

# ANALYSIS

**of the compliance of the "Yadenitsa" Project –**

increasing the capacity of the lower compensating basin of Chaira PSHPP by the construction of Yadenitsa dam and a reversible pressure tunnel for connection with Chaira dam,

**with the defined site specific conservation objectives for four sites of the NATURA 2000 ecological network in Bulgaria**



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### ABBREVIATIONS

ACD	Asphalt concrete diaphragm
BTC	Bulgarian Telecommunications Company
WI	Water intake
GUSW	Main Directorate "Construction Corps"
FL	Fuels and lubricants
SG	State Gazette
DGF	State Forest Fund
EIAr	Environmental Impact Assessment Report
AAr	Appropriate Assessment Report
NEK	Natsionalna Elektricheska Kompania
EES	Power system
ESO	Energy system operator
EC	European Commission
EA	Environmental assessment
EU	European Union
ZBR	Biodiversity Act
ZDS	State Property Law
ZZT	Protected Areas Act
ZUO	Waste Management Act
ZUT	Spatial Planning Act
ZOAA	Environmental Protection Act
PZ	Protected zone
PA	Protected area
IWI	Institute for Water Issues
IP	Investment proposal
CMS	Control and measurement system
SHPP	Small hydroelectric power plant
MoEW	Ministry of Environment and Water
MV	Motor vehicle

CM	Council of Ministers
HWL	Highest water level
HWWL	Highest working water level
LOWL	Lowest operating water level
IS	Irrigation systems
EIA	Environmental impact assessment
AA	Aproptiate assesement
PSHPP	Pumped storage hydropower plant
CS	Conservation status
RIOSW	Regional Inspectorate for Environment and Water
RHI	Regional Health Inspectorate
RCS	Reinforced concrete screen
SDF	Standart data form
CWSP	Crushing and washing sorting plant
TP DGS	Territorial division of the State Forestry
TP DLS	Territorial division of the State Hunting Enterprise
UACEG	University of Architecture, Civil Engineering and Geodesy
EEF	Educational and experimental forestry
Ha	Hectare
CMS	Central measuring station

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## I. Objectives of the prepared analysis

### **The main objectives of preparing this analysis are as follows:**

- To determine the expected impacts of the implementation of the investment proposal on natural habitat types and habitats of species subject to conservation in four protected areas of the Natura 2000 network;
- To determine the types of natural habitats and habitats of species falling within the scope of impact of the investment proposal affected by the elements and activities of the investment proposal;
- To assess the significance of the impacts of the implementation of the investment proposal on the site specific conservation objectives for natural habitat types and species habitats in four protected areas of the Natura 2000 network;
- To conclude on the compliance of the investment proposal with the site specific conservation objectives for natural habitat types and species habitats in four protected areas of the Natura 2000 network;
- To present a clear visualization of the analyses performed, structured in tables and visualized with maps and photos;
- To present an analysis of the mitigation measures included in the 2017 EIA decision approving the investment proposal and their effectiveness in relation to the site specific conservation objectives set for natural habitat types and species habitats in four protected areas of the Natura 2000 network;
- To present up-to-date information that will provide certainty to the contracting authority, the competent environmental authorities, the European Commission and the funding institutions.

## II. General information

### 2.1. Natura 2000 protected areas for which this analysis was carried out

The Yadenitsa project (part of the pressure tunnel) passes under the territory of the Rila National Park, without affecting the protected area. Similarly, part of the pressure tunnel passes under two protected areas of the Natura network. These are BG0000495 "Rila" for the protection of natural habitats and wild flora and fauna, and BG000495 "Rila" for the protection of wild birds. The Yadenitsa **project does not affect the two protected areas.**

The Yadenitsa Project (dam and related facilities) is designed in the section of the Yadenitsa River above the confluence of the Yundolska River and **is outside the boundaries of the SAC BG0001386 "Yadenitsa"** for the protection of natural habitats and wild flora and fauna. Given the indicated position relative to the protected area, the stilling basin, the correction and the SHPP, which are part of the project, are also outside the boundaries of the area. The distance of the Yadenitsa Project to the boundaries of the SAC BG0001386 "Yadenitsa" is 316 m in a straight line from the dam wall.

Due to the proximity of the "Yadenitsa" project to the SAC BG0001386 "Yadenitsa" and the entry of the Yadenitsa River into the area, by decision of the competent authority – the Ministry of Environment and Water, within the framework of the environmental impact assessment (EIA) procedure conducted in 2016, an appropriate assessment (AA) was carried out, presented in the form of an impact assessment report (IAR) of the investment proposal on the SAC BG0001386 "Yadenitsa".

**After issuing the EIA Decision No. 2-2/01.08.2017 of the Ministry of Environment and Water approving the investment proposal (IP), the development of the Natura 2000 network in Bulgaria continued.**

- Two new Natura 2000 sites have been designated:
  - SPA BG0002129 "Rila Buffer" and an order has been issued for its designation (Order No. PΔ-229/11.03.2020 of the Ministry of Environment and Water);
  - SAC BG0000636 "Niska Rila" and an order has been issued for its designation (Order No. PΔ-290/25.04.2025 of the Ministry of Environment and Water);
    - An order has been issued to designate a SAC BG0001386 "Yadenitsa" (Order No. PΔ-322/31.03.2021 of the Ministry of Environment and Water);
    - Order No. PΔ-764/28.10.2008 on the designation of SAC/SPA BG0000495 "Rila" was amended and supplemented by Order No. PΔ-259/31.03.2021 and by Order No. PΔ-131/17.02.2025.
    - By order of the Minister of Environment and Water, SSCOs have been set for these four Natura 2000 sites (a link to the full text of the objectives is provided below in this analysis).

### 2.1.1. SAC BG 0000495 "Rila"

SAC BG 0000495 "Rila" is a "C"-type area designated for the conservation of natural habitats and wild flora and fauna (under the Habitats Directive 92/43/EEC) and for the conservation of wild birds (under the Birds Directive 2009/147/EC). It was declared by Order No. RD-764/28.10.2008 of the Minister of Environment and Water (SG No. 100/21.11.2008), amended and supplemented by Order No. RD-259/31.03.2021 (SG No. 40/14.05.2021), amended and supplemented by Order No. RD-131/17.02.2025 (SG No. 18/4.03.2025).

**Map of SAC BG0000495 „Rila“ (Fig. 1):**

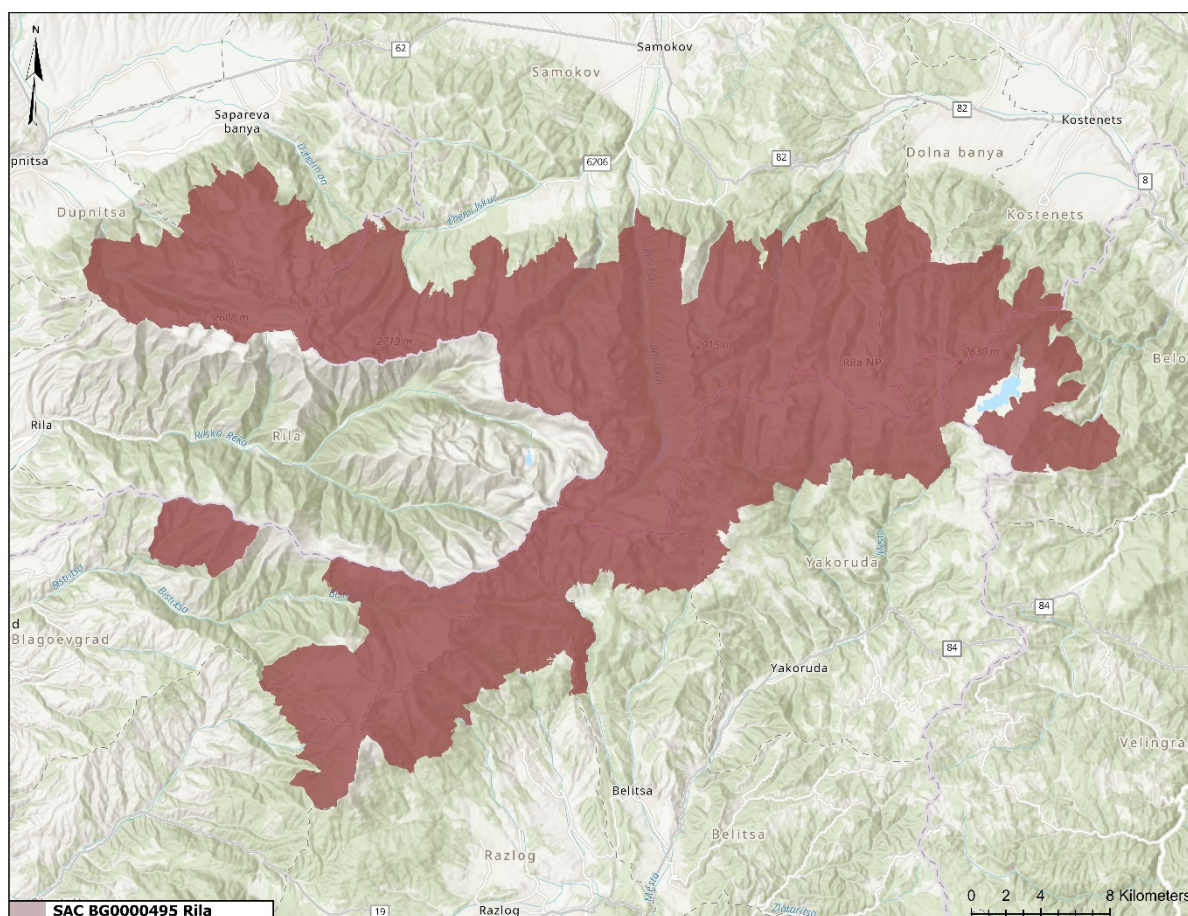


Fig. 1. SAC BG0000495 „Rila“

#### **Area of SAC BG0000495 „Rila“:**

The SAC BG0000495 „Rila“ has been declared with a total area of 77927.168 ha, with its territory entirely falling within the borders of the Alpine biogeographic region.

#### **Characteristics of SAC BG0000495 „Rila“:**

According to the information in the Standard Data Form (SDF), SAC BG0000495 "Rila" is characterized by mountainous relief and steep slopes. The territory of Rila Mountain falls among the main morphostructures of Bulgaria (Rila-Rhodope morphostructure). In lithological-petrographic terms, there is no great diversity of rock complexes. Most of

them are built from the oldest rocks in Bulgaria - metamorphic. It is characterized by exceptional landscape diversity.

SAC BG0000495 "Rila" overlaps with both the Rila National Park and the Rila Important Bird Area. There are 4 clearly defined altitudinal belts in the park. Alpine-type habitats are formed in the highest parts. The forest belt is dominated by centuries-old forests of spruce, Scots pine, white fir and fir. The main phytocenoses in the belt between 1900-2100 and 2500 m above sea level are those of the juniper (*Pinus mugo* Turra). The largest, after those of the juniper, are the areas of the phytocenoses of the Siberian juniper (*Juniperus sibirica*). Scree and acidophilous grass communities are characteristic of this belt. A very important component in the subalpine belt are the phytocenoses of the kartal (*Nardus stricta*). They occupy large areas not only in the lower parts of the relief throughout the park, but in some places also on the ridges. The northern slopes are rocky, very steep, crossed by river valleys. The southern slopes are more sloping, covered with forests and pastures. Rila National Park corresponds to a protected area of the second category according to the IUCN criteria. The park is the most significant territory in terms of representation in the country of high-mountain glacial lakes and glacial-type lake biota. Particularly valuable are the forest ecosystems with their high percentage of naturalness (94.8%), where there are endemic forest complexes (for example, of white pine) and some of the oldest and most representative juniper communities in Bulgaria. Due to the difficult-to-access territory of the zone, a significant part of the forests are not strongly influenced by human intervention and are of considerable age.

**Subject of conservation, according to the Standard Data Form (SDF) of the SAC BG0000495 "Rila"**

According to the SDF (updated in January 2025), the following are subject to conservation in the SAC BG0000495 "Rila": 9 species of invertebrates; 1 species of fish; 4 species of amphibians and reptiles; 5 species of mammals (excluding bats); 7 species of bats; 3 species of higher plants; 25 types of natural habitats and 29 species of birds - described in Table 1 and Table 2.

**Table 1. Types of natural habitats present in SAC BG0000495 "Rila" and their assessment.**

Code	Coverage in the area [ Ha]	Area assessment			
		Representativeness	Relative surface area	Storage level	Overall rating
<b>3130</b>	143.0	A	B	B	A
<b>3160</b>	4.34	B	B	B	B
<b>3260</b>	2.42	B	C	B	B
<b>4060</b>	8226.62	A	A	A	A
<b>4070</b>	16702.45	A	A	A	A
<b>6150</b>	3231.85	A	A	A	A
<b>6230</b>	6721.94	A	A	B	A
<b>62DO</b>	2282.97	A	B	A	A
<b>6410</b>	14.80616	A	C	A	B
<b>6430</b>	65.32	A	C	A	A
<b>6520</b>	62.11	C	C	C	C
<b>7140</b>	280.46	A	A	A	A
<b>8110</b>	5949.92	A	A	A	A
<b>8220</b>	1423.12	A	A	A	A
<b>9110</b>	62.18	D			
<b>9130</b>	562.91	B	C	A	A
<b>9170</b>	420.6	B	C	A	B
<b>9180</b>	4.95	D			
<b>91BA</b>	2051.57	B	B	A	B
<b>9 ICA</b>	6325.25	A	B	A	A
<b>91DO</b>	23.53	A	B	A	B
<b>91EO</b>	1.38	D			
<b>9270</b>	13.28	D			
<b>9410</b>	10907.88	A	B	A	A
<b>95AO</b>	5276.95	A	A	A	A

**Table 2. Species present in SAC BG0000495 "Rila" and their assessment.**

Group	Code	Scientific name	Zone rating			
			Population	Conservation	Isolation	Overall rating
B	A085	<b>Accipiter aentilis</b>	C	A	C	C
B	A086	<b>Accipiter nisus</b>	C	A	C	C
B	A168	<b>Actitis hypoleucos</b>	B	A	C	C
B	A168	<b>Actitis hypoleucos</b>	C	A	C	C
B	A223	<b>Aeolius funereus</b>	A	A	C	A
B	A465	<b>Alectoris araea araea</b>	B	A	B	B
B	A091	<b>Aquila chrysaetos</b>	B	A	C	A
I	1093	<b>Austropotamobius torrentium</b>	C	A	C	A
M	1308	<b>Barbastella barbastellus</b>	C	B	C	C
A	1193	<b>Bombina variegata</b>	C	A	B	A
B	A104	<b>Bonasa bonasia</b>	A	A	C	A
B	A215	<b>Bubo bubo</b>	C	B	C	C
B	A087	<b>Buteo buteo</b>	C	A	C	C
P	1386	<b>Buxbaumia viridis</b>	A	A	A	A
M	1352	<b>Canis lupus</b>	C	A	C	A
B	A224	<b>Caprimulgus europaeus</b>	C	A	C	A
B	A136	<b>Charadrius dubius</b>	C	B	C	C
B	A136	<b>Charadrius dubius</b>	C	B	C	C
B	A030	<b>Ciconia niara</b>	C	B	C	C
B	A080	<b>Circaetus allicus</b>	C	B	C	B
I	4046	<b>Cordulea aster heros</b>	C	A	B	A
F	1163	<b>Cottus aobio</b>	C	A	A	A
B	A122	<b>Crex crex</b>	C	B	C	C
B	A239	<b>Dendrocopos leucotos</b>	C	A	C	A

B	A236	<b>Drvocopus martius</b>	C	A	C	A
I	1065	<b>Euphvdrrvas aurinia</b>	B	A	B	A
I	6199	<b>Euplagia quadripunctaria</b>	C	B	C	B
B	A101	<b>Falco biarmicus</b>	A	A	A	B
B	A511	<b>Falco cherrua</b>	C	A	B	A
B	A511	<b>Falco cherrua</b>	C	A	B	A
B	A103	<b>Falco Derearinus</b>	B	A	C	A
B	A099	<b>Falco subbuteo</b>	C	A	C	C
B	A099	<b>Falco subbuteo</b>	C	A	C	C
B	A096	<b>Falco tinnunculus</b>	C	A	C	C
B	A217	<b>Glaucidium passerinum</b>	A	A	A	A
B	A338	<b>Lanius collurio</b>	C	B	C	C
B	A868	<b>Leiopicus medius</b>	C	A	C	B
I	1083	<b>Lucanus cervus</b>	C	B	B	C
B	A246	<b>Lullula arborea</b>	C	A	C	B
M	1355	<b>Lutra lutra</b>	C	B	B	C
P	1389	<b>Meesia lonaiseta</b>	A	B	A	B
I	6908	<b>Morimus asper funereus</b>	C	A	B	B
M	1323	<b>Mvotis bechsteinii</b>	C	B	C	C
M	1307	<b>Mvotis blvthii</b>	C	B	C	C
M	1321	<b>Mvotis emarainatus</b>	D			
M	1324	<b>Mvotis mvotis</b>	C	B	C	C
I	4053	<b>Paracaloptenus caloptenoides</b>	C	B	B	B
B	A072	<b>Pernis apivorus</b>	C	A	C	B
B	A241	<b>Picoides tridactylus</b>	A	A	A	A
B	A234	<b>Picus canus</b>	C	A	C	A

I	4042	<b>Polvommatius eroides</b>	B	A	B	A
M	1304	<b>Rhinolophus ferrumequinum</b>	C	A	C	C
M	1303	<b>Rhinolophus hipposideros</b>	C	B	C	C
I	1087	<b>Rosalia alpina</b>	C	B	C	B
M	1371	<b>Rupicapra rupicapra balcanica</b>	A	B	C	A
M	1335	<b>Spermophilus citellus</b>	C	B	A	A
R	1219	<b>Testudo araeca</b>	C	C	C	C
R	1217	<b>Testudo hermanni</b>	C	C	C	C
B	A108	<b>Tetrao uroaallus</b>	A	A	A	A
P	4116	<b>Tozzia carpathica</b>	A	A	B	A
A	1171	<b>Triturus karelinii</b>	C	C	C	C
M	1354	<b>Ursus arctos</b>	B	A	C	A

**Legend:**

**Група:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles

**Conservation objectives of the SAC BG0000495 "Rila", according to the Order № ПА-259/31.03.2021 г. of the Ministry of Environment and Water:**

- Protection and maintenance of the habitats of bird species subject to conservation in the protected area, their populations and distribution within the boundaries of the area, to achieve and maintain their favorable condition;
- Conservation and maintenance of the types of natural habitats and the habitats of the species subject to conservation in the protected area, their populations and distribution within the boundaries of the area, to achieve and maintain their favorable conservation status in the Alpine biogeographical region;
- Improving the condition of the habitats of the species Corncrake (*Crex crex*) and Common Nightjar (*Myotis myotis*);
- Improving the structure and functions of natural habitats with codes 3130, 3160, 3260, 6150, 6230\*, 9130, 9170, 91BA, 91CA, 91D0\* и 95A0;
- If necessary, improving the condition or restoring natural habitat types and habitats of species and their populations subject to conservation in the protected area.

**Conservation objectives of SAC BG0000495 „Rila“, designated by Order № ПА-86/31.01.2025 г. of the Minister of Environment and Water site specific conservation objectives for the SAC. The SSCOs are published in the Information System of the**

protected areas of the Natura 2000 network of the Ministry of Environment and Water, at the following address:

[https://natura2000.egov.bg/EsriBg.Natura.Public.Web.App/PublicDownloads/294D0F9C764D40789385B63DCFE43D3E/%D0%A0%D0%B8%D0%BB%D0%B0\(BG0000495\)\\_PS\\_30.pdf](https://natura2000.egov.bg/EsriBg.Natura.Public.Web.App/PublicDownloads/294D0F9C764D40789385B63DCFE43D3E/%D0%A0%D0%B8%D0%BB%D0%B0(BG0000495)_PS_30.pdf)

Table 3 presents a list of the species and types of natural habitats for which site specific conservation objectives have been developed for the SAC BG0000495 "Rila".

**Table 3. Species and types of natural habitats for which site specific conservation objectives have been designated for SAC BG0000495 "Rila".**

Group	Species/type of natural habitat	Defined site specific conservation objectives
Invertebrates	Euphydrias ( <i>Euphydrias aurinia</i> )	Yes
Invertebrates	Stag beetle ( <i>Lucanus cervus</i> )	Yes
Invertebrates	Rosalia longicorn ( <i>Rosalia alpina</i> )	Yes
Invertebrates	Morimus funereus ( <i>Morimus asper funereus</i> )	Yes
Invertebrates	Stone crayfish ( <i>Austropotamobius torrentium</i> *)	Yes
Invertebrates	Eros blue ( <i>Polyommatus eroides</i> )	Yes
Invertebrates	Balkan goldenring ( <i>Cordulegaster heros</i> )	Yes
Invertebrates	Common paracaloptenus ( <i>Paracaloptenus caloptenoides</i> )	Yes
Invertebrates	Jersey tiger ( <i>Euplagia quadripunctaria</i> )	Yes
Pisces	European bullhead ( <i>Cottus gobio</i> )	Yes
Amphibians and reptiles	Southern crested newt ( <i>Triturus karelinii</i> )	Yes
Amphibians and reptiles	Yellow-bellied toad ( <i>Bombina variegata</i> )	Yes
Amphibians and reptiles	Greek tortoise ( <i>Testudo graeca</i> )	Yes
Amphibians and reptiles	Hermann's tortoise ( <i>Testudo hermanni</i> )	Yes
Mammals, excluding bats	European ground squirrel ( <i>Spermophilus citellus</i> )	Yes
Mammals, excluding bats	European wolf ( <i>Canis lupus</i> )	Yes
Mammals, excluding bats	Brown bear ( <i>Ursus arctos</i> )	Yes
Mammals, excluding bats	Otter ( <i>Lutra lutra</i> )	Yes
Mammals, excluding bats	Balkan chamois ( <i>Rupicapra rupicapra balcanica</i> )	Yes
Bats	Lesser horseshoe bat ( <i>Rhinolophus hipposideros</i> )	Yes

Bats	Greater horseshoe bat ( <i>Rhinolophus ferrumequinum</i> )	Yes
Bats	Lesser mouse-eared bat ( <i>Myotis blythii</i> )	Yes
Bats	Western barbastelle ( <i>Barbastella barbastellus</i> )	Yes
Bats	Notch-eared bat ( <i>Myotis emarginatus</i> )	No
Bats	Bechstein's bat ( <i>Myotis bechsteini</i> )	Yes
Bats	Greater mouse-eared bat ( <i>Myotis myotis</i> )	Yes
Plant	Buxbaumia viridis ( <i>Buxbaumia viridis</i> )	Yes
Plant	Meesia longiseta ( <i>Meesia longiseta</i> )	Yes
Plant	Carpathian tozia ( <i>Tozzia (alpina) carpathica</i> )	Yes
Non-forest habitats	3130 Oligotrophic to mesotrophic standing waters with vegetation of <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i>	Yes
Non-forest habitats	3160 Natural dystrophic lakes	Yes
Non-forest habitats	3260 Plain or mountain rivers with vegetation of <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i>	Yes
Non-forest habitats	4060 Alpine and boreal ericoid communities	Yes
Non-forest habitats	4070* Shrub communities with <i>Pinus mugo</i>	Yes
Non-forest habitats	6150 Silicate alpine and boreal grasslands	Yes
Non-forest habitats	6230 * Species-rich karst communities on silicate terrain in the mountains	Yes
Non-forest habitats	62D0 Oromizia acidophilous grasslands	Yes
Non-forest habitats	6410 <i>Molinia</i> meadows on carbonate, peaty or clay soils ( <i>Molinion caeruleae</i>	Yes
Non-forest habitats	6430 Hydrophilic communities of tall grasses in the plains and in the montane to alpine zone	Yes
Non-forest habitats	6520 Mountain hay meadows	Yes
Non-forest habitats	7140 Transitional bogs and floating peatlands	Yes
Non-forest habitats	8110 Silicate scree from the mountain to the snow belt	Yes
Non-forest habitats	8220 Chasmophyte vegetation on silicate rock slopes	Yes
Forest habitats	9110 Luzulo-Fagetum type beech forests	No
Forest habitats	9130 Beech forests of the Asperulo-Fagetum type	Yes
Forest habitats	9170 Oak-hornbeam forests of the type <i>Galio-Carpinetum</i>	Yes
Forest habitats	9180* Mixed forests of the type <i>Tilio-Acerion</i>	No
Forest habitats	91E0 * Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Pandion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	Yes
Forest habitats	91BA Moesian Scots Fir Forests	Yes
Forest habitats	91CA Rila-Rhodope and Stara Planina white pine forests	Yes
Forest habitats	91D0 * Swamp forests	Yes
Forest habitats	9270 Greek beech forests with <i>Abies borisii-regis</i>	No

Forest habitats	9410 Acidophilous Picea forests in the montane to alpine zone ( <i>Vaccinio-Piceetea</i> )	Yes
Forest habitats	95A0 White and black pine forests	Yes
Birds	A030 <i>Ciconia nigra</i> (Black stork)	Yes
Birds	A072 <i>Pernis apivorus</i> (European honey buzzard)	Yes
Birds	A080 <i>Circaetus gallicus</i> (Short-toed snake eagle)	Yes
Birds	A085 <i>Accipiter gentilis</i> (Eurasian goshawk) = A899 <i>Accipiter gentilis</i>	Yes
Birds	A086 <i>Accipiter nisus</i> (Eurasian sparrowhawk) = A898 <i>Accipiter nisus</i>	Yes
Birds	A087 <i>Buteo buteo</i> (Common buzzard)	Yes
Birds	A091 <i>Aquila chrysaetos</i> (Golden eagle)	Yes
Birds	A096 <i>Falco tinnunculus</i> (Common kestrel)	Yes
Birds	A099 <i>Falco subbuteo</i> (Eurasian hobby)	Yes
Birds	A101 <i>Falco biarmicus</i> (Lanner falcon)	Yes
Birds	A103 <i>Falco peregrinus</i> (Peregrine falcon)	Yes
Birds	A104 <i>Bonasa bonasia</i> (Hazel grouse)	Yes
Birds	A108 <i>Tetrao urogallus</i> (Western capercaillie) = A659 <i>Tetrao urogallus</i>	Yes
Birds	A122 <i>Crex crex</i> (Corn crane)	Yes
Birds	A136 <i>Charadrius dubius</i> (Little ringed plover)	Yes
Birds	A168 <i>Actitis hypoleucos</i> (Common sandpiper)	Yes
Birds	A215 <i>Bubo bubo</i> (Eurasian eagle-owl)	Yes
Birds	A217 <i>Glaucidium passerinum</i> (Eurasian pygmy owl)	Yes
Birds	A223 <i>Aegolius funereus</i> (Boreal owl)	Yes
Birds	A224 <i>Caprimulgus europaeus</i> (European nightjar)	Yes
Birds	A234 <i>Picus canus</i> (Grey-headed woodpecker)	Yes
Birds	A236 <i>Dryocopus martius</i> (Black woodpecker)	Yes
Birds	A238 <i>Dendrocopos medius</i> (Middle spotted woodpecker) = A868 <i>Leiopicus medius</i>	Yes
Birds	A239 <i>Dendrocopos leucotos</i> (White-backed woodpecker)	Yes
Birds	A241 <i>Picooides tridactylus</i> (Eurasian three-toed woodpecker)	Yes
Birds	A246 <i>Lullula arborea</i> (Woodlark)	Yes
Birds	A338 <i>Lanius collurio</i> (Red-backed shrike)	Yes
Birds	A465 <i>Alectoris graeca graeca</i> (rock partridge) = A878 <i>Alectoris graeca</i>	Yes
Birds	A511 <i>Falco cherrug</i> (Saker falcon)	Yes

As indicated in the table above, specific objectives have been developed for a total of 28 animal and plant species, 22 types of natural habitats and 29 species of birds.

No site specific conservation objectives have been developed for species that are rated "D" in the Standard Data Form. Three types of natural habitats have such a rating under the "Representativeness" indicator: 9110 *Luzulo-Fagetum* beech forests , 9180 \*Mixed forests of the *Tilio-Acerion* alliance on screes and steep slopes and 9270 Greek beech forests with *Abies borisii-regis* . Regarding the fauna species with a rating "D" under the "Population" indicator, the bat species 1321 *Myotis emarginatus* has such a rating under the "Representativeness" indicator

## 2.1.2. SPA BG0002129 „Rila Buffer“

SPA BG0002129 "Rila Buffer" is designated for the protection of wild birds (under Directive 2009/147/EC on birds). It was declared by Order No. PΔ-229/11.03.2020 of the Minister of Environment and Water (SG, issue 24/17.03.2020) and amended by Order No. PΔ-132/17.02.2025 of the Minister of Environment and Water (SG, issue 18/04.03.2025).

**Map of SPA BG0002129 „Rila Buffer“ (Fig.2):**

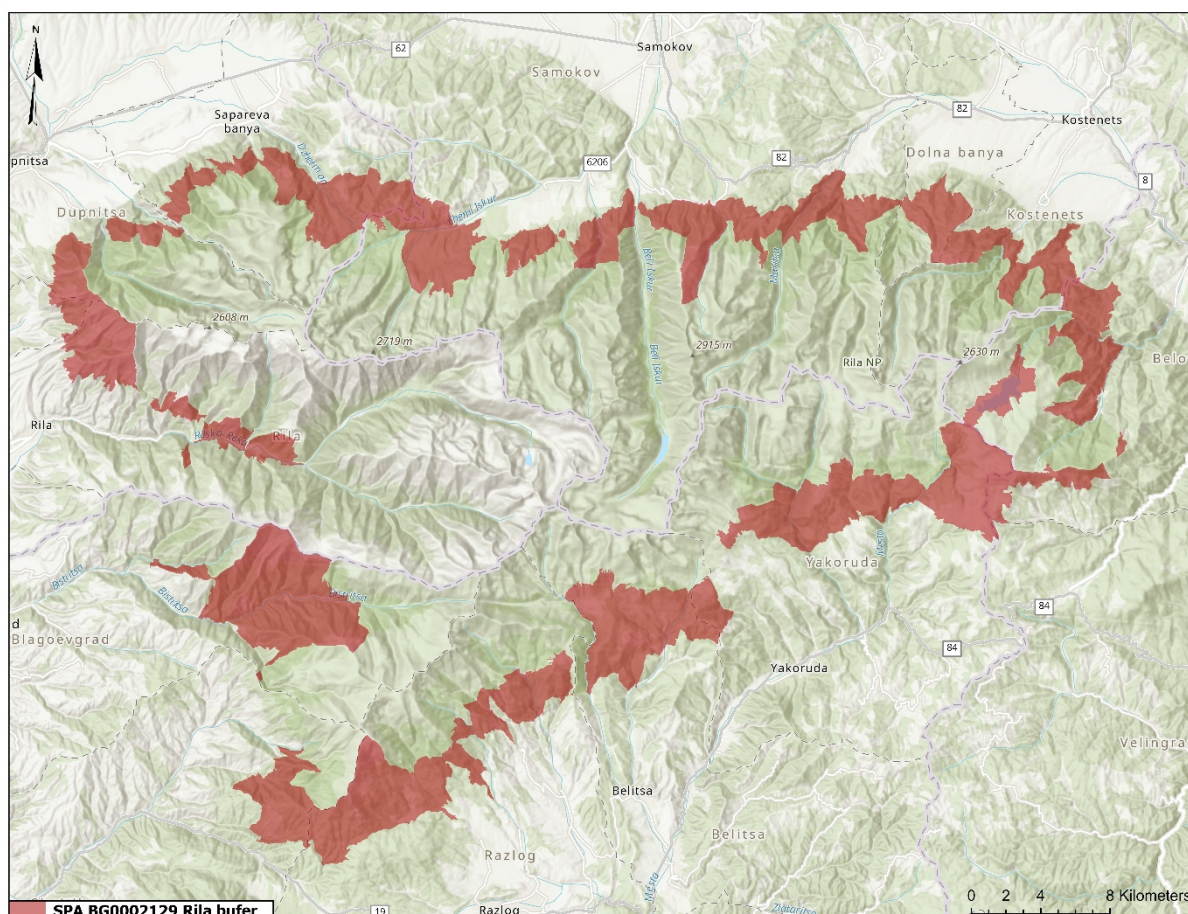


Fig. 2. SPA BG0002129 „Rila Buffer“

### **Area of SPA BG0002129 „Rila Buffer“:**

The SPA is designated with a total area of 38400.404 ha, with its territory entirely falling within the borders of the Alpine biogeographic region.

### **Characteristics of SPA BG0002129 „Rila Buffer“:**

According to the information in the Standard Data Form (SDF), the Rila Buffer Zone covers the lower parts of the Rila Mountain, along the border with the Rila National Park and the Rila Monastery Nature Park (coinciding with the Natura 2000 sites of the same name) and almost entirely falls within the Rila Important Bird Area. It mainly covers old coniferous, mixed and broad-leaved forests, which occupy about 76% of its territory. The coniferous forests are represented by formations of white pine ( *Pinus peuce* ), spruce ( *Picea abies* ), Scots pine ( *Pinus sylvestris* ) and fir ( *Abies alba* ). The

broad-leaved forests are dominated by beech ( *Fagus sylvatica* ). Mixed beech-coniferous forests are also found. Open habitats, including natural meadows, shrub pastures, transitional habitats and agricultural areas, occupy the remaining part of the protected area. Rock complexes and water areas are poorly represented, occupying less than 2% of its territory. About 90% of the represented ecosystems are of natural origin.

The protected area provides suitable habitats for endangered bird species, characteristic of old forests and open spaces, which are typical and representative of the Rila Mountains. The most numerous populations in the country of the Little Owl (*Glaucidium passerinum*) , the Long-legged Owl (*Aegolius funereus*) and the Three-toed Woodpecker (*Picoides tridactylus*) are found here . All three species are included in the Red Book of the Republic of Bulgaria (Golemanski et al. (eds.), 2015). Rila is one of the most valuable places in the country for the conservation of the Golden Eagle (*Aquila chrysaetos*) , the Capercaillie (*Tetrao urogallus*) , the Peregrine Falcon (*Falco peregrinus*) , the Black Woodpecker (*Dryocopus martius*) , the White-backed Woodpecker (*Dendrocopos leucotos*) and the Hazel grouse (*Bonasa bonasia*) .

**Subject of conservation, according to the Standard Data Form (SDF) of SPA BG0002129 "Rila Buffer":**

According to the SDF of the protected area (updated in December 2024), 17 bird species described in Table 4 are subject to protection, with no species with category "D" for population abundance and density.

**Table 4. Species present in SPA BG0002129 "Rila Buffer" and their assessment.**

Group	Code	Scientific name	Zone rating			
			Population	Conservation	Isolation	Overall rating
B	A223	Aegolius funereus	B	B	A	A
B	A091	Aquila chrysaetos	C	B	C	B
B	A104	Bonasa bonasia	B	B	C	B
B	A215	Bubo bubo	C	B	C	C
B	A224	Caprimulgus europaeus	C	B	C	C
B	A080	Circaetus gallicus	C	B	C	C
B	A122	Crex crex	C	B	C	B
B	A239	Dendrocopos leucotos	C	B	A	A
B	A236	Dryocopus martius	C	B	C	C
B	A103	Falco peregrinus	C	B	C	B
B	A217	Glaucidium passerinum	A	B	A	A

B	A338	Lanius collurio	C	B	C	C
B	A868	Leipicus medius	C	B	C	B
B	A246	Lullula arborea	C	B	C	C
B	A072	Pernis apivorus	C	B	C	C
B	A241	Picoides tridactylus	B	B	A	A
B	A108	Tetrao urogallus	C	B	A	A

**Legend: Group:** B = Birds

**Conservation objectives of SPA BG0002129 „Rila Buffer“, in accordance with Order № ПД-229/11.03.2020 r. of MoEW:**

- protection of the habitats of 17 bird species, their populations and distribution within the boundaries of the area to achieve and maintain their favorable condition;
- improving the condition of the habitats of the bird species: hazel grouse ( *Bonasa bonasia* ), capercaillie ( *Tetrao urogallus* ), corncrake ( *Crex crex* ), white-backed woodpecker ( *Dendrocopos leucotos* ) and three-toed woodpecker ( *Picoides tridactylus* ) until their favorable condition is achieved;
- maintaining the habitats of the other bird species specified in the order;
- restoration, if necessary, of habitats of the species specified in the order and their populations.

**Conservation objectives of SPA BG0002129 „Rila Buffer“,** designated by Order No. № ПД-87/31.01.2025 of the Minister of Environment and Water, site specific conservation objectives for the protected area. The objectives are published in the Information System of the sites of the Natura 2000 network of the Ministry of Environment and Water, at the following address:

[https://natura2000.egov.bg/EsriBg.Natura.Public.Web.App/PublicDownloads/F991E5A41BB34871A60CC0E3FA15E6A2/%D0%A0%D0%B8%D0%BB%D0%B0%D0%B1%D1%83%D1%84%D0%B5%D1%80\(BG0002129\)\\_PS\\_30.pdf](https://natura2000.egov.bg/EsriBg.Natura.Public.Web.App/PublicDownloads/F991E5A41BB34871A60CC0E3FA15E6A2/%D0%A0%D0%B8%D0%BB%D0%B0%D0%B1%D1%83%D1%84%D0%B5%D1%80(BG0002129)_PS_30.pdf)

Table 5 presents a reference to the species for which site specific conservation objectives have been designated for protected area BG0002129 "Rila Buffer

**Table 5. Species for which site specific conservation objectives have been designated for SPA BG0002129 "Rila Buffer".**

Group	Type	Defined site specific conservation objectives
Birds	A072 <i>Pernis apivorus</i> (European honey buzzard)	Yes
Birds	A080 <i>Circaetus gallicus</i> (Short-toed snake eagle)	Yes
Birds	A091 <i>Aquila chrysaetos</i> (Golden eagle)	Yes
Birds	A103 <i>Falco peregrinus</i> (Peregrine falcon)	Yes
Birds	A104 <i>Bonasa bonasia</i> (Hazel grouse)	Yes
Birds	A108 <i>Tetrao urogallus</i> (Western capercaillie) = A659 <i>Tetrao urogallus</i>	Yes
Birds	A122 <i>Crex crex</i> (Corn crake)	Yes
Birds	A215 <i>Bubo bubo</i> (Eurasian eagle-owl)	Yes
Birds	A217 <i>Glaucidium passerinum</i> (Eurasian pygmy owl)	Yes
Birds	A223 <i>Aegolius funereus</i> (Boreal owl)	Yes
Birds	A224 <i>Caprimulgus europaeus</i> (European nightjar)	Yes
Birds	A236 <i>Dryocopus martius</i> (Black woodpecker)	Yes
Birds	A239 <i>Dendrocopos leucotos</i> (White-backed woodpecker)	Yes
Birds	A241 <i>Picoides tridactylus</i> (Eurasian three-toed woodpecker)	Yes
Birds	A246 <i>Lullula arborea</i> (Woodlark)	Yes
Birds	A338 <i>Lanius collurio</i> (Red-backed shrike)	Yes
Birds	A868 <i>Leipicus medius</i> (Middle spotted woodpecker) = A238 <i>Dendrocopos medius</i>	Yes

As indicated in the table above, site specific conservation objectives have been set for all 17 bird species subject to conservation in the protected area.

### 2.1.3. SAC BG0001386 „Yadenitsa“

SAC BG0001386 „Yadenitsa“ is designated for the protection of natural habitats and wild flora and fauna (under the Habitats Directive 92/43/EEC). It was declared by Order No. ПД -322/31.03.2021 of the Minister of Environment and Water (SG, issue 52/22.06.2021) and amended by Order No. ПД -133/17.02.2025 of the Minister of Environment and Water (SG, issue 18/04.03.2025)

**Map of SAC BG0001386 „Yadenitsa“ (Fig. 3):**

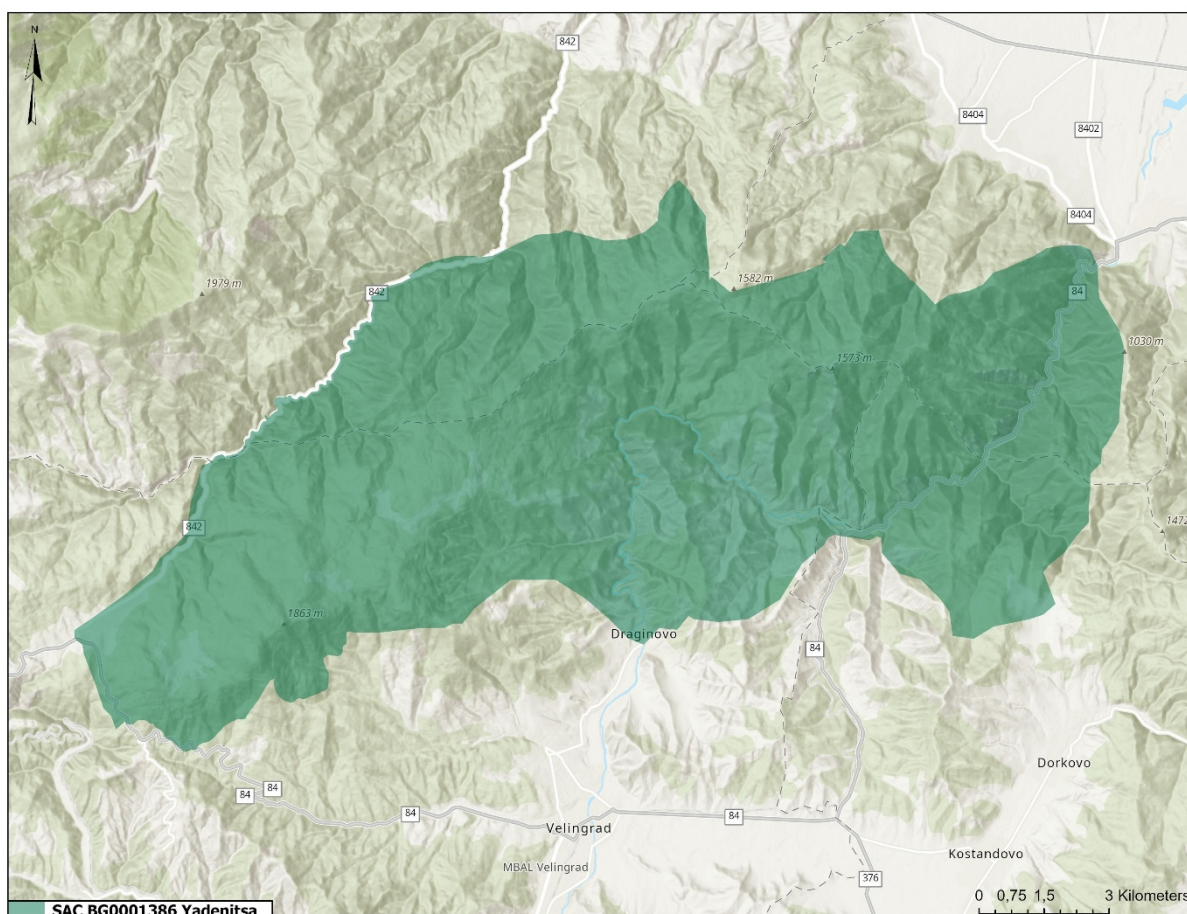


Fig. 3. SAC BG0001386 „Yadenitsa“

#### **Area Of SAC BG0001386 „Yadenitsa“:**

SAC is designated with a total area of 16933.7054 ha, with 94.3% of its territory falling within the Alpine biogeographic region, and 5.7% within the Continental biogeographic region.

#### **Characteristics of SAC BG0001386 „Yadenitsa“:**

According to the information in the Standard Data Form (SDF), SAC BG0001386 "Yadenitsa" is a biocorridor between Rila National Park and the Western Rhodopes and covers territories including spruce and black pine forests. In the deep valleys of the Yadenitsa and Chepinska rivers there are representative galleries of *Alnus glutinosa*. The area is an important breeding habitat and migration corridor for brown bears.

**Subject of conservation, according to the Standard Data Form (SDF) of the SAC BG0001386 "Yadenitsa":**

According to the SDF of the protected area (updated in January 2025), the following are subject to protection in BG0001386 "Yadenitsa": 10 species of invertebrates; 2 species of fish; 5 species of amphibians and reptiles; 4 species of mammals; 10 species of bats; 1 species of higher plants and 19 types of natural habitats described in Table 6 and Table 7.

**Table 6. Types of natural habitats present in SAC BG0001386 "Yadenitsa" and their assessment.**

Code	Coverage in the area [Ha]	Area assessment			
		Representativeness	Relative surface area	Storage level	Overall rating
5130	3.787	A	C	B	B
6520	201.11	A	C	B	B
7140	2.87	A	C	A	A
8110	15.47	A	C	B	B
8220	99.47	B	C	B	B
9110	1.73	C	C	C	C
9130	2475.57	A	C	B	B
9170	2566.19	A	C	B	B
9180	20.52	C	C	B	C
91AA	55.11	B	C	B	B
91BA	1273.63	A	B	A	A
91CA	283.28	A	C	A	A
91DO	1.08	B	C	B	B
91EO	17.97	A	C	A	A
91MO	302.26	B	C	A	B
91WO	315.53	B	C	A	A
91ZO	75.82	C	C	B	B
9410	386.61	A	C	A	A
9530	8.49	D			

**Table 7. Species present in SAC BG0001386 "Yadenitsa" and their assessment.**

Group	Code	Scientific name	Zone rating			
			Population	Conservation	Isolation	Overall rating
I	1093	<b>AustroDotamobius torrentium</b>	B	A	C	A
M	1308	<b>Barbastella barbastellus</b>	C	B	C	C
F	5088	<b>Barbus cvclolepis</b>	C	C	B	C
A	1193	<b>Bombina varieaata</b>	C	A	C	A
P	1386	<b>Buxbaumia viridis</b>	B	A	A	A
M	1352	<b>Canis lupus</b>	C	A	C	A
I	1088	<b>Cerambyx cerdo</b>	C	B	C	B
R	1220	<b>Emys orbicularis</b>	C	A	C	B
I	1065	<b>Euphras aurinia</b>	C	A	B	A
I	6199	<b>Euplaaia quadripunctaria</b>	C	A	C	A
I	1083	<b>Lucanus cervus</b>	C	A	C	A
M	1355	<b>Lutra lutra</b>	C	B	C	A
M	1310	<b>Miniopterus schreibersii</b>	D			
I	6908	<b>Mormonotermes asper funereus</b>	C	B	C	B
M	1323	<b>Mormonotermes bechsteinii</b>	C	B	C	C
M	1307	<b>Mormonotermes blvthii</b>	C	B	C	C
M	1316	<b>Mormonotermes capaccinii</b>	D			
M	1321	<b>Mormonotermes emarainatus</b>	D			
M	1324	<b>Mormonotermes mormonotermis</b>	C	B	C	C
I	1084	<b>Osmoderma eremita</b>	C	B	C	B
I	4053	<b>Paracaloptenus caloptenoides</b>	C	B	A	B
M	1305	<b>Rhinolophus eurvale</b>	D			
M	1304	<b>Rhinolophus ferrumequinum</b>	C	B	C	C
M	1303	<b>Rhinolophus hipposideros</b>	C	B	C	C

I	1087	<b>Rosalia alpina</b>	C	B	C	B
M	1371	<b>Rupicapra rupicapra balcanica</b>	C	C	B	B
F	5197	<b>Sabaneiewia balcanica</b>	C	C	B	C
R	1219	<b>Testudo araeca</b>	C	A	B	A
R	1217	<b>Testudo hermanni</b>	C	A	B	A
A	1171	<b>Triturus karelinii</b>	C	A	C	B
I	1032	<b>Unio crassus</b>	C	B	C	B
M	1354	<b>Ursus arctos</b>	C	A	C	A

**Legend:**

**Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles

**Conservation objectives of SAC BG0001386 „Yadenitsa“, according to Order № ПД-322/31.03.2021 г. of MoEW:**

- Conservation and maintenance of the types of natural habitats and the habitats of species subject to conservation in the protected area, their populations and distribution within the boundaries of the area, to achieve and maintain their favorable conservation status in the relevant biogeographical regions;
- Improving the structure and functions of natural habitat code 9180\* in the Continental and Alpine biogeographic regions;
- Improving the structure and functions of natural habitats with codes 6520, 8110 и 91E0\* in the part of the protected area falling within the Alpine biogeographic region;
- Improving the structure and functions of a natural habitat with code 91Z0 in the part of the protected area falling within the Continental biogeographic region;
- Improving the habitats of the species European pond turtle (*Emys orbicularis*) and Lesser mouse-eared bat (*Myotis blythii*) in both biogeographic regions;
- Improving the habitats of the Bechstein's bat (*Myotis bechsteinii*) species in the part of the protected area falling within the Continental biogeographic region;
- If necessary, improving the condition or restoring natural habitat types and habitats of species and their populations subject to conservation in the protected area;
- Maintaining the connectivity of the habitats of the priority conservation species \*Brown Bear (*Ursus arctos*) and \*European Wolf (*Canis lupus*), as well as the species Balkan chamois (*Rupicapra rupicapra balcanica*).

**Conservation objectives for SAC BG0001386 „Yadenitsa“, designated by Order № ПД-85/31.01.2025 г. of the minister of MoEW for the site specific conservation objectives for the site. The objectives are published in the Information System of the sites of the Natura 2000 network of the Ministry of Environment and Water, at the following address:**

[https://natura2000.egov.bg/EsriBg.Natura.Public.Web.App/PublicDownloads/CB11A408D9B4E8C8F741CA202F88815/%D0%AF%D0%B4%D0%B5%D0%BD%D0%B8%D1%86%D0%B0\(BG0001386\)\\_PS\\_30.pdf](https://natura2000.egov.bg/EsriBg.Natura.Public.Web.App/PublicDownloads/CB11A408D9B4E8C8F741CA202F88815/%D0%AF%D0%B4%D0%B5%D0%BD%D0%B8%D1%86%D0%B0(BG0001386)_PS_30.pdf)

Table 8 presents a reference to the species and types of natural habitats for which site specific conservation objectives have been designated for SAC BG0001386 "Yadenitsa".

**Table 8. Species and types of natural habitats for which sitespecific conservation objectives have been designated for SAC BG0001386 "Yadenitsa".**

Group	Species/type of natural habitat	Defined site specific conservation objectives
Invertebrates	Marsh fritillary ( <i>Euphydryas aurinia</i> )	Yes
Invertebrates	Jersey tiger ( <i>Euplagia quadripunctaria</i> )	Yes
Invertebrates	Stag beetle ( <i>Lucanus cervus</i> )	Yes
Invertebrates	Rosalia longicorn ( <i>Rosalia alpina</i> )	Yes
Invertebrates	Cerambyx cerdo ( <i>Cerambyx cerdo</i> )	Yes
Invertebrates	Austropotamobius torrentium ( <i>Austropotamobius torrentium*</i> )	Yes
Invertebrates	Thick shelled river mussel ( <i>Unio crassus</i> )	Yes
Invertebrates	hermit beetle ( <i>Osmoderma eremite</i> )	Yes
Invertebrates	Paracaloptenus caloptenoides ( <i>Paracaloptenus caloptenoides</i> )	Yes
Invertebrates	Morimus funereus ( <i>Morimus asper funereus</i> )	Yes
Pisces	Round-scaled barbell ( <i>Barbus cyclolepis</i> )	Yes
Pisces	Balkan spined loach ( <i>Sabanejewia balcanica</i> )	Yes
Amphibians and reptiles	Southern crested newt ( <i>Triturus karelinii</i> )	Yes
Amphibians and reptiles	Yellow-bellied toad ( <i>Bombina variegata</i> )	Yes
Amphibians and reptiles	Greek tortoise ( <i>Testudo graeca</i> )	Yes
Amphibians and reptiles	Hermann's tortoise ( <i>Testudo hermanni</i> )	Yes
Amphibians and reptiles	European pond turtle ( <i>Emys orbicularis</i> )	Yes
Mammals, excluding bats	European wolf ( <i>Canis lupus</i> )	Yes
Mammals, excluding bats	Brown bear ( <i>Ursus arctos</i> )	Yes
Mammals, excluding bats	Eurasian otter ( <i>Lutra lutra</i> )	Yes

Mammals, excluding bats	Balkan chamois ( <i>Rupicapra rupicapra balcanica</i> )	Yes
Bats	Lesser horseshoe bat ( <i>Rhinolophus hipposideros</i> )	Yes
Bats	Greater horseshoe bat ( <i>Rhinolophus ferrumequinum</i> )	Yes
Bats	Mediterranean horseshoe bat ( <i>Rhinolophus euryale</i> )	No
Bats	Lesser mouse-eared bat ( <i>Myotis blythii</i> )	Yes
Bats	Western barbastelle ( <i>Barbastella barbastellus</i> )	Yes
Bats	Common bent-wing bat ( <i>Miniopterus schreibersii</i> )	No
Bats	Long-fingered bat ( <i>Myotis capaccinii</i> )	No
Bats	Notch-eared bat ( <i>Myotis emarginatus</i> )	No
Bats	Bechstein's bat ( <i>Myotis bechsteinii</i> )	Yes
Bats	Greater mouse-eared bat ( <i>Myotis myotis</i> )	Yes
Plant	Green shield-moss ( <i>Buxbaumia viridis</i> )	Yes
Non-forest habitats	5130 Juniperus communis communities on limestone	Yes
Non-forest habitats	6520 Mountain hay meadows	Yes
Non-forest habitats	7140 Transitional bogs and floating peatlands	Yes
Non-forest habitats	8110 Silicate scree from the mountain to the snow belt	Yes
Non-forest habitats	8220 Chasmophytic vegetation on silicate rock slopes	Yes
Forest habitats	9110 Beech forests of the Luzulo-Fagetum type	Yes
Forest habitats	9130 Beech forests of the Asperulo-Fagetum type	Yes
Forest habitats	9170 Oak-hornbeam forests of the Galio-Carpinetum type	Yes
Forest habitats	9180* Mixed forests of the Tilio-Acerion type	Yes
Forest habitats	91AA* Eastern hairy oak forests	Yes
Forest habitats	91BA Moesian Scots Fir Forests	Yes
Forest habitats	91CA Rila-Rhodope and Stara Planina white pine forests	Yes
Forest habitats	91D0* Swamp forests	Yes
Forest habitats	91E0 * Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Pandion, Alnion incanae, Salicion albae)	Yes
Forest habitats	91M0 Balkan-Pannonian cerato-gorun forests	Yes
Forest habitats	91W0 Moesian beech forests	Yes
Forest habitats	91Z0 Moesian silver-leaved lime forests	Yes
Forest habitats	9410 Acidophilous Picea forests in the montane to alpine zone (Vaccinio-Piceetea)	Yes
Forest habitats	9530* Sub-Mediterranean pine forests with endemic subspecies of black pine	No

As indicated in the table above, site specific conservation objectives have been developed for a total of 28 animal and plant species and 18 types of natural habitats.

No SSCOs have been developed for species that are rated "D" in the SDF. With such a rating under the "Representativeness" indicator is natural habitat 9530 \*Sub-Mediterranean pine forests with endemic subspecies of black pine. Regarding the fauna species with a rating "D" under the "Population" indicator, there are 4 species of bats: 1310 *Miniopterus schreibersii*, 1316 *Myotis capaccinii*, 1321 *Myotis emarginatus* и 1305 *Rhinolophus euryale*.

#### 2.1.4. SAC BG0000636 „Niska Rila”

SAC BG0000636 „Niska Rila” has been designated for the protection of natural habitats and wild flora and fauna (under the Habitats Directive 92/43/EEC). The site is included in the list of protected areas, approved by Decision No. 177/03.04.2019 of the Council of Ministers (SG, issue 29/08.04.2019). An Order No. ПД -290/25.04.2025 has been issued for the area for announcement by the Minister of Environment and Water. Its publication in the State Gazette is pending.

**Map of SAC BG0000636 „Niska Rila” (Fig. 4):**

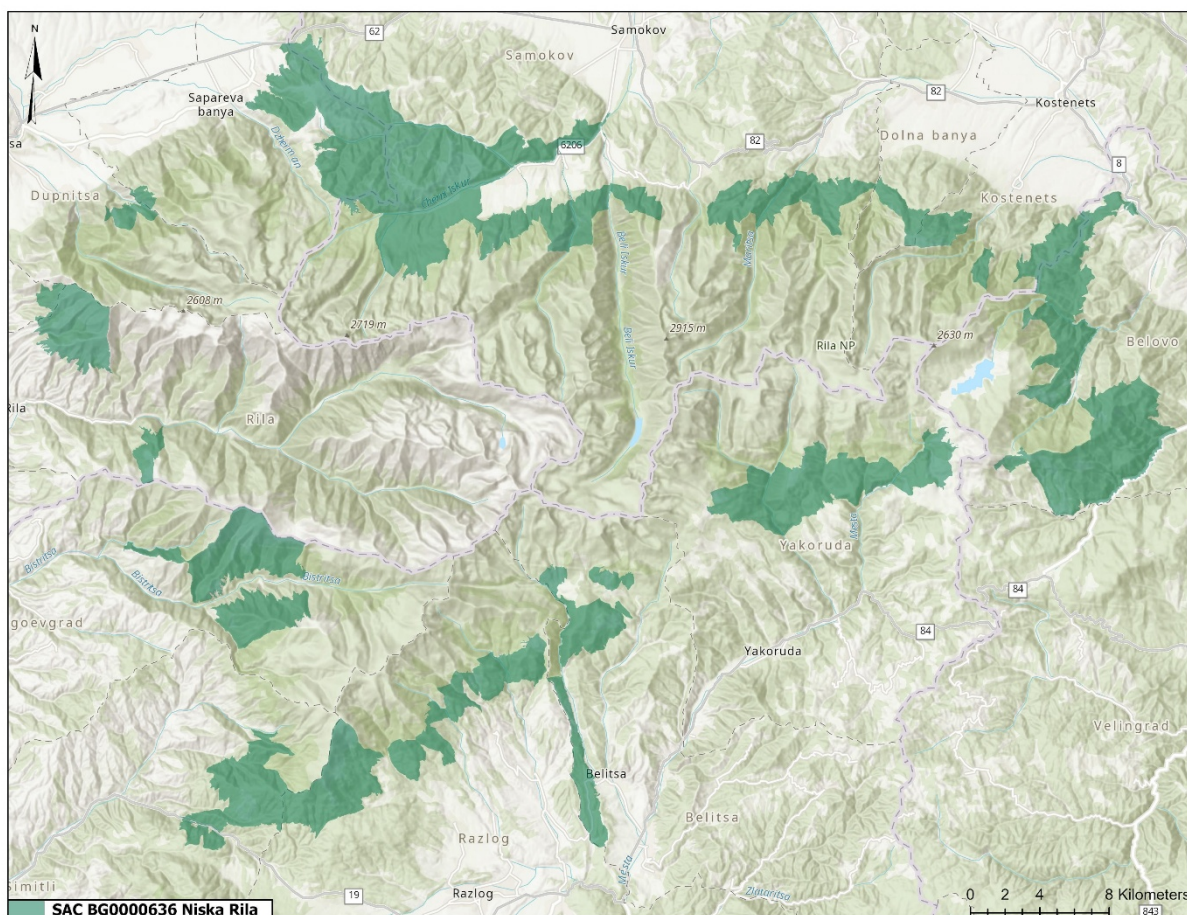


Fig. 4. SAC BG0000636 „Niska Rila”

#### **Area of SAC BG0000636 „Niska Rila”:**

SAC has been designated with a total area of 37191.67 ha, with 91.0% of its territory falling within the Alpine biogeographic region, and 9.0% within the Continental biogeographic region.

#### **Characteristics of SAC BG0000636 „Niska Rila”:**

According to the information in the Standard Data Form (SDF), SAC BG0000636 “Niska Rila” covers the lower parts of the Rila Mountain to the borders of Rila National Park (SAC BG0000495 “Rila”) and Rila Monastery Nature Park (protected area BG0000496 “Rila Monastery”). The area of the area is covered with extensive forest communities, which are mainly state-owned: old coniferous, mixed and deciduous forests. Also

municipal forests, as well as open habitats, including high natural pastures, shrubs and transitional habitats. Rock complexes and water areas are a relatively small percentage of the area of the area, which also covers the Iskar River catchment basin within the Samokov municipality. The altitude varies between 300 and 1800 m, and the terrain includes rugged mountain slopes with rock complexes often with a slope of more than 10%. The area is within the territorial scope of 13 municipalities.

SAC BG0000636 "Niska Rila" is important for the conservation of the habitats of the brown bear (*Ursus arctos*) and the European bullhead (*Cottus gobio*). It ensures the protection of the typical habitats for both species in the alpine and continental biogeographic regions. It includes actually occupied bear habitats, as well as territories forming a natural ecological environment – a corridor with high habitat quality. The territories have a high nutritional potential and conditions for undisturbed existence, reproduction and raising offspring. The strongly pronounced seasonality in the use of nutrients and resources by the bear leads to the concentration of a significant number of individuals living mainly in central areas of the Rila Mountain (Rila National Park and Rila Monastery Nature Park) on the territories included in the "Niska Rila" PA in the spring, when the higher parts of the mountain are still covered with snow, and in the late summer-autumn season, when the fruit trees ripen. The main habitats of the species in the country, such as deciduous forests in the mountains, coniferous forests in the high and middle forest belts, including the most important in terms of nutritional potential, are covered by old forests of the first and second quality. In the lower parts, the habitats include beech-hornbeam and oak forests, mainly along steep and rocky gorges. The zone provides the necessary connectivity of the species' habitats with the neighboring mountains of Verila, Plana, Pirin, the Western Rhodopes and includes suitable habitats of the species that play the role of biocorridors. Suitable territories for the movement of individuals between the mountains are included. In the valley of the Iskar River and its tributaries above the town of Samokov, a population of the European bullhead (*Cottus gobio*) with a significant relative size was registered during field surveys.

**Subject of conservation, according to the Standard Data Form (SDF) of the SAC BG0000636 "Niska Rila".**

According to the SDF of the SAC (updated in December 2024), the following are subject to protection in BG0000636 "Niska Rila": 10 species of invertebrates; 3 species of fish; 1 species of amphibians and reptiles; 5 species of mammals; 2 species of higher plants; 28 types of natural habitats - Table 9 and Table 10.

**Table 9. Types of natural habitats present in SAC BG0000636 "Niska Rila" and their assessment.**

Code	Coverage in the area [Ha]	Area assessment			
		Representativeness	Relative surface area	Storage level	Overall rating

<b>4060</b>	1086.32	B	B	C	B
<b>4070</b>	63.48	A	C	A	C
<b>5210</b>	9.77	B	C	A	C
<b>6150</b>	27.32	B	C	A	B
<b>6210</b>	94.9	B	C	B	B
<b>6230</b>	55.64	A	C	A	B
<b>62DO</b>	268.87	B	C	A	B
<b>6410</b>	0.75	B	C	B	C
<b>6430</b>	1.97	A	C	B	B
<b>6510</b>	3.6	B	C	B	B
<b>6520</b>	924.34	B	B	B	B
<b>7140</b>	4.2	A	C	B	B
<b>8110</b>	114.46	A	C	A	B
<b>8220</b>	124.88	A	C	A	B
<b>9110</b>	50.73	C	C	B	C
<b>9130</b>	3447.42	A	B	A	A
<b>9150</b>	281.35	B	C	B	B
<b>9170</b>	1202.06	B	C	B	B
<b>9180</b>	66.89	C	C	B	B
<b>91BA</b>	3466.13	A	A	B	B
<b>9 ICA</b>	9010.0	A	B	B	B
<b>91DO</b>	0.97	B	C	B	B
<b>91EO</b>	41.61	C	C	B	C
<b>91MO</b>	105.72	C	C	B	C

**Table 10. Species present in SAC BG0000636 "Niska Rila" and their assessment.**

Group	Code	Scientific name	Zone rating			
			Population	Conservation	Isolation	General assessment
I	1093	<b>Austropotamobius torrentium</b>	C	B	C	B
F	5266	<b>Barbus petenvi</b>	D			
A	1193	<b>Bombina variegata</b>	C	A	C	C
P	1386	<b>Buxbaumia viridis</b>	B	A	A	A
M	1352	<b>Canis lupus</b>	B	B	C	A
I	4046	<b>Corduleaaster heros</b>	D			
F	1163	<b>Cottus aobio</b>	A	A	A	A
I	1086	<b>Cucuius cinnaberinus</b>	B	A	C	A
I	1065	<b>Euphras aurinia</b>	D			
I	6199	<b>Euplaaia quadripunctaria</b>	D			
P	6216	<b>Hamatocaulis vernicosus</b>	A	B	A	B
I	1083	<b>Lucanus cervus</b>	B	A	C	A
M	1355	<b>Lutra lutra</b>	C	C	C	C
I	6908	<b>Morimus asper funereus</b>	B	A	C	A
I	4053	<b>Paracaloptenus caloptenoides</b>	C	B	B	B
I	4042	<b>Polvommatius eroides</b>	D			
I	1087	<b>Rosalia alpina</b>	B	A	C	A
M	1371	<b>Rupicapra rupicapra balcanica</b>	C	A	C	A
F	5197	<b>Sabaneiewia balcanica</b>	D			
M	1335	<b>Spermophilus citellus</b>	C	C	A	C
M	1354	<b>Ursus arctos</b>	B	C	C	B

**Legend:**

**Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles

**Conservation objectives of SAC BG0000636 „Niska Rila”, according to Order № PΔ-290/25.04.2025 r. fo MoEW:**

According to Order № PΔ-290/25.04.2025 r. of the Minister of Environment and Water, BG0000636 "Niska Rila", SAC) is declared for the purpose of:

- Conservation and maintenance of the types of natural habitats and the habitats of species subject to conservation in the protected area, their populations and distribution within the boundaries of the area, to achieve and maintain their favorable conservation status in the relevant biogeographical regions;
- Improving the structure and functions of natural habitats with codes 4060, 6520, 9110, 9150, 9170, 9180\*, 91BA, 91CA, 91E0\*, 91M0, 91W0, 9410 и 9530 in the Continental and Alpine biogeographic regions;
- Improving the population status of the species \*Stone crayfish (*Austropotamobius torrentium*) in the part of the protected area falling within the Alpine biogeographic region;
- Improving the habitats of the species Common Palaeartic (*Paracaloptenus caloptenoides*) in both biogeographic regions;
- Improving the habitats of the species European ground squirrel (*Spermophilus citellus*), European bullhead (*Cottus gobio*), \* Stone crayfish (*Austropotamobius torrentium*) и *Hamatocaulis vernicosus* in the part of the protected area falling within the Alpine biogeographic region;
- If necessary, improving the condition or restoring natural habitat types and habitats of species and their populations subject to conservation in the protected area;
- Maintaining the connectivity of the habitats of the priority conservation species \*Brown Bear (*Ursus arctos*) and \*European Wolf (*Canis lupus*), as well as the species Balkan Chamois (*Rupicapra rupicapra balcanica*).

**Conservation objectives for SAC BG0000636 „Niska Rila”** by Order № PΔ-289/25.04.2025 r. of the Minister of Environment and Water, site specific conservation objectives for the site have been designated.

SSCOs are published at the following address:

<https://www.moew.government.bg/bg/obstestveni-obsujdaniya-na-predlojeniya-za-specifichni-i-podrobni-celi-na-opazvane-na-4-zastiteni-zoni-ot-ekologichnata-mreja-natura-2000/>

Table 11 presents a summary of the species and types of natural habitats for which site specific conservation objectives have been designated for the SAC BG0000636 "Niska Rila" - for a total of 21 animal and plant species and 28 types of natural habitats.

**Table 11. Species and types of natural habitats for which site specific conservation objectives have been designated for SAC BG0000636 "Niska Rila".**

Group	Species/type of natural habitat	Defined site specific
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		<b>conservation objectives</b>
Invertebrates	Marsh fritillary ( <i>Euphydryas aurinia</i> )	Yes
Invertebrates	Jersey tiger ( <i>Euplagia quadripunctaria</i> )	Yes
Invertebrates	Stag beetle ( <i>Lucanus cervus</i> )	Yes
Invertebrates	Alpine longhorn beetle ( <i>Rosalia alpina</i> )	Yes
Invertebrates	Morimus funereus ( <i>Morimus asper funereus</i> )	Yes
Invertebrates	Cucujus cinnaberinus ( <i>Cucujus cinnaberinus</i> )	Yes
Invertebrates	Stone crayfish ( <i>Austropotamobius torrentium*</i> )	Yes
Invertebrates	Eros blue ( <i>Polyommatus eroides</i> )	Yes
Invertebrates	Balkan goldenring ( <i>Cordulegaster heros</i> )	Yes
Invertebrates	Common Palaearctic ( <i>Paracaloptenus caloptenoides</i> )	Yes
Pisces	European bullhead ( <i>Cottus gobio</i> )	Yes
Pisces	Balkan spined loach ( <i>Sabanejewia balcanica</i> )	Yes
Pisces	Romanian barbel ( <i>Barbus petenyi</i> )	Yes
Amphibians and reptiles	Yellow-bellied toad ( <i>Bombina variegata</i> )	Yes
Mammals, excluding bats	European ground squirrel ( <i>Spermophilus citellus</i> )	Yes
Mammals, excluding bats	European вълк ( <i>Canis lupus</i> )	Yes
Mammals, excluding bats	Brown bear ( <i>Ursus arctos</i> )	Yes
Mammals, excluding bats	Eurasian otter ( <i>Lutra lutra</i> )	Yes
Mammals, excluding bats	Balkan chamois ( <i>Rupicapra rupicapra balcanica</i> )	Yes
Plant	Slender Green Feather Moss ( <i>Hamatocaulis vernicosus</i> )	Yes
Plant	Green shield-moss ( <i>Buxbaumia viridis</i> )	Yes
Non-forest habitats	4060 Alpine and boreal ericoid communities	Yes
Non-forest habitats	4070* Shrub communities with <i>Pinus mugo</i>	Yes
Non-forest habitats	5210 Juniperus shrubs spp.	Yes
Non-forest habitats	6150 Silicate alpine and boreal grasslands	Yes
Non-forest habitats	6210 Semi-natural dry grass and shrub communities on limestone (Festuco-Brometalia) (*important orchid habitats)	Yes
Non-forest habitats	6230 * Species-rich karst communities on silicate terrain in the mountains	Yes
Non-forest habitats	62D0 Oromia acidophilic grasslands	Yes
Non-forest habitats	6410 Molinia meadows on carbonate, peaty or clay soils (Molinion caeruleae)	Yes
Non-forest habitats	6430 Hydrophilic communities of tall grasses in the plains and in the mountain to alpine zone	Yes
Non-forest habitats	6510 Lowland hay meadows	Yes
Non-forest habitats	6520 Mountain hay meadows	Yes

Non-forest habitats	7140 Transitional bogs and floating peatlands	Yes
Non-forest habitats	8110 Silicate screes from the mountain to the snow belt	Yes
Non-forest habitats	8220 Chasmophytic vegetation on silicate rock slopes	Yes
Forest habitats	9110 Beech forests of the Luzulo-Fagetum type	Yes
Forest habitats	9130 Beech forests of the Asperulo-Fagetum type	Yes
Forest habitats	9150 Thermophilic beech forests Cephalanthero-fageon	Yes
Forest habitats	9170 Oak-hornbeam forests of the Galio-Carpinetum type	Yes
Forest habitats	9180* Mixed forests of the Tilio-Acerion type	Yes
Forest habitats	91BA Moesian Scots Fir Forests	Yes
Forest habitats	91CA Rila-Rhodope and Stara Planina white pine forests	Yes
Forest habitats	91D0* Swamp forests	Yes
Forest habitats	91E0 * Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	Yes
Forest habitats	91M0 Balkan-Pannonian cerato-gorun forests	Yes
Forest habitats	91W0 Moesian beech forests	Yes
Forest habitats	9410 Acidophilous <i>Picea</i> forests in the montane to alpine zone ( <i>Vaccinio-Piceetea</i> )	Yes
Forest habitats	9530* Sub-Mediterranean pine forests with endemic subspecies of black pine	Yes
Forest habitats	95A0 White and black pine forests	Yes

## 2.2. Short description of the project

In the period 1994 – 1997, when the conceptual and technical design for Increasing the volume of the lower compensating basin of the Chaira PSHPP by constructing the Yadenitsa Dam was elaborated, three prognostic scenarios for the development of the Electric Power System (EPS) of the Republic of Bulgaria were considered, which proved the need to increase the useful volume of the lower reservoir of the Chaira Dam by building an additional reservoir. Four options for choosing its location were considered and the Yadenitsa reservoir was proved to be the most suitable.

The Yadenitsa dam (main facility in the Yadenitsa Project) is designed on the Yadenitsa River, on the territory of the municipalities of Belovo and Velingrad. It is located in the eastern part of the Rila Mountain, 21 km from the town of Belovo and 6 km from the Yundola locality on the Belovo-Yundola-Velingrad road. The dam is located at 7 km from the Chaira PSHPP. The dam location is on the Yadenitsa river, 400-500 m above the confluence of the Yundolska river.

### 2.2.1. Current state on the territory after the performed construction until 2005

Based on the technical design for the Yadenitsa project, a Final EIA Report was prepared in September 1997 and an EIA Decision No. 88-1/1998 was issued by the Minister of Environment and Water.

After the issuance of the EIA Decision, the required legal procedures for obtaining a

construction permit are being carried out.

The implementation of the Yadenitsa project started in 1999 and continued until January 2005. During this period, construction works were carried out for both temporary and auxiliary facilities, and permanent facilities.

### 2.2.1.1. Description of the performed construction works in the period 1999-2005

#### **Temporary and auxiliary facilities**

✓ Temporary roads – Road to the Dzhaferko Dere disposal area from the Chaira PSHPP. Road to the dam along the Yadenitsa river valley. Internal site roads at the Yadenitsa construction site.

✓ Temporary blasting depot at Yadenitsa site and Chaira site.

✓ Crushing, washing and sieving plant and concrete plant at Yadenitsa site – (facilities were dismantled in 2016).

✓ Yadenitsa and Chaira construction sites – including drinking and technical water supply, intersite power lines 20 kv, telephone lines for connection with BTC network.

✓ Double power supply 20 kV of Yadenitsa and Chaira construction sites from independent sources – 110 kV Belovo substation and Velingrad substation, including 20 kV Yadenitsa nodal station with telecommunication control.

#### **Permanent facilities**

✓ Service roads at Yadenitsa and Chaira construction sites.

✓ Adit to Yadenitsa reversible pressure tunnel and valve chamber at Chaira construction site.

✓ Adit portal to Yadenitsa reversible pressure tunnel and valve chamber at Chaira construction site – excavation and support works.

✓ Portal of Yadenitsa reversible pressure tunnel at Yadenitsa construction site – excavation and support works.

✓ Yadenitsa reversible pressure tunnel – Yadenitsa dam and Chaira dam directions have been built, with construction being carried out on the Yadenitsa dam side with a length of 690 m, and on the Chaira dam side with a length of 336 m, or a total length of 1026 m – excavation and support works, including lean concrete on the tunnel bottom. The clear diameter of the reversible pressure tunnel has been determined based on technical and economic calculations to be 7.00 m.

✓ Gate shaft of Yadenitsa reversible pressure tunnel – excavation and support works.

✓ Reinforcing prism in the water reservoir near Yadenitsa fault – partially.

✓ Strengthening of Dzhaferko dere – support prism constructed.

Therefore, the described temporary and auxiliary facilities for servicing the construction – including power supply, water supply and all necessary transport connections were built in the area of the Yadenitsa dam and the reservoir and on the

Chaira site by 2005. Excavation and support structures for the Yadenitsa reversible pressure tunnel were executed at 15% of the total length. The executed temporary and auxiliary facilities provide the opportunity for their use in the future construction of the dam and the reversible pressure tunnel on the two construction sites Yadenitsa and Chaira.

All sites of the temporary and auxiliary facilities, the constructed technological roads and connections are in the reservoir bed and, with the start of operation, are in the impounding area of the reservoir and do not require reclamation.

#### 2.2.1.2. Access to the construction sites and facilities

The project as a whole and the open constructions sites are accessible.

##### **Access to Yadenitsa dam**

A road from the national road network – third class III-842 Belovo town – Yundola village leads to the Yadenitsa dam (Yadenitsa construction site). The road is from the state road network and follows the course of the Yadenitsa river. A forest road begins from the confluence of the Yundolska river with the Yadenitsa river, which is asphalted almost to the dam location, and then it is a dirt forest road to the reservoir tail. Road III-842 from Belovo town to Yundola village is asphalted and after rehabilitation is in good operating condition.

##### **Access to Chaira construction site**

A diversion from the state road Kostenets town – Belovo town from Sestrimo railway station through the village of Sestrimo leads to the Chaira construction site. The diversion to the Chaira construction site was built and is maintained by the owner of the Belmeken-Sestrimo cascade – NEK EAD.

The gate shaft on the Chaira site side is reached by a dirt road from the Chaira dam crest.

A general scheme of the transport connections is presented in Fig. 5.



Fig. 5. General scheme of transport connections

Only repair and restoration works for the maintenance of the already constructed road facilities were carried out at the two construction sites Yadenitsa and Chaira after 2005 until June 2011.

### 2.2.2. Project development after 2011

After 2011, given the changed conditions in the Electric Power System (EPS) and the established advantages that are provided by the implementation of the Yadenitsa project, **the following activities for the project development are carried out:**

- Chaira PSHPP is a **strategically important facility for the security of the electric power system of the country**, as it participates in critical situations for the system (increased energy consumption, shutdown of renewable sources (wind and solar), covering the load until power is imported), and the construction of the Yadenitsa dam allows for an increase in the useful volume of the lower compensating basin of Chaira PSHPP, respectively ensuring additional operation as a quick energy reserve;
- The Yadenitsa project is **included in the National Investment Plan** for the period 2013-2020 by a Decision of the Council of Ministers of the Republic of Bulgaria, dated 28.09.2011;
- The Yadenitsa dam is included in the Chaira-Belmeken-Sestrимо system to achieve high operational maneuverability of the power plants;
- The Board of Directors of the Natsionalna Elektricheska Kompania EAD took a decision to continue the works and complete the Yadenitsa Project;
- By Decision No. 707/2012 of the Council of Ministers of the Republic of Bulgaria, the

Yadenitsa dam, which is the main facility of the Yadenitsa Project, is **declared a "national project"** within the meaning of the State Property Act and a **"site of national importance"** within the meaning of the Spatial Development Act;

• **Update of the design in 2016 and conducting EIA and AA procedure.** In the 2016 update of the design, the new facilities that were not designed in 2006 or for which a change was made in the adopted solutions, are:

- ✓ Asphalt concrete diaphragm (ACD) as a watertight element of the rockfill dam – vertical ACD;
- ✓ Operation and service building on a new site;
- ✓ Correction of the Yadenitsa river from the Yadenitsa dam to the confluence of the Yadenitsa and Yundolska rivers;
- ✓ Small Hydropower Plant (SHP) for the discharge of ecological flow downstream the Yadenitsa dam during operation, with one vertical axis Pelton turbine located in the building housing the gate of the tunnel dewatering system.
- ✓ Hydrometric station in the tail of the dam reservoir for measuring the water inflow;
- ✓ Communication links;
- ✓ Announcement systems in the dam – confluence of the Yadenitsa river with the Maritsa river section in case high flood is released through the dam spillway and an emergency announcement system;
- ✓ Connection of permanent consumers to the 20 kV regional grid during the operation period;
- ✓ Reclamation of the terrain around the correction of the Yadenitsa river – right bank in the section downstream the dam, outside the boundaries of the protected area;
- ✓ Landscaping in the area of the Yadenitsa Fault;
- ✓ Anti-erosion protection of the slope above the dam stilling basin to the road for connection with the dam crest;
- ✓ Anti-erosion protection of excavation slopes on the service road on the Yadenitsa river left bank, section from km 4+860 to km 5+770;
- ✓ Instrumentation system;
- ✓ Modified dewatering system to the reversible pressure tunnel – valve chamber, access tunnel and an open section;
- ✓ Gate shaft to the tunnel on Chaira dam side;
- ✓ Water meter on the dewatering pipe to control Qdewater and Qec.

• **The EIA and AA procedures have been completed with the EIA Decision No. 2-2/01.08.2017**, issued by the Minister of Environment and Water;

• After appealing the EIA Decision, with Decision No. 842/22.01.2018 **the Supreme Administrative Court (SAC) of the Republic of Bulgaria confirmed the EIA Decision No.**

**2-2/01.08.2017 of the Ministry of Environment and Water;**

- Construction of a service road to the Chaira gate shaft and laying of cable ducts in the road shoulder has started;
- Implementation of a drinking water supply system during construction and operation has started;
- Design documentation has been prepared for the establishment of a sanitary protection zone (SPZ) to provide drinking and domestic water supply for the service building of the Yadenitsa dam.

## 2.3. Characteristics of the main elements of the project

**The Yadenitsa Project includes two main facilities: Yadenitsa rockfill dam with its appurtenant facilities and water reservoir; and a reversible pressure tunnel for the connection between the Yadenitsa dam and the Chaira dam.**

### 2.3.1. Yadenitsa rockfill dam with appurtenant facilities and a water reservoir

The watertight element of the Yadenitsa rockfill dam will be executed as an asphalt concrete diaphragm (ACD), due to proven safety during the operation of the dam and during the operation of the Chaira PSHP. The dam location is on the Yadenitsa river, about 550 m above the confluence of the Yundolska river. The dam is planned in the eastern part of the Rila Mountain, 21 km from the town of Belovo and 6 km from the Yundola locality on the Belovo-Yundola-Velingrad road, 7 km from the Chaira PSHP.

The main technical data of the Yadenitsa dam with an asphalt concrete diaphragm (ACD) from the detailed design are presented in Table 12.

**Table 12. Main parameters of the dam with asphalt-concrete diaphragm (ACD) as watertight element**

No.	Dam	ACD
1.	Maximum water level MWL	1261,38
2.	Maximum operating water level MOWL	1260,00
3.	Minimum operating water level MinOWL	1231,00
4.	Dam crest elevation	1263,00
5.	ACD crest elevation	1262,00
6.	Dam height (to ground) (m)	105,00
7.	Impounded volume to MOWL (m <sup>3</sup> )	13,5.10 <sup>6</sup>
8.	Usable volume (MinOWL – MOWL) (m <sup>3</sup> )	9,2.10 <sup>6</sup>
9.	Lake area at MWL (m <sup>2</sup> )	402,980
10.	Lake area at MOWL (m <sup>2</sup> )	391,190
11.	Facility category	First class
12.	Spillway Qsp. (m <sup>3</sup> /sec)	107

The main engineering facilities to the dam are:

- Spillway Qsp. = 107 m<sup>3</sup>/sec at p = 0,01%;
- Bottom outlet with maximum capacity Q = 6,5 m<sup>3</sup>/sec;
- Yadenitsa river correction downstream the dam;

### 2.3.2. Reversible pressure tunnel connecting Yadenitsa reservoir and Chaira reservoir

The technical parameters of the reversible pressure tunnel and its appurtenant facilities are as follows:

- Total length of the tunnel – 6752,48 m.
- Clear diameter of the lining – 7,0 m.

- Longitudinal inclination of the tunnel – to Yadenitsa portal – 2,190‰.
- Gate shaft on the side of Yadenitsa dam and Chaira dam.

The main facilities to the tunnel are:

- Yadenitsa inlet structure;
- Yadenitsa gate shaft for fixed-roller gates (underground);
- route of the reversible pressure tunnel;
- plug with airtight door;
- adit main direction for access to tunnel diversion;
- Chaira gate shaft;
- Chaira inlet structure.

A steel bulkhead was installed at the Chaira inlet during the construction of the Chaira PSHPP, thanks to which the construction of the reversible pressure tunnel should not impose restrictions on the operation of the Chaira PSHPP.

With the adopted scheme of the main facilities of the Yadenitsa project, a system of the type "interconnected vessels" will be created (between the Yadenitsa reservoir and the Chaira reservoir), with which an increase in the useful volume of the lower compensating basin of the Chaira PSHPP from 4.2 million m<sup>3</sup> to 13.4 million m<sup>3</sup>. The connection between the two reservoirs will be implemented with Yadenitsa reversible pressure tunnel, through which equal water levels will be maintained in both reservoirs and filling of the two reservoirs when Chaira PSHPP operates in generator mode and emptying when Chaira PSHPP operates in pump mode. The implementation of the proposal will allow for the extension of the Chaira PSHPP operation at full power from possible 8.5 hours at present to 25 hours in generator mode and from possible 10.1 hours to 31.5 hours in pump mode.

Vertical and horizontal scheme of Yadenitsa Project is presented in Fig. 6.

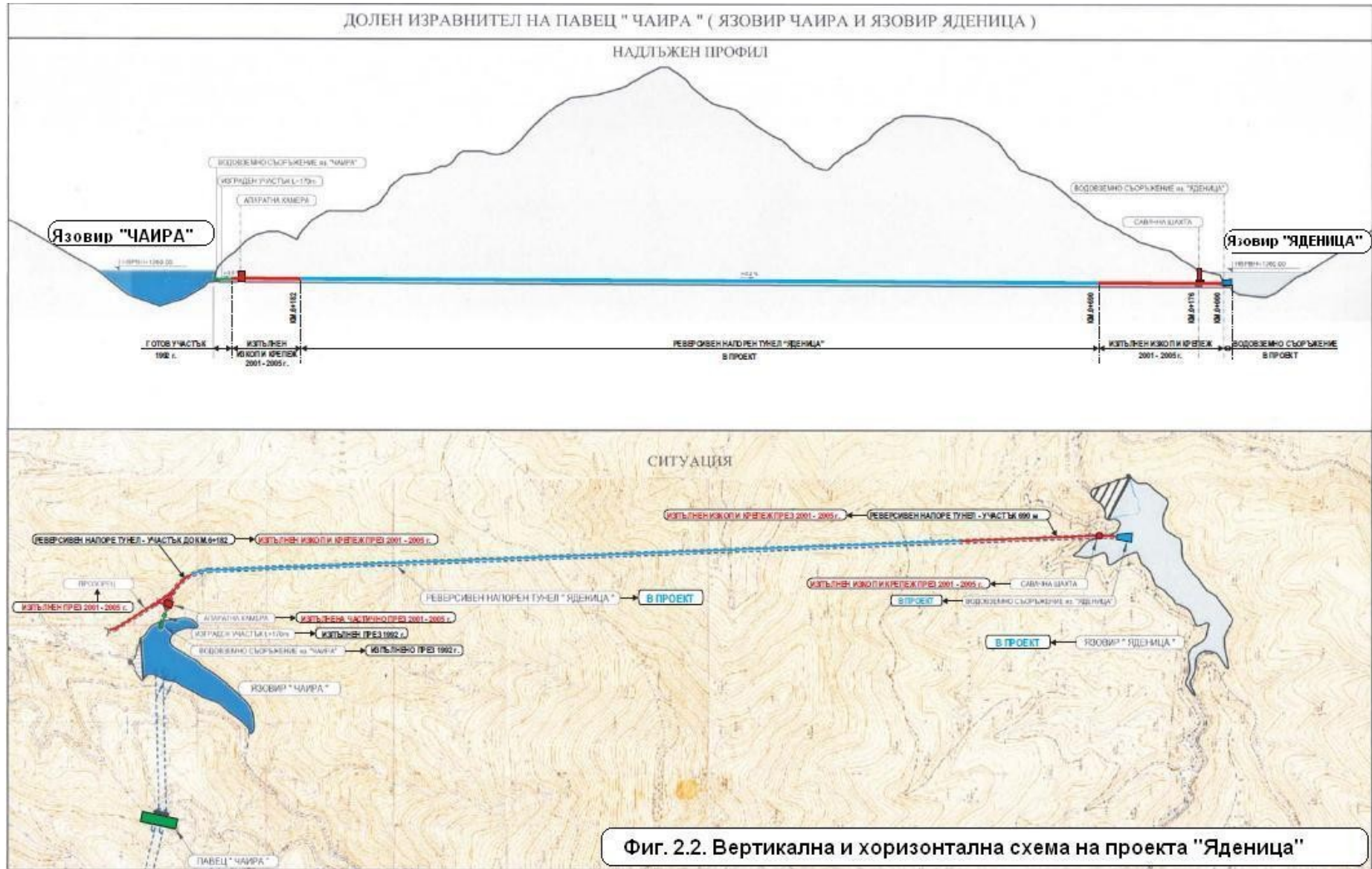


Fig. 6. Vertical and horizontal scheme of Yadenitsa Project

## 2.4. Types of construction works during the construction of Yadenitsa Dam and the pressure tunnel

The implementation of the project is related to the execution of various types of activities at different sites, such as:

- **Construction water diversion;**
- **Excavation works** at the excavation sites, at the dam and its appurtenant structures (spillway, stilling basin and river correction, in the reversible pressure tunnel) - open deep excavations and underground excavation works in the pressure tunnel;
- **Fill construction works** at the dam and strengthening of collapse areas, the Yadenitsa fault and deep excavations, backfills outside the facilities, using high-efficiency and maneuverable equipment on areas with increasing elevation;
- **Concrete works** – on the facilities appurtenant to the dam and the reversible pressure tunnel.
- **Asphalt concrete works** – construction of an asphalt concrete core of a rockfill dam.
- **Specific construction works** – drilling and blasting, grouting, installation activities on the facilities appurtenant to the dam and the reversible pressure tunnel.
- **Transportation of construction material, waste, equipment** (on internal site roads to and from the construction sites, as well as along the national road network – on road III-842 and on road I-8).
- Cutting of tree and shrub vegetation in the lake bed.
- **Recultivation of the land** outside the facilities

The excavations, fills, excluding those on the downstream slope of the dam, the drilling and blasting works, the internal site roads, the cutting of forest vegetation, all auxiliary plants at "Yadenitsa" site, are in the flooded area of the reservoir and are not subject to recultivation.

### • **Maintenance, scheduled inspections and repairs of the facilities in the operation phase.**

The area required for implementation of the investment proposal is 582 decares, for which, by Decision No. 119/08.03.1999 of the Council of Ministers and in compliance with the procedures under the Forestry Act for change of purpose and exclusion of forests and lands from the State Forest Fund (SFF), the purpose was changed and they are provided to NEK EAD. When assessing the degree of impact on environmental components and factors, including biodiversity and Natura 2000, in the EIAR and DIAR, in addition to the impact on this territory, the lands in a 50 m zone outside the lake's water area, as well as on a 5 m zone of the left and right slopes outside the facilities downstream of the dam, were also assessed.

## **CONSTRUCTION PHASE**

### **The following temporary construction will be carried out at both sites:**

#### **Temporary construction at "Yadenitsa" site**

- ✓ Restoration – installation, equipment of temporary and auxiliary facilities: concrete batching plant, asphalt concrete batching plant, crushing, washing and sorting plant (CWSP), formwork and reinforcement yards.
- ✓ Temporary camp with a canteen – to serve the construction workers.
- ✓ Temporary and auxiliary construction to serve the main construction

#### **Temporary construction at "Chaira" site**

- ✓ Temporary and auxiliary construction – service road to the gate shaft.

### **The following main construction will be carried out at both sites:**

#### **Main construction at "Yadenitsa" site**

- ✓ Excavations and fills for the dam, concrete and asphalt concrete works on the appurtenant structures of the dam:
  - Opening of borrow pits to obtain material for the dam fills and concrete for the facilities. The excavation sites are in the flooded area.
  - Dam fills with construction of an asphalt concrete core. Construction of the facilities appurtenant to the dam and the reversible pressure tunnel (spillway, bottom outlet, stilling basin, Yadenitsa River correction downstream of the dam and small HPP).
- ✓ Blasting work at the excavation site.
- ✓ Gate shaft – lining, installation, equipment.
- ✓ Construction of a reversible pressure tunnel in Yadenitsa direction – excavation, support, lining, grouting.

"Yadenitsa" construction site is presented in Fig. 7.



Fig. 7. "Yadenitsa" construction site

### Main construction at "Chaira" site

- ✓ Installation of a concrete batching plant at the main entrance of Chaira PSHPP.
- ✓ Construction of the reversible pressure tunnel in "Chaira" direction – excavation, support.
- ✓ Construction of a gate shaft – excavation, support, reinforcement, lining, grouting, installation, equipment.

The time for implementation of "Yadenitsa" project (according to the Detailed Design) is within 5 years.

The operation of Yadenitsa Dam is related to the operation of Chaira Pumped Storage Hydro Power Plant. The dam is an element of Chaira PSHPP and does not have an independent role. It ensures additional volume to the lower compensating basin of Chaira PSHPP, thus enabling the plant operation in generator mode for up to 25 hours and in pump mode up to 31.5 hours after the implementation of Yadenitsa Project.

## III. Determination of the expected impacts of the project

### 3.1. Determination of the expected impacts of the project on natural habitats, habitats and populations of species

Both in the 2016 EIAr and AAr, as well as in the current Analysis of Compliance with the Site specific conservation objectives of four Natura 2000 sites, the two phases of the IP's existence - construction and operation, are considered. The expected impacts are related to the types of activities (described in the project characteristics).

The described activities during construction and operation of Yadenitsa Project are likely to have the following types of impacts on the natural habitats, habitats and populations of species under the most unfavorable conditions. They are presented in Table 13.

**Table 13. Potential types of impacts on natural habitats, habitats and populations of species.**

Item	Activity	Potential impact type
<b>Construction Phase</b>		
1.	<i>Construction of Yadenitsa Dam and the appurtenant structures (including during the execution of activities for clearing and preparation of the ground, removal of the top soil, execution of the construction itself, etc.)</i>	<ul style="list-style-type: none"> <li>- loss of natural habitats and habitats of species;</li> <li>- fragmentation of natural habitats and habitats of species;</li> <li>- barrier effect on animal species;</li> <li>- damage to habitats of species, including for breeding, feeding, resting;</li> <li>- change of the hydromorphological characteristics of the Yadenitsa River;</li> <li>- disturbance of species (noise, vibration, visual, light);</li> <li>- mortality of individual specimens;</li> </ul>
2.	<i>Traffic and operation of transport and construction equipment</i>	<ul style="list-style-type: none"> <li>- disturbance of nearby animal species (noise, vibrations, visual, light);</li> <li>- mortality of individual specimens.</li> </ul>
3.	<i>Recultivation activities</i>	<ul style="list-style-type: none"> <li>- possible spreading of ruderal and/or non-native and invasive plant species and changing the structure and species composition of habitats;</li> <li>- disturbance of species (noise, vibrations, visual, light).</li> </ul>
<b>Operation Phase</b>		
1.	<i>Modification of the Yadenitsa River runoff</i>	<ul style="list-style-type: none"> <li>- deterioration of the structure and the functions of natural habitats;</li> <li>- damage to habitats of fish and amphibian species.</li> </ul>
2.	<i>Maintenance, scheduled inspections and repairs of facilities.</i>	<ul style="list-style-type: none"> <li>- disturbance of species (noise, vibrations, visual, light).</li> </ul>

**In summary, the identified expected impacts under the most unfavorable conditions, can be systematized into five main groups, as follows:**

➤ **Loss of a natural habitat or habitat of a species** - direct destruction of a natural habitat or habitat of a species subject of conservation in the area, which are permanent and long-term and cannot be restored after the completion of the construction phase. This means that due to the occurrence of this loss, the territory can no longer be inhabited/used by the species (for reproduction, feeding, passage and/or rest); it is impossible for communities, characteristic of the natural habitats, to form on the territory. Such impacts are expected at the place of construction of the dam and its appurtenant structures, and as a result of the reservoir lake impounding. The percentage ratio between the affected area and the area of the natural habitat/habitat of the species in the area is used to assess the degree of impact.

➤ **Fragmentation of a natural habitat or habitat of a species** – it affects both natural habitats and habitats of species, e.g. the possibility of free movement of specimen of certain species is affected. It can occur both during construction and during operation.

For the natural habitats, the fragmentation can be - when a territory (polygon) occupied by a given natural habitat is affected in such a way that the remaining part(s) of it is/are of insufficient area to preserve the characteristics of the affected natural habitat, or these characteristics are negatively affected.

For the species, the fragmentation can be:

✓ *Presence of a physical barrier* – partial or complete disruption of the habitat of the species by a project element (barrier effect);

✓ *Presence of a behavioral barrier* – some facilities can cause avoidance behavior in some species, including flying species (invertebrates, birds, bats).

The results are an inability or difficulty to migrate (in the broad sense of the word, it can be diurnal, related to feeding, or seasonal, related to certain abiotic factors or to reproduction or during migration), and/or fragmentation of the populations of the affected species.

➤ **Change (degradation/damage) of a natural habitat or habitat of a species** – structural and functional changes in a natural habitat and a habitat of species, resulting from physical, chemical and biological changes. It leads to a reduction in the supporting capacity of these habitats (e.g. due to this impact, populations of species undergo changes as a result of a reduction in the food availability, increased competition with non-native and invasive alien species (IAS), etc.). The impact may arise, for example, from pollution by emissions, deterioration of the quality of the environment (erosion, soil compaction), spread of non-native, ruderal and invasive plant species, pollution/increased turbidity of habitats of aquatic species. The change may be temporary or long-term. During construction, it affects both the territory on which the construction works are carried out and adjacent territories, e.g. by spreading of emissions through the atmospheric air. During operation, the change affects the territories of spread of pollutants.

➤ **Disturbance of species** - the impact is related to human presence and performance of activities. The main causes of disturbance are noise, vibrations, artificial lighting and visual disturbance (from traffic and operation of transport and construction equipment). The scope of impact varies, depending on the intensity of

the impact and the sensitivity of the species to it:

- ✓ *Increased noise and vibration levels* – it can affect intraspecies and interspecies communications, reproduction and feeding of specimen of different species;
- ✓ *Artificial lighting* – it can affect plant growth, nesting and feeding activities of certain bird species, it can cause behavioral changes in the activity of nocturnal species, etc.

➤ **Mortality of specimens** – this impact can be both direct (due to accidental running over of individuals, e.g. during traffic and operation of transport and construction equipment; during operation of technological equipment; during traffic of trucks with materials; during processing of earth masses, etc.), and due to some structures, which can be a "trap" for some animal species. The mortality of specimen can also lead to a decrease in their population (especially in rare species with small local populations). The impact may also be indirect, due to changes in large areas of habitats, making them unsuitable for specific species. The species mainly affected by direct mortality of specimens are invertebrates, amphibians, reptiles, ground-nesting birds and small mammals.

**In the operation phase**, changes related to a change in the runoff regime in the Yadenitsa River occur, as a result of which there can be negative impacts with consequences for the river and the animal species dependent on the aquatic environment, including their food and breeding habitats.

With the measures for preservation of the water in the Yadenitsa River water, adopted in the EIA Decision No. 2-2/01.08.2017 of the Ministry of Environment and Water, hydromorphological changes/modifications will take place in the area of Yadenitsa Dam. Downstream of Yadenitsa Dam, changes/modifications of the physical characteristics of the surface water body will take place only during high waters. **This modification/change is related to the possibility of Yadenitsa Dam to be a successful measure for flood risk reduction.**

To determine the size of the minimum allowable flow (ecological flow) in the Yadenitsa River downstream of the dam, a mathematical model for conservation of the biological integrity of the river ecosystem was applied, when conducting the environmental impact assessment. The model was approved by the Ministry of Environment and Water and the World Bank (for development of EIAs for projects financed by the bank). With the set objectives for operation of Yadenitsa Dam as a free volume necessary for the optimal operation of Chaira PSHPP, the ecological flow is determined at  $Q_{ec} = 0.080 \text{ m}^3/\text{sec}$ . This size of guaranteed water flow in the Yadenitsa River in low water periods after the construction of Yadenitsa Dam corresponds to  $Q_{95\%}$  and is greater than 10%  $Q_0$  of the natural flow before the disturbances by the Yadenitsa Canal during the 60-ies and the 70-ies of the last century. As of the present day, the flow in the Yadenitsa River corresponds to  $Q_0 = 0.157 \text{ m}^3/\text{sec}$ , and as for the natural runoff of the river  $Q_0 = 0.442 \text{ m}^3/\text{sec}$ . The size of the determined ecological flow after the dam construction is twice as large as the requirements under the Water Act. The runoff regime in the Yadenitsa River after the implementation of Yadenitsa Project meets the objectives set in the RBMP for conservation of the "good" chemical and ecological status/potential and the prevention of deterioration.

The planned liquidation of water intake No. 5 of Yadenitsa canal on the Yundolska River will restore its flow regime to its natural state. It will have a beneficial impact on the ecosystem of the Yadenitsa River downstream of its confluence with the Yundolska River due to the restoration of the intra-annual variation of the runoff. The Yundolska River is also the main reservoir for compensating for the negative impacts on the composition of the macrozoobenthic communities of the Yadenitsa River after the commissioning of Yadenitsa Dam.

After the construction of Yadenitsa Dam, the water intakes in the water storage area will be decommissioned – water intakes No. 16 to No. 18' on the left bank, No. 19 and No. 19' on the right bank and No. 18" on the Yadenitsa River, which currently capture water for Yadenitsa Canal, wherefrom the water flows in Stankovi Baraki compensating basin through Chairski Canal. The tributaries of the Yadenitsa River where water intakes No. 16 to No. 19', without water intake No. 18", are built, will restore their natural flow to their inflow in Yadenitsa reservoir. The hydrological and hydraulic characteristics of these tributaries will gradually return to the condition before the construction of the canal. Yadenitsa dam has no impact on the water intakes from Yadenitsa canal downstream of the dam after the confluence with the Yundolska River.

**In these circumstances, Yadenitsa Dam not only does not limit the opportunities and does not compromise the achievement of a good status in other water bodies, but with the measures undertaken in the Yundolska River, the natural flow regime will be completely restored, and in the tributaries within the reservoir range, the natural flow regime will be restored up to the water level in the lake (length about 2/3 of the length of the tributary). The other tributaries of the Yadenitsa River downstream of the dam will not be affected by its construction.**

## 3.2. Parameters for impact assessment

**The parameters used to characterise and assess impacts are:**

- ✓ *Project phase* - construction, operation;
- ✓ *Type of impact* - positive, negative;
- ✓ *Nature of impact* - direct, secondary, indirect;
- ✓ *Spatial extent of impact* - local, within the Natura 2000 site, regional, national, transboundary;
- ✓ *Duration of impact* - short, medium, long term;
- ✓ *Frequency of occurrence of impact* - accidental, occurring once, periodic, permanent;
- ✓ *Likelihood of occurrence of impact* – uncertain, not likely, likely, very likely;
- ✓ *Reversibility of impact* - reversible, irreversible.

The description of the impact characteristics by assessment parameter is presented in Table 14.

**Table 14. Description of impact characteristics by assessment parameter.**

Assessment parameter	Assessment parameter variables	Description of impact characteristics by assessment parameter
<b>Type of impact</b>	Positive	Contributes to improving the conservation status/achieving the objectives of specific habitats/species.
	Negative	Contributes to the deterioration of the conservation status/delayed achievement of the objectives/non-achievement of the objectives of specific habitats/species.
<b>Nature of impact</b>	Direct	Any negative effect or change caused directly by human activities on the natural environment, including habitats and species subject to conservation in Natura 2000.
	Secondary	Any negative impact on the natural environment resulting from the direct impact of human activities.
	Indirect	Any negative effect or change caused by human activities on the natural environment, including habitats and species subject to conservation in Natura 2000, which arises as a result of a chain of events rather than direct action. These impacts may occur at a different location or over a longer period of time than the original human activity.
<b>Spatial extent of impact</b>	Local	Only within the boundaries of an individual place of occurrence of the species/habitat.
	Within a Natura 2000 site	Within more than one place of occurrence of the species/habitat.
	Regional	Within the biogeographical area – with a spatial extent of impact in more than two Natura 2000 sites.
	National	Within the borders of Bulgaria.

	Transboundary	Also affects neighbouring countries.
<b>Duration of impact</b>	Short term	The impact occurs over a maximum of 6 months to 1 year for species with longer life cycles and widespread habitats. For animals with short life cycles and habitats with limited and fragmented distributions, this period may be much shorter, e.g. 1 month.
	Medium term	The impact occurs throughout the construction phase and for a short period thereafter.
	Long term	The impact occurs in both the construction and operational phases.
<b>Frequency of occurrence of impact</b>	Accidental	The impact occurs only as a result of an accident or incident (accidental contamination, accidental running over of an individual).
	Occurring once	The impact occurs only once, in one of the IP phases. It is most often associated with a short duration.
	Periodic	The impact occurs repeatedly, with a certain frequency.
	Permanent	The impact manifests continuously, beyond the moment of manifestation.
<b>Likelihood of occurrence of impact</b>	Uncertain	The likelihood of the impact is unknown, the impact will probably not occur.
	Not likely	The likelihood of the impact is low, but it can happen.
	Likely	The likelihood of the impact is high, it is very likely to happen.
	Very likely	The manifestation of the impact is certain.
<b>Reversibility of impact</b>	Reversible	Once the impact is terminated, the original environmental conditions before its occurrence can be restored.
	Irreversible	The impact does not allow the original environmental conditions before its occurrence to be restored.

Where possible, the assessment of impacts is quantitative and expressed in units of area (hectares) or time (number of years), and is linked to the site specific objectives defined for the habitat types and species subject to conservation in the Natura 2000 sites. The quantitative assessments were produced through spatial analysis in a GIS environment, using data described in Section VIII. Data and information used.

In case of insufficient data, absence of a quantification method or high uncertainty, qualitative assessment classes for each parameter are used as explained in the table above.

Table 15 shows the relationship between the different project activities and their assessment by parameter.

**Table 15. Relationship between project activities and their assessment by parameter.**

Activity	Type of impact	Project phase	Impact parameters						
			Sort of impact	Nature of impact	Spatial extent of impact	Duration of impact	Frequency of occurrence	Likelihood of occurrence	Reversibility of occurrence
<i>Construction of the Yadenitsa Dam and accompanying facilities</i>	Habitat loss	Construction	negative	direct	local	long term	permanent	very likely	irreversible
	Habitat fragmentation		negative	direct	within the site	long term	permanent	likely	irreversible
	Habitat change		negative	direct	local	medium term	periodic	likely	reversible
	Disturbance of species		negative	direct	within the site	medium term	periodic	very likely	reversible
	Mortality of individuals		negative	direct	local	medium term	accidental	likely	reversible
<i>Movement and operation of transport and construction equipment</i>	Disturbance of species	Construction	negative	secondary	local	medium term	periodic	likely	reversible
	Mortality of individuals		negative	direct	local	medium term	periodic	likely	reversible
<i>Reclamation measures</i>	Habitat change	Construction	negative	direct	local	short term	occurring once	very likely	reversible
	Disturbance of species		negative	secondary	local	short term	occurring once	very likely	reversible
<i>Modification of the flow of the Yadenitsa River</i>	Habitat change	Operation	negative	direct	within the site	long term	periodic	very likely	reversible
<i>Maintenance, scheduled inspections and repairs of facilities</i>	Disturbance of species	Operation	negative	secondary	local	long term	periodic	likely	reversible

### 3.3. Impact assessment

The assessment of the degree of impact is made according to the proposed scale presented in Table 16.

**Table 16. Proposed scale for assessing the degree of impact.**

Degree of impact	Degree 1	Degree 2	Degree 3
<b>Habitat loss</b>	<ul style="list-style-type: none"> <li>• Short-term and</li> <li>• Spatially limited (within no more than 0.5% of the area of a habitat/habitat of a species in the site).</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term, spatially limited (up to 0.5% of the habitat area in the site); or</li> <li>• Short-term, affecting 0.5 - 1% of the habitat area in the site.</li> </ul>	<ul style="list-style-type: none"> <li>• Affects more than 1% of the habitat area in the site.</li> </ul>
<b>Habitat fragmentation</b>	<ul style="list-style-type: none"> <li>• Short-term, absence of barrier effect in the habitat of a species in the site.</li> </ul>	<ul style="list-style-type: none"> <li>• Medium-term, absence of barrier effect in the habitat of a species in the site.</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term, absence of barrier effect in the habitat of a species in the site.</li> </ul>
<b>Habitat change</b>	<ul style="list-style-type: none"> <li>• Short-term and</li> <li>• Spatially limited (within no more than 1% of the area of a habitat/habitat of a species in the site).</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term, spatially limited (up to 1% of the habitat area in the site); or</li> <li>• Short-term, affecting 1 - 5% of the habitat area in the site.</li> </ul>	<ul style="list-style-type: none"> <li>• Affects more than 5% of the habitat area in the site.</li> </ul>
<b>Disturbance of species</b> (conditional limit value - 50 db)	<ul style="list-style-type: none"> <li>• Short-term and</li> <li>• Spatially limited (within no more than 5% of the area of a habitat of a species in the site);</li> <li>• Outside periods of high sensitivity for the species concerned (e.g. breeding, hibernation, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term, spatially limited (up to 5% of the area of the habitat of a species in the site), outside periods of high sensitivity for the species concerned;</li> <li>• Short-term, affecting 5-10 % of the area of the habitat of a species in the site, outside periods of high sensitivity for the species concerned;</li> <li>• Short-term, affecting up to 5% of the area of the habitat of a species in the site, in periods of high sensitivity for the species concerned.</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term, affecting more than 5% of the area of the habitat of a species in the site;</li> <li>• Short-term, affecting more than 10% of the area of the habitat of a species in the site, outside periods of high sensitivity for the species concerned;</li> <li>• Affects more than 5% of the area of the habitat of a species in the site, in periods of high sensitivity for the species concerned.</li> </ul>
<b>Mortality of individuals</b>	<p>Impacts resulting in the loss of individuals are expected to be:</p> <ul style="list-style-type: none"> <li>• Incidental/short-term;</li> <li>• Spatially limited (within no more than 0.5% of the area of a habitat/habitat of a species in the site);</li> </ul>	<p>Impacts resulting in the loss of individuals are expected to be:</p> <ul style="list-style-type: none"> <li>• Incidental/short-term, affecting 0,5 - 1% of the habitat area in the site; or</li> <li>• Long-term, spatially limited (up to 0.5% of the habitat area in the site).</li> </ul>	<p>Impacts resulting in the loss of individuals are expected in more than 1% of the habitat area in the site.</p>

Given the specificity of the habitats and species (recovery capacity, sensitivity, etc.), as well as the nature/duration of the impacts, exceptions to this categorisation are

Project "Yadenitsa" – increasing the capacity of the lower compensating basin of Chaira PSHPP by the construction of Yadenitsa dam and a reversible pressure tunnel for connection with Chaira dam

allowed by expert assessment, with specific justification in the text of the assessment. Where the project has no impact, it is indicated (no impact or NA-not applicable).

## IV. Identification of affected habitat types and habitats of species

### 4.1. Location of the project elements in relation to four Natura 2000 sites

The subject of this Analysis of Compliance with the site specific conservation objectives of four Natura 2000 sites is the investment proposal as it was considered and assessed in the reports (Environmental Impact Assessment Report and Impact Assessment Report in 2016) and approved by the EIA Decision No. 2-2/01.08.2017 issued by the Minister of Environment and Water.

#### 4.1.1. SAC BG0000495 „Rila“

The Yadenitsa project is located outside the boundary of the Natura 2000 site (Fig. 8). Construction sites (during construction) are at distances that preclude influence from construction activities. From the construction sites and the lake (during operation) to the Natura 2000 site there are ridges over 150-200 m high and above them is 80–100-year-old coniferous forest vegetation (noise protection and noise absorbing screen).

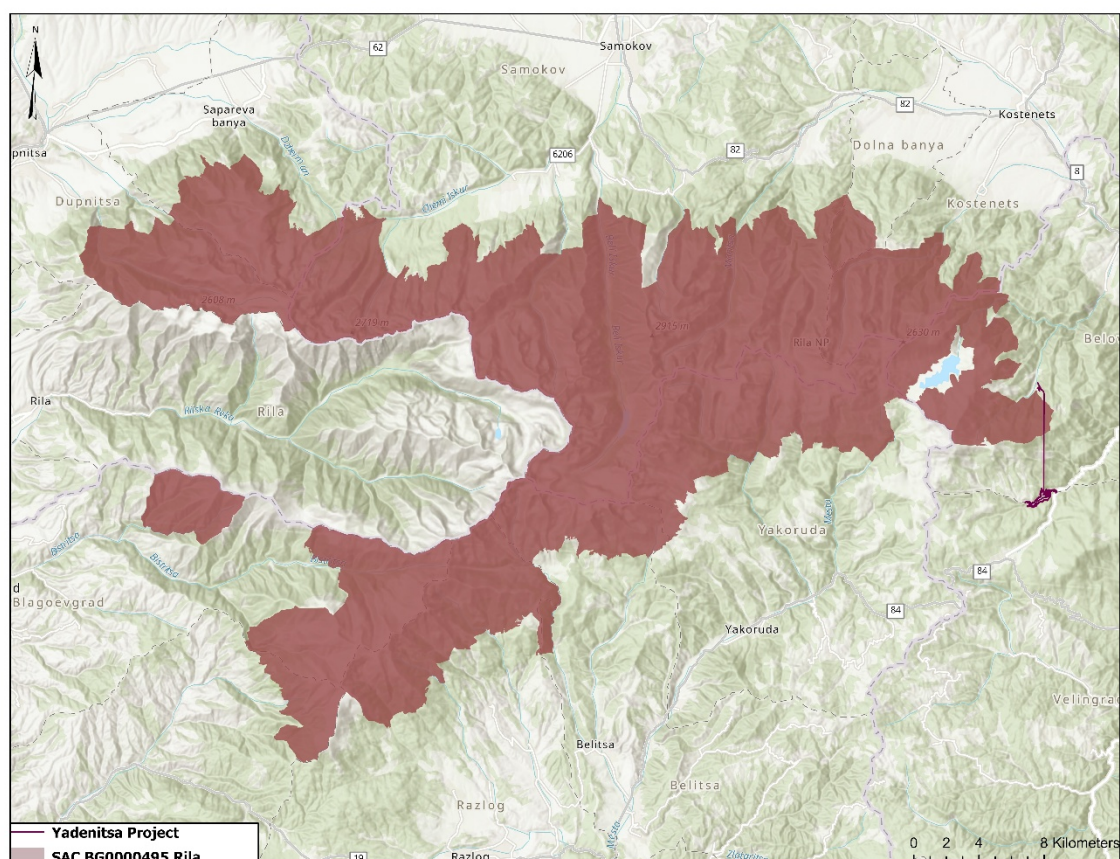


Fig. 8. Location of the project in relation to SAG BG0000495 „Rila“

The reversible pressure tunnel for the connection between Chaira Dam and Yadenitsa Dam is an underground structure that passes under the territory of the Natura 2000 site with a deep run of slope, and the habitats and species will not be affected by the

implementation of the project. The constructed part of the tunnel of Yadenitsa Dam and Chaira Dam has watertight support. The remainder of the tunnel will also be constructed in this way, thereby having no drainage effect on groundwater and not adversely affecting the forest and grass vegetation above the tunnel.

The 1.9 km long Yadenitsa Reservoir will not impede the passage of mobile species and will not lead to any disturbance of the coherence of the site, both towards the Natura 2000 sites in the direction of Rila and towards the Western Rhodopes and the sources of the Yadenitsa River.

#### 4.1.2. SPA BG0002129 „Rila Buffer“

The Yadenitsa project (the outline of the lake and the stilling basin) is located outside the boundary of the Natura 2000 site (Fig. 9). Construction sites (during construction) are at distances that preclude influence from construction activities. From the construction sites and the lake (during operation) to the Natura 2000 site, the terrain is very rugged, there are ridges over 200 m high and above them is 80-100-year-old coniferous forest vegetation (noise protection and noise-absorbing screen).

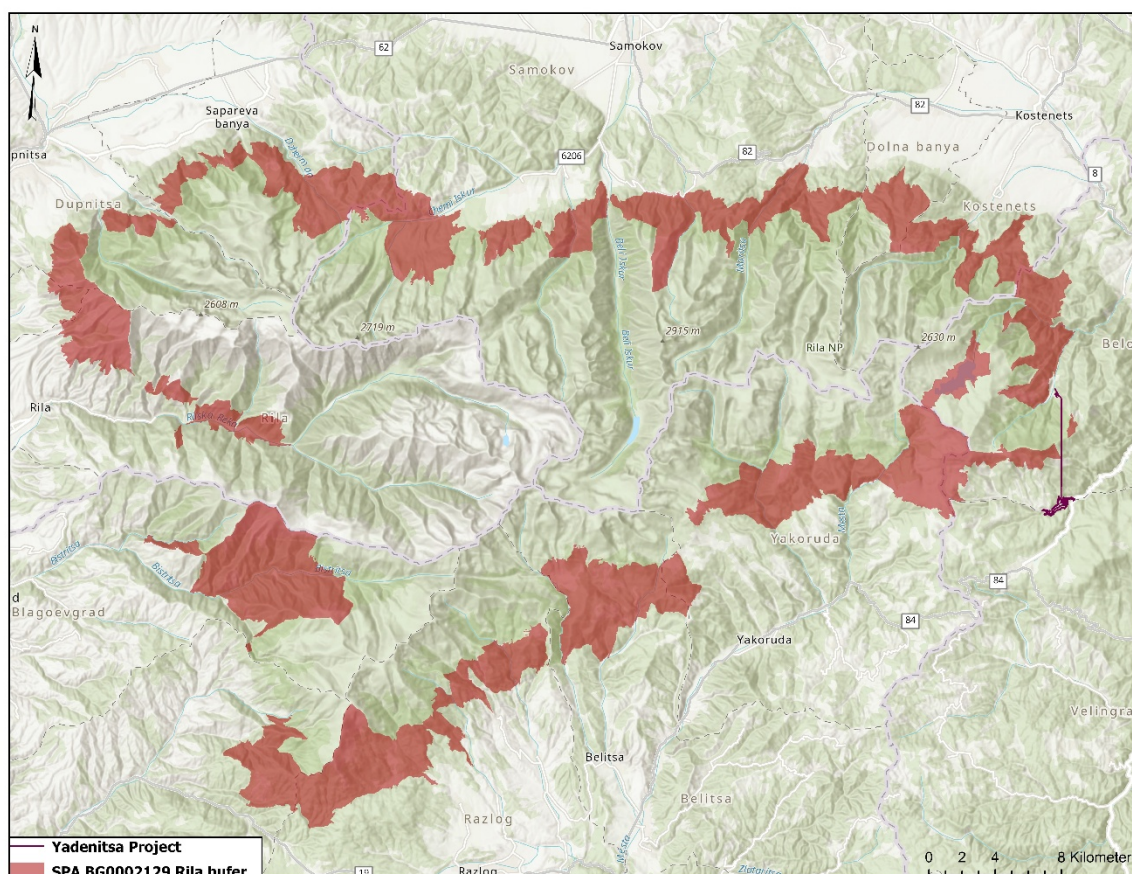


Fig. 9. Location of the project in relation to SPA BG0002129 „Rila Buffer“

The reversible pressure tunnel for the connection between Chaira Dam and Yadenitsa Dam passes underground under a small part of the southeastern edge of the territory of the Natura 2000 site, and the habitats and species will remain unaffected and without impact. The constructed part of the tunnel of Yadenitsa Dam and Chaira Dam has watertight support. The remainder of the tunnel will also be constructed in this way,

thereby having no drainage effect on groundwater and not adversely affecting the forest and grass vegetation above the tunnel.

#### 4.1.3. SAC BG0001386 „Yadenitsa“

The Yadenitsa project (dam, related facilities, and the reservoir) is outside of the protected area (Fig.10). The Yadenitsa project is 316 meters as the crow flies from the nearest point to the area`s boundaries. The straight-line distance from the Yadenitsa construction site to the area is approximately 400 m. From the construction sites and the lake (during operation) to the area, the terrain is heavily rugged, with mountain ridges approximately 150 m high and above them is 80-100-year-old coniferous forest vegetation, which serve as a noise protection and sound-absorbing "screen".

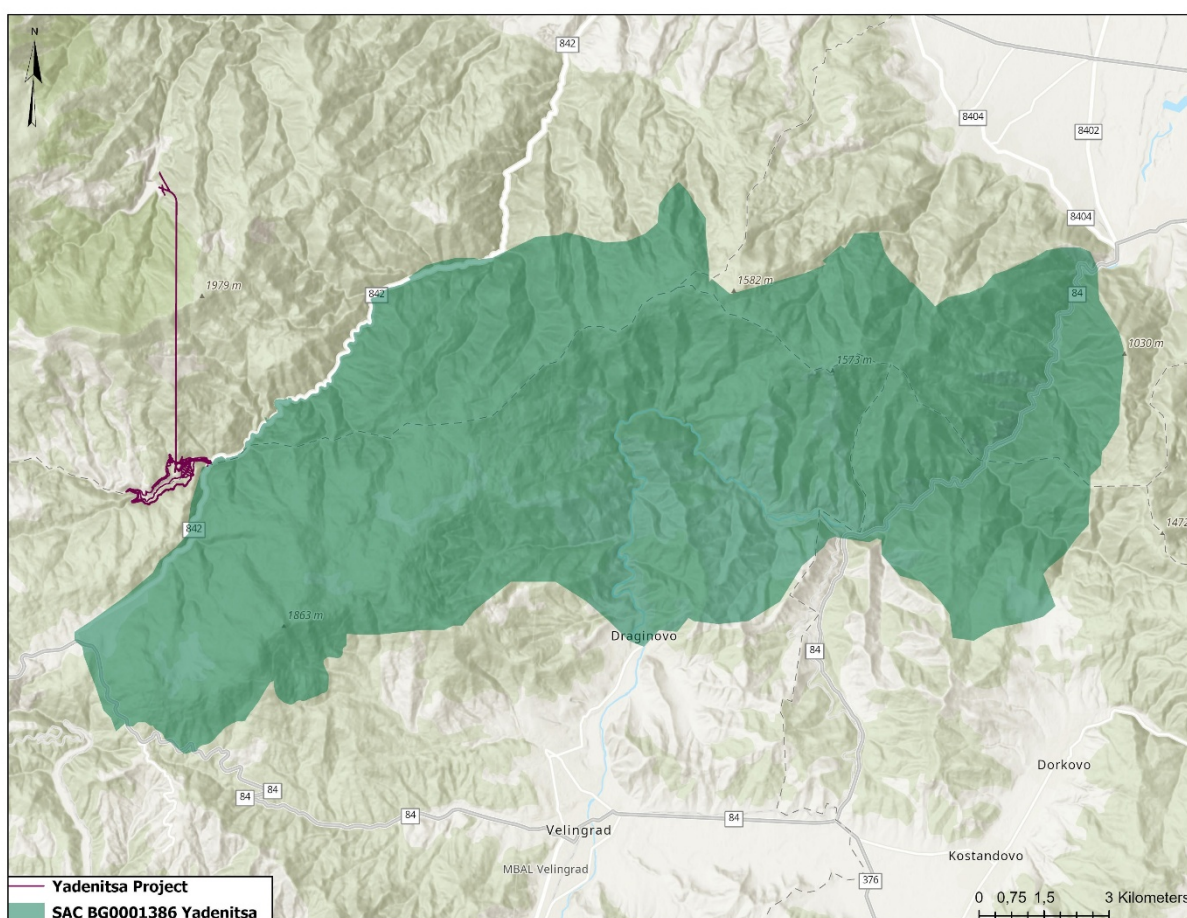


Fig. 10. Location of the project in relation to the SAC BG0001386 „Yadenitsa“

The reversible pressure tunnel from "Chaira" dam to "Yadenitsa" dam is outside the area. "Yadenitsa" dam and related facilities are outside the zone. From the "Yadenitsa" dam to the SAC /protected area/, where the Yundolska river flows in, the elevation is 550 m. "Yadenitsa" SAC affects the right bank of the Yadenitsa river, after the confluence of Yundolska river. Yadenitsa river (whose outflow is expected to change after the Yadenitsa dam is built), for part of its length after the confluence of Yundolska river in it, passes through the protected area.

As a result, riparian types of habitats and habitats of fish species, amphibians, aquatic invertebrates, and mammals (otter), may be negatively affected.

#### 4.1.4. SAC BG0000636 „Niska Rila“

The Yadenitsa project (the lake`s outlines) and dam are outside the area. From the construction sites and the lake (during operation) to the area there are mountain ridges approximately 100 m high and above them is 80-100-year-old coniferous forest vegetation, which serve as a noise protection and sound-absorbing "screen". The reversible pressure tunnel from "Chaira" dam to "Yadenitsa" dam is outside the area.

A small part of the damper and correction of Yadenitsa river to the confluence of Yundolska river after the dam overflow and a little HPP, a part of the road connections to the dam (a road, already existing before the Yadenitsa conceptual project from 2001, which was asphalted in 2005), and a part of an operational asphalted road to the level of the dam crown and then along the left slop (built in 2003 – 2004 г.), affects a small part of SAC "Niska Rila"; and the lake with a negligible length in the northern direction, is in close to the area (Fig. 11).

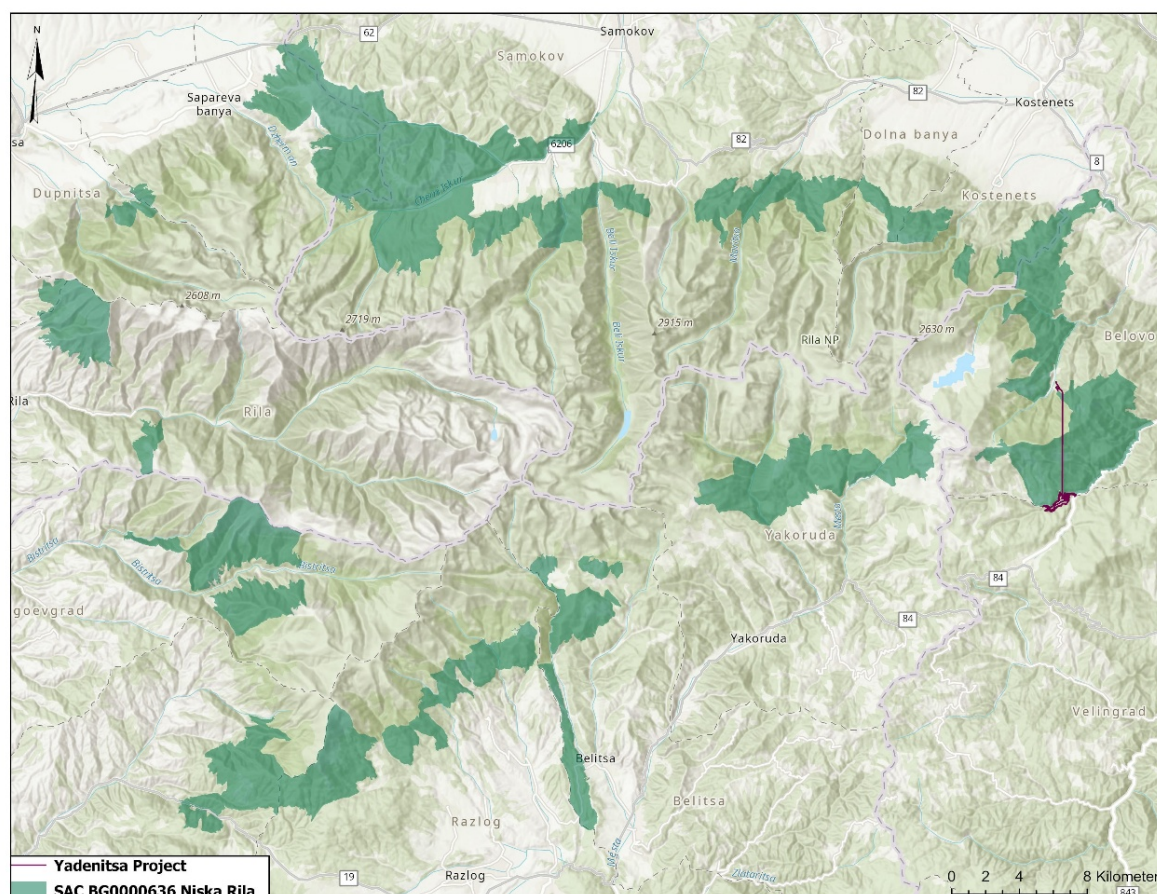


Fig. 11. Location of the project in relation to the SAC BG0000636 „Niska Rila“

These project elements affect several habitats of species and habitat types, as described in table 17.

**Table 17. Affected habitats of species and habitat types in SAC BG0000636 „Niska Rila“.**

Code	Name	Affected habitat area, ha	Distribution in the area, ha	Affected part of the habitat, in %
1086	<i>Cucujus cinnaberinus</i>	0,0076	8185,99	0,0001
6908	<i>Morimus asper funereus</i>	1,8952	14114,27	0,0134
1093	<i>Austropotamobius torrentium</i>	0,0070	87,66	0,0079
1193	<i>Bombina variegata</i>	1,3008	3155	0,0412
1352	<i>Canis lupus</i>	1,5497	33898,37	0,0046
1354	<i>Ursus arctos</i>	2,3662	31870,3	0,0074
1355	<i>Lutra lutra</i>	1,0754	1071,99	0,1003
4042	<i>Polyommatus eroides</i>	0,1785	2854,69	0,0063
4046	<i>Cordulegaster heros</i>	0,6422	502,1	0,1279
4053	<i>Paracaloptenus caloptenoides</i>	0,0639	2975,97	0,0021
6199	<i>Euplagia quadripunctaria</i>	0,3799	9137,56	0,0042
91BA	Mysian forests in which grow silver fir	0,0527	3466,13	0,0015
91EO	Alluvial forests in which they grow: <i>Alnus glutinosa</i> , <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	0,0686	41,61	0,1649

Assessment of the degree of impact on the affected habitats is determined as a negligible loss of territory, compared to the potential area of distribution of the respective habitat within the area, as well as in relation to the all area.

This negligible impact on the distribution area of habitats and habitats of species within the protected area will not result in a significant negative impact on the affected species and habitats, and on the site-specific conservation objectives for them within the protected area.

For habitat 91EO\* and for the habitats of aquatic invertebrates, the Yadenitsa river outflow is accounted after the Yundolska river confluence, compared to the existing status in both the SAC BG0000636 "Niska Rila" and the SAC BG0001386 "Yadenitsa".

The existing state of the river outflow is preserved during the construction and operation of the Yadenitsa dam in relation to the existing status (Fig. 12). Under these conditions, the amount of water flowing in Yadenitsa river and in both areas – SAC BG0001386 "Yadenitsa" and SAC BG0000636 "Niska Rila" after the confluence in Yundolska river, will remain unchanged.

Project "Yadenitsa" – increasing the capacity of the lower compensating basin of Chaira PSHPP by the construction of Yadenitsa dam and a reversible pressure tunnel for connection with Chaira dam

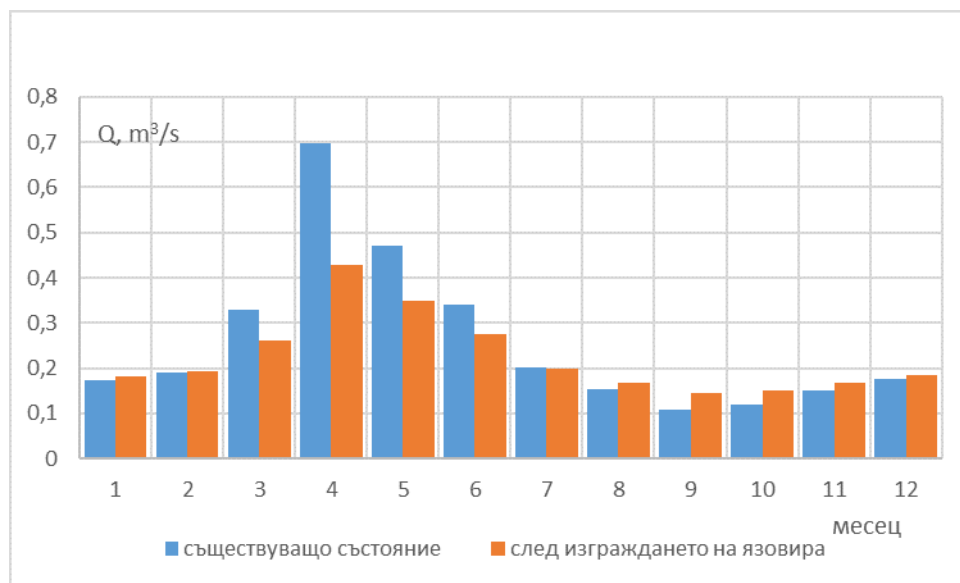


Fig. 12. Change in the outflow of Yadenitsa river after the confluence of Yundolska river in it, by months with the existing state, and after the dam is built

\*Existing status

\*After the dam is built

\*Month

The location of the project in relation to the boundaries of the three protected areas for habitats in the Natura 2000 sites is shown in Fig. 13.

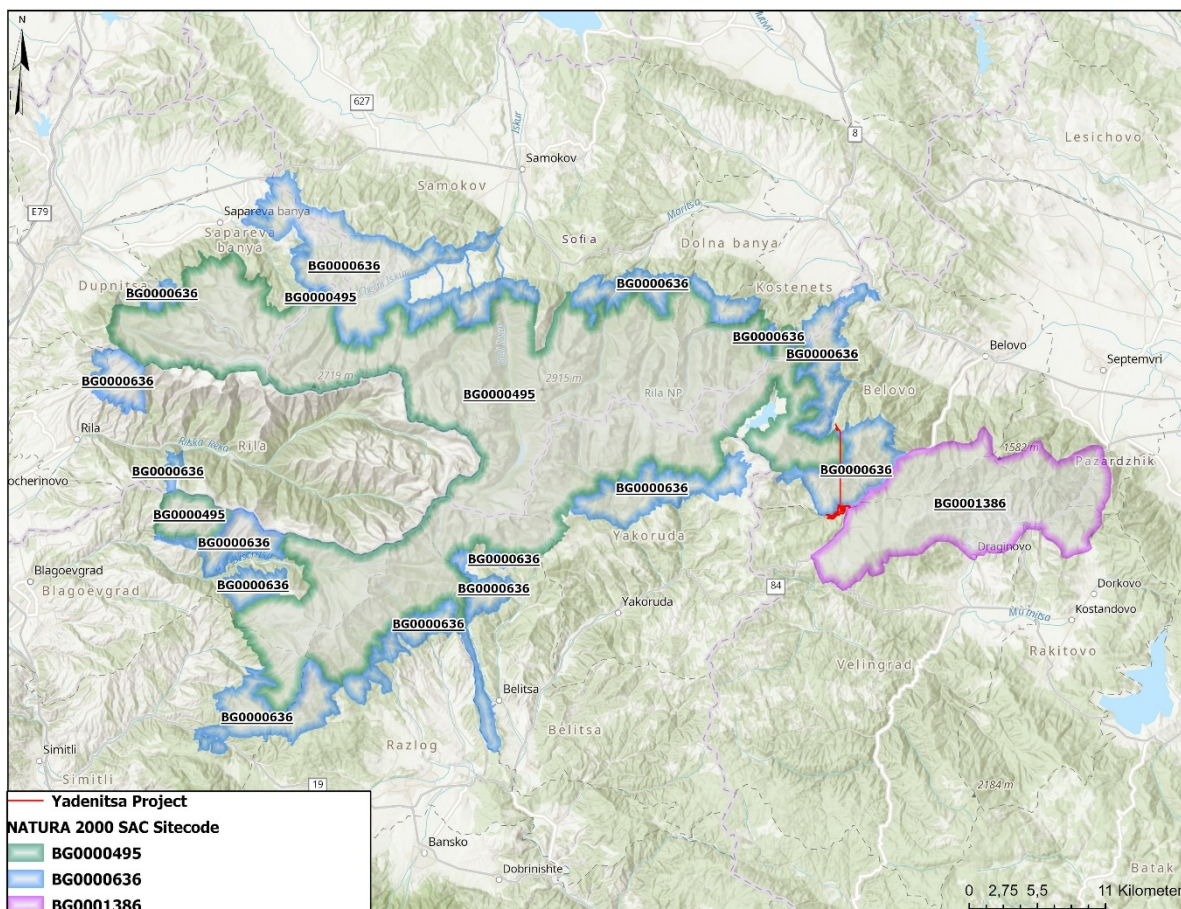


Fig. 13. Location of the project in relation to the boundaries of the three protected areas for habitats

Table 18 indicates which types of project impacts are applicable for each target habitat types in the two Natura 2000 sites, affected by the project's implementation. The remaining habitat types in the four Natura 2000 sites will be not affected by the project implementation and no impact can be expected on them.

**Table 18. Description of the expected types of impact on the target species/habitats which are subjects of conservation in the SAC BG0000636 "Niska Rila".**

Code of the area	Code of the target feature	Name of the target feature	Type of impact				
			Loss of habitat	Habitat's fragmentation	Change of habitat	Anxiety of species	Mortality of individuals
BG0000636	91BA	<i>Mysian forests in which grow silver fir</i>	X	-	-	-	-
BG0000636	91EO	<i>Alluvial forests in which they grow: Alnus glutinosa, Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</i>	X	-	X	-	-
BG0000636	1086	<i>Cucujus cinnaberinus</i>	X	-	-	-	-
BG0000636	6908	<i>Morimus asper funereus</i>	X	-	-	-	-
BG0000636	1093	<i>Austropotamobius torrentium</i>	X	-	X	-	-
BG0000636	1193	<i>Bombina variegata</i>	X	-	X	-	X
BG0000636	1352	<i>Canis lupus</i>	X	-	-	X	-
BG0000636	1354	<i>Ursus arctos</i>	X	-	X	X	-
BG0000636	1355	<i>Lutra lutra</i>	X	X	X	-	-
BG0000636	4042	<i>Polyommatus eroides</i>	X	-	-	-	-
BG0000636	4046	<i>Cordulegaster heros</i>	X	-	X	-	-
BG0000636	4053	<i>Paracaloptenus caloptenoides</i>	X	-	-	-	-
BG0000636	6199	<i>Euplagia quadripunctaria</i>	X	-	-	-	-
BG0001386	91EO	<i>Alluvial forests in which they grow: Alnus glutinosa, Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion</i>	-	-	X	-	-

		<i>albae)</i>					
BG0001386	5088	Barbus cyclolepis	-	-	X	-	-
BG0001386	5197	Barbus cyclolepis	-	-	X	-	-
BG0001386	1093	Austropotamobius torrentium	-	-	X	-	-
BG0001386	1032	Unio crassus	-	-	X	-	-
BG0001386	1193	Bombina variegata	-	-	X	-	X
BG0001386	1355	Lutra lutra	-	X	X	-	-
BG0001386	1354	Ursus arctos	-	-	X	-	-

## V. Assessment of project impacts on site specific conservation objectives for the affected target features

For the preparation of the impact assessment for the affected habitats and habitats of species, information has been prepared containing:

- Information on the species/habitat according to its specific objectives report;
- Status for the species/habitat at biogeographic level;
- Status for the species/habitat in the Natura 2000 site;
- Site specific conservation objectives for the species/habitat in the Natura 2000 site;
- Impact on the site-specific conservation objectives set for the species/habitat in the Natura 2000 site.

### 5.1. Assessment of the impacts on the SAC BG0000495 „Rila“, with a view to achieving the specific conservation objectives for species and habitats

No impacts are anticipated during construction and operation of the project.

### 5.2. Assessment of the impacts on the SPA BG0002129 „Rila Buffer“, with a view to achieving the specific conservation objectives for species

No impacts are anticipated during construction and operation of the project.

## 5.3. Assessment of the impacts on the SAC BG0001386 „Yadenitsa“, with a view to achieving the specific conservation objectives for species and habitats

### 5.3.1. Site specific conservation objectives for habitat 91E0 \*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

- **Information on the habitat according to the specific objectives report** - this habitat includes riparian forests with a contribution equal to or greater than 4 tenths of species of the genera *Alnus*, *Populus*, *Salix* and *Fraxinus*. Industrial forest plants of hybrid poplars are not included in the habitat. Plantations develop on rich soils periodically flooded by rivers. Three subtypes are distinguished: Monodominant forests of *Alnus glutinosa* with occasional participation of *Fraxinus excelsior* (*Alno-Padion* union) in the lower reaches of rivers; Riparian communities of *Alnus glutinosa* and/or *Alnus incana* in the upper and middle reaches of rivers (*Alnion incanae*) and Riparian, floodplain forests or galleries dominated mainly by *Salix alba*, *Populus alba* and *Populus nigra* (*Salicion albae*). The second sub-type is predominant in the Natura 2000 site. The species composition is rich, including both moisture-loving riparian plants and species characteristic of the zonal vegetation in which the communities are located. Forests dominated by black alder – subtype Riparian forests of alder (*Alnus* spp.) – and mountain ash (*Fraxinus excelsior*), and forests dominated by white alder – subtype Mountain galleries of white alder (*Alnus incana*) – are distributed within the site.

Habitat 91E0\* is a priority for conservation under the Habitats Directive.

Habitat 91E0\* is included in two publications of the Red Data Book of the Republic of Bulgaria, volume 3. Habitats. "3G1 White alder (*Alnus incana*) mountain galleries" and "4G1 Alder (*Alnus* spp.) and mountain ash (*Fraxinus excelsior*) riparian forests", both with Vulnerable [VU] category (Biserkov et al. (eds.), 2015).

- **Status for the habitat at biogeographic level** - the distribution by biogeographic region in the Natura 2000 site is as follows: 13,98 ha in the Alpine region and 3,99 ha in the Continental region. When reporting under Article 17 of the Habitats Directive in 2019, the habitat was listed in favourable status in terms of 'Distribution area', 'Area covered by habitat' and 'Structure and function' in the Continental Region. For the Alpine biogeographical region, a favourable status is indicated for 'Distribution area' and 'Structure and functions', with no information available for 'Area covered by habitat'.

- **Status for the habitat in the Natura 2000 site** –

According to the Standard Data Form (last updated November 2021), the status of the habitat in the Natura 2000 site is as follows:

Code	Coverage in the site [ha]	Site assessment			
		Representativeness	Relative surface area	Conservation grade	Overall assessment
91E0*	17.97	A	C	A	A

• **Specific conservation objectives for the Natura 2000 site** – A field survey was undertaken in 2023 to update the available information on the status of the habitat in the site. 41 plots have been delineated in which habitat 91E0 has been newly established, increasing its total area in the site to 17.97 ha.

- ✓ "Area" parameter – Objective "Maintain the habitat area in the Natura 2000 site";
- ✓ "Structure and functions" parameter – Objective "Improve average age, old-growth forests, amount of dead wood, large biotope trees".

• **Impact on the site-specific conservation objectives set for the habitat in the Natura 2000 site;**

The implementation of the IP will have no impact on the integrity, structure and functions of the SAC BG0001386 "Ydenitsa", as the provisions of the IP are outside the boundaries of the site and their implementation will not directly or indirectly affect its key elements. The only possible negative impact from the implementation of the IP is on habitat 91 EC\* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*), represented along the bank of the river Yadenitsa from the place of the confluence below the dam with the river Yundolska until leaving the boundaries of the site, due to the reduction of the current runoff of the river. Taking into account the fact that the operation of the IP is planned to ensure a runoff into the river not smaller than the current one, no preconditions for negative impact on the habitat and associated species will be created.

**Degree of impact on specific conservation objectives:**

Site code	Code of target feature	Name of target feature	Area Parameter	Structure and Function Parameter
			Habitat loss	Habitat change
BG0001386	91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	-	<b>Degree 1</b>

During construction and operation, no direct impacts associated with the loss of habitat area are anticipated - No Impact. Changes in habitat structure or function may occur during operation if current river flow is reduced - Degree 1.

**The following conclusions can be drawn regarding the compliance of the project with the identified site-specific objectives for the habitat in the site:**

- The implementation of the project is not associated with significant negative impacts on the identified site-specific objectives for the habitat in the site, under the parameter "Area" and the parameter "Structure and Functions" (Fig. 14).

- The project can be implemented without significant risk to the long-term viability of the habitat in the site.

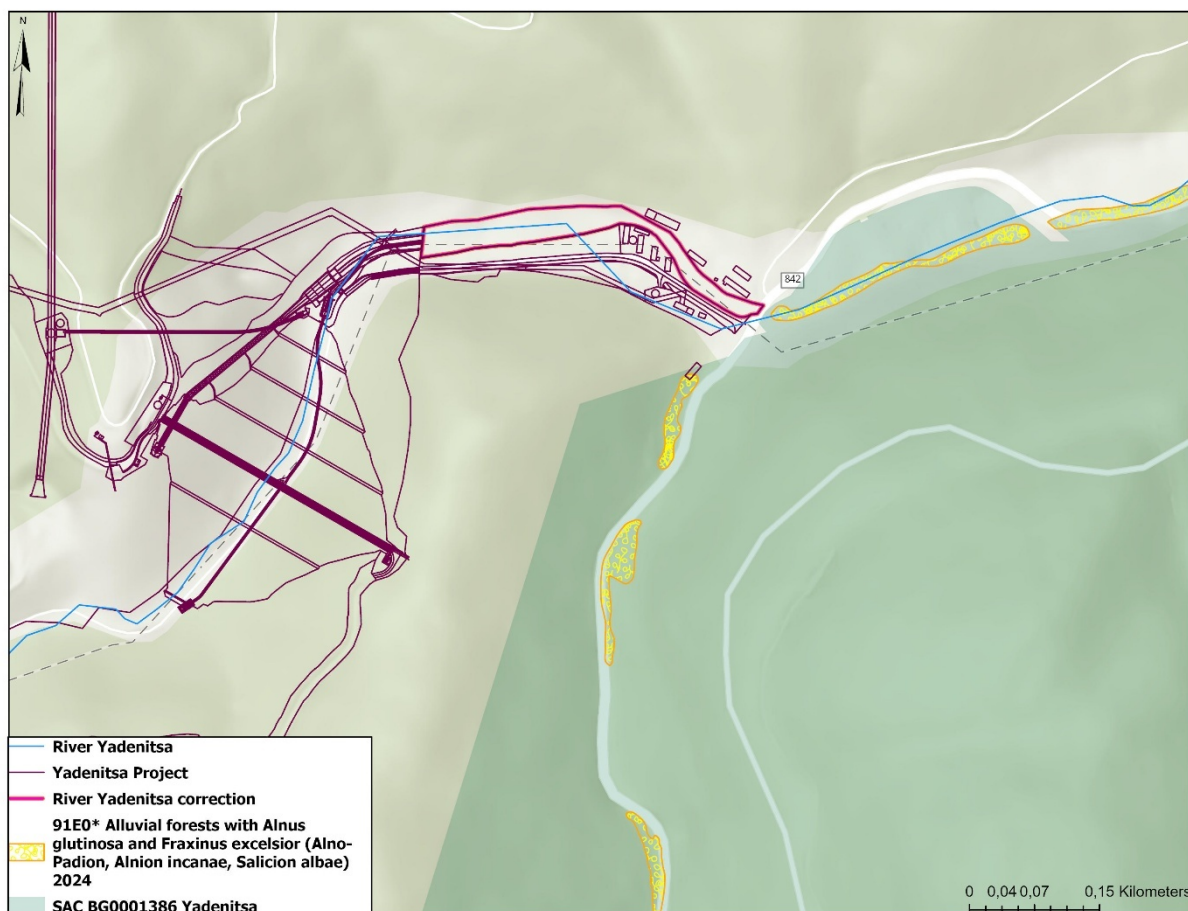


Fig. 14. Location of the project in relation to the distribution of habitat 91E0 in BG0001386 „Yadenitsa“

### 5.3.2. Site specific conservation objectives for 5088 Round-scaled barbel (*Barbus cyclolepis*)

- **Information on the species according to the specific objectives report** - Fish of the family Cyprinids (Cyprinidae) of medium to large size. The species spends its entire life cycle in freshwater - rivers and streams. It makes upstream spawning migrations over relatively small distances, but these are critical to maintaining population viability. It is not very sensitive to water quality, although it belongs to the so-called "less tolerant" species.

Bottom fish, active swimmer. It inhabits upper and middle stretches of rivers with fast, clean and well oxygenated water, in mountainous, semi-mountainous and lowland areas. It inhabits most often bottom habitats with a predominance of sandy-gravelly substrates. It feeds on small invertebrates and rarely on algae. It spawns in April - June.

- **Status for the species at biogeographic level** - The river network, representing the potential habitat of the species in the Natura 2000 site, falls within the Alpine (19,017 km) and Continental biogeographical regions (5,499 km). According to the report

under Art. 17 of the Habitats Directive in 2019, the species has an "Unknown" conservation status in the Continental and Alpine biogeographical regions, except for the parameter "Habitat of the species", which is defined as "Favourable".

• **Status for the species in the Natura 2000 site -**

Group	Code	Scientific name	Assessment in the site			
			Population	Conservation	Isolation	Overall assessment
F	5088	Barbus cyclolepis	C	C	B	C

• **Specific conservation objectives for the Natura 2000 site –** there are habitats of the round-scaled barbel within the site only in the Chepinska River - its entire section in the site. In the Yadenitsa River, the habitats of the species are located outside the site, and the other rivers in the site are very small and cannot support a population of the species. The established population density is 23-800 ind./ha. The species is represented in very low numbers - only single specimens, and in some sections of the river it is completely absent.

- ✓ "Population" parameter – Objective "Improve population density to a minimum of 500 ind./ha in suitable river sections in the site";
- ✓ „Habitat of the species" parameter – Objective "Improve habitat connectivity of the species; Improve the ecological status/potential of water bodies with suitable habitats for the species".

• **Impact on the site specific conservation objectives set for the species in the Natura 2000 site;**

During the construction, the discharge of river runoff into the Yadenitsa River will be carried out after the sedimentation of construction, rain and slope waters from the construction sites in the existing mechanical settling basins, thus the good ecological status in terms of hydromorphological, biological and physicochemical quality elements of the Yadenitsa River, as a key element of the Natura 2000 site, will not be impaired, and therefore the habitats of fish species will not be impaired.

The assessment formed from the analysis of the IP with other existing water intakes on the tributaries of the Yadenitsa River and on the river itself in the reservoir area shows that given the elimination of the existing water intake 5 on the Yundolska River, an increase in the flow of the Yadenitsa River in the site will be provided, which creates conditions for the preservation and improvement of the current conditions for habitats and species in the SAC „Yadenitsa".

**Degree of impact on specific conservation objectives:**

Site code	Code of target feature	Name of target feature	Habitat of the Species Parameter			Population Parameter	
			Habitat loss	Habitat fragmentation	Habitat change	Disturbance of species	Mortality of individuals
BG0001386	5088	Barbus cyclolepis	-	-	<b>Degree 2</b>	-	-

No impacts related to loss of area, fragmentation or change of the species' habitat, disturbance and mortality of individuals are anticipated during construction - no impact.

No impacts associated with loss of area, fragmentation, disturbance and mortality of individuals are expected during operation, but changes to the habitat of the species may occur if the current river flow is reduced – Degree 2.

**The following conclusions can be drawn regarding the compliance of the project with the identified site-specific objectives for the species in the site:**

- The implementation of the project is not associated with significant negative impacts on the identified site-specific objectives for the species in the site, under the parameter "Population" and the parameter "Habitat of the species" (Fig. 15).
- The project can be implemented without significant risk to the long-term viability of the species in the site.

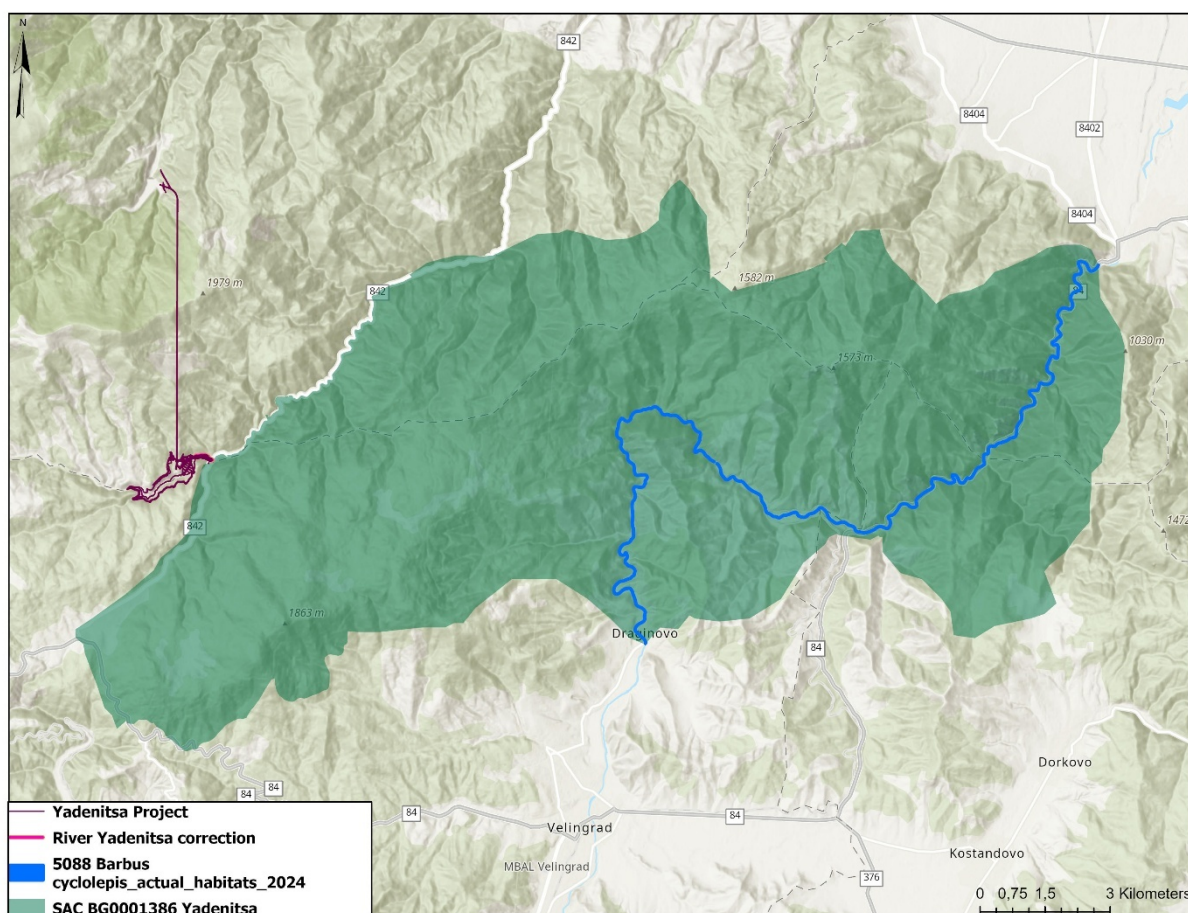


Fig. 15. Location of the project in relation to the distribution of the habitat of the species Round-scaled barbel (*Barbus cyclolepis*) in BG0001386 „Yadenitsa“

### 5.3.3. Site specific conservation objectives for 5197 Balcan spined loach (*Sabanejewia balcanica*)

- **Information on the species according to the specific objectives report** - benthic, rheophilic species. It inhabits the middle and upper reaches of permanent rivers with sandy-gravel bottoms and relatively fast current. The spawning period is from late April to early June, with spawn being deposited directly on the stones. It feeds on benthic invertebrates and hard roe.
- **Status for the species at biogeographic level** - The river network, representing the potential habitat of the species in the Natura 2000 site, falls within the Alpine (19,017 km) and Continental biogeographical regions (5,499 km). According to the Habitats Directive Article 17 report, in 2019 the species has a favourable conservation status in the Continental biogeographical region, with no data for the "Population" parameter. In the Alpine biogeographical region, the status of the species is also favourable.
- **Status of the species in the Natura 2000 site** -

Group	Code	Scientific name	Assessment in the site			
			Population	Conservation	Isolation	Overall assessment
F	5197	<i>Sabanejewia balcanica</i>	C	C	B	C

- **Specific conservation objectives for the Natura 2000 site** – there are potential habitats of the species in the site only in the Chepinska River, distributed mosaically along the entire section. The species was recorded in 2013 in the site during the project "Mapping and determination of conservation status of habitats and species - phase I" with a population density of 233 ind./ha. It was not identified during field surveys in 2023.
  - ✓ "Population" parameter – Objective "Improve population density to a minimum of 100 ind./ha";
  - ✓ „Habitat of the species" parameter – Objective "Improve habitat connectivity of the species; Improve the ecological status/potential of water bodies with suitable habitats for the species".
- **Impact on the site-specific conservation objectives set for the species in the Natura 2000 site;**

During the construction, the discharge of river runoff into the Yadenitsa River will be carried out after the sedimentation of construction, rain and slope waters from the construction sites in the existing mechanical settling basins, thus the good ecological status in terms of hydromorphological, biological and physicochemical quality elements of the Yadenitsa River, as a key element of the Natura 2000 site, will not be impaired, and therefore the habitats of fish species will not be impaired.

The assessment formed from the analysis of the IP with other existing water intakes on the tributaries of the Yadenitsa River and on the river itself in the reservoir area shows that given the elimination of the existing water intake 5 on the Yundolska River, an increase in the flow of the Yadenitsa River in the site will be provided, which creates conditions for the preservation and improvement of the current conditions for habitats

and species in the SAC „Yadenitsa“.

**Degree of impact on specific conservation objectives:**

Site code	Code of target feature	Name of target feature	Habitat of the Species Parameter			Population Parameter	
			Habitat loss	Habitat fragmentation	Habitat change	Disturbance of species	Mortality of individuals
BG0001386	5197	<i>Sabanejewia balcanica</i>	-	-	<b>Degree 2</b>	-	-

No impacts related to loss of area, fragmentation or change of the species' habitat, disturbance and mortality of individuals are anticipated during construction - no impact.

No impacts associated with loss of area, fragmentation, disturbance and mortality of individuals are expected during operation, but changes to the habitat of the species may occur if the current river flow is reduced – Degree 2.

**The following conclusions can be drawn regarding the compliance of the project with the identified site-specific objectives for the species in the site:**

- The implementation of the project is not associated with significant negative impacts on the identified site-specific objectives for the species in the site, under the parameter "Population" and the parameter "Habitat of the species" (Fig. 16).
- The project can be implemented without significant risk to the long-term viability of the species in the site.

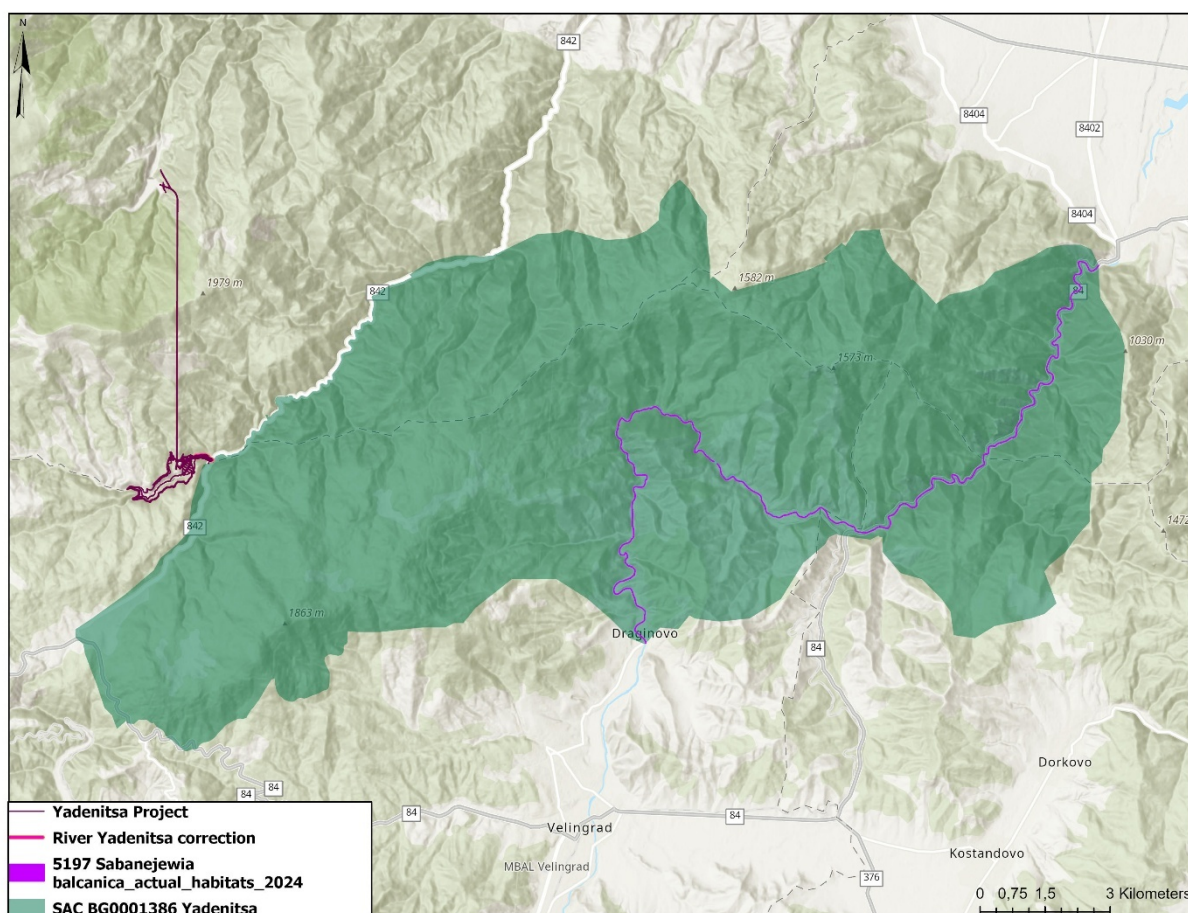


Fig. 16. Location of the project in relation to the distribution of the habitat of the species Balcan spined loach (*Sabanejewia balcanica*) in BG0001386 „Yadenitsa“

#### 5.3.4. Site specific conservation objectives for \*Stone Crayfish (*Austropotamobius torrentium*)

- **Information for the species, according to site specific conservation objectives report.** *Austropotamobius torrentium*, also called stone crayfish, is the smallest native species of crayfish in Bulgaria. It reaches a maximum length of 12 cm, but is most often between 6 to 10 cm. Breeding occurs from September to June. Copulation occurs in fall (September to November). The hatching of the young (juvenile) crabs occurs in the spring (April to June). The stone crayfish has no pronounced nutritional specialization, as in younger individuals' vegetable food (particles of micro - and macrophytic aquatic vegetation, filamentous green algae, and plant detritus predominates, while in older individuals the food is mixed and along with the plant food is used animal food (small insects and their larvae, small snails and mussels, dead animal tissues).

The stone crayfish prefers areas with a rocky bottom and convenient hiding places along the banks (roots of coastal vegetation) and avoids areas with sludgy or sandy substrate (Machino & Füreder 2005). Fine sedimentary deposits lead to the filling of the spaces between the stones and the disappearance of the species' populations. It is most often found in shaded rivers with banks covered with alder (*Alnus glutinosa*),

beech (*Fagus sylvatica*), oak (*Quercus* spp) or chinar (*Platanus orientalis*) and less frequently in rivers with banks, covered only with bushes. It is almost completely absent in the open areas of rivers and in areas with coniferous vegetation (Todorov et al. 2014). The stone crayfish is strongly oxybionate and oligosaprobial (Moog 1995) and does not tolerate low oxygen content, pollution, and very high-water temperatures. Such conditions are offered by many of the mountain streams and upper courses of the larger rivers, but it should be noted that the species avoids steep slopes and sections of the rivers with large elevation differences and very fast water flow. The steep slopes and high speed are factors that lead to a reduction in food resources for the species, as they hinder the accumulation of organic substrate on the bottom of these water bodies, which is also the reason for the lower richness and diversity of the zoobenthos (Richardson 1992, Maiolini & Lencioni 2001). Also, the high current speed hinders the species' natural migration upstream (Maude & Williams 1983) and often causes erosion and flooding, which are negative factors for the stability of the species' populations (Parvulescu & Zaharia 2012). The preferred water temperature for the species is between 14°C and 18°C, and the lowest summer temperature should not drop below 11-14 °C. The maximum temperature at which populations of crayfish have been found varies from 21 to 26 °C. (Bohl 1987, Kozak et al. 2000). When the water temperature exceeds 18 °C or, alternatively, when the dissolved oxygen concentration in the water falls below 7-8 mg/l, the crayfish exhibit increased and unusual activity in their search for areas with higher oxygen concentrations (Svobodová et al. 2008). In terms of the physical and chemical parameters of the water, the preferred values for the species are: pH 5.0–8,6; electrical conductivity 80–700 µS.cm<sup>-1</sup>; calcium 7–70 mg.l<sup>-1</sup>; magnesium 2.6–21,0 mg.l<sup>-1</sup>; Iron – until 1,2 mg.l<sup>-1</sup>; chlorides – until 16,7 mg.l<sup>-1</sup>; nitrogenous nitrogen – until 0,16 mg.l<sup>-1</sup>; nitrate nitrogen – until 44 mg.l<sup>-1</sup> (Bohl 1987); oxygen level 7,6–10,0 mg.l<sup>-1</sup> (Kozak et al. 2000).

In Bulgaria, the crayfish has also been found in a wide range of habitats at 180 to 1600 m altitude above sea-level, as it dominates the area between 400 and 700 m: from 200 to 1700 m (Bulgurkov 1961); from 100-200 to 1600 m (Sabchev, Stanimirova 1998); from 180 to 1342 m (Todorov et al. 2014).

The species has a high conservation status: it is included in the Red List of the International Union for Conservation of Nature`s Red list of Threatened Species (IUCN Red List) in the category (DD); a priority species under Habitats Directive 92/43/EEC for the conservation of habitats and wild flora and fauna.

- **Species status at biogeographic level** – for the territory of the SAC BG0001386 "Yadenitsa" the habitat of the species falls almost entirely (nearly 95%) in the Alpine biogeographical region and a very small part of it (about 5%) falls in the Continental region. The effectively occupied habitats of the species are entirely in the Alpine biogeographical region. According to reports under Art. 17 of the Habitats Directive in 2019 the status of the species in the Alpine and Continental biogeographical regions is favorable in all parameters.

- **Status of the species in the protected site -**

Group	Code	Scientific name	Assessment in the site
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			Population	Conservation	Isolation	General assessment
I	1093	Austropotamobius torrentium	B	A	C	A

• **Site specific conservation objectives for the Natura 2000 site** – during the field studies conducted in 2023., the species was established with good population status (106 individuals in total) in all transects of two of the rivers studied (Yadenitsa – a total of 9 individuals in 3 transects; Yundolska – a total of 97 individuals in 4 transects). The four deposits of the Yundolska river and two of the deposits of the Yadenitsa river (opposite Parnevo peak and in the Pazovitsa area) are new for the area. The average abundance of the species in the 15 transects studied in this Natura 2000 site was 7 individuals per 100 m linear transect (0,07 ind./m<sup>2</sup>; 700 ind./ha).

Data from these studies show that the crayfish is relatively common and has stable populations in a very good condition in SAC "Yadenitsa", especially in Yundolska river and in Yadenitsa river, where the species is occurred in all transects studied.

- ✓ "Population" parameter – Objective: „Maintaining at least 7 deposits of the species in the Natura 2000 site";
- ✓ "Habitat" parameter – Objective: – Цел „Improving the relative population density of the species in the area; Maintaining the habitat`s area; Maintaining the condition of suitable habitats for the species in the area; Improving the structure and functions of the habitat; Improving the ecological status of water bodies with suitable habitats for the species “.

• **Impact on the site specific conservation objectives for the species in Natura 2000 site;**

During construction, the discharge of the river outflow into the Yadenitsa river will be carried out after settling of the construction, rain and slope waters from the construction sites in the existing mechanical settling basins, thereby ensuring the good ecological status in terms of hydromorphological, biological and physicochemical quality elements of the Yadenitsa river, as a key element of the protected area, will not be degraded, and consequently, the habitats of the invertebrate species will not be affected.

The impact on the population of water type of invertebrate species (crayfish) and on their habitats will be indirect and insignificant in degree. The structure of the species populations in the area will not be disrupted due to the deterioration of parameters and the occurrence of hydrological changes during the construction and operation of the waters of the Yadeitsa river after the dam.

**Degree of impact on site specific conservation objectives:**

Code of the site	Code of the target feature	Name of the target feature	Parameter Habitat			Parameter Population	
			Loss of habitat	Fragmentation of the habitat	Change of the habitat	Anxiety of species	Mortality of individuals
BG0001386	1093	Austropotamobius torrentium	-	-	<b>Degree 2</b>	-	-

During the construction, no impacts are expected related to loss of area, fragmentation or habitat change of the species, anxiety, and mortality of individuals.

During the operation no impacts are expected related to loss of area, fragmentation, anxiety, and mortality of individuals, but some changes may be occurred in the habitat of species at the reducing the current flow of the river – Degree 2.

The structure of the populations of the species in the site will not be disturbed due to deterioration of the parameters and the occurrence of hydrological changes of the waters of the Yadenitsa river after the dam, during the operation.

About the conformity of the project with the site-specific conservation objectives for the species in the site, the following conclusions can be drawn:

- The implementation of the project is not associated with significant negative impacts on the site-specific conservation objectives for the species in the site, by the parameters "Population" and „Habitat" (Fig. 17).
- The project can be implemented without significant risk to the long-term viability of the species in the site.

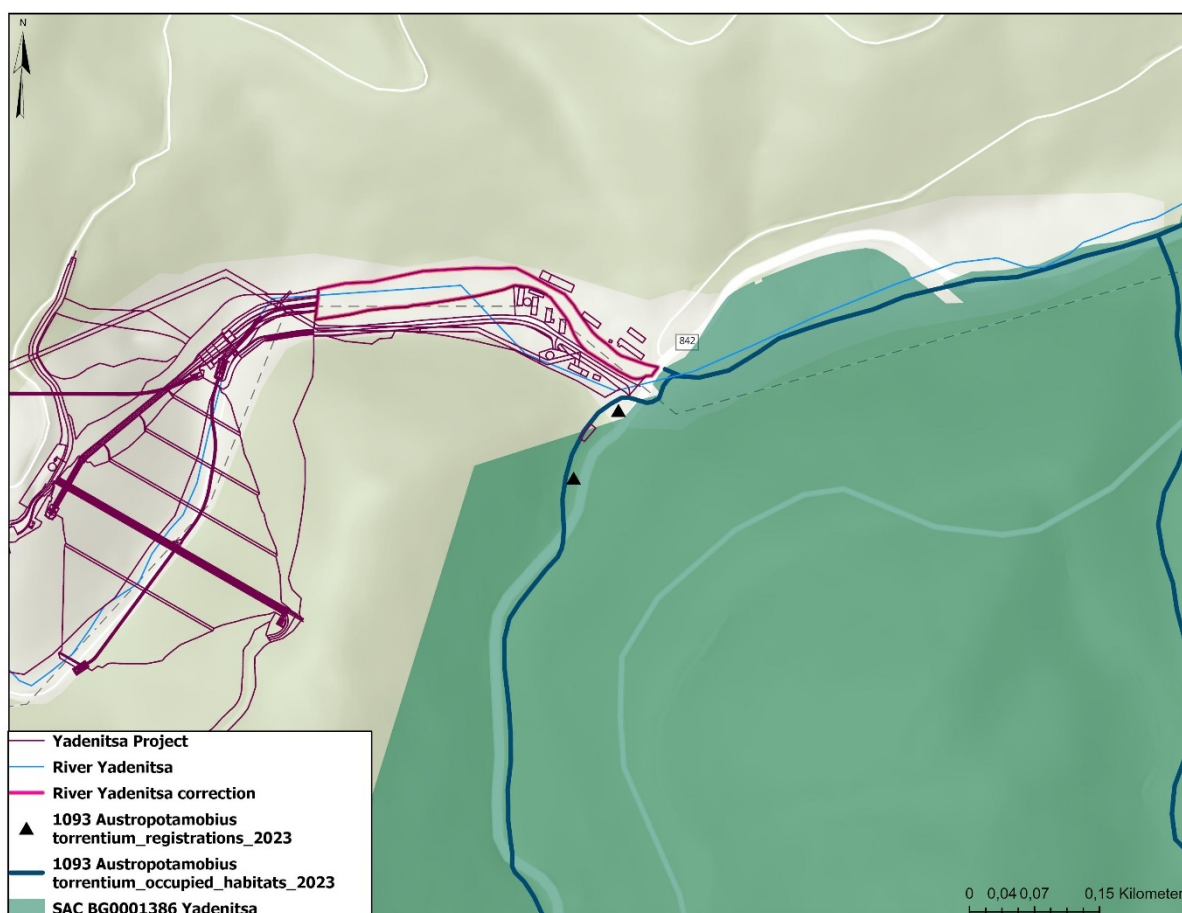


Fig. 17. Location of the project in relation to distribution of the habitat of the species \*Stone Crayfish (*Austropotamobius torrentium*) in SAC BG0001386 „Yadenitsa“

### 5.3.5. Site specific conservation objectives for 1032 \*Thick shelled river mussel (*Unio crassus*)

- **Information for the species, according to site specific conservation objectives report**

- the species is a burrowing filter feeder, typically found at a depth of 1.0-1.5 m (Angelov 2000). It prefers rivers and streams with clean flowing water, high oxygen content, and a sandy-gravel bottom.

The species is widespread in Bulgaria. It is found at elevations of 0 to 930 meters above sea level, preferring a sludgy-clay or sludgy-gravel/sand substrate.

The shell of the mussel is thick-walled, with an oval shape, as the most prominent part (seen from the back) is around the middle. The species is highly variable. In Bulgaria the eggs are fertilized from the end of April to June, and the maturation of the glochidia in the mussels and their discharge into the water continues until August.

The species is a particularly sensitive to reduced dissolved oxygen concentrations and water eutrophication due to climate change, sedimentation, water pollution, and changes in ichthyofauna species composition. Juveniles are particularly sensitive to changes in hydrochemical parameters, with increased mortality at concentrations above 2.0-2.3 mg NO<sub>3</sub>-N/l (Zettler, Jueg 2007). In adults, reproduction stops at nitrate levels above 10 mg/l (Schultes 2010, Aldridge et al. 2011). Reduction in fish populations due to water pollution, riverbed modification, dam construction, and predatory species also inevitably leads to decrease in population of *U. Crassus* (Aldridge et al. 2011).

The species has a high conservation status: it is included in the Red List of the International Union for Conservation of Nature`s Red list of Threatened Species (IUCN Red List) in the category "vulnerable species" (VU); a priority species under Habitats Directive 92/43/EEC for the conservation of habitats and wild flora and fauna.

- **Species status at biogeographic level /Състояние за вида на биоеографско ниво** – for the territory of the SAC BG0001386 "Yadenitsa" the habitat of the species falls almost entirely (nearly 95%) in the Alpine biogeographical region and a very small part of it (about 5%) falls in the Continental region. The species does not have effectively occupied habitats in both biogeographical regions.

According to reports in 2019 the assessment of the species in the Alpine region is defined as "unknown" to the population.

- **Status of the species in the protected site -**

Group	Code	Scientific name	Оценка в зоната			
			Population	Conservation	isolation	General assessment
I	1032	<i>Unio crassus</i>	C	B	C	B

**Site specific conservation objectives for the Natura 2000 site –**

- During the conducted river studies in 2023, was found that the most suitable habitats for the Thick shelled river mussel have been established in the Cnepinska river. The Yantitsa River also has suitable habitats for the mussel, but they are significantly smaller in area, while the other three studied rivers (Yundolska, Dalbochitsa, and Leshtaritsa) do not have many suitable habitats for it, as the bottom substrate in them is mostly rocky and there are almost no areas with clay-sand-gravel bottom, which are the preferred habitats of this species. In the current studies, the Thick shelled river mussel was not registered in any of the studied rivers in the protected site, which confirms the data from previous studies and indicates that if the species is found within the site, it is relatively rare with a very small population size.

- ✓ "Population" parameter – Objective "Interim objective": To determine the number of sites in the protected area and the population reference value by conducting field surveys by 2027.
- ✓ "Habitat" parameter – Objective: "Maintaining the area of potential habitats; Improving the structure and function of the habitat; Improving the ecological status of water bodies with suitable habitats for the species."

- **Impact on the site-specific conservation objectives for the species in Natura 2000 site;**

During construction, the discharge of the river outflow into the Yadenitsa river will be carried out after settling of the construction, rain and slope waters from the construction sites in the existing mechanical settling basins, thereby ensuring the good ecological status in terms of hydromorphological, biological and physicochemical quality elements of the Yadenitsa river, as a key element of the protected area, will not be degraded, and consequently, the habitats of the invertebrate species will not be affected.

The impact on the population of water type of invertebrate species (Thick shelled river mussel) and on their habitats will be indirect and insignificant in degree. The structure of the species populations in the area will not be disrupted due to the deterioration of parameters and the occurrence of hydrological changes during the construction and operation of the waters of the Yadeitsa river after the dam.

**Degree of impact on site specific conservation objectives:**

Code of the site	Code of the target feature	Name of the target feature	Parameter Habitat			Parameter Population	
			Loss of habitat	Fragmentation of the habitat	Change of the habitat	Anxiety of species	Mortality of individuals
BG0001386	1032	Unio crassus	-	-	<b>Degree 2</b>	-	-

During the construction, no impacts are expected related to loss of area, fragmentation or habitat change of the species, anxiety, and mortality of individuals.

During the operation no impacts are expected related to loss of area, fragmentation, anxiety, and mortality of individuals, but some changes may be occurred in the habitat of species at the reducing the current flow of the river – Level 2.

The structure of the populations of the species in the site will not be disturbed due to deterioration of the parameters and the occurrence of hydrological changes of the waters of the Yadenitsa river after the dam, during the operation.

**About the conformity of the project with the site-specific conservation objectives for the species in the site, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the site-specific conservation objectives for the species in the site, by the parameters "Population" and „Habitat" (Fig. 18).
- The project can be implemented without significant risk to the long-term viability of the species in the site.

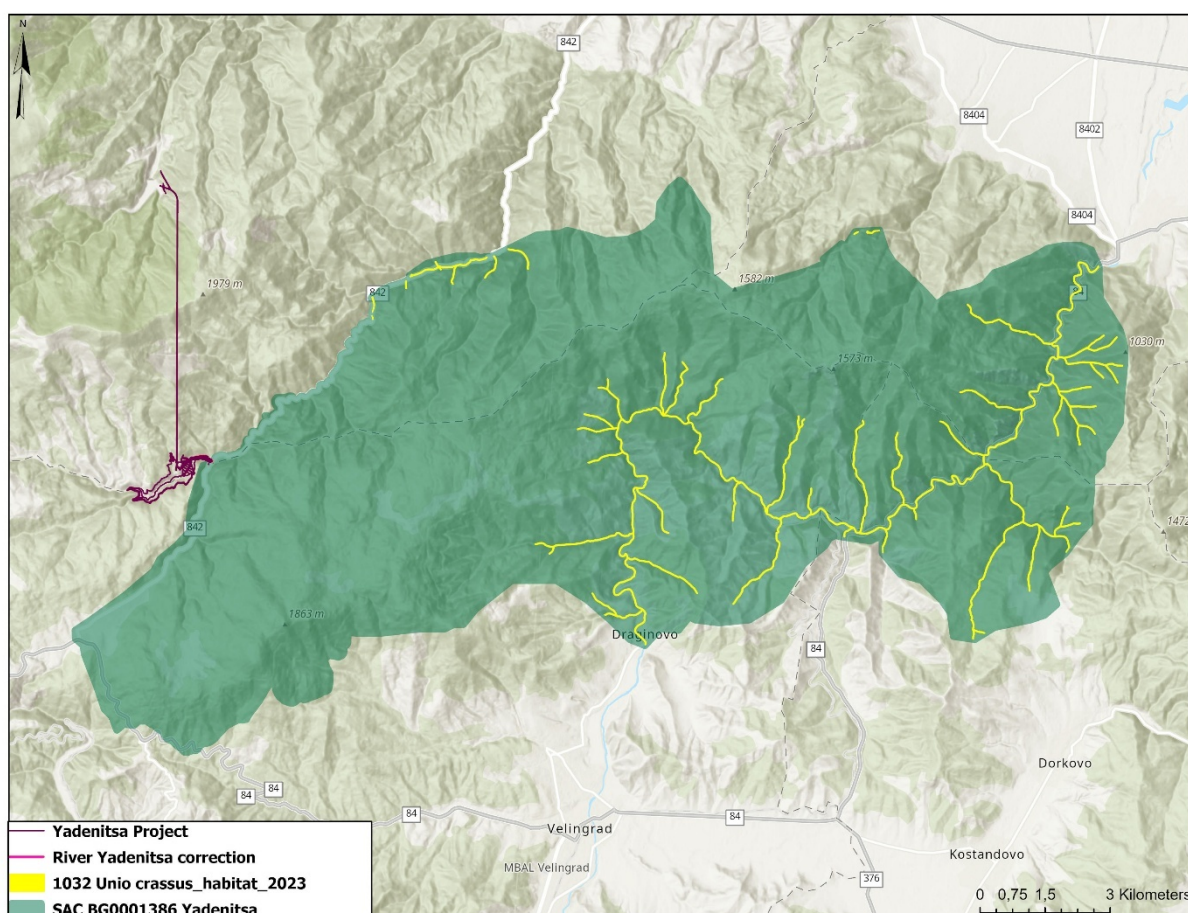


Fig. 18. Location of the project in relation to distribution of the habitat of the species \*Thick shelled river mussel (*Unio crassus*) in the SAC BG0001386 „Yadenitsa“

### 5.3.6. Site specific conservation objectives for 1193 Yellow-bellied toad (*Bombina variegata*)

- **Information about the species, according to the report on site-specific conservation objectives** – inhabits various types of water bodies: mountain streams, swamps, lakes, river spillways, temporary puddles, flooded ditches and ruts, fountain beds, etc. (Beshkov and Naney 2002; Stojanov et al. 2011). The species is active from March to October. The breeding season is often extended throughout the year and can last

from March to the end of July. The food spectrum of the species includes insects and other invertebrates, which are caught both in the water and on land. The activity is mainly diurnal and crepuscular, but during the breeding season the animals are also active at night. Hibernation takes place on land (Beshkov and Nanev 2002; Tsankov et al. 2014).

- **Status of the species at the biogeographical level** - the potential habitats of the species in the area fall into both the Continental - 672.47 ha and the Alpine regions - 8426.33 ha. According to the 2019 report, the status of the species is favorable in the Alpine biogeographical region and unknown in the Continental, due to the lack of data regarding the population size.

- **Status of the species in the protected area** -

Group	Code	Scientific name	Evaluation in the area			
			Population	Опазване	Conservation	General assessment
A	1193	Bombina variegata	C	A	C	A

Given the nature of the national range of the species (a typical low and mid-mountain species, widely distributed in the country), the "Yadenitsa" protected area is not of primary importance for its conservation, but the area is important for ensuring the connectivity of the network in the continental and alpine biogeographic regions.

- **Site-specific conservation objectives for the protected area** – during field surveys in 2023 and 2024, the species was registered in several places in the area (a total of 36 individuals, as well as numerous eggs), which fall into 5 separate squares of the 1x1 km UTM grid (for 3 of the squares the species was previously unknown). According to expert assessment, the potential habitats of the species in the protected parts of the area are in good condition.

- ✓ Parameter "Population" - Objective "Maintainance of the population size";
- ✓ Parameter "Habitat of the species" - Objective "Maintaining the area of habitats; Maintainance of the area of standing water bodies suitable for habitation".

- **Impact on the specified site specific conservation objectives for the species in the protected area;**

During construction, the discharge of river runoff into the Yadenitsa river will be carried out after settling of construction, rainwater and slope waters from the construction sites in the existing mechanical sedimentation tanks, which will ensure that the good ecological status in terms of hydromorphological, biological and physicochemical quality elements of the Yadenitsa River, as a key element of the protected area, will not be deteriorated, as well as the habitats of amphibian species.

**Degree of impact on the specific conservation objectives:**

Code of the area	Code of the specific object	Name of the specific object	Parameter "Habitat of the species"			Parameter "Population"	
			Loss of habitat	Habitat fragmentati	Change of habitat	Disturbanc e of the	Mortality of the species

BG0001386	1193	Bombina variegata	-	-	on	species	-	Degree 1
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During construction, no impacts related to area loss, fragmentation or change in the species' habitat are expected, disturbance – no impact. The possible incidental mortality from accidental run-over of specimens by construction equipment during the construction phase is insignificant – Degree 1.

During operation, no impacts related to area loss, fragmentation, disturbance and mortality of the species are expected, but changes in the species' habitat may occur, with a decrease in the current river flow – Degree 1. The structure of the species' populations in the area will not be disturbed due to deterioration of the parameters and occurrence of hydrological changes in the waters of the Yadenitsa river after the dam wall during operation.

**Regarding the compliance of the project with the site-specific conservation objectives set for the species in the area, the following conclusions can be made:**

- The implementation of the project is not associated with significant negative impacts on the site-specific conservation objectives set for the species in the area, in relation to parameter "Population" and parameter "Habitat of the species" (Fig. 19).
- The project can be implemented without significant risk to the long-term viability of the species in the area.

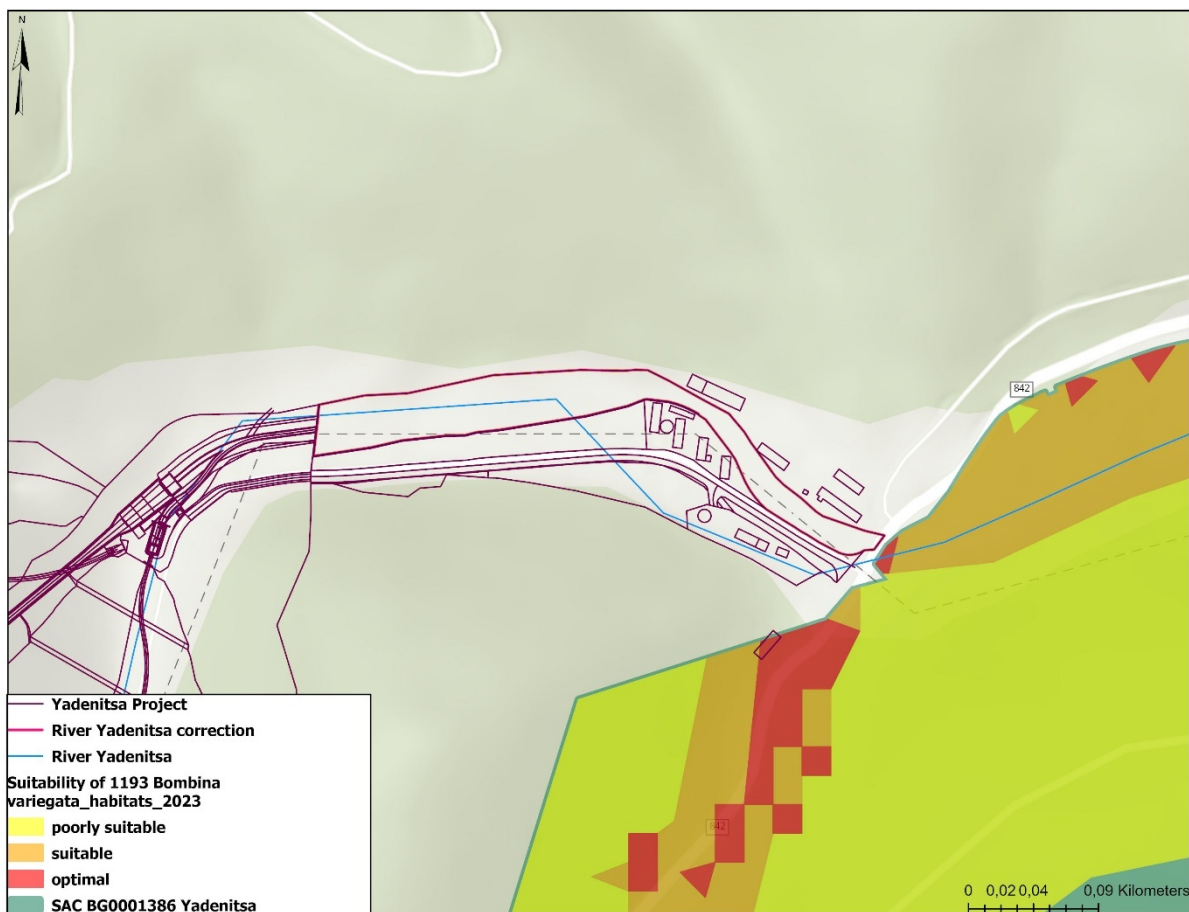


Fig. 19. Location of the project in relation to the distribution of the Yellow-bellied toad (*Bombina variegata*) habitat in BG0001386 "Yadenitsa"

### 5.3.7. Site-specific conservation objectives for 1355 Otter (*Lutra lutra*)

• **Information about the species, according to the report on the site-specific conservation objectives** – The otter (*Lutra lutra*) is a predatory mammal from the family of ferrets (Mustelidae). It inhabits freshwater and brackish water bodies in our country (Georgiev 2005, Georgiev, Koshev 2006). They feed mainly on aquatic organisms - fish, crabs, frogs, sometimes small mammals and birds (Georgiev, Koshev 2006; Georgiev 2006, Georgiev 2008, Koshev 2009; Koshev et al. 2013). It prefers well-guarded coastlines overgrown with woody and shrubby vegetation, where it makes dens in their roots (Georgiev 2005, Georgiev 2008, Koshev et al. 2013).

In the Red Book of Bulgaria, the species is included as "vulnerable" (Spiridonov, Spasov 2015).

• **Status of the species at the biogeographical level** - the area of potential habitats in the zone is 385.13 ha, of which 64.84 ha in the Continental and 320.29 ha in the Alpine biogeographical region. According to the reporting under Art. 17 from 2019, the status of the species is determined as favorable for both regions

• **Status of the species in the protected area** -

Group	Code	Scientific name	Zone rating			
			Population	Conservation	Isolation	Overall rating
M	1355	<i>Lutra lutra</i>	C	B	C	A

The Yadenica River and the Chepinska River are new biocorridors of the Rhodope population of the otters in the Thracian Lowland.

• **Specific conservation objectives for the protected area** - during field surveys in 2023, traces of the presence of the species were recorded along the Yadenitsa River between the village of Yundola and the village of Golyamo Belovo and along the lower reaches of the Chepinska River towards the village of Vetren Dol.

- ✓ Parameter "Population" – Objective "Maintaining the population size at an optimal number for the protected area";
- ✓ Parameter "Species Habitat" - Objective "Maintaining the size of the area of potential habitats within the boundaries of the protected area; Improving the ecological status of water bodies with suitable habitats for the species".

• **Impact on the site specific conservation objectives set for the species in the protected area;**

During operation, an impact will likely occur as a result of the change in the water body (during the correction of the Yadenitsa River), which will cover a section of the river with a length of about 1.9 km, which represents less than 10% of the total length of the Yadenitsa River (26 km). A change will also occur when conducting high waters

of the Yadenitsa River under the regime of the dam without overflow. This regime reduces the risk of flooding in the village of G. Belovo and the town of Belovo. Probable impacts can also be caused by changing the regime of the Yadenitsa River outflow in the section after the dam wall to the confluence of the Yundolska River. The impact is expected to be direct and local in nature, with a low degree of impact due to the adopted regime of the Yadenitsa River outflow and preservation of the regime practically in its current state after the confluence of the Yundolska River

The assessment of the degree of fragmentation of the Otter habitats in the area is also insignificant. The implementation of the IP will affect the Yadenitsa River as a biocorridor for the otter in its part outside the protected area and near the dam wall. Given the possibility of the species to inhabit the coastal zones of the Yadenitsa River with a width of 20 m, as well as that the food base in the river is assessed as low, the impact will be weak and will not lead to negative consequences on the population of the species in the area.

**Degree of impact on specific conservation objectives:**

Area code	Target object code	Target object name	Parameter Species habitat			Parameter Population	
			Loss of habitat	Habitat fragmentation	Habitat change	Species disturbance	Mortality of individuals
BG0001386	1355	Lutra lutra	-	<b>Degree 2</b>	<b>Degree 2</b>	-	-

During construction, no impacts related to loss of area, fragmentation or change of the species' habitat, disturbance and mortality of individuals are expected - no impact.

During operation, no impacts related to habitat loss, disturbance and mortality of individuals are expected, but changes in the habitat of the species may occur, due to changes in the water body of the Yadenitsa River - Degree 2 and fragmentation of the habitat of the species - Degree 2. The structure of the populations of the species in the area will not be disturbed due to deterioration of the parameters and occurrence of hydrological changes in the waters of the Yadenitsa River after the dam wall during operation.

**Regarding the compliance of the project with the site specific objectives set for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the site specific objectives set for the species in the area, under the parameter "Population" and the parameter "Habitat of the species" (Fig. 20).
- The project can be implemented without significant risk to the long-term viability of the species in the area.

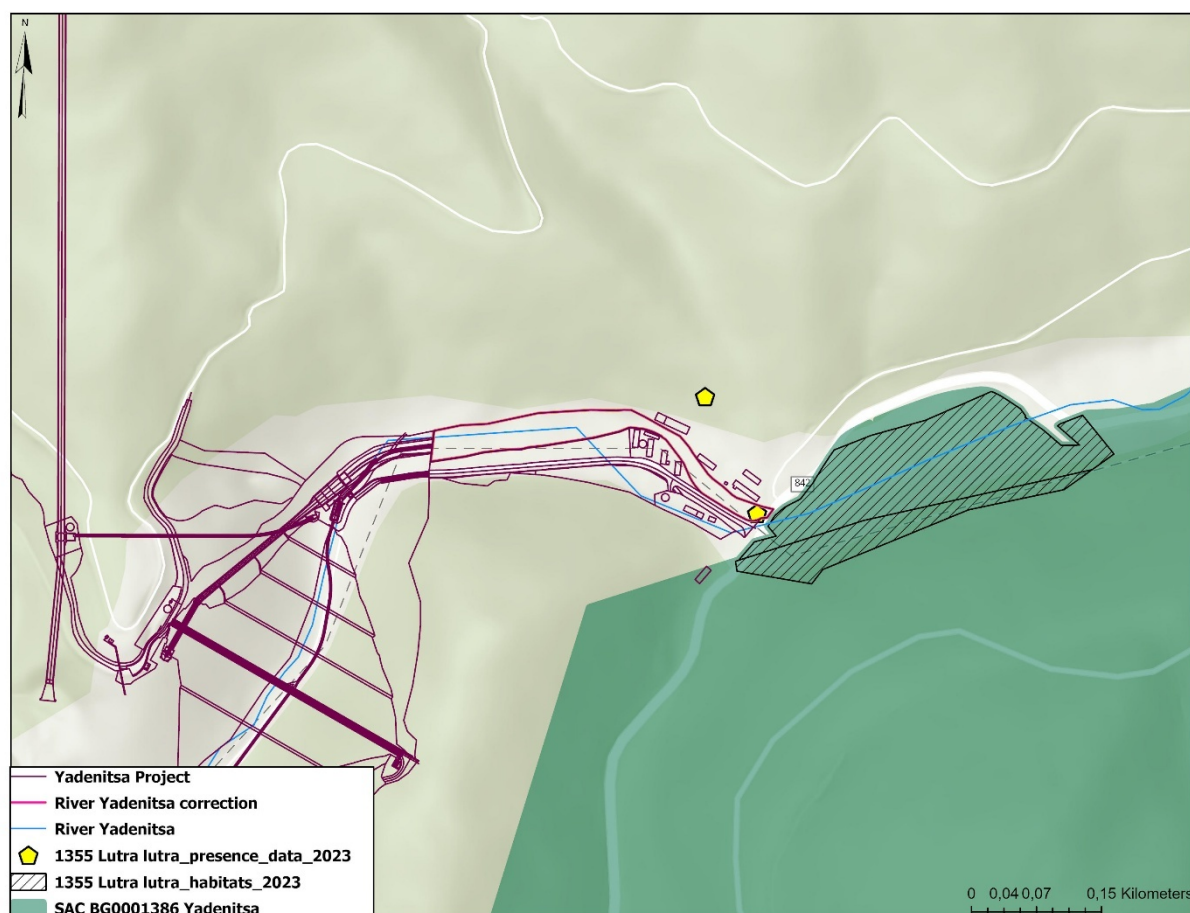


Fig. 20. Location of the project in relation to the distribution of the habitat of the species Otter (*Lutra lutra*) in BG0001386 "Yadenitsa"

### 5.3.8. Site specific conservation objectives for 1354 Brown bear (*Ursus arctos*)

- **Information about the species, according to the report on the specific objectives** - The brown bear (*Ursus arctos*) is a predatory mammal of the bear family (Ursidae). It inhabits forested areas remote from settlements (Popov, 2003). The bear is an omnivorous species, and its diet strongly depends on the seasons (Spasov, 2007). In spring, it feeds on carrion, grasses, leaf buds, etc. In summer, it uses forest fruit plants, mushrooms. In autumn, beech acorns, fruits of fruit trees, etc. (Ganchev, 1988; Genov, 2010; Spasov et al., 2000, Spasov et al., 2015). The bear also actively uses hunting facilities to feed game (Kavcic et al. 2015, Todorov et al. 2020).

In the Red Book of Bulgaria (RDB), the species is listed as "endangered" (Spiridonov, Spasov 2015).

There is an updated action plan for the species (MoEW, 2023).

- **Status of the species at the biogeographical level** - The habitats of the species in the area fall into the Continental – 28.97 ha and the Alpine – 8753.59 ha biogeographical regions. According to the report under Art. 17 of the Habitats Directive from 2019, the species is in a favorable status in terms of "Area of distribution" and "Habitat" in both the Alpine and Continental biogeographical regions. In both

regions, the status in terms of "Population" as well as the overall assessment is presented as unfavorable-unsatisfactory.

• **Status of the species in the protected area -**

Group	Code	Scientific name	Zone rating			
			Population	Conservation	Isolation	Overall rating
M	1354	Ursus arctos	C	A	C	A

The status of the brown bear population is monitored annually within the framework of the National Biodiversity Monitoring System (NBMSB). The data on the presence of the species collected during the monitoring indicate the presence of individuals around the minimum number for the area (2 individuals).

**Specific conservation objectives for the protected area** – no traces of the species' vital activity were recorded during field surveys in 2023. A survey conducted among forest officials and livestock breeders revealed a rather sporadic appearance of individuals than permanent residents.

To the moderate nutritional potential of the area, additional easily accessible food must be added, to which the animals have access from the activities for feeding ungulates in neighboring forest farms, hunting groups and state game farms.

Based on the suitable area, which is 8782.56 ha, it can be said that the maximum number of individuals can be 5 simultaneously inhabiting the area, without this being the permanent habitat of each of them. Since the area does not represent a permanent habitat of the species, but rather a biocorridor, this explains the smaller number of individuals that can be permanently registered in its territory. The maximum population value represents the maximum number of individuals that can permanently inhabit the area given the suitable habitats and optimal environmental conditions.

Therefore, the relatively large maximum allowable number proposed in the SDF (max. 5 individuals) is justified by the seasonal migration of individuals from the Rhodopes and Rila Mountains to feeding grounds in spring and summer, as well as by the permanent habitats of the species with which the area borders.

The data established in the field and through surveys give reason to believe that the population of the species in the area is of an unstable nature and its territory is used as a biocorridor between the Natura 2000 sites Rila and Zapadni Rhodope protected areas, and a temporary habitat for the species in the area

- ✓ Parameter "Population" - Goal "Improvement of the condition";
- ✓ Parameter "Species Habitat" - Objective "Maintaining the area and quality of potential habitats in the protected area"; Improving the food base in forests 1 and 2 bonitet").

• **Impact on the site specific conservation objectives set for the species in the protected area;**

The implementation of the IP is not associated with significant impacts on the site specific conservation objectives for the species' habitat in the area.

The impact on the Brown Bear species and its feeding habitats will be indirect and will be insignificant in extent.

**Degree of impact on specific conservation objectives:**

Area code	Target object code	Target object name	Parameter Species habitat			Parameter Population	
			Loss of habitat	Habitat fragmentation	Habitat change	Species disturbance	Mortality of individuals
BG0001386	1354	Ursus arctos	-	-	<b>Degree 1</b>	-	-

During construction, no impacts related to loss of area, fragmentation or change of the species' habitat, disturbance and mortality of individuals are expected - no impact.

During operation, no impacts related to area loss, fragmentation, disturbance and mortality of individuals are expected, but indirect minor changes in the species' feeding habitats may occur - Degree 1.

**Regarding the compliance of the project with the site specific objectives set for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the site specific objectives set for the species in the area, under the parameter "Population" and the parameter "Habitat of the species" (Fig. 21).
- The project can be implemented without significant risk to the long-term viability of the species in the area.

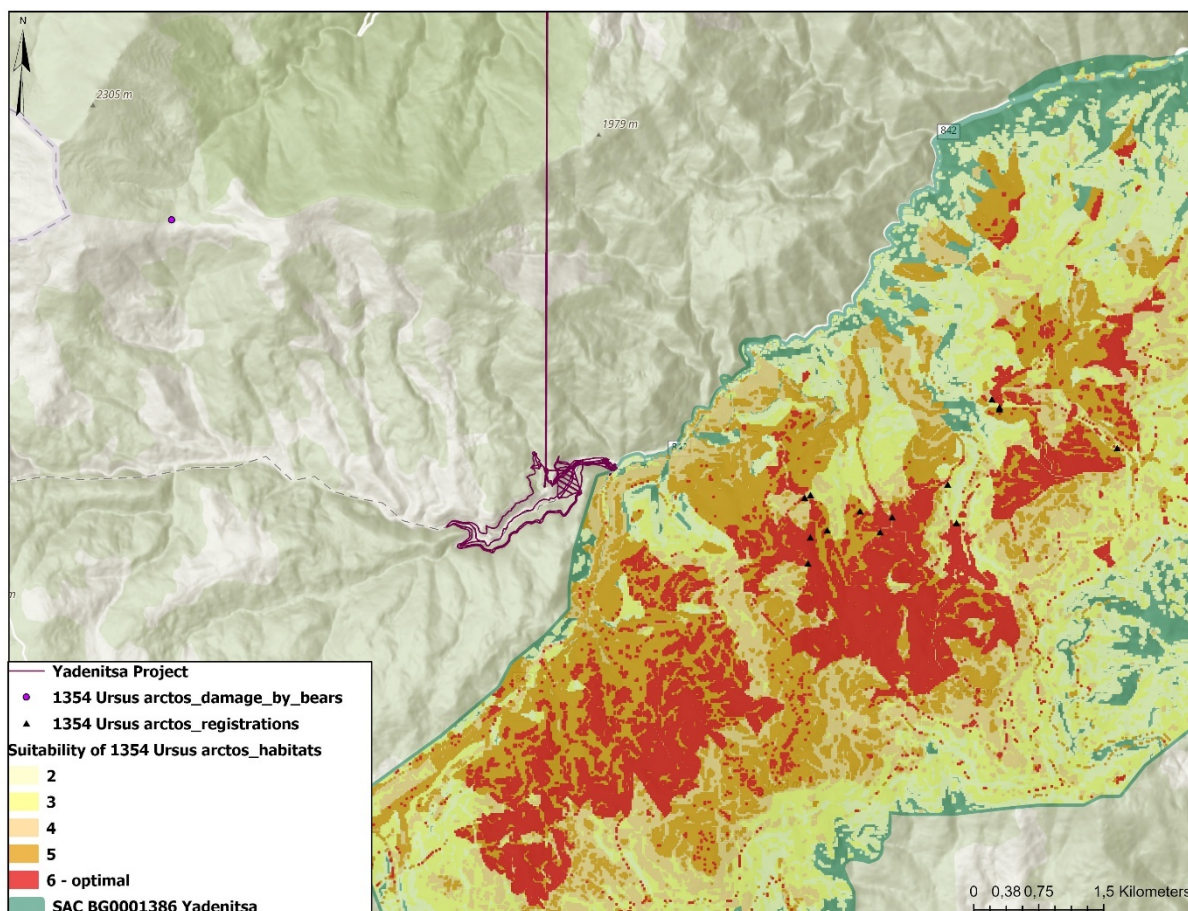


Fig. 21. Location of the project in relation to the distribution of the habitat of the Brown Bear species (*Ursus arctos*) in BG0001386 "Yadenitsa"

Summary information on the expected degree of impact on the SSCOs of natural habitats in SAC BG0001386 "Yadenitsa" is presented in Table 19.

**Table 19. Summary information on the expected degree of impact on the site specific conservation objectives of natural habitats in SAC BG0001386 "Yadenitsa".**

Area code	Target object code	Target object name	Parameter Area		Parameter Structure and function	
			Loss of habitat		Habitat change	
BG0001386	91EO	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	Construction - NP	Operation - NP	Construction - NP	Operation - Degree 1

**Legend: NA** - not applicable

Summary information on the expected degree of impact on the site specific conservation objectives of the species in SAC BG0001386 "Yadenitsa" is presented in Table 20.20.

Table 20. Summary information on the expected degree of impact on the site specific conservation objectives of the species in SAC BG0001386 "Yadenitsa".

Area code	Target object code	Target object name	Parameter Species habitat						Parameter Population			
			Loss of habitat		Habitat fragmentation		Habitat change		Species disturbance		Loss of habitat	
BG0001386	5088	<i>Barbus cyclolepis</i>	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – Degree 2	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP
BG0001386	5197	<i>Sabanejewia balcanica</i>	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – Degree 2	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP
BG0001386	1093	<i>Austropotamobius torrentium</i>	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – Degree 2	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP
BG0001386	1032	<i>Unio crassus</i>	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – Degree 2	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP
BG0001386	1193	<i>Bombina variegata</i>	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – Level 1	Constructio n - NP	Exp. – NP	Constructio n Degree 1	Exp. – NP
BG0001386	1355	<i>Lutra lutra</i>	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – Degree 2	Constructio n - NP	Exp. – Degree 2	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP
BG0001386	1354	<i>Ursus arctos</i>	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – Level 1	Constructio n - NP	Exp. – NP	Constructio n - NP	Exp. – NP

Legend: NA - not applicable

## 5.4. Assessment of the impacts on the BG0000636 “Niska Rila” Protected Area, with a view to achieving the specific conservation objectives for species and natural habitats

### 5.4.1. Site specific conservation objectives of natural habitat 91BA Moesian fir forests

- **Information about the natural habitat, according to the specific objectives report** - the natural habitat is forests dominated by fir (*Abies alba* subsp. *alba*), with at least 4 tenths of the species in the composition of the first tree floor. The fir forests have a limited distribution in the mountains of Bulgaria. Their vertical amplitude is more than 1,500 m (from 450 to 2,000 m altitude), and their optimum development is between 1,000 and 1,700 m altitude. They most often occupy the lower parts of slopes with northern exposure in hollows and deep valleys where soil and air humidity is relatively high. The rock base is more often silicate, rarely alkaline. Deer forests develop most often on deep, moist, rich and very rich, acidic and weakly acidic, well-drained and aerated brown forest soils (Cambisols) and dark-coloured mountain-forest soils (Mollic Cambisols). Mixed forests are more widely spread, and in addition to fir, spruce (*Picea abies*) and beech (*Fagus sylvatica*) are also involved. The ratio of the three species varies at different stages of their syndynamics. In addition to spruce and beech, connectors to the fir significantly less common are white (*Pinus sylvestris*) and black pine (*Pinus nigra* subsp. *pallasiana*), white fir (*Pinus peuce*), sycamore maple (*Acer pseudoplatanus*) and others.

The habitat is included in the Red Book of the Republic of Bulgaria, item 3. Natural habitats 32G3. Fir forests (*Abies alba* subsp. *alba*), which is of the category Endangered [EN] (Dimitrov, Rusakova, 2015)

- **Status of the natural habitat at the biogeographical level** - in Bulgaria the habitat is distributed in the Alpine and Continental biogeographical regions. In the Niska Rila Protected Area, the habitat falls into both biogeographical regions, in the Alpine with an area of 3,289.98 ha, in the Continental region - 176.15 ha. When reporting under Article 17 of the Habitats Directive in 2019, the natural habitat is indicated in a “favourable” state in terms of the parameter “Area” and “Structure and Functions”.

- **Status of the natural habitat in the protected area** -

Code	Coverage in the zone [ha]	Area assessment			
		Representativeness	Relative surface	Degree of conservation	Total score
91BA	3,466.13	A	A	B	B

- **Specific conservation objectives for the protected area** –

- ✓ Parameter "Area" – Objective "Maintenance of the area of habitat in the protected area";
- ✓ Parameter "Structure and functions" – Objective "Maintenance of completeness 0.6-1 and more than 5 tenths for fir (*Abies alba*) on the first tree floor"; "Maintenance of middle age"; "Improvement of the status of the indicator forests in the phase of old age by allocating at least 10% of the total area of the habitat"; "Improvement of the status of the indicator quantity of dead wood"; "Improvement of the status of the indicator presence of large biotope trees".

• **Impact on the defined Site specific conservation objectives of the natural habitat in the protected area;**

For natural habitat 91BA *Moesian fir forests*, the affected area of the habitat is 0.0527 ha (Fig. 22), of the total territory of its potential distribution in the area (3,466.13 ha), which is equal to 0.0015% of the territory of the natural habitat in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Area	Parameter Structure and function
			Loss of habitat	Change of habitat
BG0000636	91BA	<i>Moesian fir forests</i>	<b>Degree 2</b>	-

The elements of the project that are expected to have an impact on the habitat are the pumping facilities, the correction of the river and the dam wall.

Direct impacts related to the loss of area of the natural habitat are expected during the construction – Degree 2.

No direct impacts related to loss of area and changes in the structure or functions of the habitat are expected during the operation – no impacts.

**Regarding the compliance of the project with the site specific conservation objectives for the natural habitat in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the natural habitat in the area, according to the parameter "Area" and the parameter "Structure and Functions";
- Given the insignificant area of the natural habitat affected, the project can be implemented without a significant risk in terms of the long-term viability of the natural habitat in the area.

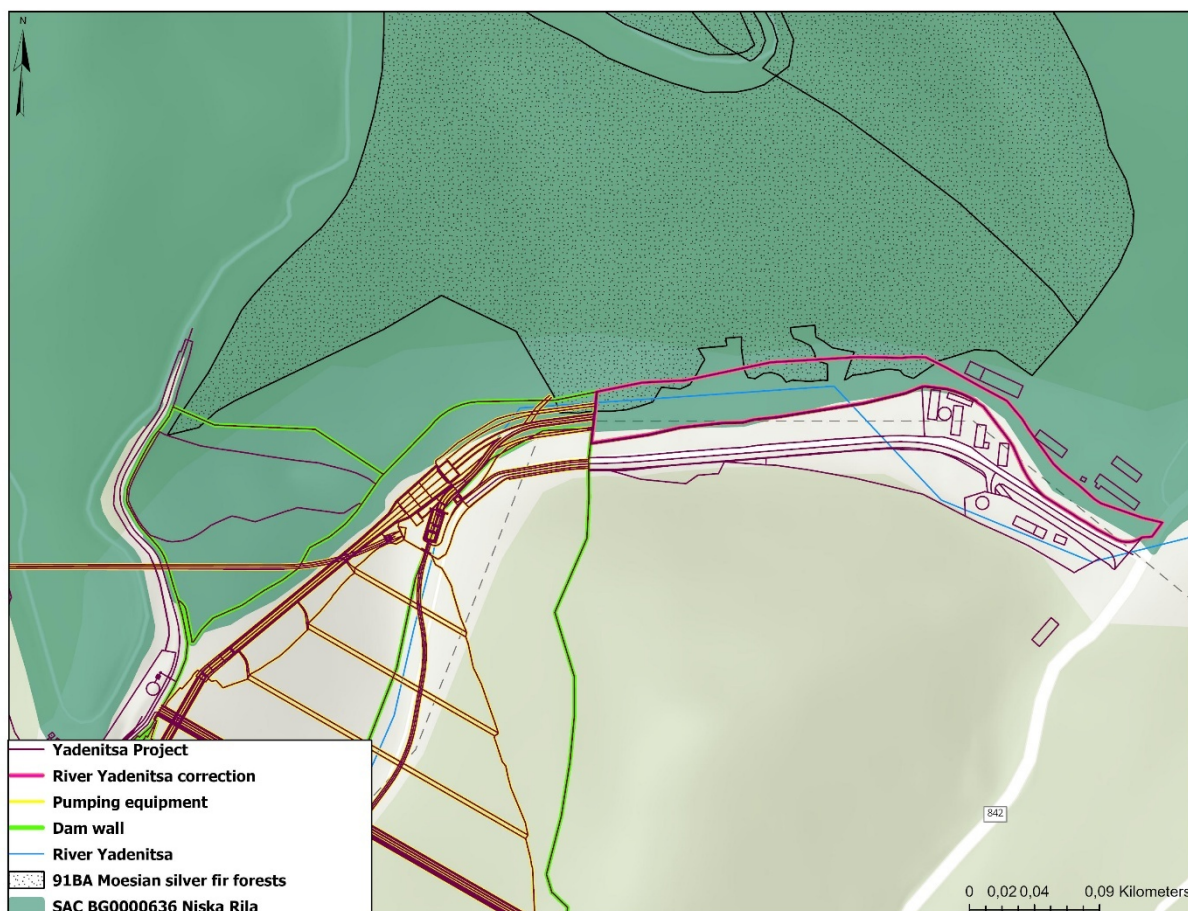


Fig. 22. Location of the project in relation to the distribution of habitat 91BA in BG0000636 "Niska Rila"

#### 5.4.2. Site specific conservation objectives of natural habitat 91E0 \*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, *Alnus incanae*, *Salicion albae*)

- **Information about the natural habitat, according to the specific objectives report** – the white alder (*Alnus incana*) is cold-resistant and unpretentious in terms of soil richness and light, allowing it to develop successfully in harsher climatic conditions. Mountain galleries with a predominance of white (gray) alder (*Alnus incana*) are formed on alluvial soils (Fluvisols) along the rivers in the middle mountain fir beech belt, at higher altitudes compared to similar forests of black alder and mountain ash. The wood floor has a projective coating of about 60 to 80%.

Within the zone, there are forests dominated by black alder - subtype Riverside forests of alder (*Alnus* spp.) and mountain ash (*Fraxinus excelsior*), and forests dominated by white alder – subtype Mountain galleries of white alder (*Alnus incana*). The white alder is distributed mainly in the northern part of the zone, along the valleys of the rivers Cherni and Beli Iskar, and the black alder is mainly along the rivers, tributaries of the Struma.

The habitat is a priority for conservation, according to the Habitats Directive.

The habitat 91E0\* is included in two publications from the Red Book of the Republic of Bulgaria, item 3. Natural habitats. "3G1 Mountain galleries of white alder (*Alnus incana*)" and "4G1 Riverside forests of alder (*Alnus* spp.) and mountain ash (*Fraxinus excelsior*)", both of which are Vulnerable [VU] category (Dimitrov, Tashev, 2015a, b).

- **Status of the natural habitat at the biogeographical level** – In the Niska Rila Protected Area, the habitat falls into the Alpine and Continental biogeographical regions, respectively with areas of 36.25 ha and 5.36 ha. When reporting under Article 17 of the Habitats Directive in 2019, the natural habitat is indicated in a "favourable" state in terms of the parameter "Area" and "Structure and Functions".

- **Status of the natural habitat in the protected area** –

Code	Coverage in the zone [ha]	Area assessment			
		Representativeness	Relative surface	Degree of conservation	Total score
91E0*	41.61	C	C	B	C

- **Specific conservation objectives for the protected area** –

- ✓ Parameter "Area" – Objective "Maintenance of the area of habitat in the protected area";
- ✓ Parameter "Structure and functions" – Objective "Maintenance of completeness 0.6-1 and more than 3 tenths for alder species and single participation for the accompanying willow and ash tree species on the first tree floor"; "Improvement of the middle age"; "Improvement of the status of the indicator forests in the old age phase by allocating at least 10% of the total area of the habitat"; "Improvement of the status of the indicator amount of dead wood"; "Improvement of the status of the indicator presence of large biotope trees".

- **Impact on the defined Site specific conservation objectives of the natural habitat in the protected area;**

For natural habitat 91E0 *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* the affected area of the habitat is 0.0686 ha (Fig. 023), of the total territory of its potential distribution in the area (41.61 ha), which is equal to 0.1649% of the territory of the natural habitat in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Area	Parameter Structure and function
			Loss of Habitat	Change of habitat
BG0000636	91E0	<i>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</i>	<b>Degree 2</b>	<b>Degree 1</b>

The elements of the project that are expected to have an impact on the habitat are the pumping facilities and the correction of the river.

Direct impacts related to the loss of area of the natural habitat are expected during the construction – Degree 2.

During the operation, impacts related to changes in the structure or functions of the habitat are expected to decrease the current outflow of the river – Degree 1.

**Regarding the compliance of the project with the site specific conservation objectives for the natural habitat in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the natural habitat in the area, according to the parameter "Area" and the parameter "Structure and Functions";
- Given the insignificant area of the natural habitat affected, the project can be implemented without a significant risk in terms of the long-term viability of the natural habitat in the area.

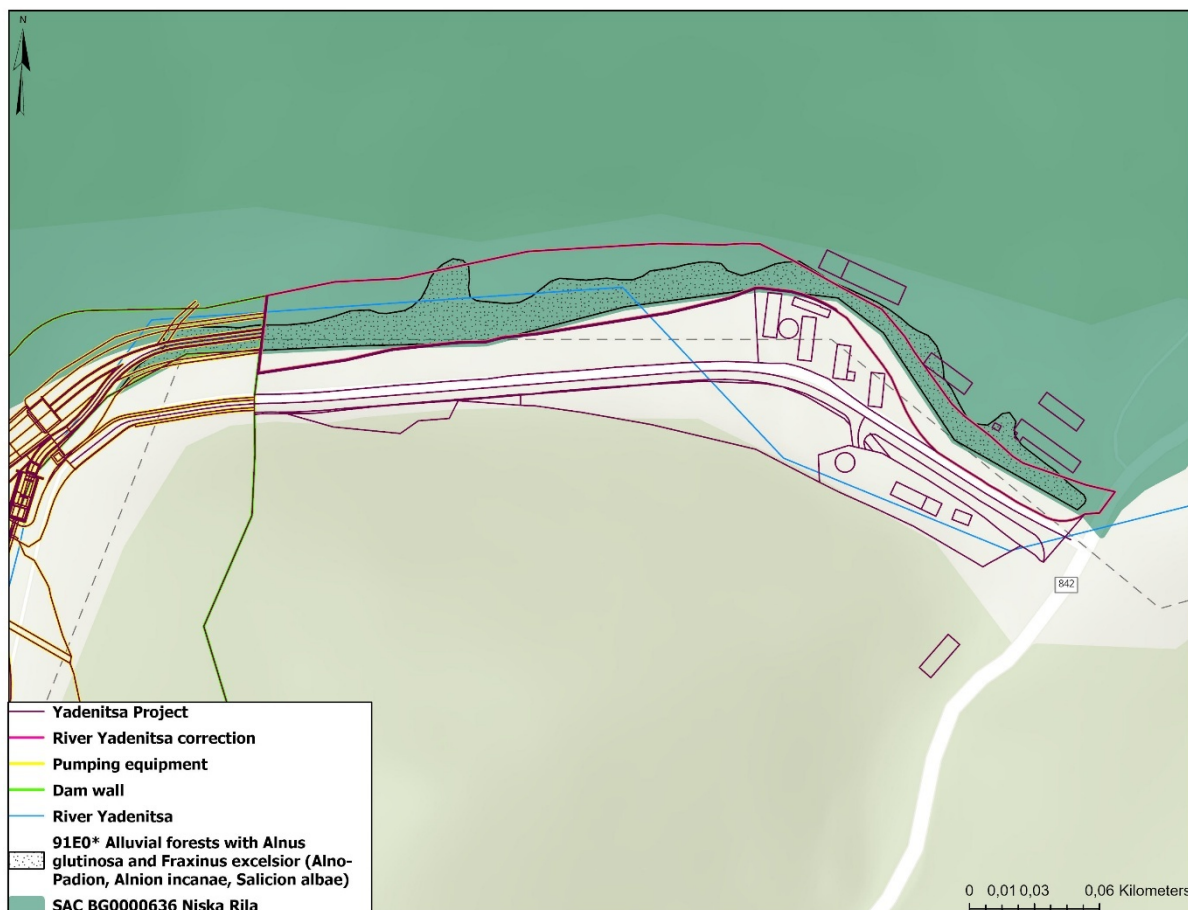


Fig. 23. Location of the project in relation to the distribution of habitat 91E0 in BG0000636 "Niska Rila"

### 5.4.3. Site specific conservation objectives for 1086 *Cucujus cinnaberinus*

- **Species information according to the specific objectives report** - Rare species. It inhabits preserved deciduous forests, less often coniferous. Microhabitat – adults and larvae live together in damp, rotting bark of standing and lying trees, most notably *Quercus*, *Fagus*, *Populus tremula*, *Populus niger*, *Acer*, *Salix*, *Ulmus*, but also *Abies* and *Picea* (Bekchiev & al. 2018, 2020, Guéorguiev&al, 2008)

*Cucujus cinnaberinus* is included in Annexes II and IV of Directive 92/43/EEC due to its fragmented and declining populations, especially in Central Europe. The species is not included in the Red Book of Bulgaria (Golemanski et al. (eds.), 2015).

The presence of dead wood is fundamental to the species' habitat.

- **Status of the species at the biogeographical level** - In the Niska Rila Protected Area, the potential habitats of the species fall within the Alpine Biogeographical Region – 5,538.16 ha and the Continental – 2,647.83 ha, or a total of 8,185.99 ha. According to the reporting under Art. 17 of the Habitats Directive in 2019, the status of the species is "favourable" in all parameters for both regions.

- **Status of the species in the protected area –**

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
I	1086	<i>Cucujus cinnaberinus</i>	B	A	C	A

- **Specific conservation objectives for the protected area –**

- ✓ Parameter "Population" – Objective "Maintenance of the spatial range of the population of the species in the area of at least 1 square 1x1 km";
- ✓ Parameter "Habitat of the species" – Objective "Maintenance of the area of potential habitats of the species in the area".

- **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 1086 *Cucujus cinnaberinus*, the affected area of its habitat is 0.0076 ha (Fig. 24), of the total territory of its potential distribution in the area (8,185.99 ha), which is equal to 0.0001% of the territory of the habitat of the species in the area.

#### Degree of impact on specific conservation objectives:

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	1086	<i>Cucujus cinnaberinus</i>	<b>Degree 1</b>	-	-	-	-

The elements of the project that are expected to have an impact on the habitat of the species - the correction of the river.

Direct impacts related to the loss of area of the habitat of the species are expected during the construction – Degree 1. Regarding fragmentation or change of habitat of the species, disturbance and mortality of individuals – no impact.

No impacts related to loss of area, fragmentation and habitat change of the species, disturbance and mortality of individuals are expected during operation – no impact.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

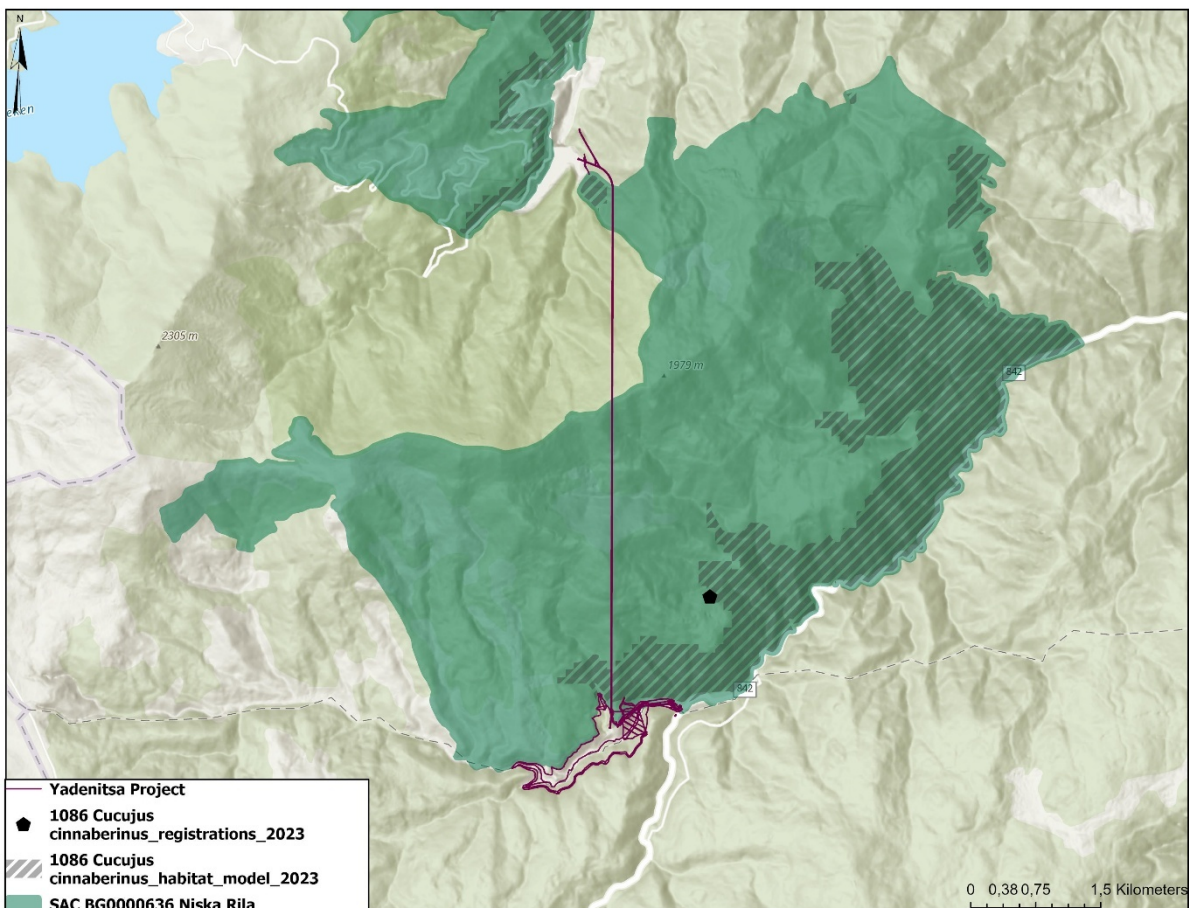


Fig. 24. Location of the project in relation to the distribution of habitat of the species *Cucujus cinnaberinus* in BG0000636 "Niska Rila"

#### 5.4.4. Site specific conservation objectives for 6908 Beech cerambycid beetle (*Morimus asper*)

- **Species information according to the specific objectives report** – the species inhabits predominantly dense or well-structured sparse forests with an average or high amount of dead wood, as in the latter case it can be found in high numbers. While in Central Europe the species prefers oak and beech forests in the lowlands, in Southern Europe its distribution is shifted to the beech belt (Hardersen et al. 2017). This also applies to Bulgaria, where the species is registered mainly in the beech belt in the mountains and is less common in oak forests or lowland moist (riverside) forests. It has also been found that due to its fragmented distribution and the fact that it cannot fly, it is lacking in some suitable habitats (Hardersen et al. 2017a,b).

Adult individuals are attracted to injured, recently fallen or cut branches and trees that still have bark. The larva lives in dead logs and stumps. The females lay in such wood, preferring a stem diameter of more than 13 cm. The species is polyphagous and slightly picky about the food plant and can feed on *Abies*, *Acer*, *Alnus*, *Carpinus*, *Castanea*, *Fagus*, *Fraxinus*, *Platanus*, *Juglans*, *Picea*, *Pinus*, *Populus*, *Prunus*, *Quercus*, *Robinia*, *Salix*, *Ulmus*, *Tilia*, but *Fraxinus ornus* and *Picea abies* are not attractive to the species, as it is most attracted to wood of beech, oak and common hornbeam (Hardersen et al. 2017a,b, Leonarduzzi et al. 2017). Adult individuals are relatively poorly mobile, moving below 200 m during their lifetime.

The species is widespread throughout the country from the lowlands to 1,800 m above sea level. It inhabits a variety of deciduous and mixed forests, and in Bulgaria the species is registered mainly in beech and hornbeam forests, less often in oak, mixed or lowland riverside forests. It is active all day, but mainly in the evening and at night, and occurs from April to August. The presence of dead wood is fundamental to the species' habitat (Kostova&al., 2023).

*Morimus asper* is included in Annexes II and IV of Directive 92/43/EEC. The species is not included in the Red Book of Bulgaria (2015).

- **Status of the species at the biogeographical level** - In the Niska Rila Protected Area, the potential habitats of the species are 14,114.27 ha (Alpine - 11,906.69 ha; Continental - 2,207.58 ha). In reporting under Article 17 of the Habitats Directive, in 2019, the status of all parameters was assessed as "favourable".

- **Status of the species in the protected area** -

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
I	6908	<i>Morimus asper funereus</i>	B	A	C	A

• **Specific conservation objectives for the protected area** – the species is not found in the area – there is a lack of literary data, collection data, project data. The first real data were obtained as a result of a survey of the area in 2023 to determine the specific conservation objectives – six findings.

- ✓ "Population" parameter – Objective "Maintenance of the population in at least 6 squares 1x1 km in the area";
- ✓ Species habitat parameter – Objective "Maintenance of the area of potential habitats of the species in the area"; "Maintenance of at least 2 dead trees per hectare, more than 13 cm thick in potential habitats of the species".

• **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 6908 *Morimus asper*, the affected area of its habitat is 1.8952 ha (Fig. 25), of the total territory of its potential distribution in the area (14,114.27 ha), which is equal to 0.0134% of the territory of the habitat of the species in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	6908	<i>Morimus asper funereus</i>	<b>Degree 1</b>	-	-	-	-

The elements of the project that are expected to have an impact on the habitat of the species - the pumping facilities, the correction of the river and the dam wall.

Direct impacts related to the loss of area of the habitat of the species are expected during the construction – Degree 1. Regarding fragmentation or change of habitat of the species, disturbance and mortality of individuals – no impact.

No impacts related to loss of area, fragmentation and habitat change of the species, disturbance and mortality of individuals are expected during operation – no impact.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

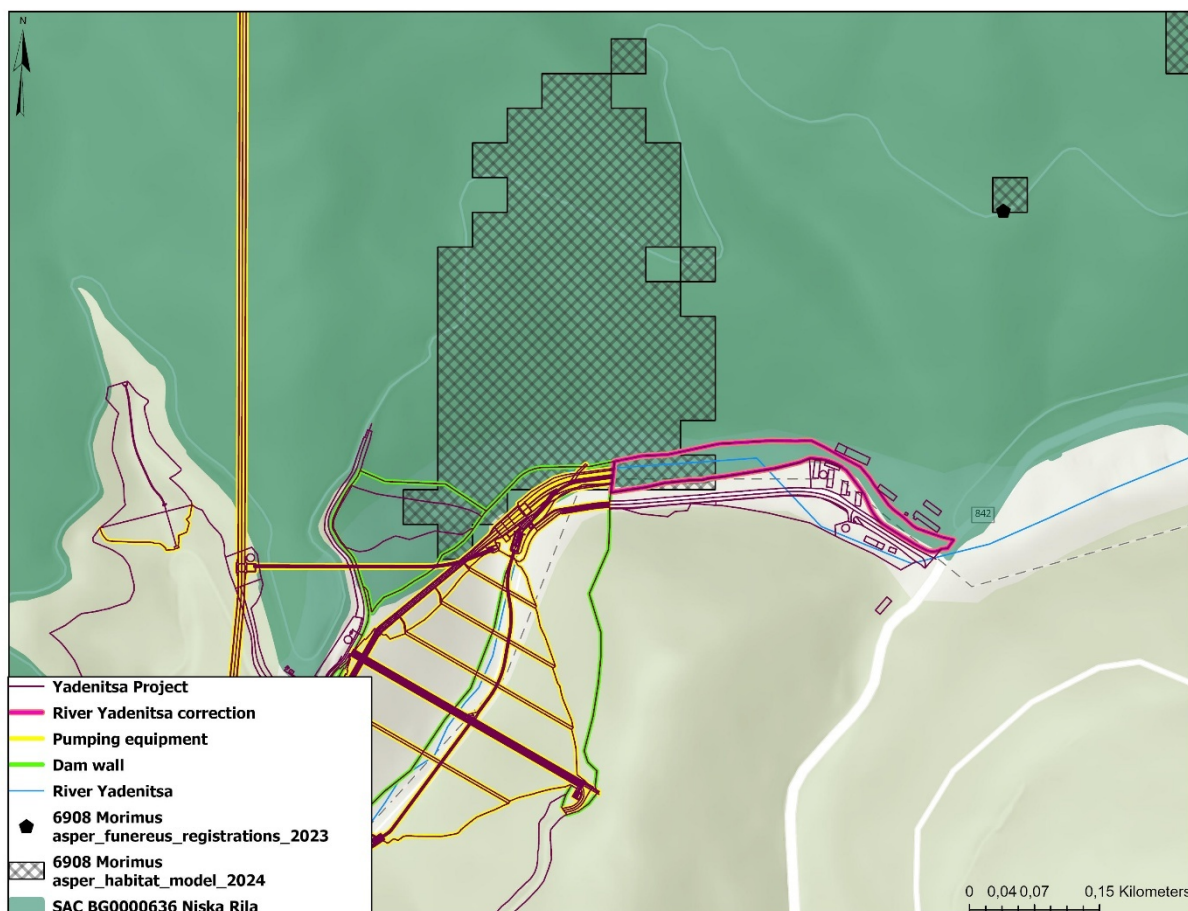


Fig. 25. Location of the project in relation to the distribution of habitat of the species Beech cerambycid beetle (*Morimus asper*) in BG0000636 "Niska Rila"

#### 5.4.5. Site specific conservation objectives for 1093 \*Stone crayfish (*Austropotamobius torrentium*)

- **Species information, according to the Specific Purpose Report** - Stone crayfish (also known as European crayfish) is the smallest larger indigenous type of straight crab found in Bulgaria. It reaches a maximum length of up to 12 cm, but most often it is from 6 to 10 cm. The reproduction takes place in September – June. Copulation takes place in the autumn (September – November). After fertilization, the females lay on average 50-100 relatively large eggs, which they carry attached to the abdominal legs (very rarely in large specimens the number of eggs can reach 150-180). The incubation period of eggs is 4-5 months. The young (juvenile) crayfish hatch in the spring (April – June). Stone crayfish has no pronounced nutritional specialization, with plant food predominating in younger individuals (particles of micro- and macrophytic aquatic vegetation, filamentous green algae and plant detritus), while in older individuals the food is mixed and animal food is used alongside plant food (small insects and their larvae, small snails and mussels, dead animal tissues).

Stone crayfish is a relatively widespread species in the upper and middle reaches of rivers and small mountain streams, preferring sections with rocky bottoms and convenient places for shelters along the coasts (rhizomes of coastal tree vegetation) and avoiding sections with muddy or sandy substrate (Machino & Füreder 2005).

The fine sedimentary deposits lead to the filling of the spaces between the stones and the disappearance of the stone crayfish populations. It is most commonly found in shaded rivers with banks covered with alder (*Alnus glutinosa*), beech (*Fagus sylvatica*), oak (*Quercus* spp.) or plane (*Platanus orientalis*), and rarely - in rivers with banks covered only with shrubs.

The species is almost completely absent in the open areas of rivers and in areas with coniferous vegetation (Todorov et al. 2014). The species is markedly oxybiontic and oligosaprobic (Moog 1995) and does not tolerate low oxygen content, pollution and very high water temperatures. Such conditions are offered by many of the mountain streams and upper streams of the larger rivers, but it should be noted that the stone crayfish avoid the steep slopes and stretches of rivers with great inclination and very fast water flow.

The steep slopes and high velocity of the current are factors that lead to a decrease in the food resources for the species, as they prevent the accumulation of organic substrate at the bottom of these water bodies, which is also the reason for the smaller richness and diversity of the zoobenthos (Richardson 1992, Maiolini & Lencioni 2001). Furthermore, the high velocity of currents impedes the natural migration of the species upstream (Maude & Williams 1983) and is often the cause of erosions and floods, which represent negative factors for the stability of the species' populations (Parvulescu & Zaharia 2012).

The preferred type of water temperature is in the range of 14 °C to 18 °C, and the lowest summer temperature should not fall below 11-14 °C. The maximum temperature at which stone crayfish populations have been detected ranges from 21 to 26 °C (Bohl 1987, Kozak et al. 2000). When the water temperature exceeds 18 °C or alternatively, when the dissolved oxygen concentration in water falls below 7-8 mg.l<sup>-1</sup>, the stone crayfish show increased and unusual activity towards searching for areas of water with a higher concentration of oxygen (Svobodová et al. 2008).

In terms of physical and chemical parameters of water, the preferred values by stone crayfish are: pH 5.0-8.6; electrical conductivity 80-700 µS.cm<sup>-1</sup>; calcium 7-70 mg.l<sup>-1</sup>; magnesium 2.6-21.0 mg.l<sup>-1</sup>; iron to 1.2 mg.l<sup>-1</sup>; chlorides to 16.7 mg.l<sup>-1</sup>; nitrite nitrogen to 0.16 mg.l<sup>-1</sup>; nitrate nitrogen to 44 mg.l<sup>-1</sup> (Bohl 1987); oxygen content 7.6-10.0 mg.l<sup>-1</sup> (Kozak et al. 2000).

Data on the distribution of the species according to altitude varies widely. In Bulgaria, stone crayfish has also been found in a wide range from 180 to 1,600-1,700 m above sea level, prevailing in the area between 400 and 700 m: from 200 to 1,700 m (Bulgurkov 1961); from 100-200 to 1,600 m (Sabchev, Stanimirova 1998); from 180 to 1,342 m (Todorov et al. 2014).

• **Status of the species at the biogeographical level** - In the Natura 2000 network, the habitat of stone crayfish (*Austropotamobius torrentium*) is distributed in two biogeographical regions – Continental and Alpine.

For the territory of the Protected Area BG0000636 "Niska Rila", the habitat of the species falls entirely within the Alpine biogeographical region.

According to the reporting under Art. 17 of the Habitats Directive in 2019 (for the period 2013-2018), the status of the species in the Alpine and Continental biogeographical regions is "favourable" in all parameters.

• **Status of the species in the protected area -**

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
I	1093	Austropotamobius torrentium	C	B	C	B

• **Specific conservation objectives for the protected area** – The analysis of the literature data shows that stone crayfish has been reported very rarely for the territory of the Rila Mountains. Bulgurkov (1961) reports two deposits of the species – streams west of Samokov and the Bistritsa River near the town of Stanke Dimitrov (Dupnitsa). Sabchev and Stanimirova (1998) also reported two deposits – Yadenitsa River at Golyamo Belovo and Blagoevgradska Bistritsa River near the village of Bistritsa. It should be noted that all these deposits are located around the lower border of the mountain and only the deposit in the Blagoevgradska Bistritsa River near the village of Bistritsa is on the border of PA "Niska Rila".

In the conducted research within the project "*Mapping and Determination of the Conservation Status of Natural Habitats and Species – Phase I*", in September 2012, stone crayfish was found with 35 individuals. In two rivers below the lower limit of PA "Niska Rila" (currently within the borders or border of PA "Niska Rila") – Cherni Iskar River under the village of Mala Tsurkva (11 individuals) and The Blagoevgradska Bistritsa River above the village of Bistritsa (24 individuals).

In the period 2014-2015, under the project "*Field studies on the distribution and number of invertebrates*", 5 rivers were studied on the territory of the Rila Mountains (the Dzherman River, the Rilska River, the Blagoevgradska Bistritsa River, the Gradevska River and the Osenovetska River). The presence of stone crayfish in the river has been confirmed in the Blagoevgradska Bistritsa River near the village of Bistritsa.

In 2015, a total of 12 rivers in 25 transects of 100 m were explored from the territory of the Rila Mountains under the project "*Updating the Management Plan of Rila National Park and developing a Management Plan for the Rila Monastery Forest Reserve*". Stone crayfish was not found within the boundaries of the Rila National Park, but only in the lower sections of the mountain below 1,400 meters above sea level. (the Cherni Iskar River near the village of Madzhare, the Blagoevgradska Bistritsa River near the village of Bistritsa and the Dzhubrena River near the village of Klisura, the first of which falls within the boundaries of PA "Niska Rila", and the other two rivers are borderline for the area).

In August 2020, under the project "Validation of the typology and classification system in Bulgaria for assessment of the ecological status of surface water bodies of the categories "river", "lake" and "transitional waters", 3 rivers on the territory of the Rila Mountains (the Blagoevgradska Bistritsa River, the Slavova River and the Otovitsa River). Stone crayfish was registered within the boundaries of PA "Niska Rila" in the Slavova River, as well as in the border area of the Blagoevgradska Bistritsa River.

In 2023, a field survey and mapping of PA "Niska Rila" was conducted, and the area was explored in 100 m transects in 30 sections of 23 rivers. The presence of stone crayfish was recorded with the detection of 24 living individuals in 8 of the studied transects in five of the rivers: the Lakatitsa River – a total of 11 individuals in all three studied transects (the mouth at the village of Govedarts, Askovi Egrets locality and Barzanovi Koshari locality); The Cherni Iskar River – a total of 4 living and five dead individuals in 2 transects (at the junction to the village of Beli Iskar and at the village of Madzhare); the Tochillarska River – 6 individuals in 1 transect (the Klisurski Koshari locality); the Slavova River – 1 individual in 1 transect (above the water catchment) and the the Yadenitsa River – 2 individuals in 1 transect (before the confluence of the Yundolska River).

Most of the rivers studied have a torrential character, rapid flow and cold water (even in summer the water temperature does not exceed 15-16° C), which is why they do not offer very suitable conditions for the development of the species. The relatively low prevalence of stone crayfish in PA "Niska Rila" can be due to the presence of various hydrotechnical facilities built in the area itself or at a lower altitude, adjacent to the lower boundary of PA "Niska Rila", which can cause fragmentation of the species' habitats.

The best way to avoid habitat fragmentation in such cases is if the area allows, to build bypasses that bypass the impounded sections of the rivers. Thus, by diverting small amounts of water, a natural outflow of the river along a riverbed is provided with available shelters for crayfish and other representatives of aquatic invertebrates.

Data from current research shows that stone crayfish occurs in the area, but there are relatively small numbers of populations. The average abundance of the species in the studied 30 transects of the protected area is 0.8 individuals in 100 m linear transect (0.008 ind./m<sup>2</sup>; 80 ind./ha). The average abundance of the stone crayfish population in PA "Niska Rila" registered in these studies, is comparable to the lower range for the average abundance of the population of the species throughout the country, which ranges from 0.002 to 0.34 ind./m<sup>2</sup> (20 to 3,400 ind./ha). The most stable population is distinguished in the Lakatitsa River, in which nearly half of the individuals registered in the ongoing studies are found. Most likely, it is where the displacement of the species in the Cherni Iskar River happens, because it is established in this river only immediately below the mouth of the Lakatitsa River, and in the upper sections of the Cherni Iskar River and in all other studied rivers from this region, the stone crayfish has not been found.

There is also a relatively stable population in the Yadenitsa River, but it should be noted that only a small section of the river valley falls within the boundaries of PA "Niska Rila".

- ✓ "Population" parameter – Objective "Maintenance of at least 8 deposits in the protected area";

- ✓ Parameter "Species habitat" – Objective "Maintenance of the length of the river network with inhabited river sections of the species of at least 21 km; "Improvement of the relative population density of the species in the area to reach a density of at least 10 individuals (total young and adult) in a 100 m linear transect";" Maintenance of the length of the river network, with potential habitats for the species of at least 146 km "; "Maintenance of the area of potential habitats – at least 87 ha";" Maintenance of the condition of suitable habitats in the inhabited river sections so that at least 50% of the length of their coastline is occupied by characteristic vegetation"; "Improvement of the condition of the structure and functions of the habitat";" Maintenance of the target value of good ecological status of water in the larger rivers of PA "Niska Rila" (including the Yadenitsa River), according to the River Basin Management Plan";

• **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 1093 *Austropotamobius torrentium*, the affected area of its habitat is 0.0070 ha (Fig. 26), of the total territory of its potential distribution in the area (87.66 ha), which is equal to 0.0079% of the territory of the habitat of the species in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	1093	<i>Austropotamobius torrentium</i>	<b>Degree 2</b>	-	<b>Degree 2</b>	-	-

The elements of the project that are expected to have an impact on the habitat of the species - the correction of the river.

Direct impacts related to the loss of area of the habitat of the species are expected during the construction – Degree 2. Regarding fragmentation or change of habitat of the species, disturbance and mortality of individuals – no impact.

No effects related to loss of area, fragmentation, disturbance and mortality of individuals are expected during operation – no impact. Changes in the habitat of the species may occur when reducing the current outflow of the river – Degree 2.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

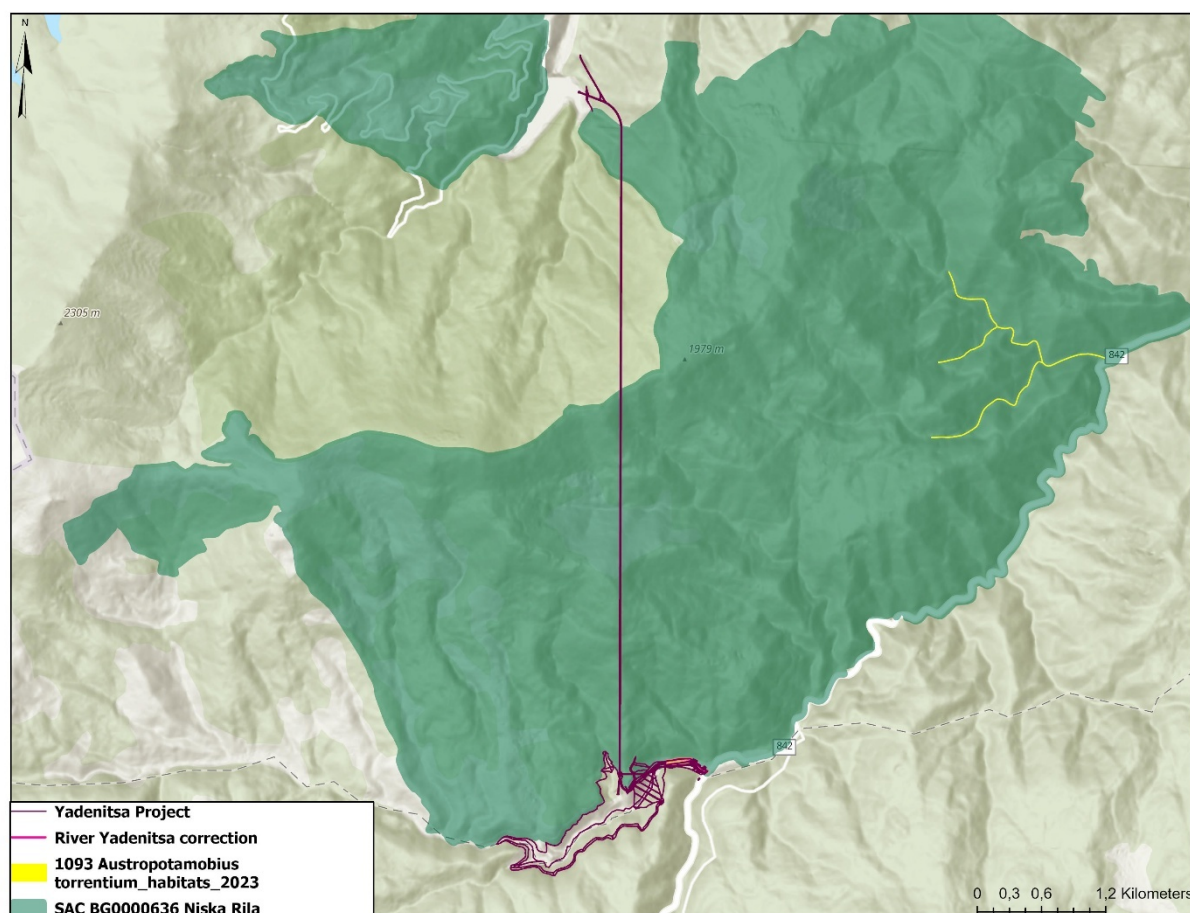


Fig. 26. Location of the project in relation to the distribution of habitat of the species \*Stone crayfish (*Austropotamobius torrentium*) in BG0000636 "Niska Rila"

#### 5.4.6. Site specific conservation objectives for 4042 *Polyommatus eroides* (*Polyommatus eroides*)

- **Species information, according to the specific objectives report** - a relatively small (32-35 mm in span) day butterfly of the Lycaenidae family. Depending on the latitude, it is found from the plains (mesophytic meadows, steppes and forest steppes) up to 2,000 m above sea level in the mountains of Southeastern Europe. Its larvae feed on legumes of the genera *Chamaecytisus*, *Oxytropis*, *Astragalus*, as well as *Genista depressa*, and facultative myrmecophilia is possible (Klimczuk 2005), which largely determines the spread of the imago.

*Polyommatus eroides* is included in Annexes II and IV of Directive 92/43/EEC, due to the severe reduction of its range in Europe by 50-80% between 1970 and 1995 and its fragmented distribution with small populations, which is why it is also considered critically endangered in Europe (van Swaay & Warren 1999). It was later treated within the species *Polyommatus eros* (Ochsenheimer, 1808), which was considered Near Threatened (van Swaay et al. 2010). However, due to insufficient genetic data, the status of the two taxa is still unclear (Wiemers & Fiedler 2007). The species is not included in the Red Book of Bulgaria (Golemanski et al. (eds.), 2015).

In Bulgaria, it is found in the high mountains, and is more common in Western and Southwestern Bulgaria, usually between 600 and 2,400 m above sea level, with a greater population density between 1,200 and 2,200 m above sea level. It inhabits mesophytic meadows in the forest and above the forest belt, on the outskirts of forests and river valleys (ecotone), most often on calcareous terrain, overgrown with natural rich herbaceous and herbaceous-shrub vegetation, with the participation of legumes of the genera *Chamaecytisus*, *Oxytropis*, *Astragalus*, *Genista*. The area of shrubs and trees should be up to 10% of the area of the species' habitat.

- **Status of the species at the biogeographical level** - In the protected area, potential habitats of the species fall into the Alpine (2,819.90 ha) and Continental biogeographical regions (34.79 ha). According to the reporting under Art. 17 of the Habitats Directive in 2019 for the Continental Region, the species was reported in an "unknown" state, and in the Alpine Region, the assessment of all parameters was "favourable".

- **Status of the species in the protected area -**

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
I	4042	<i>Polvommatius eroides</i>	D			

- **Specific conservation objectives for the protected area** – No individuals of the species have been registered in the area so far. No scientific data are known and published. There are registrations in the neighbouring area, "Rila", which, combined with the presence of potential habitats, is a reason for its conservation in "Niska Rila". No individuals were registered in the field studies in 2023. The species may have different phenology during the year of fieldwork due to the unusual climatic conditions. Potential habitats of the species in the area were studied and no negative trend was found that would affect their quality and area. The conservation objectives for the species are aimed at protecting the quality and area of its potential habitats. It is currently proposed that the species be recorded in the Standard Form of the "D"-rated area for a population (insignificant population) until reliable data is obtained on its presence on the territory of PA "Niska Rila".

As the inclusion of the species in the SDF of the D-rated area for a population is proposed and there is a need for further studies, an intermediate target is proposed for the first parameter.

- ✓ "Population" parameter – Interim target: establishing the presence of the species in squares with potential habitats by 2031;
- ✓ Parameter "Habitat of the species" – Objective "Maintenance of the area of potential habitats of the species in the area".

• **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 4042 *Polyommatus eroides*, the affected area of its habitat is 0.1785 ha (Fig. 27), of the total territory of its potential distribution in the area (2854.69 ha), which is equal to 0.0063% of the territory of the habitat of the species in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	4042	<i>Polyommatus eroides</i>	<b>Degree 1</b>	-	-	-	-

The elements of the project that are expected to have an impact on the habitat of the species - the correction of the river.

Direct impacts related to the loss of area of the habitat of the species are expected during the construction – Degree 1. Regarding fragmentation or change of habitat of the species, disturbance and mortality of individuals – no impact.

No impacts related to loss of area, fragmentation and habitat change of the species, disturbance and mortality of individuals are expected during operation – no impact.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

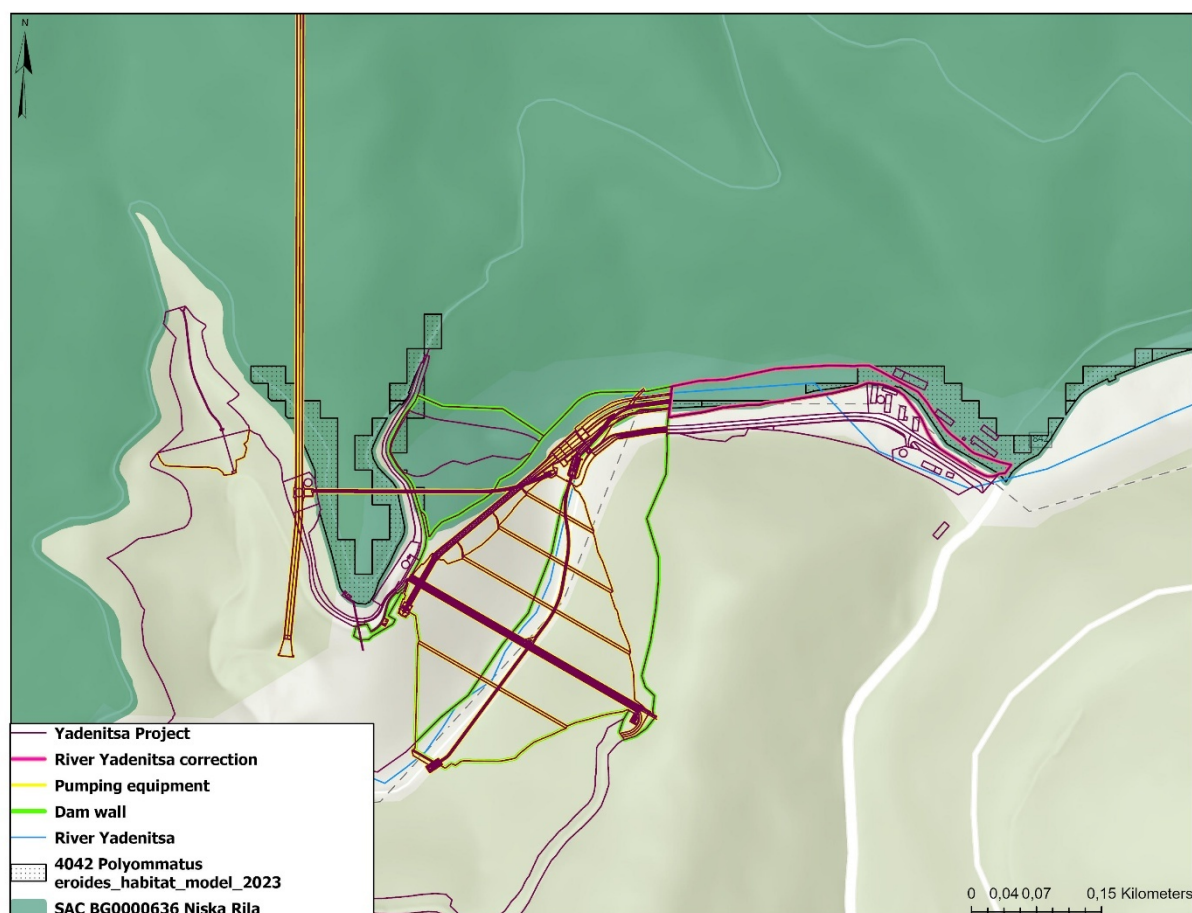


Fig. 27. Location of the project in relation to the distribution of habitat of the species *Poliomatus (Polyommatus eroides)* in BG0000636 "Niska Rila"

#### 5.4.7. Site specific conservation objectives of 4046 *Cordulegaster heros*

- **Species information, according to the specific objectives report** - the species inhabits the valleys of streams and small rivers. Its larva is reophilic and occurs on the rocky bottom of flowing ponds with width usually from 0.5 to 3 m, depth from 0.1 to 0.5 m and fluctuation of the water level to over 1 m. The reservoirs it inhabits are characterized by fast to slow currents, overgrown shores and with a bottom from sand to coarser sediment in forest habitats (Blaškoičet al, 2003; Raab et al, 2006). The adult form prefers shady places, often found in forests, but also flies in open fields and meadows near the pond where the larva develops. The species has a fragmented distribution in the country, inhabiting the valleys of small rivers and streams with a rocky bottom and overgrown with tree vegetation shores in the mountains or their foothills (Beshovski, 1993).

*Cordulegaster heros* was included in Annex 2 of the Habitats Directive due to the severe decline of its populations in Europe in the twentieth century. The species is not included in the Red Book of Bulgaria (2015).

- **Status of the species at the biogeographical level** - In PA "Niska Rila", the potential habitats of the species fall into the Alpine (460.73 ha) and Continental (41.37 ha) biogeographical regions. According to the reporting under Art. 17 of the Habitats Directive, the status of the species in the Alpine and Continental biogeographical regions is "favourable" in all parameters.

- **Status of the species in the protected area** -

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
I	4046	<i>Corduleaaster heros</i>	D			

- **Specific conservation objectives for the protected area** – the species is not registered in the area with specific habitats, despite the sufficiently large number of suitable habitats for it. In the field studies conducted in 2024, about 40% of the species' potential habitats related to the presence of rivers and streams in the area were visited. Registration is available near the protected area. Due to the availability of suitable habitats, there is a high probability that the species will be registered in subsequent targeted studies in PA "Niska Rila", conducted in successive years to cover periods of different weather conditions. The extremely high temperatures in 2024 may have had an impact on the life cycle of the species. It is proposed to record the species in the Standard Form of the protected area with a "D" rating for a population (insignificant population) until the collection of data on proven presence.

As the inclusion of the species in the SDF of the D-rated area for a population is proposed and there is a need for further studies, an intermediate target is proposed for the first parameter.

- ✓ "Population" parameter – Interim target: Conducting studies for registrations of the species – by 2031; Establishing the target and current relative density of the population of the species in the protected area – by 2031.
- ✓ Parameter "Habitat of the species" – Objective "Maintenance of the condition of the appropriate habitat of the species in the protected area".

- **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 4046 *Cordulegaster heros*, the affected area of its habitat is 0.6422 ha (Fig. 28), of the total territory of its potential distribution in the area (502.1 ha), which is equal to 0.1279% of the territory of the habitat of the species in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	4046	<i>Cordulegaster heros</i>	<b>Degree 1</b>	-	<b>Degree 1</b>	-	-

The elements of the project that are expected to have an impact on the habitat of the species - the pumping facilities, the correction of the river and the dam wall.

Direct impacts related to the loss of area of the habitat of the species are expected during the construction – Degree 1. Regarding fragmentation or change of habitat of the species, disturbance and mortality of individuals – no impact.

No effects related to loss of area, fragmentation, disturbance and mortality of individuals are expected during operation – no impact. Changes in the habitat of the species may occur when reducing the current outflow of the river – Degree 1.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

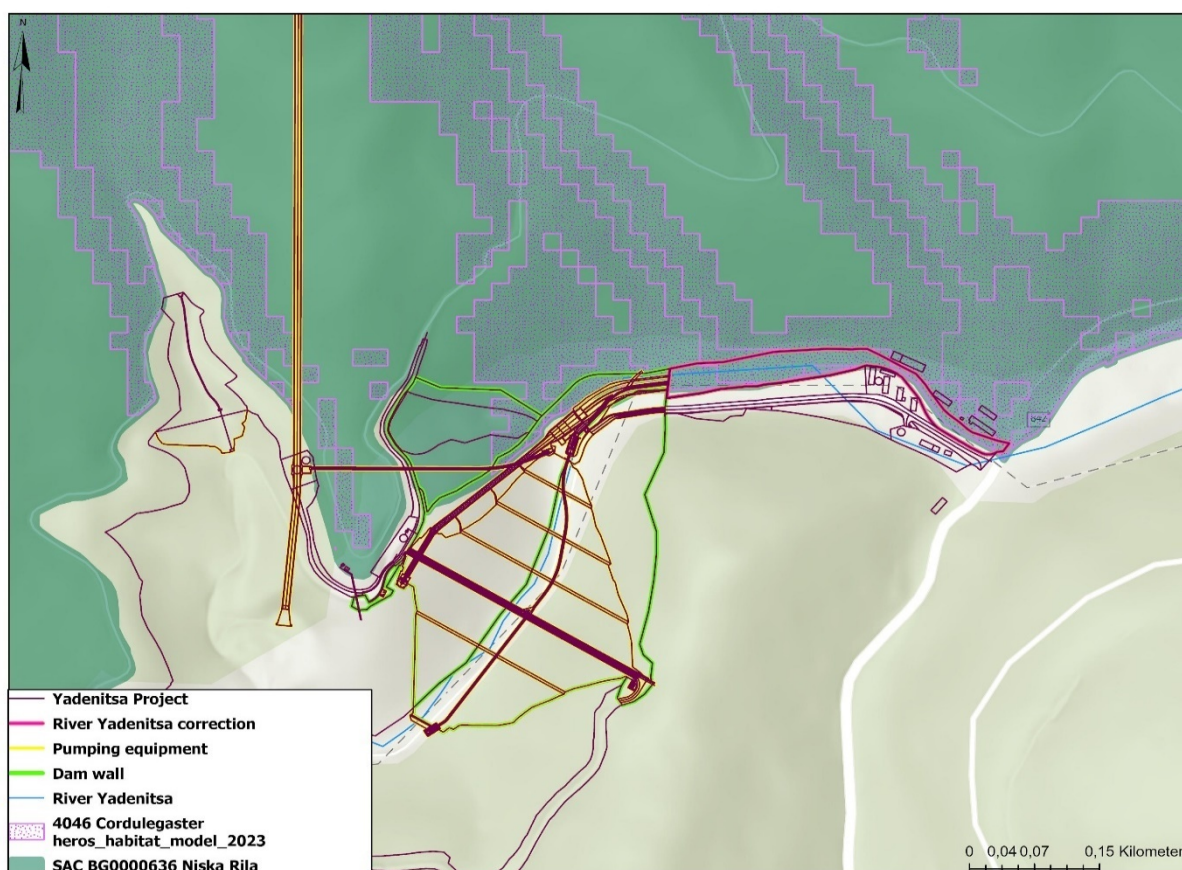


Fig. 28. Location of the project in relation to the distribution of habitat of the species *Cordulegaster (Cordulegaster heros)* in BG0000636 "Niska Rila"

#### 5.4.8. Site specific conservation objectives for 4053 Common paracaloptenus (*Paracaloptenus caloptenoides*)

- **Species information, according to the specific objectives report** - medium-sized (about 2 cm for males) to large (2.5-3.5 cm for females) brown-black short-winged short-tailed locust of the subfamily Calliptaminae (Orthoptera: Caelifera: Acridoidea: Acrididae).

The species has one generation per year, hatching from May (lowlands) to July (high mountains), and adults are found from July to August, respectively in the mountains – until October (Chobanov 2009). Fertilized females lay their eggs in the soil where they hibernate.

The species is widely distributed in Bulgaria, and is present in two ecological forms – western (in the mountains and foothills of western and central Bulgaria) and eastern (in the lowlands and foothills of eastern Bulgaria). The western form inhabits open rocky, mainly carbonate, terrains above 700-800 m altitude, and the eastern one is found in dry grassy, herbaceous-shrub and sparse forest habitats up to 700 m altitude.

In the western part of the country (from the Western Balkan Mountains in the south and southeast to the Middle Rhodopes inclusive), the species inhabits the hilly and mountainous belt, where it is characteristic of open sunny rocky terrains overgrown with rare herbaceous and grassy-shrub vegetation in the belt of the mountain or semi-mountainous climate. The altitude limit of spread depends on the climatic and microclimatic features of the area (latitude, slope exposure, rock composition, vegetation). For example, in the Rila region – between 900 and 1,750 m above sea level. Almost all populations are established in karst areas. The Western population is characterized by the habitat of areas slightly affected by anthropogenic interference (which is probably also related to the preference for soil-poor rocky terrains with a specific microclimate) and the strong fragmentation of populations.

- **Status of the species at the biogeographical level** – in the protected area, the potential habitats of the species fall into the Alpine and Continental regions, as out of a total of 2,975.97 ha in the Continental region, there are 319.98 ha, and in the Alpine region, there are 2,655.99 ha. When reporting under Art. 17 of the Habitats Directive in 2019, in both regions, the assessment is "favourable".

- **Status of the species in the protected area** –

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
I	4053	<i>Paracaloptenus caloptenoides</i>	C	B	B	B

- **Specific conservation objectives for the protected area** – during the field research in 2023, the species was found in several deposits in the area.

- ✓ "Population" parameter – Objective "Maintenance of at least 10 squares 1x1 km with the presence of the species in the area"; "Maintenance of the population density in the area of at least 50 individuals per hectare".
- ✓ Parameter "Habitat of the species" – Objective "Maintenance of the area of potential habitats of the species in the area"; "Improvement of the quality of habitats of the species in the area".

• **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 4053 *Paracaloptenus caloptenoides*, the affected area of its habitat is 0.0639 ha (Fig. 29), of the total territory of its potential distribution in the area (2975.97 ha), which is equal to 0.0021% of the territory of the habitat of the species in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	4053	<i>Paracaloptenus caloptenoides</i>	<b>Degree 1</b>	-	-	-	-

The elements of the project that are expected to have an impact on the habitat of the species - the dam wall.

Direct impacts related to the loss of area of the habitat of the species are expected during the construction – Degree 1. Regarding fragmentation or change of habitat of the species, disturbance and mortality of individuals – no impact.

No impacts related to loss of area, fragmentation and habitat change of the species, disturbance and mortality of individuals are expected during operation – no impact.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

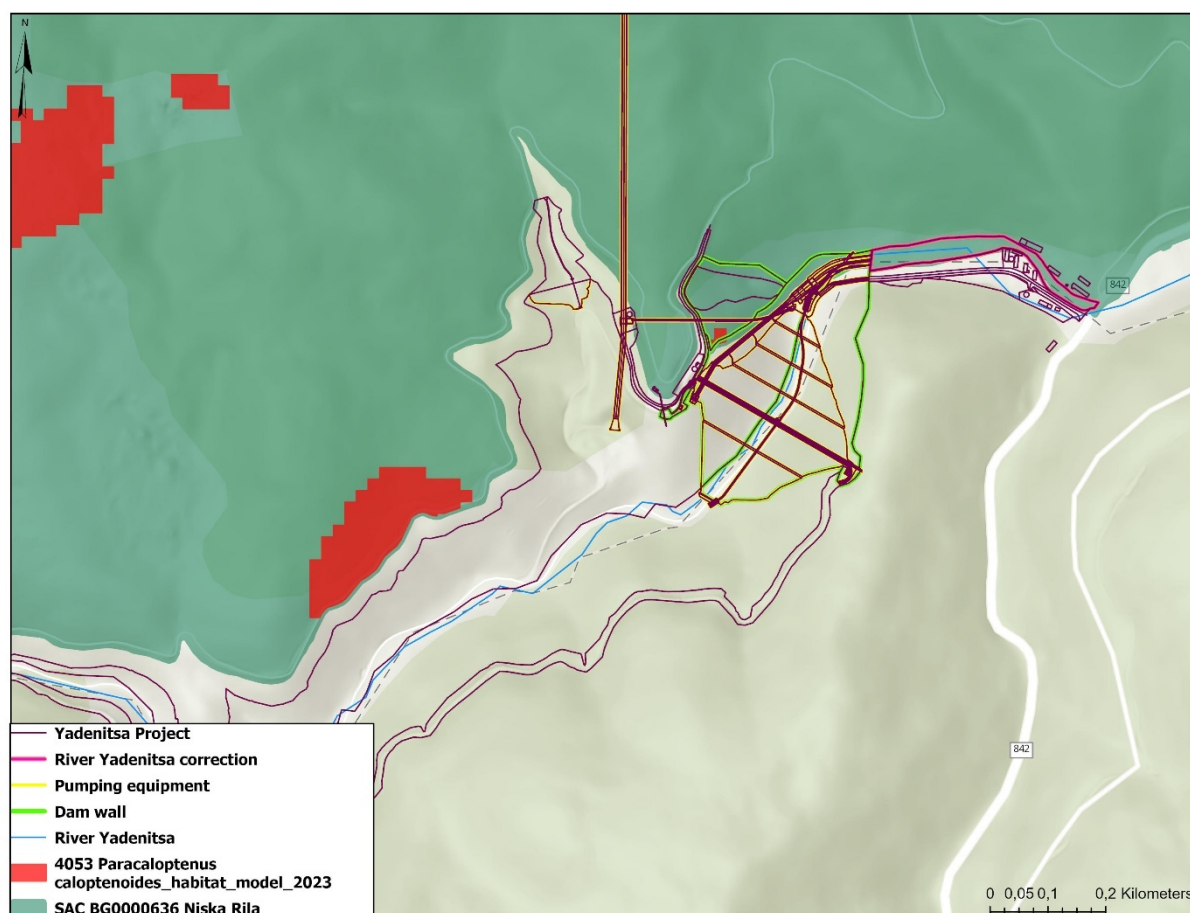


Fig. 29. Location of the project in relation to the distribution of habitat of the species Common paracaloptenus (*Paracaloptenus caloptenoides*) in BG0000636 "Niska Rila"

#### 5.4.9. Site specific conservation objectives for 6199 \*Jersey Tiger Moth (*Euplagia quadripunctaria*)

- **Species information, according to the specific objectives report** - large (50-62 mm in scope) butterfly of the Erebidae family with a bright characteristic coloration. Butterflies feed by day on the flowers of various herbaceous plants, and can often be found on the inflorescences of *Eupatorium cannabinum*. The newly hatched caterpillars feed on the leaves of various herbaceous plants, mainly *Taraxacum*, *Lamium*, *Urtica*, and hibernate. In the spring they switch to other food plants, mainly shrubs: *Rubus*, *Lonicera*, *Corylus*. One generation per year develops (Beshkov 2011).

Butterflies occur from late June to early September. At first they do not leave their habitat and can often be observed during the day while feeding on flowers, usually in July. In August, the species migrates (considered a paramigrant) and can then settle in different habitats, flying mostly at night and being attracted by artificial light.

The species is widely distributed throughout the country from sea level to about 1,600 m, in isolated cases during migration it has also been recorded at 1,900 m. The main habitats are deciduous bushes and forests with a diverse composition, riverside forests, parks.

The species is a priority for conservation under the Habitats Directive.

- **Status of the species at the biogeographical level** - in the protected area, the potential habitats of the species are 9,137.56 ha (of which in the Alpine biogeographical region 7,196.08 ha, in the Continental region - 814.47 ha). According to the reporting under Art. 17 of the Habitats Directive in 2019, the status of the species is "favourable" in all parameters.

- **Status of the species in the protected area -**

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
I	6199	<i>Euplaaia quadripunctaria</i>	D			

- **Specific conservation objectives for the protected area** – according to previous and current data, the species is not found in the area. So far, no published data has been found. No individuals were also identified in field studies in July 2023. A possible reason for not finding it is a deviation in phenology due to the unusual climatic conditions during the year of field research. Distribution of the species in the area is based on potential habitats and registrations in the vicinity of the area.

It is proposed at the moment to include the species in the Standard Form of the protected area with a "D" rating for a population (insignificant population), continuing the studies with the aim of proven registrations.

- ✓ "Population" parameter – Interim target: establishment of squares of grid 1x1 km with actual registrations of the species until 2031; Establishment of the population density through additional studies in the area until 2031.
- ✓ Parameter "Habitat of the species" – Objective "Maintenance of the area of potential habitats of the species in the area".

- **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 6,199 *Euplagia quadripunctaria*, the affected area of its habitat is 0.3799 ha (Fig. 30), of the total territory of its potential distribution in the area (9137.56 ha), which is equal to 0.0042% of the territory of the habitat of the species in the area.

#### Degree of impact on specific conservation objectives:

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	6199	<i>Euplagia quadripunctaria</i>	Degree 1	-	-	-	-

The elements of the project that are expected to have an impact on the habitat of the species - the dam wall.

Direct impacts related to the loss of area of the habitat of the species are expected during the construction – Degree 1. Regarding fragmentation or change of habitat of the species, disturbance and mortality of individuals – no impact.

No impacts related to loss of area, fragmentation and habitat change of the species, disturbance and mortality of individuals are expected during operation – no impact.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

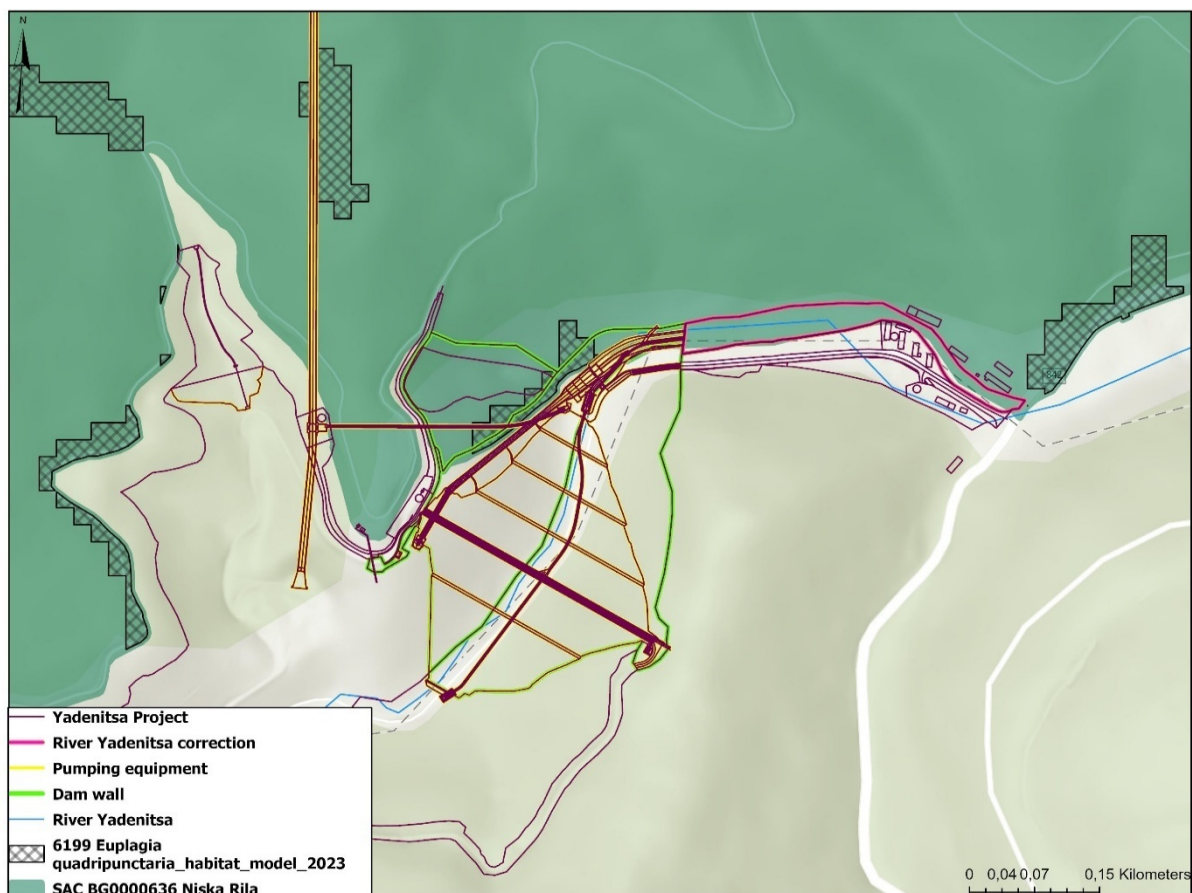


Fig. 30. Location of the project in relation to the distribution of habitat of the species \*Jersey Tiger Moth (*Euplagia quadripunctaria*) in BG0000636 "Niska Rila"

#### 5.4.10. Site specific conservation objectives for 1 193 Yellow-bellied toad (*Bombina variegata*)

- **Information about the species, according to the specific objectives report** - the species is widespread in the foothills and mountainous regions of Bulgaria (up to about 1,500 m above sea level, and in some places higher), except for Strandzha and the easternmost parts of the Balkan Mountains; it is not found in the flat parts of the country, but several isolated deposits in the Danube Plain are known, including unconfirmed data for finding the species along the very bank of the Danube River (Stojanov et al. 2011; Tsankov et al. 2014; Popgeorgiev et al. 2019). It inhabits different types of water bodies: mountain streams, marshes, lakes, river spills, temporary puddles, flooded ditches and ruts, fountain troughs, etc. (Beshkov and Nanev 2002; Stojanov et al. 2011).

*Bombina variegata* is active from March to October. The breeding season is often quite stretched throughout the year and can last from March to the end of July. The food spectrum of the species includes insects and other invertebrates that are caught both in the water and on land. The activity is mainly daytime and in the twilight hours, but during the breeding season the animals are also active at night. Hibernation takes place on land (Beshkov and Nanev 2002; Tsankov et al. 2014).

- **Status of the species at the biogeographical level** - according to the reporting under Art. 17 of the Habitats Directive 2019, the status of the species is "favourable" in the Alpine biogeographical region and "unknown" in the Continental region, due to a lack of data on the size of the species' populations and habitats. In PA "Niska Rila" the species is registered in the Alpine Biogeographical Region.

- **Status of the species in the protected area** -

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
A	1193	<i>Bombina variegata</i>	C	A	C	C

- **Specific conservation objectives for the protected area** – in the scientific literature, there is no evidence of the presence of *Bombina variegata* in the protected area. According to the model of the potential habitats of *Bombina variegata* at national level prepared under the project "Mapping and determining the conservation status of natural habitats and species - Phase I", the total area of the potential habitats of the species in PA "Niska Rila" is 14,025.09 ha (12,089.11 ha in the Alpine and 1,935.98 ha in the Continental biogeographical region).

During the field research in PA "Niska Rila" in 2023, *Bombina variegata* was registered in 3 squares of UTM grid 1x1 km (all three fall within the Alpine biogeographical region), and the derived average of the relative numbers of the species is 2.30 individuals per 1,000 m. According to expert judgement, the potential habitats in the visited areas are in good condition, and there are no specific threats to the population of the species.

- ✓ "Population" parameter – Objective "Maintenance of spatial coverage and population size";
- ✓ Parameter "Habitat of the species" – Objective "Maintenance of the area of habitats in the area"; "Maintenance of the area of river sections and artificial canals suitable for habitation".

• **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 1193 *Bombina variegata*, the affected area of its habitat is 1.3008 ha (Fig. 31), of the total territory of its potential distribution in the area (3155 ha), which is equal to 0.0412% of the territory of the habitat in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	1193	<i>Bombina variegata</i>	<b>Degree 2</b>	-	<b>Degree 1</b>	-	<b>Degree 1</b>

The elements of the project that are expected to have an impact on the habitat of the species - the correction of the river and a small part of the pumping facilities.

Direct impacts related to the loss of area of the habitat of the species are expected during the construction – Degree 2. Regarding fragmentation or change of habitat of the species, disturbance – no impact. The possible accidental mortality from accidental running over of specimens of construction equipment in the construction phase is insignificant – Degree 1.

During the operation, no impacts related to loss of area, fragmentation, disturbance and mortality of individuals are expected, but changes in the habitat of the species may occur with a reduction in the current outflow of the river – Degree 1. The structure of the populations of the species in the area will not be disturbed due to deterioration of the parameters and the occurrence of hydrological changes in the waters of the river during operation.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

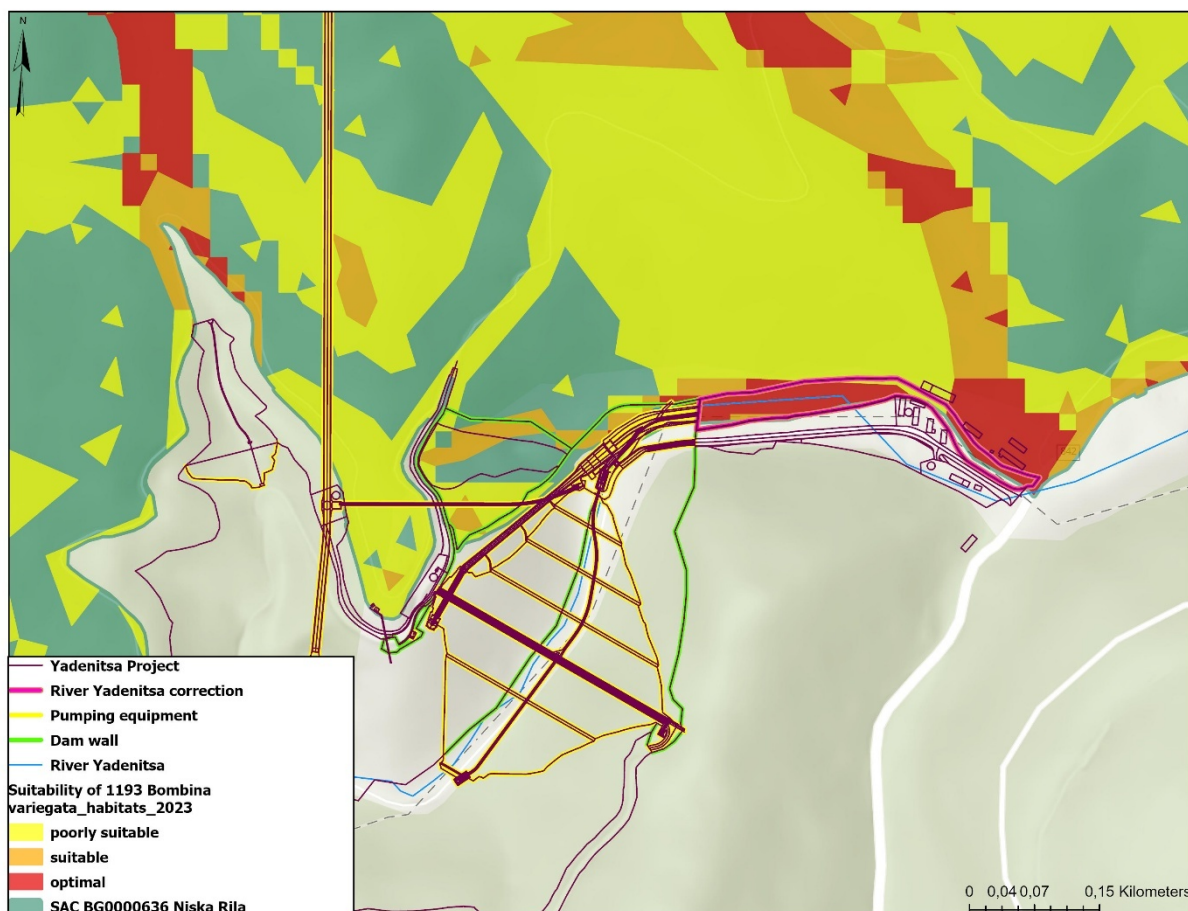


Fig. 31. Location of the project in relation to the distribution of the habitat of the species Yellow-bellied toad (*Bombina variegata*) in BG0000636 "Niska Rila"

#### 5.4.11. Site specific conservation objectives for 1352 \*European wolf (*Canis lupus*)

- **Species information according to the specific purposes report** - this is the largest wild member of the *Canidae* family. The wolves in our country are of medium size.

According to Popov and Sedefchev (2003), the wolf is found in all mountains in Bulgaria and some plain forests in the northeastern part of the country.

Wolves are territorial animals. They live in family groups (packs) formed by a breeding couple and their offspring from the last 1-2 generations. In Bulgaria, family groups are most often small (3-5 individuals) due to the relatively smaller size of the species, which are their main natural food (wild boar and deer), as well as due to the intense persecution of the species by humans. The size of the pack increases at the birth of the young, namely at the end of spring. The wolves inhabit mainly the mountainous regions of our country, where they find tranquility and food. According to data from telemetry and tracking in snow, in the mountains in Western Bulgaria, the territories of family groups generally vary within the range between 100 km<sup>2</sup> and 300 km<sup>2</sup> (Tsingarska, not publ.). The size of the territorial sections depends on both the nature of the terrain and the availability of the wolf's main natural food - wild ungulates. In

potential habitats for the species in hilly and low mountain areas, human activities are also more intensive, as access to these areas is easier. All this implies larger individual territories of family groups and, accordingly, less abundance and lower population density, specifically in areas with lower altitude (Kostova et al., 2015). In habitats with a low density of wild ungulates, wolves also feed on small mammals (rabbits, etc.), domestic animals, plant food, and even visit landfills (Dutsov et al., 2004, Zlatanova et al., 2014).

The species is a priority for conservation under the Habitats Directive. It is included in the Red Book of Bulgaria, with the category "Vulnerable". Hunting, poaching, reduction of the food base, competition and hybridization with wandering dogs are mentioned as negative factors. (Spiridonov, Spasov, 2015).

- **Status of the species at the biogeographical level** - in the protected area, the potential habitats of the species fall into the Alpine and Continental biogeographical regions, with areas of 31,120.87 ha for the Alpine and 2,777.50 ha for the Continental, respectively. According to the report under Art. 17 of the Habitats Directive in 2019, the state of the wolf was assessed as "favourable" in both biogeographical regions.

- **Status of the species in the protected area** -

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
M	1352	Canis lupus	B	B	C	A

- **Specific conservation objectives for the protected area** – in the field work in 2023 and 2024, the presence of the target species was registered in the southern, southeastern, eastern, northern and northwestern parts of the area. By applying the static distance rule (Linnel et al. 2007), wolves from 5 or 6 married couples/groups were found to be registered. Due to the nature of the relief in the Rila Mountains and the location of PA "Niska Rila" and PA "Niska Rila", the territories of the family groups extend into both zones, and some of those in the western part of the mountain and in PA "Rila Monastery". The population of the species in the area is shared between the three PAs.

Habitats in the area were found to be in generally good condition, with degradation of their quality recorded in two transects in the north and east of the area due to the presence of logging. Presence of species – a natural food base of the wolf (mainly roe deer) is registered on all traversed transects. No habitat fragmentation has been identified within the area. Thanks to the connection between PA "Niska Rila", PA "Rila" and PA "Rila Monastery", the target species has good conditions for a permanent presence in the area.

- ✓ "Population" parameter – Objective "Maintenance of the number of the species in the area of 25-30 individuals";
- ✓ Parameter "Habitat of the species" – Objective "Maintenance of the area of suitable habitats in the area"; Maintenance of the area of connecting habitats and the food potential in the area";

• **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 1352 *Canis lupus*, the affected area of its habitat is 1.5497 ha (Fig. 32), of the total territory of its potential distribution in the area (33898.37 ha), which is equal to 0.0046% of the territory of the habitat of the species in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	1352	<i>Canis lupus</i>	<b>Degree 1</b>	-	-	<b>Degree 1</b>	-

During construction, direct impacts are expected related to loss of area of the species' habitat – Degree 1 and disturbance of individuals of the species – Degree 1. In terms of fragmentation, habitat change of the species and mortality of individuals – no impact.

No impacts related to loss of area, fragmentation and habitat change of the species, disturbance and mortality of individuals are expected during operation – no impact.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

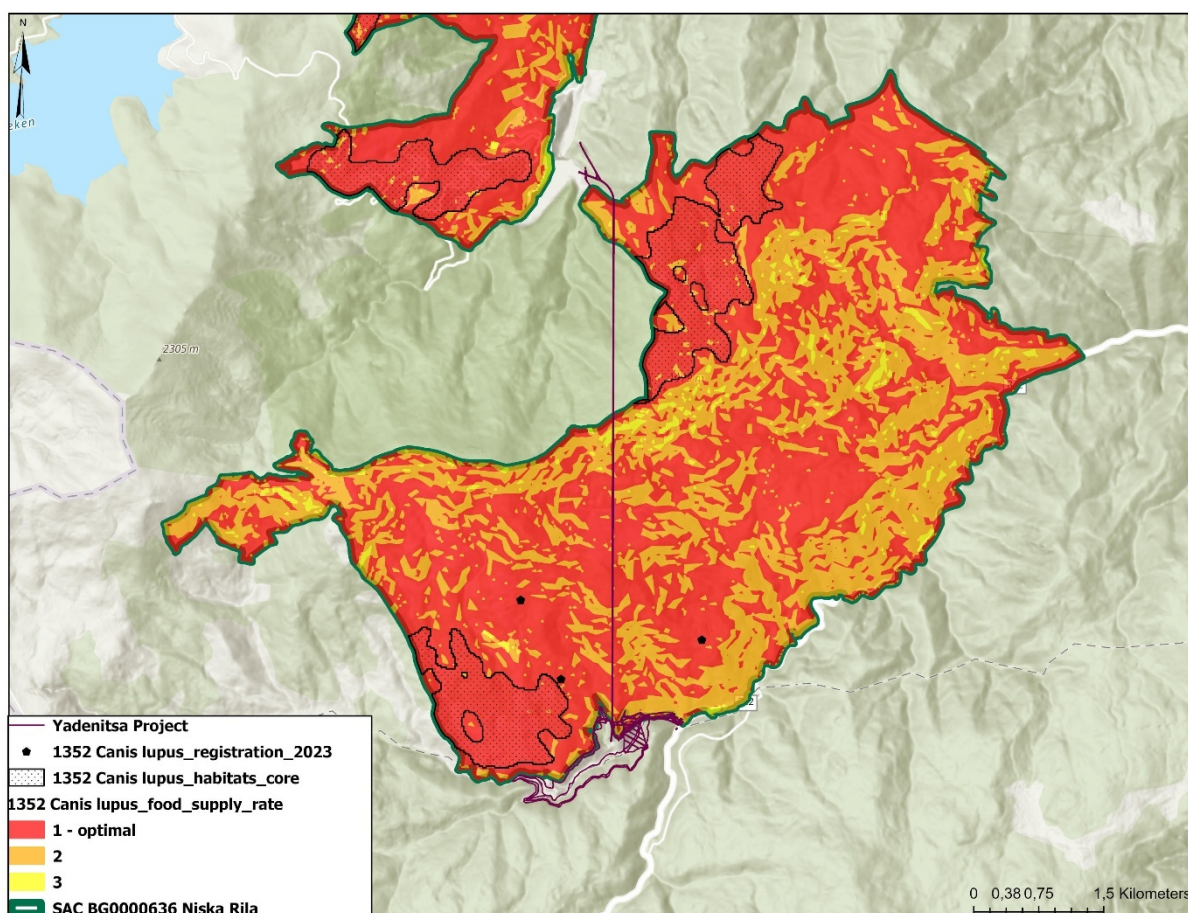


Fig. 32. Location of the project in relation to the distribution of habitat of the species \*European wolf (*Canis lupus*) in BG0000636 "Niska Rila"

#### 5.4.12. Site specific conservation objectives for 1354 \*Brown bear (*Ursus arctos*)

- **Species information, according to the specific purposes report** - The brown bear (*Ursus arctos*) is a predatory mammal of the bear family (Ursidae).

It inhabits remote forest areas (Popov, 2003).

The bear is an omnivorous species, its diet strongly depending on the seasons (Spasov, 2007). In the spring, it feeds on carrion, grasses, leaf buds, etc. In the summer it uses forest plants, mushrooms. In the autumn, the beech acorn, the fruits of the fruit trees, etc. (Ganchev, 1988; Genov, 2010; Spasov et al., 2000, Spasov et al., 2015)

The bear also actively uses hunting facilities for feeding the game (Kavcic et al. 2015, Todorov et al. 2020).

The species is a priority for conservation under the Habitats Directive. In the Red Book of Bulgaria (RCB), the species is listed as "endangered" (Spiridonov, Spasov 2015).

There is an updated action plan for the species (MoEW, 2023).

- **Status of the species at the biogeographical level** - in the protected area, the potential habitats of the species fall into both the Alpine and Continental biogeographical regions, respectively with areas of 30,021.80 ha in the Alpine and 1,848.50 ha in the Continental region. According to the report under Art. 17 of the Habitats Directive 2019, the species is in a "favourable" state in terms of "Area of Distribution" and "Habitat" in both the Alpine and Continental biogeographical regions. In both regions, the status in terms of "Population" is presented as "Unfavorable-unsatisfactory".

- **Status of the species in the protected area** -

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
M	1354	Ursus arctos	B	C	C	B

- **Specific conservation objectives for the protected area** – for the bear, monitoring data are available within the National Monitoring System for the State of Biodiversity (NSMSBD). Its results for the period 2011-2020 show a slight increase in the number of the species for the Rila Mountains. For 2020, the number is estimated at 55 individuals. There is also data on the damages registered and paid by the Ministry of Environment and Water caused by a bear falling within PA "Niska Rila". The territory of the protected area falls within the national model of the potential habitats of the bear from (Zlatanova, 2010; Spiridonov et al. 2013).

In the field study, 20 transects were studied in the autumn of 2023 and the spring of 2024 in the range of the protected area. In addition to the data from the targeted visits, data collected from forestry officials surveyed, employees of Rila National Park Directorate and local residents were reviewed. Also, information was verified about damage caused by a bear in the area and the map of registrations from the monitoring of the species conducted in 2022 by the National Museum of Natural History at the Bulgarian Academy of Sciences.

In the transects conducted, traces of vital activity of the target species were registered. These data, together with the information collected by employees of the Rila National Park Directorate, as well as the data collected in PA "Niska Rila", confirm that the territory of the zone is permanently inhabited by the target species and that it successfully breeds and manages to raise its young in the zone and its adjacent territories. The nature of the area – divided into separate, small sections, gives reason to assume that individuals inhabit the area as part of their habitat.

To the high nutritional potential of the area should be added the additional easily accessible food to which the animals have access from the activities for feeding the ungulates in the neighbouring forest holdings, from hunting groups and in state-owned game-breeding areas. The relatively large maximum allowable number in SDF (max. 10 individuals) is justified by the seasonal migration of individuals from the Rhodopes, Pirin and Vitosha to the feeding areas in spring and summer.

The individuals found in the field and through transects, as well as those designated by the National Monitoring System for the State of Biodiversity (NSMSBD) for 2020, give reason to believe that the population is relatively stable. Based on the adapted area, which is 31,870.30 ha, the area of potential habitats (not reduced and not less than 80% of the reference value for the zone), it can be said that the maximum number of individuals can be 10 without causing an increase in conflicts with the local population in the settlements bordering the zone.

The threats found on the ground are insignificant, but attention should be paid to preserving the habitats of the species, as well as to preserving the connectivity of the territory with neighbouring habitats to the Rila, the Rhodope Mountains to the east, the Pirin Mountains to the south, the Vitoshka Mountains to the north and to the west to neighbouring habitats of the species. Registered logging and hunting activities are not of an intensity that poses a serious threat to the species.

- ✓ "Population" parameter – Purpose "Maintenance of the population - min. 5 individuals";
- ✓ Parameter "Habitat of the species" – Objective "Maintenance of the area and quality of potential habitats in the protected area"; Maintenance of the condition of forest habitats for the species with food potential.

**• Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 1354 *Ursus arctos*, the affected area of its habitat is 2.3662 ha (Fig. 33), of the total territory of its potential distribution in the area (31870.3 ha), which is equal to 0.0074% of the territory of the habitat of the species in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	1354	<i>Ursus arctos</i>	<b>Degree 1</b>	-	<b>Degree 1</b>	<b>Degree 1</b>	-

During construction, direct impacts are expected related to loss of area of the species' habitat – Degree 1 and disturbance of individuals of the species – Degree 1. In terms of fragmentation, habitat change and mortality of individuals – no impact

During operation, no impacts related to loss of area, fragmentation, disturbance and mortality of individuals are expected – no impact, but indirect minor changes may occur in the food habitats of the species – Degree 1.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;

- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

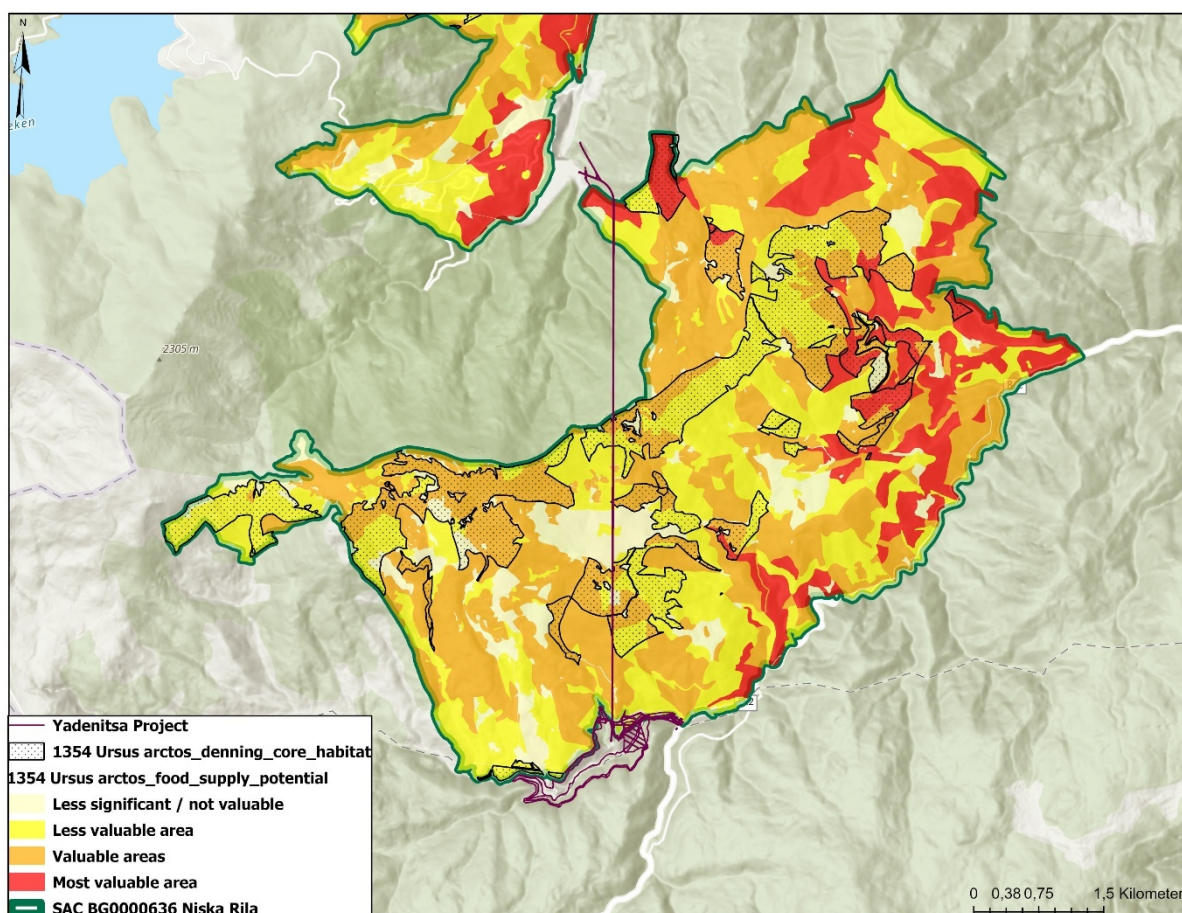


Fig. 33. Location of the project in relation to the distribution of habitat of the species \*Brown bear (*Ursus arctos*) in BG0000636 "Niska Rila"

#### 5.4.13. Site specific conservation objectives of 1355 Otter (*Lutra lutra*)

- **Species information according to the Specific Purposes Report** - Otter (*Lutra lutra*) is a carnivorous mammal in the Mustelidae family. It inhabits freshwater and brackish ponds in Bulgaria (Georgiev 2005, Georgiev, Koshev 2006). It feeds mainly on aquatic organisms - fish, crayfish, frogs, sometimes small mammals and birds (Georgiev, Koshev 2006; Georgiev 2006, Georgiev 2008, Koshev 2009; Koshev et al. 2013). It prefers preserved coastal strips overgrown with tree and shrub vegetation, where it makes dens in their roots (Georgiev 2005, Georgiev 2008, Koshev et al. 2013).

In the Red Book of Bulgaria, the species is listed as "vulnerable" (Spiridonov, Spasov 2015).

- **Status of the species at the biogeographical level** – in the protected area, the appropriate habitats are in the Alpine biogeographical region (1,014.43 ha) and in the Continental region (75.31 ha). According to the reporting under Art. 17 of the Habitats

Directive in 2019, the condition of the species has been assessed as favourable for both biogeographical regions.

• **Status of the species in the protected area -**

Group	Code	Scientific name	Area assessment			
			Population	Protection	Isolation	Total score
M	1355	<i>Lutra lutra</i>	C	C	C	C

• **Specific conservation objectives for the protected area –** during the field study in 2023-2024, 35 transects within the protected area were studied. The species has been recorded in 16 places, mainly in the northern part of the protected area, where rivers are fuller for most of the year. The status of the otter in the protected area is favourable. Threats have been identified, but they are not critical to the status of the species. The Yadenitsa River is a border river for PA "Yadenitsa" and PA "Niska Rila", and part of the registrations fall in one of the two protected areas.

- ✓ Parameter "Population" – Objective "Keeping the population size in optimal numbers for the protected area – 22 individuals;
- ✓ Parameter "Habitat of the species" – Objective "Maintenance of the size of the area of potential habitats within the protected area"; "Maintenance of the length and area of river stretches suitable for habitat and the area of their banks"; "Maintenance of the ecological status of water bodies with appropriate habitats".

• **Impact on the defined Site specific conservation objectives for the species in the protected area;**

For the species 1355 *Lutra lutra*, the affected area of its habitat is 1.0754 ha (Fig. 34), of the total territory of its potential distribution in the area (1071.99 ha), which is equal to 0.1003% of the territory of the habitat of the species in the area.

**Degree of impact on specific conservation objectives:**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species			Parameter "Population"	
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals
BG0000636	1355	<i>Lutra lutra</i>	<b>Degree 2</b>	<b>Degree 2</b>	<b>Degree 2</b>	-	-

The elements of the project that are expected to have an impact on the habitat of the species - the correction of the river.

Direct impacts related to the loss of area of the habitat of the species are expected during the construction – Degree 2. In terms of fragmentation, habitat change, disturbance and mortality of individuals – no impact

During the operation, no impacts related to habitat loss, disturbance and mortality of individuals are expected, but changes in the habitat of the species may occur when the water body of the Yadenitsa River changes – Degree 2 and fragmentation of the species' habitat – Degree 2. The structure of the populations of the species in the area

will not be disturbed due to deterioration of the parameters and the occurrence of hydrological changes in the waters of the river during operation.

**Regarding the compliance of the project with the site specific conservation objectives for the species in the area, the following conclusions can be drawn:**

- The implementation of the project is not associated with significant negative impacts on the defined site specific conservation objectives for the species in the area, according to the "Population" parameter and the "Habitat of the species" parameter;
- Given the insignificant area of the habitat of the species affected, the project can be implemented without significant risk in terms of the long-term viability of the species in the area.

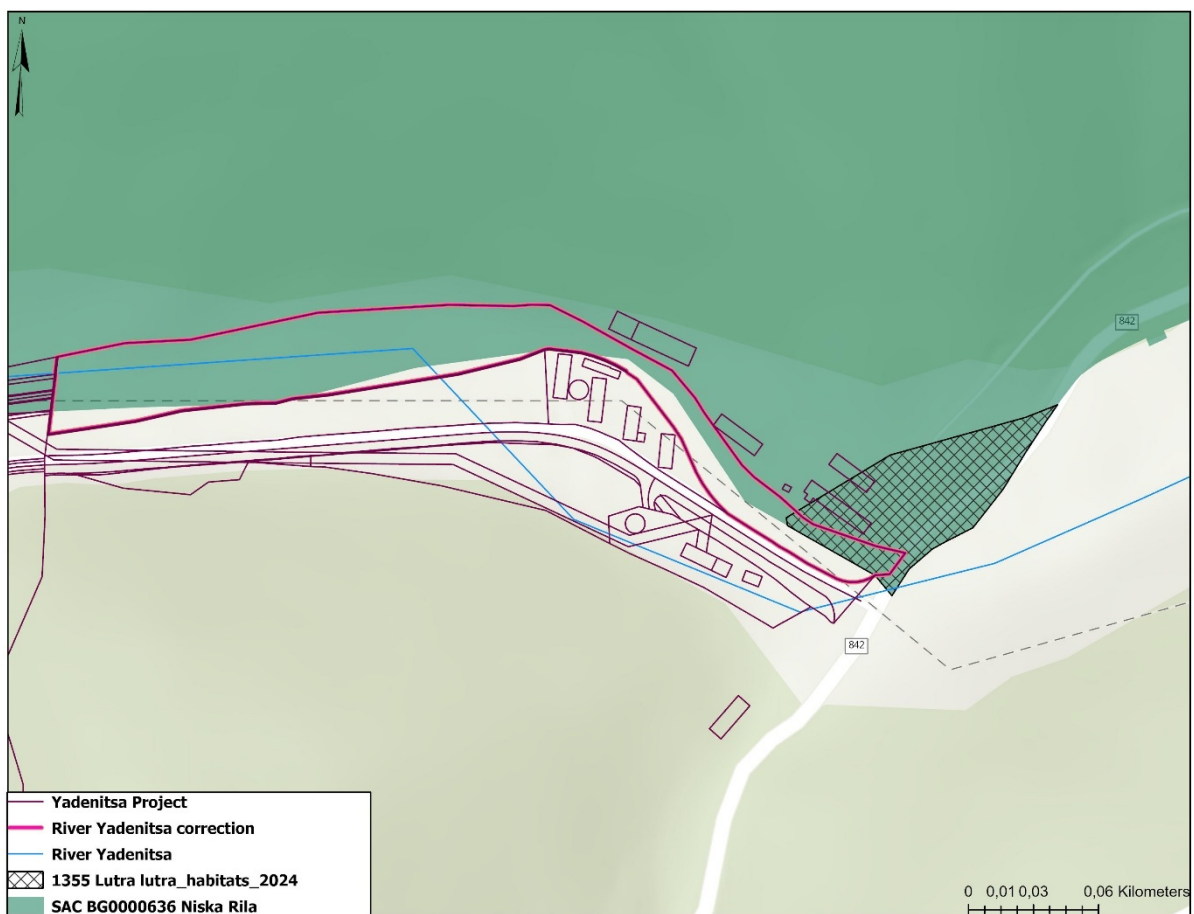


Fig. 34. Location of the project in relation to the distribution of habitat of the species *Lutra lutra* in BG0000636 "Niska Rila"

A summary of the expected impact on the defined specific objectives of the conservation of natural habitats in the Protected Area BG0000636 "Niska Rila" is presented in Table 21.

**Table 21. Summary information on the expected degree of impact on the defined specific objectives of the conservation of natural habitats in the Protected Area BG0000636 "Niska Rila".**

Area code	Code of the destination site	Name of the destination site	Parameter Area		Parameter Structure and function	
			Loss of Habitat		Change of habitat	
BG0000636	91BA	<i>Moesian fir forests</i>	<b>Construction Degree 2</b>	Operation - <b>NA</b>	Construction - <b>NA</b>	Operation - <b>NA</b>
BG0000636	91EO	<i>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</i>	<b>Construction Degree 2</b>	Operation - <b>NA</b>	Construction - <b>NA</b>	<b>Operation - Degree 1</b>

**Legend: NA Not Applicable**

A summary of the expected impact on the defined specific objectives of conservation of the species in the Protected Area BG0000636 "Niska Rila" is presented in Table 22.

**Table 22. Summary information on the expected degree of impact on the defined specific objectives of conservation of the species in the Protected Area BG0000636 "Niska Rila".**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species						Parameter "Population"			
			Loss of Habitat		Habitat fragmentation		Change of habitat		Disturbance of species		Mortality of individuals	
BG0000636	1086	<i>Cucujus cinnaberinus</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	6908	<i>Morimus asper funereus</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	1093	<i>Austropotamobius torrentium</i>	Construction Degree 2	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation Degree 2	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	1193	<i>Bombina variegata</i>	Construction Degree 2	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation Degree 1	Construction – NA	Operation – NA	Construction Degree 1	Operation – NA
BG0000636	1352	<i>Canis lupus</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA
BG0000636	1354	<i>Ursus arctos</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation Degree 1	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA
BG0000636	1355	<i>Lutra lutra</i>	Construction Degree 2	Operation – NA	Construction – NA	Operation Degree 2	Construction – NA	Operation Degree 2	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	4042	<i>Polyommatus eroides</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	4046	<i>Cordulegaster heros</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation Degree 1	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	4053	<i>Paracaloptenus caloptenoides</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	6199	<i>Euplagia quadripunctaria</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA

**Legend: NA - not applicable**

## VI. Effectiveness of the proposed mitigation measures in relation to the defined Site specific conservation objectives

### 6.1. Conditions set out in EIA Decision No. 2-2/01.08.2017 of the Ministry of Environment and Water

**In EIA Decision No. 2-2/01.08.2017, issued by the Minister of Environment and Water, the following conditions are set out as mandatory for the implementation by the Contracting Authority in the different phases of the project development – design, construction and operation:**

#### ***I. For the design phase:***

1. The IP is subject to a permit regime under *the Water Act*, for which the relevant actions shall be taken for:

1.1. Renewal of a permit for water abstraction from a surface water body for drinking and domestic water supply of the Yadenitsa Project;

1.2. Obtaining a permit for the discharge of wastewater generated on the territory of the Yadenitsa Project, the Yadenitsa Site and the Chaira Site into surface water bodies under the conditions of Art. 46, para. 1, item 3 of the Water Act;

1.3. Issuance of a permit for water abstraction and use of surface the water body site Yadenitsa River, as well as for the construction of a reservoir in the Yadenitsa Dam.

2. Preparing and coordinating with the Regional Inspectorate of Environment and Water (RIEW) Pazardzhik and River Basin Directorate "East Aegean Region" Self-Monitoring Plan.

3. The IP in the part of the newly designed facilities should be coordinated with the Southwestern state enterprise in order to conduct procedures under *the Forestry Act*, before submitting it for approval under the Spatial Planning Act.

#### ***II. Before and during the construction:***

1. In view of the conclusion on the classification of the enterprise, which takes into account the maximum quantities of explosives that may possibly be available in the temporary explosives warehouse at the Yadenitsa site during the construction - Enterprise with a low risk potential:

1.1. Within four months before the commencement of construction or activities for the supply and storage of explosives or other dangerous substances on the territory of the sites and the facilities subject of the IP, a notification of classification under Art. 103, para. 2 of the Environmental Protection Act shall be submitted to the Minister of Environment and Water.

1.2. Within three months before the commencement of construction or activities for the supply and storage of explosives or other dangerous substances on the territory of the sites and facilities subject of the IP, a report on the policy for the prevention of major accidents shall be submitted to the Director of the Regional Inspectorate of

## Environment and Water – Pazardzhik.

2. During construction, hazardous substances, including in the form of waste, should not be present on the sites and facilities, subject of the IP, in quantities that classify the enterprise with high risk potential in terms of physical hazards and/or as an enterprise with low or high risk potential in terms of health, environmental or other hazards, given that the impact on man and the environment of an enterprise with low risk potential in terms of physical hazards has been assessed in the EIAR.
3. Carrying out technical and biological reclamation of the affected lands outside the facilities in accordance with the requirements of *Ordinance No. 26 of 2.10.1996 on the reclamation of disturbed terrains, improvement of poorly productive lands, removal and utilization of the humus layer*.
4. Preparing a Construction Waste Management Plan in accordance with *the Waste Management Act (WMA)*.
5. The generated waste shall be classified in accordance with the requirements of *Ordinance No. 2 of 23.07.2014 on the classification of waste*.
6. The generated waste should be collected separately and stored in accordance with the requirements of the waste management regulations.
7. The waste generated should be handed over, on the basis of written contracts, to persons holding the relevant document under Art. 35 of the Waste Management Act.
8. Before the commencement of construction, the contracting authority shall prepare its own assessment of possible cases of imminent threat of environmental damage and for caused environmental damage, for the activities within the scope of the *Liability for Prevention and Removal of Environmental Damage Act, in accordance with Annex No. 1 of Ordinance No. 1 of 29.10.2008 on the type of preventive and remedial measures in the cases provided for by the Liability for Prevention and Removal of Environmental Damage Act and the minimum amount of the costs for their implementation* (promulgated, SG No. 96/07.11.2008) and it shall be presented to the Regional Inspectorate of Environment and Water - Pazardzhik.
9. A suitable absorbent for cleaning up possible spills of lubricating oils, antifreeze and other hazardous substances on the construction sites shall be provided.

### **III. During the operation:**

1. Maintenance shall be performed of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River). When stopping the operation of the plant or in case of emergency, the ecological water quantity shall be passed through the shut-off of the emptying system.
2. The waste generated as a result of the site activity should be handed over, on the basis of written contracts, to persons holding the relevant document under Art. 35 of the Waste Management Act.

## 6.2. Mitigation measures included in EIA Decision No. 2-2/01.08.2017 of the MoEW

EIA Decision **No 2-2/01.08.2017**, issued by the Minister of Environment and Water, **includes MITIGATING MEASURES** to prevent, reduce and, if possible, terminate and/or eliminate harmful effects on the environment and human health.

The measures under Art. 96, para. 1, item 6 of the Environmental Protection Act are presented in Table 23.

**Table 23. Measures under Art. 96, para. 1, item 6 of the Environmental Protection Act, included in EIA Decision No. 2-2/01.08.2017 of the MoEW.**

No.	Measures	Period/phase of implementation	Outcome
1	2	3	4
<b>M1.</b>	There should be an environmental officer at the site during all phases of construction.	Construction	Control of the implementation of environmental protection measures
<b>M2.</b>	Effective cleaning of access roads and speed limits at work sites.	Construction	Preservation of the atmospheric air quality; Conservation of species in Annexes II and III of BDA
<b>M3.</b>	Developing a Transport and Communication Plan.	Prior to the start of construction.	Preservation of the atmospheric air quality and incident prevention
<b>M4.</b>	The envisaged equipment and means of transport shall meet the requirements of <i>Ordinance No. 10/2004 (SG, No. 11/2004) - measures to reduce gaseous and particulate pollutants from internal combustion engines installed on non-road and construction machines.</i>	Construction	Preservation of atmospheric air quality
<b>M5.</b>	The storage areas for bulk construction materials (mainly sand) and construction waste should be sprinkled with water in dry and windy weather.	Construction	Preservation of atmospheric air quality
<b>M6.</b>	Coordination of the transport scheme with local municipalities and town halls.	Before the beginning of construction.	Observation of the health and hygiene conditions <b>in the</b> settlements and the comfort of life of the population

<b>M7.</b>	The means of transport shall be covered during transport of excavated land mass, building materials, construction waste, etc. outside the construction sites.	Construction	Protection of the atmospheric air quality.
<b>M8.</b>	Non-performing detonation in inappropriate weather conditions.	Construction	Protection of human health and the environment, prevention of incidents
<b>M9.</b>	Designation, marking and maintenance of a sanitary and security zone around the drinking water supply facility for the Yadenitsa site.	Design and construction	Protection quality of drinking water
<b>M10.</b>	Liquidation of water catchment No. 5 on the Yundolska River from the Yadenitsa Canal in order to restore the natural flow of the river (the liquidation shall be carried out at the end of construction before commissioning of the site) with complete removal of the water catchment structure.	Construction	Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.
<b>M11.</b>	Decommission the water catchments No. 16 to No. 18 and No. 19 to No. 19, and if possible, removing the facilities and closing the water catchment holes to derivation "Yadenitsa".	Construction	Reducing the negative impacts on the inflows of the Yadenitsa river in the area of the dam.
<b>M12.</b>	A sample should be taken before starting the construction from the water source and the drinking water pipeline at the Yadenitsa site to prove the quality of drinking water. Ensuring water decontamination.	Construction	Health protection of construction workers
<b>M13.</b>	Observance of the prohibitions and restrictions within the security zone around the drinking water supply shaft.	Construction	Health protection of construction workers
<b>M14.</b>	Replacement of fuel and oils of the construction machinery should be carried out outside the construction sites at designated locations.	Construction	Protection of soil, subsoil, waters
<b>M15.</b>	The necessary number of chemical toilets should be provided at the construction sites "Yadenitsa" and "Chaira", and their maintenance shall be carried out by a licensed company.	Construction	Protection of the quality of soil, subsoil, waters

<b>M16.</b>	Ensuring the discharge of the river flow into the Yadenitsa river after precipitation in all periods of construction.	Construction	Ensuring the biological integrity of the river ecosystem of the Yadenitsa River.
<b>M17.</b>	In places with flatter terrain on the Yadenitsa site (the diversion facilities, construction of pit of the dam wall, stilling basin), selective removal of the humus horizon of the soil (the surface, darker coloured part of the profile, intensely saturated with root mass) when it has a power of over 10 st, although it may contain a larger skeleton (gravel elements) and storing it on a site provided for in the project.	Construction	Hummus conservation
<b>M18.</b>	If the storage period of the humus soil is more than 3 years, it is recommended that the bulk cones (terricones) should be up to 10 m high and their slope should not exceed 40°, or if they are larger, the surface shall be grassed to limit its erosion.	Construction	Hummus conservation
<b>M19.</b>	Storing the stripped humus and the excavated earth and rock masses on separate sites.	Construction	Storage of humus for use in biological reclamation
<b>M20.</b>	Sprinkling the deposited earth and rock masses and humus with water in order to prevent their dusting.	Construction	Prevention of over-concentrations of dust
<b>M21.</b>	Sites with appropriate inscriptions should be placed in appropriate places around the operating areas of the excavation sites and at the entrance of the reversible pressure tunnel on the side of the sites ,Yadenitsa and Chaira.	Construction	Ensuring workers are notified of possible hazards at each site

<b>M22.</b>	The storage and use of hazardous substances and mixtures (e.g. fuels and oils, bitumen, paints and varnishes, permanent marking materials, explosives) shall be carried out in accordance with the measures to ensure safe storage, prevention of accidents and incidents, release or spills and exposure control defined by the <i>Ordinance on the order and manner of storage of hazardous chemicals and mixtures, in the safety data sheets and the instructions for safe use.</i>	Construction	Protecting the environment and human health from the effects of hazardous chemicals and mixtures.
<b>M23.</b>	Outdoor construction activities should be carried out during the daily period.	Construction	Limiting environmental noise.
<b>M24.</b>	The external freight transport servicing the construction of the site shall observe a speed of movement limited to 40 km/h when passing through populated areas. The internal freight transport for transporting rock material from the Chaira Tunnel to Dzaferko Dere should observe a speed limited to 20 km/h when passing the villa terrains from the Chaira resort area.	Construction	Protecting the health of the population in the village of G. Belovo and the town of Belovo and limiting the noise impact in the Chaira resort area.
<b>M25.</b>	Providing for the use of modern machinery leading to a reduction of the noise load in the environment, which is in accordance with the requirements of the <i>Ordinance on the essential requirements and conformity assessment of machinery and equipment operating outdoors in relation to the noise emitted by them in the air (SG, No. 11/2004).</i>	Construction	Limiting noise impact in the workplace and the environment
<b>M26.</b>	When clearing forest vegetation, the flood line shall be observed, without going beyond the boundaries of flooding (the highest water level).	Construction	Conservation of the vegetation outside the water reservoir

<b>M27.</b>	Biological reclamation of the affected terrains to compensate for the impact on riverside communities and natural forest vegetation by using typical for the region plant species that were cut down during the construction of the IP and to prevent the use of invasive and potentially invasive alien species.	Construction	Not allowing the development of aggressive plant species, but use only of native species
<b>M28.</b>	If necessary, construction activities (excluding underground) should begin in the period from April 1 to June 15, the terrain of the construction sites should be previously cleared of woody vegetation, which will prevent disturbance during the breeding period of the animals and the breeding of the young ones.	Construction	Animal conservation
<b>M29.</b>	Minimizing the entry and stay of heavy construction equipment and people in the river bed.	Construction	Animal conservation
<b>M30.</b>	In the event of the presence of target and protected species, their removal (leaving) from their current habitats falling into the lake under the highest water level should be done in containers before construction of a reservoir and their relocation should be at a safe distance from the dam. The activity should be carried out by a specialist biologist. For bats inhabiting the reversible pressure tunnel (the completed part) and some of the research galleries, this work should be carried out before the start of construction outside the hibernation period.	Construction	Animal conservation
<b>M31.</b>	Explosive activities should only be carried out during daylight hours.	Construction	Minimising disturbance and conservation of species populations, including nocturnally active species (bats)
<b>M32.</b>	The establishment of sites for construction equipment, storage of rock and earth masses, as well as contamination with waste, should not be allowed within the protected area "Yadenitsa".	Construction	Prevention of damage/ destruction of natural habitats and habitats of species the protected area "Yadenitsa"

<b>M33.</b>	Securing the openings of the revision shafts to the "Yadenitsa" and "Chaira" sites should be done with a net with an eye not larger than 1x1 cm.	Construction	Limiting the mortality of specimens of small mammals, amphibians and reptiles subject to conservation in the protected area "Yadenitsa"
<b>M34.</b>	Developing a Landscape Development Project of the area around the bank and the operation road. It should provide for restoration of vegetation in the areas affected by the construction, as well as shaping the terrain and vegetation around the operating roads.	Construction	Recovery and better and acceptable landscape impact
<b>M35.</b>	At the end of the construction, the possible violations on road III-842 should be restored, and the suitability of the drinking water pipeline for the village of D. Belovo shall be provided during the entire time of construction in case of violations of construction activity.	Construction	Preserving the living conditions of the population in the village of D. Belovo and ensuring good transport links along road III-842
<b>M36.</b>	Building a local meteorological station on the site of the dam crest elevation.	Construction	Obtaining the necessary information about the meteorological elements for monitoring climate change
<b>M37.</b>	Performance of the Operating Instruction and Emergency Plan.	Operation	Ensuring normal operation of Yadenitsa Dam with safe operation
<b>M38.</b>	Drinking water for operating personnel shall be supplied as bottled.	Operation	Preserving the health of the operating personnel
<b>M39.</b>	In appropriate places around the Yadenitsa Dam, prohibition signs for entering the area of the water reservoir should be placed.	Operation	Prevention from incidents
<b>M40.</b>	To the operation and service building depending on the readiness of the WWTP to the town of Belovo, a modular treatment facility or a watertight cesspit should be provided.	Operation	Protection of waters, soils
<b>M41.</b>	Restocking of the Yadenitsa River above the dam with material from the Yadenitsa River under the dam after the confluence of the Yundolska River should be done after consultation with an ichthyologist	Operation	Maintenance of the biological integrity of the river ecosystem

## 6.3. Effectiveness of the mitigation measures included in EIA Decision No. 2-2/01.08.2017 of the MoEW for the individual protected areas

### 6.3.1. Protected Area BG0001386 "Yadenitsa"

Table 24 presents the effectiveness of the mitigation measures of EIA Decision No 2-2/01.08.2017 of the MoEW in relation to the Site specific conservation objectives for the Protected Area BG0001386 "Yadenitsa".

**Table 24. Effectiveness of the mitigation measures of EIA Decision No 2-2/01.08.2017 of the MoEW in relation to the Site specific conservation objectives for the Protected Area BG0001386 "Yadenitsa".**

Area code	Code of the destination site	Name of the destination site	Impact type					Measure number/condition of the EIA Decision	Relevance to a parameter from the site specific conservation objectives	Effectiveness of the measure
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals			
BG0001386	91EO	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i> )	-	-	X	-	-	M1c M10c M11c M16c M26c M27c M32c  VIII.1e	Area, Structure and Functions	<ul style="list-style-type: none"> <li>Control of the implementation of environmental protection measures;</li> <li>Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>Reducing the negative impacts on the inflows of the Yadenitsa River in the area of the dam;</li> <li>Prevention of the development of aggressive plant species;</li> <li>Prevention of damage/ destruction of natural habitats;</li> <li>Conservation of the vegetation</li> </ul>

										outside the water reservoir;
BG0001386	5088	Barbus cyclolepis	-	-	X	-	-	<b>VI.1n</b> <b>VIII.1e</b>  <b>M1c</b> <b>M10c</b> <b>M14c</b> <b>M15c</b> <b>M16c</b> <b>M28c</b> <b>M29c</b> <b>M40c</b> <b>M41c</b>	<b>Saquinavir</b> <b>Associated</b> <b>Habitat of a</b> <b>species</b>	<ul style="list-style-type: none"> <li>Control of the implementation of environmental protection measures;</li> <li>Protection of the quality of water in a surface water body;</li> <li>Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>Conservation of the fish species;</li> <li>Maintenance of the biological integrity of the river ecosystem;</li> </ul>
BG0001386	5,197	Sabanejewia balcanica	-	-	X	-	-	<b>VI.1n</b> <b>VIII.1e</b>  <b>M1c</b> <b>M10c</b> <b>M14c</b> <b>M15c</b> <b>M16c</b> <b>M28c</b> <b>M29c</b> <b>M40c</b> <b>M41c</b>	<b>Population</b> <b>Habitat of a</b> <b>species</b>	<ul style="list-style-type: none"> <li>Control of the implementation of environmental protection measures;</li> <li>Protection of the quality of water in a surface water body;</li> <li>Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>Conservation of the fish species;</li> </ul>
BG0001386	1093	Austropotam obius torrentium	-	-	X	-	-	<b>VI.1n</b> <b>VIII.1e</b>  <b>M1c</b> <b>M10c</b> <b>M14c</b> <b>M15c</b> <b>M16c</b> <b>M28c</b> <b>M29c</b>	<b>Population</b> <b>Habitat of a</b> <b>species</b>	<ul style="list-style-type: none"> <li>Control of the implementation of environmental protection measures;</li> <li>Protection of the quality of water in a surface water body;</li> <li>Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> </ul>

									<b>M40c</b>		<ul style="list-style-type: none"> <li>• Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>• Conservation of the fish species;</li> </ul>
BG0001386	1032.	Unio crassus	-	-	X	-	-		<b>YI.1n</b> <b>YIII.1e</b>  <b>M1c</b> <b>M10c</b> <b>M14c</b> <b>M15c</b> <b>M16c</b> <b>M28c</b> <b>M29c</b> <b>M40c</b>	<b>Saquinavir Associated Habitat of a species</b>	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Protection of the quality of water in a surface water body;</li> <li>• Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>• Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>• Conservation of the fish species;</li> </ul>
BG0001386	1193	Bombina variegata	-	-	X	-	X		<b>YI.1n</b> <b>YIII.1e</b>  <b>M1c</b> <b>M2c</b> <b>M10c</b> <b>M14c</b> <b>M15c</b> <b>M16c</b> <b>M28c</b> <b>M29c</b> <b>M30c</b> <b>M31c</b> <b>M32c</b> <b>M33c</b> <b>M40c</b>	<b>Population Habitat of a species</b>	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Protection of the quality of water in a surface water body;</li> <li>• Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>• Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>• Minimizing disturbance and conservation of the species populations;</li> <li>• Prevention of damage/destruction of habitats of species;</li> <li>• Limiting individual's mortality.</li> </ul>
BG0001386	1355	Lutra lutra	-	X	X	-	-		<b>YI.1n</b> <b>YII.2c</b> <b>YIII.1e</b>	<b>Habitat of a species</b>	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Protection of human health</li> </ul>

									<p><b>M1c</b>  <b>M8c</b>  <b>M10c</b>  <b>M16c</b>  <b>M23c</b>  <b>M24c</b>  <b>M25c</b>  <b>M28c</b>  <b>M29c</b>  <b>M30c</b>  <b>M31c</b>  <b>M32c</b>  <b>M33c</b>  <b>M41c</b></p>	<p>and the environment, prevention of incidents;</p> <ul style="list-style-type: none"> <li>• Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>• Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>• Providing restoration of the damaged lands outside the facilities;</li> <li>• Reducing the noise impact on the environment;</li> <li>• Minimizing disturbance and conservation of the species populations;</li> <li>• Prevention of damage/destruction of habitats of species;</li> </ul>
BG0001386	1354	Ursus arctos	-	-	X	-	-	<p><b>YII.2c</b>  <b>YIII.1e</b></p> <p><b>M1c</b>  <b>M8c</b>  <b>M10c</b>  <b>M16c</b>  <b>M23c</b>  <b>M24c</b>  <b>M25c</b>  <b>M28c</b>  <b>M29c</b>  <b>M30c</b>  <b>M31c</b>  <b>M32c</b>  <b>M33c</b>  <b>M41c</b></p>	<p><b>Habitat of a species</b></p> <ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Protection of human health and the environment, prevention of incidents;</li> <li>• Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>• Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>• Providing restoration of the damaged lands outside the facilities;</li> <li>• Reducing the noise impact on the environment;</li> <li>• Minimizing disturbance and conservation of the species populations;</li> </ul> <p>Prevention of damage/destruction of habitats of species;</p>	

Table 25 presents the degree of impact after applying the mitigating measures of EIA Decision No 2-2/01.08.2017 of the MoEW, regarding the natural habitats in the Protected Area BG0001386 "Yadenitsa".

**Table 25. Assessment of the degree of impact after the application of the mitigation measures of EIA Decision No 2-2/01.08.2017 of the MoEW, in relation to the natural habitats in the Protected Area BG0001386 "Yadenitsa".**

Area code	Code of the destination site	Name of the destination site	Parameter Area		Parameter Structure and function	
			Loss of Habitat		Change of habitat	
BG0001386	91EO	<i>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</i>	Construction - <b>NA</b>	Operation - <b>NA</b>	Construction - <b>NA</b>	Operation - <b>Degree 1</b>

**Legend: NA – Not Applicable**

Table 26 presents the degree of impact after applying the mitigating measures of EIA Decision No 2-2/01.08.2017 of the MoEW, with regard to the species in the Protected Area BG0001386 "Yadenitsa".

**Table 26. Assessment of the degree of impact after the application of the mitigation measures of EIA Decision No. 2-2/01.08.2017 of the MoEW, in respect of the species in the Protected Area BG0001386 "Yadenitsa".**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species						Parameter "Population"			
			Loss of Habitat		Habitat fragmentation		Change of habitat		Disturbance of species		Mortality of individuals	
BG0001386	5088	Barbus cyclolepis	Construction - NA	Operation - N/A	Construction - N/A	Operation - N/A	Construction - NA	Operation - Degree 1	Construction - NA	Operation - N/A	Construction - N/A	Operation - N/A
BG0001386	5,197	Sabanejewia balcanica	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A	Construction - N/A	Operation - Degree 1	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A
BG0001386	1093	Austropotamobius torrentium	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A	Construction - N/A	Operation - Degree 1	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A
BG0001386	1032.	Unio crassus	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A	Construction - N/A	Operation - