for levee building were brought from the surrounding hills. The depth of the lake in some parts reaches up to 10 meters.

Before the hydro-ameliorative system was built in 1972, the larger part of Peštersko polje was regularly flooded after the melting of the spring snow, and depth of water often reached an average of more than 2 m. After that, the terrain would slowly dry out, and periodical flooding would occur again in early autumn during heavy autumnal rainfall. Such floods are lacking in recent times, although even now the central part of the peat bog is from time to time completely flooded during the spring months.

## 19. Wetland Types

### a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

**Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)**

**Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp Ts • U • Va • Vt • W • Xf • Xp • Y • Zg • Zk(b)**

**Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)**

### b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

**U, 4, M, O, Va, Ts, 7, 9, Zk (b)**

**20. General ecological features:**

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The peatbog on the Peštersko polje is one of the largest and most preserved peatbogs in Serbia, along with the peatbogs in the area of Vlasina and the Divčibare. It is significant first of all for its size, since large peatbogs are rare in this climate. It is a mesophilous peatbog (TEŠIĆ *et al*., 1979). Waters that in the past ran into this bog carried a large quantity of mineral salts, which had influence on vegetation as well. In the vegetation structure of those times, significant roles were played by reed, species of genera *Carex*, *Equisetum* etc.

It is necessary to emphasize that, in the wider area of Peštersko polje, trees or even shrubs are almost completely absent, except for the inhabited places.

Present ecological conditions are predominantly influenced by human activities. Peštersko polje with its surroundings lays in a forest belt, but of old coniferous forests of spruce, fir and pines, today only very small fragments remained. This region has always been known for cattle breeding and grazing, which gives the appearance of a mountainous steppe to the whole landscape. Extensive amelioration activities in 1972 greatly degraded and modified the composition and physiognomy of plant and animal communities. The character, structure and arrangement of the recent vegetation of Peštersko polje are determined by local hydrological features. The richness and diversity of microecological features generated an extensive patchiness of plant communities. A detailed study of LAZAREVIĆ (2000-2005) revealed a large number of plant communities, out of which the following are dominating:

**Class: *Potamogetonetea* Klika ap. Nowak & Klika 1941**
**Order: *Potamogetonetalia* W. Koch 1926**
Alliance: *Potamion eurosibiricum* Koch 1926.
Ass.: *Potamogetonetum natans* prov.
Ass.: *Potamogetonetum fluitans* prov.

**Class: *Phragmitetea* Tx. et Preising 1942**
**Order: *Phragmietalia communis* Koch 1962**
Alliance: *Phragmition communis* Koch 1926
Ass.: *Scirpetum lacustris* Schmale 1939
Ass.: *Typhetum latifoliae* G. Lang 1973
Ass.: *Typhetum angustifoliae* Pign. 1953

**Class: *Phragmitetea* Tx. et Preising 1942**
**Order: *Magnocaricetalia* Pign. 1953**
Alliance: *Magnocaricion* Koch 1926
Suballiance: *Caricenion gracilis* (Neuhäusl 1959) Oberd. et al. 1967
Ass.: *Caricetum vesicariae* Br.-Bl. et Denis 1926
Ass.: *Caricetum gracilis* (Graebn. et Hueck 1931) Tx. 1937

**Class: *Molinio-Arrhenatheretea* R. Tx. 1937**
**Order: *Molinietalia* W. Koch 1926**
Alliance: *Molinion caeruleae* W. Koch 1926
Ass.: *Lathyreto-Molinietum caeruleae* Tatić, Veljović, Petković, Stefanović, Radotić 1987 (1988)

**Class: *Nardo-Callunetea* Preisg. 1949**
**Order: *Nardetalia strictae* Preis. 1949**
Alliance: *Nardion strictae* Br.-Bl. 1926

Ass.: *Nardetum strictae* Greb. 1950

**Class: *Scheuchzerio-Caricetea fuscae* (Nordhagen 1936) R. Tx. 1937**
**Order: *Scheuchzerietalia palustris* Nordhag. 1937**
Alliance: *Salici-Betulion pubescentis* V. Randđ. 1994
Ass.: *Salicetum rozmarinifoliae* prov.

