

# Ramsar Information Sheet

Published on 23 August 2019

# **Ukraine**

Atak - Borzhavske



Designation date 20 March 2019

Site number 2391

Coordinates 48°13'26"N 22°48'25"E

Area 283,40 ha

# Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

# 1 - Summary

#### Summary

The Site "Atak-Borzhavske" is located in the Zakarpatska region of Western Ukraine, close to the borders with Slovakia, Hungary and Romania. It is located within the Borzhava and Tysa (Tisza) catchments.

The Site represents one of the largest surviving refuge of ancient lowland floodplain (riverine) forests of Central Europe. The entire site is covered by unique old growth forests (~150-300 years old). It is dominated by ash-oak stands with narrow leaved ash, pedunculate oak, hedge maple, European white elm, and European hombeam as dominant species of the canopy. The height of some ash trees within these stands reaches 46 meters with a diameter of 153 cm, which is among the largest size of narrow leaved ash recorded in Europe.

The richness of biodiversity is determined by a combination of forest, floodplain and river ecosystems. A relatively small area of the site supports about 300 species of vascular plants, 40 species of mammals, 77 species of birds, 5 species of reptiles, 10 of amphibians, and 30 species of fish. Vegetation include rare species, of them 10 species are in the IUCN Red List, 6 are in the Red Data Book of Ukraine (2009), 27 species are in the List of Regionally Rare Plant Species of Zakarpatska Region. 28 species of animals are listed in the Red Data Book of Ukraine (2009). The site is crucial for local populations of forest bat species. In the migration period this territory is extremely important as a stopover and feeding area of migratory species of bats.

The Site is a core zone of the "Prytysianskyi" Regional Landscape Park.

# 2 - Data & location

## 2.1 - Formal data

#### 2.1.1 - Name and address of the compiler of this RIS

## Compiler 1

Compiler 2

Name	lvan Danylyk
Institution/agency	Institute of Ecologyof the Carpathians of the National Academy of Sciences of Ukraine
Postal address	4 Kozelnytska St., Lviv, 79026, Ukraine
E-mail	idanylyk@ukr.net
Phone	+380673116065
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Name	Andrii-Taras Bashta
Institution/agency	Institute of Ecology of the Carpathians of National Academy of Sciences of Ukraine
Postal address	4 Kozelnytska St., Lviv, 79026, Ukraine
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#### 2.1.2 - Period of collection of data and information used to compile the RIS

From year 2012

To year 2018

## 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)

Atak – Borzhavske

# 2.2 - Site location

# 2.2.1 - Defining the Site boundaries

#### b) Digital map/image

<3 file(s) uploaded>

Former maps 0

#### Boundaries description

The Site is located in the Zakarpatska region of Ukraine, 12 km from Berehove Town and 17 km from Vynohradove Town. The closest settlement is the village of Velyki Berehy, 4 km to the west of the Site.

In the west and north, the borders of the Site are limited by the flow of Borzhava river. In the south, it borders between the transformed reclaimed land and old growth forest stand near the village of Kvasovo. In the east, the Site is limited by the old growth stands, which are located along the Borzhava river. The Site (at the east) is delineated clearly between old growth and young forest stands. The Site consists of two local forest tracks, like "Velykyi Lis" and "Atak" (or "Otok"), which is linked to historical names of the areas.

## 2.2.2 - General location

a) In which large administrative region does	Berehivskyi Rayon (county), Zakarpatska Oblast (Region), Ukraine
b) What is the nearest town or population centre?	The village of Velyki Berehy

# 2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes O No  $\odot$ 

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes O No  $\odot$ 

# 2.2.4 - Area of the Site

Official area, in hectares (ha): 283.4

Area, in hectares (ha) as calculated from 286.89 GIS boundaries

## 2.2.5 - Biogeography

#### Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
EU biogeographic regionalization	Pannonian biogeographic region

#### Other biogeographic regionalisation scheme

According to the vegetation zoning of Ukraine, the site is located within the Eurasian Steppe region of Forest-Steppe sub-region (zone) of Pannonian province of heliophilic and nemoral forests, steppe meadows and meadow steppes of the Transcarpathian district of sessile-oak and common-oak forests and steppe meadows (National atlas of Ukraine, 2007).

# 3 - Why is the Site important?

#### 3.1 - Ramsar Criteria and their justification

#### ☑ Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided

The site plays a crucial role in supporting the hydrological regime of Borzhava river catchment. It plays a major role in the natural control and mitigation of negative consequences of flash floods, which runs from mountain areas into lowlands. It protects 4 settlements downstream against flash floods. It acts as a natural filter in the accumulation of rainwater that contributes to the formation of water horizon that creates a drinking water reserve for local communities. It is also important for seasonal preservation of irrigation water for agriculture development for lower part of Borzhava river and upper part of Tysa (Tisza) catchments.

Other ecosystem services provided

The old growth forest provides genetic resource for floodplain forest types restoration. It controls soil erosion well along riparian zones of the rivers. The site supports the sport finishing tourism, hiking and canoeing. The mushroom collecting provides an additional income for local population.

Other reasons

The Site represents one of the largest surviving refuges of ancient floodplain (riverine) forests of Central Europe, described in the CORINE Biotopes manual as the: "Most diverse, structurally, floristically and faunistically, of all European ecosystems ...., the great fluvial forests of Europe are reduced to a few highly vulnerable examples" (Moss et al. 1991). The old growth forests (~150-300 years old) cover almost entire area of the Site, which is structured by ash-oak stands (association (Fraxino pannonicae)-Ulmetum) with narrow leaved ash (Fraxinus angustifolia subsp). danubialis, pedunculate oak (Quercus robur), hedge maple (Acer campestre), European white elm (Ulmus laevis), European hornbeam (Carpinus betulus) as dominant species of the canopy.

- ☑ Criterion 2 : Rare species and threatened ecological communities
- Criterion 3 : Biological diversity

luctification

The site provides habitats for about 300 species of vascular plants and over 160 species of vertebrates (40 species of mammals, 77 of birds, 5 of reptiles, 10 of amphibians, about 30 species of fish). The species of deciduous forests and those closely associated to forest and aquatic habitats are typical for the site, in particular - forest species of bats and birds (about 50 species), especially typical for old growth forests with large accumulation of deadwood. For migratory species of bats and certain species of birds, this site is extremely important both in breeding and migration periods. The wetland is characterized also by a relatively large variety of invertebrates, representative for over the century-old floodplain forests. In particular, there are rare and endangered Carabus species (20 species).

- ☑ Criterion 4 : Support during critical life cycle stage or in adverse conditions
- Criterion 8 : Fish spawning grounds, etc.

Justificatio

The river of the site is an important fish spawning grounds for rare fish species, like Zingel zingel, Lota lota and others and also fish spawning ground for a number of fishing sport species, like catfish, spike, carp, perch etc.

# 3.2 - Plant species whose presence relates to the international importance of the site

Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
Carex strigosa		<b>2</b>	✓				listed in the Red Data Book of Ukraine - CR	
Carex umbrosa			<b>2</b>		LC		listed in the Red Data Book of Ukraine - NE	
Cephalanthera longifolia			Ø				listed in the Red Data Book of Ukraine - RARE	
Dactylorhiza majalis			V				listed in the Red Data Book of Ukraine - RARE	
Epipactis albensis			Ø		LC		listed in the Red Data Book of Ukraine - RARE	
Epipactis helleborine			<b></b>				listed in the Red Data Book of Ukraine - NE	
Epipactis purpurata			<b></b>		LC		listed in the Red Data Book of Ukraine - RARE	
Fritillaria meleagris		<b></b>	<b></b>				Red Data Book of Ukraine - VU	
Galanthus nivalis			<b>V</b>		NT		listed in the Red Data Book of Ukraine - NE	
Leucojum aestivum		<b></b>	<b></b>		LC		listed in the Red Data Book of Ukraine - VU	
Leucojum vernum			<b>2</b>		LC		listed in the Red Data Book of Ukraine - NE	
Lilium martagon			<b>2</b>				listed in the Red Data Book of Ukraine - NE	
Lunaria rediviva			<b>2</b>				listed in the Red Data Book of Ukraine - NE	
Neottia nidus-avis			✓		LC		listed in the Red Data Book of Ukraine - NE	
Neottia ovata			<b>2</b>				listed in the Red Data Book of Ukraine - NE	
Platanthera bifolia			<b>2</b>				listed in the Red Data Book of Ukraine - NE	
Salvinia natans			V		LC		listed in the Red Data Book of Ukraine - NE	

The four species of plants there area at the eastern limit of their range and included into the Red Data Book of Ukraine (2009) with high protection statuses, like endangered and vulnerable. Many of plant species form also the rare forest floodplain vegetation communities of the classes Querco-Fagetea (associations of Ulmo-Fraxinetum pannonicae, Fraxino angustifoliae-Alnetum glutinosae), Alnetea glutinosae (Carici elongatae-Alnetum glutinosae, Fraxino pannonicae-Ulmetum), and Potamogetonetea pectinati (Hottonietum palustris).

3.3 - Animal species whose presence relates to the international importance of the site

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Phylum	Scientific name	Common name	Criterion	Species contributes under criterion 3 5 7 8	Pop. Size	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
Birds											
CHORDATA/ AVES	Aquila pomarina	Lesser Spotted Eagle	0000	<b>2</b> 000						Red Data Book of Ukraine - LC	

Phylum	Scientific name	Common name	Special qualification und criter 2 4	ifies der erion	Species contributes under criterion 3 5 7 8	Size	Period of pop. Est.	% occurrence 1)		CITES Appendix I	CMS Appendix I	Other Status Justification
CHORDATA/ AVES	Ciconia nigra	Black Stork							LC			Red Data Book of Ukraine - NT
Fish, Mollusc	ish, Mollusc and Crustacea											
CHORDATA/ ACTINOPTERYGI	Gymnocephalus I schraetser					7			LC			Red Data Book of Ukraine - VU  The Site is an important spawning ground.
CHORDATA/ ACTINOPTERYGI	Lota lota					1			LC			Red Data Book of Ukraine - VU  The Site is an important spawning ground.
	Romanogobio					1			LC			Red Data Book of Ukraine - EN  The Site is an important spawning ground.
CHORDATA/ ACTINOPTERYGI	Telestes souffia					7			LC			Red Data Book of Ukraine - VU  The Site is an important spawning ground.
Others												
ARTHROPODA/ INSECTA	Anax imperator	Emperor dragonfly							LC			Red Data Book of Ukraine - VU
ARTHROPODA/ INSECTA	Aromia moschata		<b>2</b>									Red Data Book of Ukraine - VU
CHORDATA/ MAMMALIA	Barbastella barbastellus	western barbastelle; Western Barbastelle							NT			listed in the Red Data Book of Ukraine - CR  The Site supports the species for breeding and migration
CHORDATA/ AMPHIBIA	Bombina bombina		<b>V</b>									Bern Convention - Appendix II
ARTHROPODA/ INSECTA	Calopteryx virgo	Beautiful Demoiselle	<b>2</b>						LC			Red Data Book of Ukraine - VU
ARTHROPODA/ INSECTA	Cerambyx cerdo		<b>2</b>						W			listed in the Red Data Book of Ukraine - VU
CHORDATA/ REPTILIA	Emys orbicularis		<b>2</b> 0									Bern Convention - Appendix II
CHORDATA/ MAMMALIA	Eptesicus serotinus serotinus		<b>2</b> 0									Red Data Book of Ukraine (2009) -VU
CHORDATA/ MAMMALIA	Felis silvestris	Wildcat	<b>2</b> 0						LC			listed in the Red Data Book of Ukraine - VU
CHORDATA/ AMPHIBIA	Hyla arborea		<b>2</b>						LC			Bern Convention - Appendix II
ARTHROPODA/ INSECTA	Lucanus cervus		<b>2</b> 0									Red Data Book of Ukraine - VU
CHORDATA/ MAMMALIA	Lutra lutra	European Otter	<b>2</b> 0						NT	V		Listed in the Red Data Book of Ukraine - NE. Bern Convention - Appendix II
CHORDATA/ MAMMALIA	Mustela erminea	Ermine	<b>V</b>						LC			Red Data Book of Ukraine – NE, Bern Convention - Appendix III
CHORDATA/ MAMMALIA	Myotis bechsteinii	Bechstein's Myotis	<b>V</b>						NT			listed in the Red Data Book of Ukraine - VU  The Site supports the species for breeding
CHORDATA/ MAMMALIA	Myotis daubentonii	Daubenton's Myotis	<b>V</b>						LC			listed in the Red Data Book of Ukraine - VU  The Site supports the species for breeding and migration
CHORDATA/ MAMMALIA	Myotis emarginatus	Geoffroy's bat; Geoffroy's Myotis	77						LC			listed in the Red Data Book of Ukraine - CR  The Site supports the species for breeding
CHORDATA/ MAMMALIA	Myotis myotis	Mouse-eared Myotis; mouse- eared bat	77						LC			listed in the Red Data Book of Ukraine - VU  The Site supports the species for breeding
CHORDATA/ MAMMALIA	Myotis mystacinus	Whiskered Myotis; whiskered bat	1						LC			listed in the Red Data Book of Ukraine - VU  The Site supports the species for breeding

Phylum	Scientific name	Common name	qua ur crit	ecies alifies nder terion 6 9	Species contributes under criterion	Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ MAMMALIA	Myotis nattereri	Natterer's bat; Natterer's Myotis	VV						LC			listed in the Red Data Book of Ukraine - VU	The Site supports the species for breeding
CHORDATA/ REPTILIA	Natrix natrix					]							
CHORDATA/ REPTILIA	Natrix tessellata								LC			Bern Convention - Appendix II	
CHORDATA/ MAMMALIA	Neomys anomalus	Mediterranean Water Shrew; Southern Water Shrew							LC			listed in the Red Data Book of Ukraine - LC	
CHORDATA/ MAMMALIA	Nyctalus noctula	noctule; Noctule	<b>V</b>			]			LC			listed in the Red Data Book of Ukraine - VU	The Site supports the species in migration period and during winter
ARTHROPODA/ INSECTA	Osmoderma barnabita		<b>V</b>			]			NT			Red Data Book of Ukraine - VU	
CHORDATA/ MAMMALIA	Pipistrellus pipistrellus	pipistrelle	<b>V</b>						LC			listed in the Red Data Book of Ukraine - VU	The Site supports the species for breeding and migration
CHORDATA/ MAMMALIA	Plecotus auritus	brown big-eared bat; Brown Long- eared Bat	<b>V V</b>			]			LC			listed in the Red Data Book of Ukraine - VU	The Site supports the species for breeding
CHORDATA/ AMPHIBIA	Rana arvalis		<b>V</b>			]			LC			It is listed in Appendix II of the Berne Convention	
CHORDATA/ AMPHIBIA	Rana dalmatina		VV			]			LC			listed in the Red Data Book of Ukraine - CR	The Site supports the species for breeding
CHORDATA/ MAMMALIA	Rhinolophus ferrumequinum	Horseshoe Bat	<b>V</b>			)			LC			listed in the Red Data Book of Ukraine - VU	The Site supports the species for breeding
CHORDATA/ MAMMALIA	Rhinolophus hipposideros	Lesser Horseshoe Bat; lesser horseshoe bat	<b>V</b>			]			LC			listed in the Red Data Book of Ukraine - VU	The Site supports the species for breeding
CHORDATA/ AMPHIBIA	Triturus cristatus		<b>V</b>						LC			Listed in Appendix II of the Bern Convention.	
CHORDATA/ AMPHIBIA	Triturus dobrogicus		V						NT			listed in the Red Data Book of Ukraine - VU	The Site supports the species for breeding
CHORDATA/ MAMMALIA	Vespertilio murinus	Particolored Bat; particolored bat	<b>V</b>			)			LC			listed in the Red Data Book of Ukraine - VU	

<sup>1)</sup> Percentage of the total biogeographic population at the site

The riparian forest stands of this territory constitute an important environment for a number of species protected on the European scale. The Bern Convention protects 42 species (28 of them in Annex II), and an additional 25 of the species occurring here are listed in the Habitat Directive (12 of them in Annex II). The regional Transcarpathian lists for the species with special protection status here include 2 of them. The wetland supports a number of species important for the biotic diversity of the region. The Theriofauna of the Pre-Borzhava parts of the Transcarpathian lowland is very special due to the unique oak riparian forests, and is represented by 56 species, which make up over 75 % of the theriofauna species of the whole of Transcarpathia. 22 of them are listed to the Red Book of Ukraine (2009), 43 in the Bern Convention, and 23 in the Habitat Directive.

Riverine forest stands of this site are an important habitats for a number of vertebrate species that are protected at European level. The Bern Convention supports protection of 114 species (78 of them in Annex II). The wetland site supports a number of species important for biodiversity of the region. There are 8 species of insects listed in the Red Book of Ukraine (2009). The floodplain of the Borzhava River near the Atak area attracts a number of fish species typical for the lower reaches of rivers. They are, in particular, catfish, perch and pike. Along with them, some species from the Red Data Book of Ukraine (2009) are found, like Zingel zingel, Zingel streber, Gymnocephalus schraetzer, Telestes souffia, Romanogobio uranoscopus, Lota lota.

The 5 species of amphibians are found within the Atak-Borzhavske wetland. The site is an important for the reproduction of the toad Rana dalmatina, the species listed in the Red Book of Ukraine (2009).

A total of 77 species of birds belonging to 13 orders were recorded in the territory of the wetland and adjacent forests. Of these, 5 species are listed in the Red Data Book of Ukraine (2009). The wetland fauna is rich due to the unique old growth oak-ash riverine forests and is represented by 40 species of mammals. The 18 species of them are listed in the Red Book of Ukraine (2009), and 28 are protected under the Berne Convention List. Riverine territories are key areas for the conservation of the wild cats and otters in the Zakarpatska Region. Old growth oak-ash forests are a vital environment for dendrophilic bat species especially during their reproduction and migration.

## 3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Community of Salicion albae Soó 1930: Salici-Populetum (R. Tx 1931) Meijer Drees 1936, Salicetum albae Issler 1926.	Ø	Plant species: Anus glutinosa, Salix alba, Populus nigra, Humulus lupulus, Fraxinus angustifolia, Lysimachia vulgaris, Lycopus europaeus, Matteuccia struthiopteris, Iris pseudacorus, Lythrum salicaria, Carex riparia, Phalaroides arundinacea	Natura 2000: 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) Emerald: 44.1 Riparian willow formation.
Community of Anion glutinosae Malcuit 1929: Carici elongatae-Anetum Koch 1926, Carici acutiformis-Anetum Scamoni 1935	Ø	Plant species: Anus glutinosa, Caltha palustris, Carex elongata, C. riparia, C. vesicaria, Dryopteris carthusiana, Glyceria maxima, Lysimachia vulgaris, Peucedanum palustre, Solanum dulcamara, Stachys palustris, Thelypteris palustris	Emerald:44.914 Swamp alder woods
Community of Alnion incanae Pawł. in Pawł., Sokołowski et Wallisch 1928, Subcommunity of Ulmenion Oberd. 1953	<b>2</b>	Plant species: Acer campestre, Fraxinus angustifolia, Carex strigosa, Quercus robur, Ulmus minor, Carpinus betulus, Carex remota, Carex sylvatica, Juncus effusus, Caltha palustris, Corylus avellana, Stachys sylvatica, Geum urbanum, Euonymus europaeus	Natura 2000: 91F0 Riparian mixad forest of Quercus robur, Ulmus laevis and Ulmus minor, and Fraxinus excelsior or Fraxinus angustifolia, along the large rivers (Ulmenion minoris).
Community of Carpinion Issler 1931, sub- community. Querco robori-Carpinenion J. et M. Michalko 1985: Primulo veris-Carpi	<b>Ø</b>	Plant species: Acer campestre, Carex brizoides, Carpinus betulus, Crocus heuffelianus, Euphorbia amygdaloides, Gagea spathacea, Galeobdolon luteum, Galium odoratum, G. schultesii, Hedera helix, Lathyrus vemus, Melica uniflora, Primula veris	Natura 2000: 91G0 * Pannonic woods with Quercus petraea and Carpinus betulus; Emerald: 41.2 Cak-hornbeam forests

# 4 - What is the Site like? (Ecological character description)

### 4.1 - Ecological character

The Site is rare for Central Europe and the only one in Ukraine, which remains as a unique untouched floodplain oak-ash forest, where dynamics of natural flooding processes and primary structural-functional connections of the wetland ecosystem still can be found. The natural state of the forest ensures stability of the hydrological regime of this part of the Borzhava River and mitigates the impact of flash floods on adjacent areas of its basin. It controls soil erosion well along riparian zones of the rivers. It acts as a natural filter to the formation of water horizon that creates a drinking water reserve for local communities. It is also critically important for seasonal preservation of irrigation water for local agriculture. The old growth forest provides a genetic resource for the restoration of the almost disappeared floodplain forest types. The wetland is a part of regional ecological network. It is a center of Velykyi Lis forest massif nad a core zone of this ecological network. The wetland is located in the river valley, characterized by a well-developed floodplain with powerful alluvial deposits. The area of wetland is characterized by moderately continental climate, with sufficient and excessive rainfall, moderately warm summer, mild winter and warm autumn. The average January temperature is -2.8°C, while the average temperature in July is 20°C, and the average annual temperature is 9.3°C. The Site provides valuable habitats for the conservation of rare and endangered species in the region, has water-regulating functions and creates conditions for recreation and tourism. The Site supports the sport finishing tourism, hiking and canoeing.

#### 4.2 - What wetland type(s) are in the site?

	lands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Flowing water >> M Permanent rivers/ streams/ creeks	Borzhava River; Mala Borzhava River	2	3.4	Representative
Fresh water > Marshes on inorganic soils >> Xf. Freshwater, tree-dominated wetlands	Forest stands Atak, Velykyi Forest	1	280	Representative

(ECD) Habitat connectivity

## 4.3 - Biological components

#### 4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
Alisma plantago-aquatica		
Alnus glutinosa		
Carex remota		
Corylus avellana		
Crataegus laevigata		
Lemna minor		
Phragmites australis		
Quercus robur		

Invasive alien plant species

Scientific name	Common name	Impacts	
Acer negundo		Actually (minor impacts)	No change
Ambrosia artemisiifolia		Potentially	No change
Bidens frondosa		Actually (minor impacts)	No change
Erigeron annuus		Potentially	No change
Fraxinus pennsylvanica		Actually (minor impacts)	No change

#### 4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/MAMMALIA	Mustela putorius	European Polecat				Red Data Book of Ukraine - NE
CHORDATA/MAMMALIA	Pipistrellus nathusii					Red Data Book of Ukraine - NE
CHORDATA/MAMMALIA	Pipistrellus pygmaeus	Soprano Pipistrelle				Red Data Book of Ukraine - NE

Invasive alien animal species

Phylum	Scientific name	Common name	Impacts	
CHORDATA/ACTINOPTERYGII	Lepomis gibbosus		Actually (major impacts)	No change
CHORDATA/MAMMALIA	Neovison vison		Actually (minor impacts)	No change
CHORDATA/MAMMALIA	Nyctereutes procyonoides	Tanuki;Raccoon dog	Actually (minor impacts)	No change
CHORDATA/MAMMALIA	Ondatra zibethicus		Actually (minor impacts)	No change
CHORDATA/ACTINOPTERYGII	Perccottus glenii	Chinese sleeper;Chinese sleeper	Actually (minor impacts)	No change
CHORDATA/ACTINOPTERYGII	Pseudorasbora parva	Stone morokos	Actually (minor impacts)	No change

## 4.4 - Physical components

#### 4.4.1 - Climate

Climatic region	Subregion
D: Moist Mid-Latitude	Ofb: Humid continental (Humid with severe winter,
cimale with cold winters	no dry season, warm summer)

The annual average air temperatures in summer range from +16.4° to +20.2 °C, in winter – from -2.7 ° to -5.0 °C. The annual average rainfall ranges within 687-1,204 mm.

.4.2 - Geomorphic setting
.4.2 Geomorphic Setting
a) Mnimum elevation above sea level (in metres) 112
a) Maximum elevation above sea level (in metres) 114
Entire river basin
Upper part of river basin ☐
Mddle part of river basin ✓
Lower part of river basin $\square$
More than one river basin $\square$
Not in river basin

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

TThe site is located in the river valleys of the Borzhava and Mala Borzhava. The Borzhava River is the right tributary of the Tysa (Tisza) River, which is part of Danube catchment.

## 4.4.3 - Soil

Mineral ☑
Organic ☑

Coastal

No available information  $\square$ 

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes O No @

#### Please provide further information on the soil (optional)

The Borzhava river floodplain is formed by a powerful layer of alluvial deposites. The site is characterized by alluvial gley soils on quaternary sediments with a high ground water table. It is flooded periodically and connected with snow melt in spring or rain periods all over the year. The old growth forests of the site fixed the Borzhava riverbank against erosion and developed the riverbank habitats for large number of animal species including fishes and invertabrates.

# 4.4.4 - Water regime

#### Water permanence

Presence?	
Usually permanent water present	No change

#### Source of water that maintains character of the site

Presence?	Predominant water source			
Water inputs from surface water	<b>&gt;</b>	No change		
Water inputs from rainfall		No change		

#### Water destination

Presence?	
To downstream catchment	No change

#### Stability of water regime

Presence?	
Water levels fluctuating (including tidal)	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

The average water expenditure is 10 m3/sec, maximum - 293 m3/sec. The downpours are mainly intensive, sometimes catastrophic, resulting
in the river floods and causing significant damage to facilities and equipment. Significant amount of precipitation in the winter-summer season
did not allow the reliable identification of the duration of the spring flood. It is the reason why the floods in the river are of mixed origin. As for the
maximum water expenditures, for the last 10 years the Borzhava river and its basin has been characterized by a low water phase that explains
their reduction

(ECD) Connectivity of surface waters and of groundwater	The groundwater and surface waters are connected, however the connection scope has never been investigated				
(ECD) Stratification and mixing regime	The stratification and mixing regime are changeable, but never been studied				
4.4.5. On discount on views					
_	1.4.5 - Sediment regime				
•	diments occurs on the site				
Significant accretion or deposition of sec	_				
Significant transportation of sediments oc	•				
Sediment regime is highly variable, either so					
	ediment regime unknown				
Please provide further information on sedimer	at (optional): al gley soils on quaternary sediments with a high ground water table.				
The sites are characterized by alluving	angley sons of quaternary securiterias with a high ground water table.				
(ECD) Water turbidity and colour	Water is medium level turbidity. It raises when floods bring sediments from mountainous area.				
(ECD) Water temperature	River never freeze due to morphological structure of flow. Summer water temperature raises up to 25 degrees.				
4.4.6 - Water pH					
	Acid (pH<5.5) □				
С	rcumneutral (pH: 5.5-7.4 )   ✓				
	Alkaline (pH>7.4) ☑				
	Unknown □				
Please provide further information on pH (opti The average pH is 7.3-7.4. However	onal): , during floods pH can vary between 7-9.				
4.4.7 - Water salinity					
	Fresh (<0.5 g/l) ☑				
Mixohaline (bracki	Mxohaline (brackish)/Mxosaline (0.5-30 g/l) □				
	Euhaline/Eusaline (30-40 g/l) □				
Hyperhaline/Hypersaline (>40 g/l) □					
Unknown □					
(ECC) Dissolved gases in water  The water is highly ownerized					
The water is highly oxygenized.					
4.4.8 - Dissolved or suspended nutrients in water					
	Eutrophic				
	Mesotrophic □				
	Oligotrophic □				
	Dystrophic □				
	Unknown ☑				
4.4.9 - Features of the surrounding area which may affect the Site					
Please describe whether, and if so how, the	Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar O ii) significantly different  site itself:				
Surrounding area has greater urb	_				
	Surrounding area has higher human population density 🗹				
	intensive agricultural use   ✓				
•	Surrounding area has significantly different land cover or habitat types ☑				
15 - Ecosystem services					

### 4.5 - Ecosystem services

## 4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	Medium
Fresh water	Drinking water for humans and/or livestock	High

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Maintenance of hydrological regimes	Storage and delivery of water as part of water supply systems for agriculture and industry	High
Erosion protection	Soil, sediment and nutrient retention	High
Pollution control and detoxification	Water purification/waste treatment or dilution	High
Hazard reduction	Flood control, flood storage	Medium
Hazard reduction	Coastal shoreline and river bank stabilization and storm protection	High

#### Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Nature observation and nature-based tourism	Medium
Recreation and tourism	Recreational hunting and fishing	Medium
Recreation and tourism	Picnics, outings, touring	Medium
Spiritual and inspirational	Aesthetic and sense of place values	High
Spiritual and inspirational	Inspiration	High
Spiritual and inspirational	Contemporary cultural significance, including for arts and creative inspiration, and including existence values	Low
Scientific and educational	Major scientific study site	High
Scientific and educational	Educational activities and opportunities	Low
Scientific and educational	Type location for a taxon	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	
Soil formation	Sediment retention	High
Soil formation	Accumulation of organic matter	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	High
Nutrient cycling	Carbon storage/sequestration	High
Pollination	Support for pollinators	High

Within the site:	1000
1	
Outside the site:	10000

Have studies or assessments been made of the economic valuation of Yes O No O Unknown @ ecosystem services provided by this Ramsar Site?

## 4.5.2 - Social and cultural values

i) the site provides 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
ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland
iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples
iv) 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

<no data available>

# 4.6 - Ecological processes

<no data available>

# 5 - How is the Site managed? (Conservation and management)

# 5.1 - Land tenure and responsibilities (Managers)

#### 5.1.1 - Land tenure/ownership

ı ub	lic owners	u III

Category	Within the Ramsar Site	In the surrounding area
National/Federal	<b></b>	<b></b>
government	66.3	6823

#### Private ownership

Category	Within the Ramsar Site	In the surrounding area
Cooperative/collective (e.g., farmers cooperative)		<b>&gt;</b>
Other types of private/individual owner(s)		<b>/</b>

Provide further information on the land tenure / ownership regime (optional):

Regional State agency "Vinohradivske Forestry"
--

#### 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

Regional State agency "Vinohradivske Forestry", Prytysianskyi Regional Landscape Park, the Department of Environment and Natural Resources of Zakarpatska Regional State Administration

Provide the name and title of the person or people with responsibility for the wetland:

Vasyl Ahii, director of the Regional State agency "Vinohradivske Forestry" Serhiy Rishko, head of the Department of Environment and Natural Resources of Zakarpatska Regional State Administration

178 Kopanska St., Vynohradiv, Zakarpatska Region, 90300, Ukraine Postal address: 4 Ploshcha Narodna, Uzhhorod, 88008, Ukraine tel/fax +38 0312 616701

E-mail address: central@ecozakarpat.gov.ua

# 5.2 - Ecological character threats and responses (Management)

## 5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Tourism and recreation areas	Low impact	Low impact	<b>✓</b>	✓

## Water regulation

Water regulation				
Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Canalisation and river regulation	Medium impact	Medium impact		<b>/</b>

#### Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Wood and pulp plantations	Medium impact	Medium impact		✓
Livestock farming and ranching	Medium impact	Medium impact		V

# Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fishing and harvesting aquatic resources	Medium impact	Medium impact	✓	✓
Logging and wood harvesting	High impact	High impact		✓
Hunting and collecting terrestrial animals	Medium impact	Medium impact	<b>/</b>	✓

#### Human intrusions and disturbance

i idii ildii ii ild dolollo di id diotali	001100			
Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Recreational and tourism activities	Medium impact	Medium impact	✓	<b>v</b>

## Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Dams and water management/use	High impact	High impact	<b>₽</b>	✓

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	Medium impact	Medium impact	<b>2</b>	✓

#### Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Agricultural and forestry effluents	Medium impact	Medium impact		✓
Garbage and solid waste	Medium impact	High impact	✓	✓

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Habitat shifting and alteration	Low impact	Medium impact	✓	<b>/</b>

#### Please describe any other threats (optional):

In general, the site is exposed to a number of significant threats. Key among them is the forestry activity, focused on wood cutting and harvesting with some reforestation measures. The site is also characterized by an increasing volume of solid household waste which penetrates to the Site due to the recreation pressure and is thrown on the Borzhava riverbank during floods. These threats lead to habitat deterioration and will eventually provide a crucial impact on the Site biodiversity.

## 5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Regional Landscape Park	Prytysjanskyi	http://ecozakarpat.gov.ua	whole

#### 5.2.3 - IUCN protected areas categories (2008)

k	a Strict Nature Reserve	
Ib Wilderness Area: protected area managed	d mainly for wilderness	

II National Park: protected area managed mainly for ecosystem protection and recreation

III Natural Monument: protected area managed mainly for conservation of specific natural features

IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention

V Protected Landscape/Seascape: protected area managed mainly for Iandscape/seascape conservation and recreation

VI Managed Resource Protected Area: protected area managed mainly ☐ for the sustainable use of natural ecosystems

# 5.2.4 - Key conservation measures

Legal protection

Ecgai protection		
Measures	Status	
Legal protection	Partially implemented	

#### Habitat

Measures	Status
Habitat manipulation/enhancement	Proposed

#### Species

Measures	Status	
Threatened/rare species	pecies Proposed	
management programmes	i ioposeu	

## Human Activities

Measures	Status	
Research	Partially implemented	

## 5.2.5 - Management planning

Is there a site-specific management plan for the site? No

Has a management effectiveness assessment been undertaken for the site? Yes O No  $\odot$ 

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning Yes O No 

processes with another Contracting Party?

## 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No need identified

# 5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Animal species (please specify)	Proposed
Plant species	Proposed
Plant community	Proposed
Water regime monitoring	Proposed
Birds	Proposed

# 6 - Additional material

## 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

Abelentsev V.I., Pidoplychko I. G., Popov B. M. Insectivorous mammals and bats. - Kyiv: Academy of Sciences of the USSR, 1956. - 448 p. - (Fauna of Ukraine; Vol. 1, lss. 1). [in Ukrainian]

Vovk O., Orlov O. Alluvial deposits of the Transcarpathian lowland rivers and their role in floodplain soil formation // Genesis, geography and ecology of soils. - Lviv, 2008. P. 113-120. [in Ukrainian]

Vovk O.B, Orlov O.L., Prots B., Drescher A. On the study of soil cover of floodplain forests of Transcarpathia (materials of field studies) // Scientific Notes of the State Natural History Museum. - Lviv, 2004. [in Ukrainian]

Danylyk I. M, Kish R.Ya. Ecological-coenotioc features of fragmented populations of Carex strigosa Huds. (Cyperaceae) in Transcarpathia // UkrainianBotanical Journal. - 2008. - 65, No. 2. - P. 189-197. [in Ukrainian]

Drescher A.; Prots B; Mountford O., 2003a:. The world of old oxbowlakes, ancient riverine forests and meliorated mires in the Tisza river basin. Fritschiana 45: 43–69.

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Kish R., Prots B., Polianovskyi A., Bashta T.-A., Vovk O., Hodunko R., Danylyk I., Dresher A., Lugovoi O., Mateleshko O., Myhal A., Mirutenko V., Mounford O., Orlov O., Popov S., Potish L., Rizun V., Sabados V., Yamelynets T. Regional landscape park "Pritysiansky" - conservation of the natural heritage of the plain Transcarpathia. - Uzhgorod: Mystetska Linia Press, 2009.- 20 p. [in Ukrainian]

Krochko Yu.l. Bats the Transcarpathian plain and their role in regulating the number of pests // Recommendations on the reproduction and rational use of the plant and animal life of the Ukrainian Carpathians. - Uzhhorod, 1981. - P. 93-97. [in Russian]

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Prots B. Floodplain forests of the Transcarpathia (Ukraine): living close to human // Biological Systems.- Vol. 2, issue 3.- 2010. P.58-62. National Atlas of Ukraine. - Kyiv: Kartografia Press", 2007. - 440 p. [in Ukrainian]

Red Book of Ukraine. Plant World / ed. byY.P.Didukh - Kyiv: Globalconsulting, 2009. - 912 p. [in Ukrainian] Red Book of Ukraine. Animal World / ed. byl.A. Akimov. - Kyiv: Globalconsulting, 2009. - 600 p. [in Ukrainian]

#### 6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<no file available>

<no data available>

#### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Quiet reaches of the Borzhava River ( Roman Kish, 19-08-2005 )



Oak-ash forest in "Atak" area ( Roman Kish, 21-08-2005 )



Century-old forest of "Atak" area ( Roman Kish, 21-08-2005 )



Floodplain (riverine) forest ( Bogdan Prots, 11-05-2015 )



Floodplain (riverine) forest ( Bohdan Prots, 11-05-2015 )



Floodplain (riverine) forest ( Bohdan Prots, 11-05-2015 )



Scientists and members of the local community. ( Bohdan Prots, 10-09-2015.)

# 6.1.4 - Designation letter and related data

# Designation letter

<2 file(s) uploaded>

Date of Designation 2019-03-20