**Class: *Salicetea purpureae* Moor (1958) 1960**
**Order: *Salicetalia purpureae* Moor (1958) 1960**
Alliance: *Salicion triandrae* Malc. 1929, Müll. et Görs 1958 (Br. – Bl. 1956)
Ass.: *Salicetum purpureae* Wend. - Zel. 1952

**Class: *Festucetea vaginatae* Soó 1968 emend. Vicherek 1972**
**Order: *Halacsyetalia sendtneri* H. Ritter-Studnička 1970**
Alliance: *Centaureo-Bromion fibrosi* Blečić et al. 1960
Ass.: *Poo molinieri-Plantaginetum holostei* Z. Pavlović 1951

Aquatic vegetation is developed in the newly formed lake, as well as in channels and watercourses, and the fossil riverbed of the Boroštica River has a particular significance, with parts that are covered with water throughout the year. They are characterised with communities of the alliance *Potamion eurosibiricum* with submersed and rooted plant species: *Potamogeton fluitans*, *Potamogeton natans*, *Potamogeton crispus* and others. Shallower pools, channels and smaller stagnant tributaries of the former riverbed of the Boroštica River, are characterised with the presence of submersed and flotant vegetation, with *Myriophyllum spicatum*, *Lemna minor*, *Callitriche palustris*, *Ranunculus circinatus*, *Chara contraria* and others. The presence in Serbia of the community of a rare carnivorous yellow bladderwort *Utricularia australis* should be particularly emphasized, as well as the presence of a small population of white lily *Nymphaea alba*. According to the classification oh habitats of Serbia, harmonised with international standards (LAKUŠIĆ *et al.*, 2005), these are habitats: **C1.2 – Permanent mesotrophic lakes, ponds and pools**.

Emersed vegetation is developed in the coastal area of the lake and along channels, levees, water pools and similar structures. Most frequent among them are communities of the alliance *Phragmition communis* with edificator species *Scirpus lacustris*, *Typha latifolia*, *Typha angustifolia*, of a very uniform and poor floristic composition. Such habitats are often inhabited by *Equisetum ramosissimus*, *Alisma plantago-aquatica*, and *Caltha palustris*. Distribution of these communities is to a great extent determined by water level fluctuation and trophic regime. It is interesting that reed is nowadays rare, although it has been found in the peat (TEŠIĆ *et al.*, 1979). Such type of vegetation is developed in habitats classified as: **C3.2 – Water-fringing reedbeds and tall helophytes other than canes**.

A particular feature of Peštersko polje is a huge peatbog area, nowadays probably the greatest in Serbia. The wettest parts of water pools, old riverbeds and channels with fluctuating water level and often dried out during the summer, are covered with communities of the alliance *Magnocaricion*, with edificator species: *Carex gracilis*, *Carex vesicaria*, *Eryophorum angustifolium* and other. This type of habitat is marked as: **D2.3 – Transition mires and quaking bogs**. The largest areas of Peštersko polje are covered with the vegetation of wet meadows from the alliance *Molinion caeruleae* and *Nardion stricta*. They are characterised with species: *Molinia coerulea*, *Deschampsia caespitosa*, and *Nardus stricta*. They have a rich and diverse floristic composition, with a large number of boreal plant taxa that on the Balkan Peninsula reach the southernmost parts of their range in Europe. Today, these significant plant species are very rare and endangered in Serbia. The habitats are classified as: **E3.4 – Moist or wet eutrophic and mesotrophic grassland**.

The forest vegetation has been generally removed and devastated from Pešter. Populations of a willow species *Salix rosmarinifolia*, rare in Serbia, can be found in Peštersko polje. The scrub vegetation

form the alliance *Salicion triandrae* is developed in the old riverbed of the Boroštica River, with edificator species *Salix purpurea* and *Salix cinerea*. Such types of habitats are classified as: **F9.25 – Mountain boggy willows with *Salix rosmarinifolia*** and **F9.1 – Riverine and lakeshore *Salix* scrub**.

Contrary to the dominant wet and aquatic habitats, the dry and rocky hill Trojan dominates the north-eastern part of Peštersko polje, made of serpentinite. It is inhabited with a specific vegetation of the order *Halacsyetalia sendtneri* with edificator species *Halacsya sendtneri* and *Plantago carinata*, with a larger number of characteristic endemic taxa. Such types of habitats are classifies as: **E1.2B – Serpentine steppes**.

Around rural farms, on access roads and levees, ruderal communities are sporadically developed. Confined agricultural areas under potato cultures represent one of the hazardous factors for peatbogs in Pešter, classified as: **I1.13 – Small-scale intensive unmixed crops (<1ha)**. In immediate vicinity of the village of Karajukića bunari there is a small artificial stand of Scots pine and black pine, with the habitat type: **G5.4 – Small coniferous anthropogenic woodlands**.

**21. Noteworthy flora:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS*.

**Mosses**: During a preliminary research on the peatbog near the village of Karajukića bunari, BUTORAC (1994) has found specimens of three species of aquatic mosses: *Fonitalis antipyretica* Hedw., *Cyntrichia ruralis* Brid. and *Leskea polycarpa* Hedw. These are common species and are frequently found in this type of habitat. According to STEVANOVIĆ et al. (1995), the first of them is among higher plants one of the better indicators of clear waters, which is understandable considering the fact that it can be found in large masses around springs in Serbia (VELJIĆ had found it around the spring of the Mlava River – personal communication). At the same locality, LAZAREVIĆ (2005) has found *Aulacomnium palustre*, which is characteristic for slowly flowing waters. In the study on exploitation of the peat from Pešter, TEŠIĆ et al. (1979) cite that they have found *Sphagnum subsecundum* and *Sphagnum contortum*, as well as Hypnum peat at this locality.

**Vascular flora**: The vascular flora of Peštersko polje is relatively well studied. More than 350 plant taxa were recorded for this area. Besides internationally and nationally significant plant species (Criterion 2), the presence of several other rare and significant plant species is determined as well. At the first place, two steppe plant species should be mentioned, *Scorzonera purpurea* and *Dracocephalum ruyschiana*. The species *Scorzonera purpurea* is a newly discovered taxon in the flora of Serbia (LAZAREVIĆ *et al.*, 2003). It can be found at dry local elevations, levees, fringe parts of the peatbog, and surrounding dry hills. On the Balkan Peninsula, it was also found only in Albania (locality not provided). The species *Dracocephalum ruyschiana* is a taxon cited in the "Red Book of Flora of Serbia" (DIKLIĆ, 1999) as extinct from the Vlasina peatbog in Serbia, but it was yet again discovered on dry limestone pastures near the peatbog of Peštersko polje (LAZAREVIĆ, 2005). This is, in the same time, the only finding of this species on the Balkan Peninsula. These two steppe species, both extremely rare on the Balkans, have an outstanding scientific significance in the research of the genesis of the Balkan hilly steppes and their phytogeographic relationship with the Euro-Asian steppes.

The presence of some rare and endemic taxa should also be mentioned: *Crepis dinarica*, a Dinaric endemic species, which in Serbia also grows only on subalpine meadows on the Prokletije Mts. and the Šar planina Mt. (LAZAREVIĆ *in* VUKOJČIĆ *et al.*, 2003), *Gypsophila spergulifolia*, an endemic species of Serbia and Albania and a rare pioneer species of serpentinite habitats and (LAZAREVIĆ *in* VUKOJČIĆ *et al.*, 2003), and *Oenanthe stenoloba*, a Moesian-Dacian element of flora, characteristic for wet meadows of Peštersko polje (BUTORAC, 1994).

**22. Noteworthy fauna:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Diversity of the fauna is one of the most distinctive features of the area of Peštersko polje.

**Fishes**: A rich fish fauna can be found on the Sjenica-Pešter Plateau. Significant representatives are brown trout (*Salmo trutta*), huchen (*Hucho hucho*), grayling (*Thymallus thymallus*), nase (*Chondrostoma nasus*) and chub (*Leuciscus cephalus*). The fish fauna of the Boroštica River and the lake is rather diverse and rich. The major fish species in this area are chub (*Leuciscus cephalus*), goldfish (*Carassius auratus*), nase (*Chondrostoma nasus*), (*Gobio gobio*), wels catfish (*Silurus glanis*), which was introduced in 2004, and carp (*Cyprinus carpio*). The specimens of chub, one of the most important fish species, reach the weight of up to 2,5 kg.

**Amphibians and reptiles**: The peatbog Karajukića bunari, which by itself represents a relict biotope, is a specific habitat for several representatives of reptiles (KRIZMANIĆ *in* NIKOLIĆ *et al.*, 1995). Apart from this, it also represents a significant diversity and distribution centre of amphibians. One species from the order *Caudata* was recorded, smooth newt (*Triturus vulgaris*), and two species from the order *Anura*, marsh frog (*Rana ridibunda*) and common tree frog (*Hyla arborea*). The last one, common tree frog, is present in large numbers.

**Birds**: In the narrow zone of Peštersko polje, around the peatbog, 80 species of birds were recorded. The list is not final for this significant ornithological area. Additional research is necessary for a number of found species, in order to determine the final nesting status and population size.

Birds of prey, nesting in surrounding mountain areas, are feeding at this locality: short-toed eagle (*Circaetus gallicus*), Eurasian hobby (*Falco subbuteo*) and peregrine falcon (*Falco peregrinus*).

Peštersko polje is a nesting area of the following species: water rail (*Rallus aquaticus*), lapwing (*Vanellus vanellus*), redshank (*Tringa totanus*), whinchat (*Saxicola rubetra*), yellow wagtail (*Motacilla flava*), and skylark (*Alauda arvensis*).

Peštersko polje is also a significant habitat for the migration of the following species: little grebe (*Tachybaptus ruficollis*), great crested grebe (*Podiceps cristatus*), squacco heron (*Ardeola ralloides*), purple heron (*Ardea purpurea*), spoonbill (*Platalea leucorodia*), green-winged teal (*Anas crecca*), garganey (*Anas querquedula*), red-footed falcon (*Falco vespertinus*), spotted crake (*Porzana porzana*), common moorhen (*Gallinula chloropus*), ruff (*Philomachus pugnax*) and common tern (*Sterna hirundo*).

Particularly significant as rare species of the mountain region of Serbia and Montenegro are: long-legged buzzard (*Buteo rufinus*), common snipe (*Gallinago gallinago*), short-eared owl (*Asio flammeus*), Savi's warbler (*Locustella luscinioides*), sedge warbler (*Acrocephalus schoenobaenus*) and marsh warbler (*A. palustris*). Some of these species are, however, probably present only during the summer dispersion and at the beginning of migration, hence they can not be regarded as nesting species. Nevertheless, the data on their presence during the summer period on this mountain plateau (1150-1200 m), at the farthest south-western part of Serbia, are very significant. For most of the species this is a completely new region of their summer presence, in comparison to their previously known distribution. It seems that Peštersko polje represents a new nesting place for short-eared owl, the only one south of the Sava and the Danube in Serbia, and the southernmost known on the Balkan Peninsula (GLUE & KORPIMAKI, 1997), as far as 400 km distant from its formerly known southern nesting border in Serbia and Montenegro. However, it is more a periodical than regular nesting place.

For long-legged buzzard, this is also a completely new and isolated area of summer residence, around 200 km distant from the closest known nesting areas in Serbia (GRUBAČ & RAŠAJSKI, 2000). Regarding the species of warblers, it is important to emphasize that these are the potential nesting places with certainly highest altitudes in Serbia and the Balkan Peninsula. For Europe, FLADE (1997) cites that Savi's warbler (*Locustella luscinioides*) enters hilly areas with altitudes not higher than 500-630 m AMSL during the nesting period.

In any case, for some of the mentioned species of warblers, Peštersko polje is one of the new potential nesting areas, special for their altitudes on the Balkans and in Europe. The presence of ruddy turnstone (*Arenaria interpres*) in migration should also be mentioned, which, regarding the region od western Serbia, has been recorded only here.

The results of the bird fauna research in Peštersko polje confirm the special significance of this area. Taking into account the particularly negative influence of man which can be seen through more and more intensive exploitation of the peat and water withdrawal, it is necessary to protect this area without delay, as a nature asset of national and international interest.

**Mammals**: Lesser mole rat (*Spalax leucodon*) is of particular value for the mammal fauna, and it can be found on meadows between the villages of Karajukića bunari and Ugao. Lesser mole rat was found also on pastures throughout Pešter, which is significant faunal asset for the area of this plateau, since this species is a nature rarity of Serbia, and species from the Red List of Globally Threatened Species. Otter (*Lutra lutra*) is also one of the significant species.

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**23. Social and cultural values:**

**a)** Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The entire existence of the Pešter local population is based on traditional cattle breeding, due to the natural characteristics of this area. The best pastures and mown meadows can be found in Peštersko polje, the waters of which determine the productivity of pastures in wider hinterland area. The local culture of the Sjenica-Pešter Plateau is determined by several principal characteristics. These characteristics are isolation, economy based on cattle breeding, and Islam and Christianity as two dominant confessions.

The area is mainly populated with members of the Moslem community, but regions with members of the Orthodox community also exist, as well as regions populated with Albanians of the Catholic confession. During the last decades of the 20th century, a large number of inhabitants, particularly younger ones, migrated to cities or abroad. It is estimated that approx. 10,000 persons has moved out of the region just during the last decade. The total number of inhabitants in Pešter is several thousands.

In the past period, the farming industry "Pešter", built by state authorities during 1980's, was active in the village of Karajukića bunari, with the purpose of sheep raising and dairy, meat and wool production. Several thousand sheep were once present at the farm. The sheep farm should have been a reproductive centre that would intensify sheep breeding industry. Furthermore, in the same time a textile factory "Vesna" was also built, which is nowadays completely neglected and out of order. Once 150 women from Pešter were employed in this factory.

Several centuries long sheep breeding in this area produced a sheep breed "pramenka" – Sjenica-Pešter type, which used to be preserved during 1950's in several villages in Pešter (Buđevo, Dolići and Boroštica). An autochthonous cattle breed "buša" was also present in this area until recent times. These cattle were raised mostly for their great working capacities, while their fertility and productivity were small. They can be still seen today in this area, and they are used for draughting, since there are not enough roads, as well as for land cultivation.

Flocks of sheep and herds of cattle, a mountain horse with saddlebags on his back here and there, and unique in the world shepherds' summer huts ("katuni") can be seen on green pastures. The "katun" is a hut made of woodsticks, sealed with mud and covered with grass, in which shepherd live. Shepherds leave their villages in spring, together with sheep and cattle, and move to the shepherds' settlements, where they stay until the late autumn. "Katuni" are situated on pastures where it is easy to organise life both of men and animals. Sheepholds are built in close vicinity of these summer huts, in which milkmen prepare the famous "Sjenički" cheese. The life in shepherds' settlements is very interesting, and it could represent a genuine tourist attraction.

Villages are various, some are situated in valleys, and some in the karst terrains. Villages in valleys are more numerous. There are not many new houses in Pešter. The houses are mostly single story and modest, just like the life itself on this harsh plateau. Different types of houses exist in villages: log cabins, "baskijara", wattle and daub houses, but also modern houses built of solid material that can offer good comfort even to the choosiest tourist. There are many buildings with different purposes in the village courtyards like dairy stores, corn cribs, stables, chicken coops, vegetable pits and others. The ways of agricultural production on the Pešter Plateau and conditions for its functioning provide safe food of the highest quality. These products are used for preparing various culinary specialities in a traditional way, first of all specialities made of milk, such as various sorts of cheese, cream, "jardum" (salted lamb-milk), paprika stuffed with cream and cheese, butterfat etc. One of the most famous sorts of cheese is the Pešter "feta", and this is the only place where one can taste a Turkish speciality "jardum". Many types of pies, or pitas, prepared by village housewives, are also very famous, such as dock pie "zeljanica", cheese pie "gibanica" or "sirnica", cabbage pie "kupušnjak", potato pie "krompiruša", and zucchini pie "tikvenjak". A pie made of cheese, cream and onions is prepared for the fest of Ramadan and for weddings in the Moslem population. Pies are particularly tasty if made of home-made layers of dough, and the village housewives are true masters in preparing them. Delicious pies "obaruše na jufke" are made of buckwheat flour. People of the Sjenica-Pešter Plateau eat meat and dishes made of it from old times, once even more than today. The most frequent sorts of meet are mutton and beef, and roast lamb from Sjenica is very famous. Dishes prepared with boiled meat today are the so-called "pirjana tepsija", as well as cabbage and sauerkraut. Smoked meat is also known and used a lot in these areas. Smoked ham from Sjenica is far and wide appreciated.

Historical circumstances on the Sjenica-Pešter Plateau greatly contributed to the image of clothing. In spite of the acceptance of the European fashion, the national component remained in some form even to modern days. The Sjenica-Pešter region is known for its folk creativity, particularly for its exquisite carpets, quilts, fabrics used for making costumes and clothing, as well as for its ornamental embroidery.

Wedding customs on the Sjenica-Pešter Plateau are full of symbolism in all aspects, whether it is a question of songs, dances, clothing, gifts or woman-man relationship. According to traditional beliefs, marriage is not allowed between blood relatives up to the 9th degree of kinship, and between "milk kin" up to 7th degree of kinship, while marriage between godfathers/godchildren or wedding witnesses is allowed, but it is still not willingly accepted. Any premarital sexual relation, according to traditional ethics, is inadmissible. To pay for the bride was a common practice in previous times, as well as matchmaking.

The musician had a special status in traditional cultures. Most often a man, the musician is the carrier of music life of the community and representative of its traditional values. In the culture of the shepherds from Pešter, shepherds' music marks the identity of a person who performs it in many ways. It is performed predominantly by male players, old enough to watch over the sheep on their own. The art of playing is in most cases hand down through a patrilineage, from father or other male relatives. The boy starts to learn from the moment he has grown enough to go with an older person who watches over the flock, and eventually he "goes after the sheep" by himself. Transfer of the knowledge is not carried out by musical education, but through listening and repetition – rehearsal.

**b)** Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box **X** and describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

Traditional grazing on wet meadows represents sustainable use of wetlands, which maintained their ecological character through the centuries.

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

The best pastures and mown meadows can be found in Peštersko polje, the waters of which determine the productivity of pastures in wider hinterland area. The local culture of the Pešter local population is determined by economy based on cattle breeding, due to the natural characteristics of this area.

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

**24. Land tenure/ownership:**

a) Site:

More than 90% of the land is state and public owned. Private enclaves exist mainly in the eastern and northern parts of the area, where cultivated land is present.

b) Surrounding area:

Around 60% is state owned, but public and private properties are also present. Private enclaves exist mainly around the outskirts of the plateau, where villages are concentrated.

**25. Current land (including water) use:**

a) within the Ramsar site:

The area of Peštersko Polje is in recent times used first of all for extensive cattle breeding, particularly in areas with rich meadows and wet terrain. Cattle from several surrounding villages are grazing at these pastures, up to 10,000 sheep and up to 5,000 cattle.

It should be emphasized that, a few decades ago, a significantly wider area of Peštersko polje was used for agricultural purposes than it is used today. Just around the channel of the Boroštica River, the company "Voćar" from Čačak cultivated around 300 ha of land for growing fruit and vegetables, but then private owners (returnees from abroad) bought this land and once again turned it into pastures. It was a positive process in regard to conservation of natural and landscape values of the area. However, in most recent times, ideas to exploit this area for agricultural purposes are again active.

Draining of the entire area through the channels into the Boroštica River, and then through a special channel towards the hill bellow Tuzinje, and finally through a tunnel into the catchment area of the Vapa River and the Uvac River is a particular problem. In this way water is supplied to the hydroelectric power plant, but in return, the whole peatbog ecosystem in Peštersko polje is disturbed and modified.

Waters of Lake Jezero and the Boroštica River are rich with fish, and their managing authority is the fishermen society from Tutin and Sjenica.

Hunting is not extensive. Waterfowl, fowl and rabbits are occasionally hunted. Game animals from this area include foxes, and sometimes wolves.

b) in the surroundings/catchment:

The complex relationship of man and nature in Pešter dates far into the past, lasting for centuries, and it seems that here time flows at a slower pace. The Pešter Plateau, being primarily an agricultural and cattle breeding region, with an unfinished process of industrialisation that commenced less than five decades ago, and with undeveloped traffic network, remained economically poorly built-up and relatively isolated from the technological progress of the modern era, but in the same time, with an outstanding

preserved nature potentials and healthy traditional ways of living that have not changed a lot during centuries.

The area of meadows and pastures of Sjenica and Pešter ranks as first in Serbia, for its size and economical significance. It is estimated that in the Sjenica-Pešter Plateau in recent times there are only around 50,000 heads of large cattle and around 100,000 heads of sheep, while 20 years ago there were much more (more than 300,000 heads). The present status of the cattle fund on the Pešter Plateau is estimated at 60,000 sheep and 30,000 cattle. One of particularly significant ways of area usage is mowing of meadows in order to obtain hay for winter feeding of the cattle. It should be taken into account that the demand for hay is particularly high, since there are a lot of cattle in Pešter, and the winters are very cold and harsh (cold period with snow lasts for more than 5 months).

The products from Pešter, such as hard cheese, cream, smoked ham, as well as wool of the premium quality, represent an excellent potential and a brand of this area, which is unfortunately very little exploited.

In the whole Pešter, which includes the territory of four municipalities, Sjenica, Novi Pazar, Tutin and Prijepolje, there is only one dairy factory, which does not satisfy all the necessities.

The more arid parts of the plateau are being cultivated and used for potato growing. Grains are sown to a much lesser extent, since the cold climate and late frosts prevent growing of a larger number of plant cultures. More recently, one of the ways of using this area is to plough abandoned fields and to cultivate pastures and sow buckwheat. In the previous years, approx. 50 ha were sown, and the plan for 2006 is to sow as much as 200 ha. The yield reaches up to 2.4 tons per hectare. These activities represent a potential danger for the area conservation, since cattle breeding will be threatened due to reduction of areas under pastures and meadows, and in the same time this may also become a threat to vulnerable ecosystems and biodiversity of Pešter.

The transition of the PIK "Pešter" to private sector is under way, and many foreign investors, who want to invest into the production of healthy food that would be placed to foreign markets, are also active in this area. The PIK "Pešter" was found in 1989, with the aim to develop agriculture, and particularly cattle breeding, on the entire Sjenica-Pešter Plateau. However, in spite of significant investments, this company, with only 230 employees, has not been operating well, hence it was decided that it should undergo transition to private sector. The PIK "Pešter" manages 1,100 ha of arable land.

The process of industrialisation entered this region slowly and with difficulties. The onset of industry started only after the WWII, and somewhat faster development occurred during 1960's. All this indicates that cattle breeding, agriculture and mining were and will still remain, leading branches of economy in this area.

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**26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

a) within the Ramsar site:

A significant negative anthropogenic influence is present in the surrounding boggy area due to the commercial exploitation of the peat, with the annual dynamics of more than 20,000 $m^3$, and due to activities on surface water drainage. Intensive grazing of cattle and sheep is present on pastures, and the meadows are mown. The increased negative effects of man on the Pešter Plateau are very dangerous from different aspects. Drying out of the peatbog ecosystems through hydro-ameliorative activities have a direct influence on vegetation and floristic diversity, and each, even negligible exploitation, in spite of the immediate economic profit, has long-termed unpredictable consequences, not only for fragile ecosystems of the peatbog, but for the stability of entire mountain areas where they are localised. Previous exploitation of the peat deposits in the area of Lake Jezero near the village of Karajukića bunari was very harmful and risky for all components of the biodiversity, particularly nature rarities and internationally significant species, vulnerable even to minor disturbances of the ecological balance. Threatening factors include:

- drainage of the peatbog and surrounding terrains

- changes of the water regime and disturbance of stability of existing ecosystems
- climate changes, primarily reduction of atmospheric precipitation
- exploitation of the peat and habitat devastation
- disturbance of birds through mechanisation used during peat exploitation
- burning of vegetation
- existence of cattle farms
- habitat fragmentation
- isolation of some rare and vulnerable species due to disturbances of the ecological balance
- crosscutting of habitual green corridors
- former negative effects of the "Vesna" factory that is now out of order.

The exploitation of the peat started in 1988/1989, although its justification project was finalised in 1982/1983. It is cited in literature (TEŠIĆ *et al.*, 1979) that the reserves of the peat and semi-peat in Peštersko polje reach around 2,500,000 m³. According to the personal communication of the forest ranger, R. Rakonjac, and the vice-president of the municipality of Sjenica, M. Džigul (July 1994), these reserves are estimated at even 3,000,000 m³. With the planned annual exploit of 50,000 m³ of the peat, the excavation site could be exploited for the next 35 years. However, in difficult economic conditions, the peat exploitation has reached an annual amount of only 20,000 m³, which is also an alarming level of unsustainable exploitation. Through these activities water pools were once more created, and boggy vegetation is destroyed. The fact that permanent drainage has to be enabled represents an additional problem, since in this way this autochthonous ecosystem is being destroyed. All these facts are indicators of the human negative influence on biodiversity that is wished to be protected, and primarily on the floristic and vegetational diversity.

The exploitation of the peat, in addition to the excavation site, also includes a factory for peat processing "Jelak" in the village of Leskova (municipality of Tutin), which was until 1994 owned by the state company "Srbijašume". Following the construction of this factory, which was launched in 1988/1989, the peat, after being excavated, is dried, ground and packed. In this way the relentless destruction of basic values of this unique landscape commenced. More and more risks of extinction are posed each day, not only of individual species, but also communities and landscape types as a whole. Therefore, with the purpose to stop the negative anthropogenic influence on this specific habitat, with rare specimens of specific representatives of the flora and fauna, an urgent procedure for protection of the entire area is proposed, in keeping with the Law on Environmental Protection (Official Register of the Republic of Serbia, N° 39/1993).

The peatbog Jezero, situated along the line Tuzinje – Karajukića bunari – Leskova, is threatened by draining as well. Water from the peatbog of Peštersko polje is drained through a tunnel into the Boroštica River, which is a tributary to the Tuzinjska River that empties into the Vapa River, a tributary to the Uvac River. In this way, water that is so precious for survival of peatbog ecosystems, is driven into the Boroštica River and through it to the Uvac River, for the purpose of supplying the hydroelectric power plant.

b) in the surrounding area:

Forests on the Pešter have been cutted for the centuries, and in recent times they are scarce on the plateau. Main influence of agriculture to ecological character of the surrounding area is plowing of the grasslands, and change of land-use through cultivating of potato, wheats etc. Hunting affects populations of wild animals, mainly wolves. More serious threat is wolf-poisoning by leaving poisonous bites, which kills vultures as well.

**27. Conservation measures taken:**

**a)** List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:
In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

**b)** If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ❑;Ib ❑; II ❑; III ❑; IV ❑; V ❑; VI ❑

**c)** Does an officially approved management plan exist; and is it being implemented?:

Presently, there is no management plan in place or preparation yet.

**d)** Describe any other current management practices:

A partial valorisation of nature values of the Pešter Plateau was done during 1990's and in 2005, for the purpose of its protection. The "Study on Nature Protection of the Pešter Plateau" was prepared and published by the Institute for Nature Conservation of Serbia in 1994, in which basic protection directives are stipulated. However, in the next 10 years nothing has been done, and than in 2005, a new initiative for the protection of the area and its inclusion into the list of areas of international significance (Ramsar, IBA, IPA, SPA) was launched.

**28. Conservation measures proposed but not yet implemented:**

e.g. management plan in preparation; official proposal as a legally protected area, etc.

During mid-1990's, a team of experts from the Institute for Nature Conservation of Serbia valorised the Sjenica-Pešter Plateau, and partly analysed the area of Peštersko polje near Karajukića bunari, but after that no concrete actions on realisation of the proclaimed protection and improvement of the programme for management of the area followed.

In 2006, it is planned to intensify field research in order to collect data for preparation of a study for the protection of the entire region. It is expected that it will be protected around the year 2008.

**29. Current scientific research and facilities:**

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

During 2005, a research of nature rarities of the Pešter Plateau was realised, with participation of experts from the Institute for Nature Conservation of Serbia, in cooperation with ornithologists from leading ornithological associations of Serbia. Main activities were aimed at bird fauna: 1) An inventory of nesting bird fauna of Tresava and Peštersko polje, with a special accent given to species that comply with the criteria for the nomination to Ramsar and IBA; 2) A detailed mapping of nesting sites of all rare and threatened species (ducks, sandpipers, bird of prey, white stork, songbirds, etc.), with a precise determination of the number of nesting pairs and their distribution; 3) Determination of basic characteristics of the nesting bird fauna and their factors of threat, with the recognition of necessary protection measures.

Identification and valorisation of nature assets of the area in scope of their protection were also completed: 1) Identification and mapping of the remaining significant aquatic (wet) habitats in Peštersko polje, primarily in the zone of Tresava; 2) Identification and mapping of other natural habitats of special significance for the conservation of the unique flora and fauna, with a special review of flora and herpetofauna; 3) Valorisation of basic nature assets of Peštersko polje, with a proposal for area protection and for improvement of the resource management and usage programme.

The Institute for Nature Conservation of Serbia included this area within its first Action Plan for Protection of the Biodiversity of Serbia (for the period 1995-2000). The process of formation of the boggy

vegetation on the peatbog of Karajukića bunari was reduced to the overgrowing process of the former aquatic biotope. Since the number of peatbogs in the world is decreasing, and considering that they represents centres of a specific biodiversity, they are being in focus of action themes of international strategy for nature protection from two aspects, as wet (boggy and aquatic) ecosystems and as mountain ecosystems. Landscape protection is also suggested in international documents (Pan-European Biological and Landscape Diversity Strategy, 1995). Peatbogs are supporting structures for survival of the specific fauna, particularly ornithofauna that is nesting here, or has a migrating station or a feeding base.

Organisations involved in research of the mineral resources are also active in the filed, as well as those involved in research of agricultural and aquatic potentials of the area.

**30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:**

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Concrete and organised programmes of ecological education of the population about the environment or the necessities for its adequate protection have not been yet carried on in the area of the Pešter Plateau. One of the reasons that no urgent ecological problems, which would require educational programmes, ever appeared, is a specific state of conservation of the area, infrastructural confinement, a small number of inhabitants living in this region, and traditional ways of living in closed communities "in harmony with nature". However, in most recent times, trends of infrastructural improvement are present in this area, as well as trends of commercial usage of nature resources, primarily of the peat. For this reason, it is necessary to launch adequate educational programmes, as well as programmes for raising public awareness of the necessity to protect unique nature assets.

**31. Current recreation and tourism:**

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Sjenica-Pešter Plateau offers exquisite opportunities for development of the rural tourism. This are is specific and unique in Serbia and Montenegro for many of its characteristics. It is distinguished with preserved, pristine nature, unpolluted environment, production of safe food, and with specific climate. But, in spite of that, the rural tourism on the Sjenica-Pešter Plateau is not developed. Little has been done on education of the rural population and promotion of natural beauties of this plateau to tourists. Once this is achieved, the perspectives for the development of rural tourism will become certain, which will lead to improvement of the villages and to cessation of emigration of inhabitants from this region. The promotion of possibilities for rural tourism in the Sjenica-Pešter Plateau should be one of the most important goals in the future.

Preserved nature, unpolluted environment, traditional ways of healthy food production and preparation, specific climate conditions and friendly people are the main tourist attractions in this area. The history of this area will become more familiar and understandable for tourists through the promotion of historic and cultural monuments. The traffic network along central routes is good and enables a relatively easy access to this plateau. Furthermore, there is an airport in vicinity of Sjenica, which could be used for transportation of tourists in the future. If there is a place where time has slightly stopped and where only the nicest things from wealthy history are kept, then it is the Sjenica-Pešter Plateau, which is unique and exceptional.

In the future, tourist could be engaged in routine farm activities, particularly in guarding sheep and cattle, their milking, and traditional cheese making. One day spent in a shepherd's hut ("katun"), being involved in these activities, would represent an unforgettable memory for many tourists. Some of them would be interested in meadow mowing, hay raking and stacking, or potato digging. Small mountain riding horses are kept in villages, and they can be used for recreational horse riding. Village women are very skilled in wool spinning, knitting, and most of all, in rug weaving. Wool was once indeed very much used for making a variety of artefacts, as it is still used in the present times. First carpet factory was open in Sjenica in 1908, and it greatly influenced the development of carpet industry in this area. For carpets of the

Sjenica region one can say that they are yard goods of the past, the present and the future, and they are considered to be one of the most beautiful in our country.

**32. Jurisdiction:**

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Depending on authority and the degree of management and usage, this area is managed from two levels:

a) The Government of the Republic of Serbia, with competent ministries,

b) The Institute for Nature Conservation of Serbia.

**33. Management authority:**

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

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**34. Bibliographical references:**

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

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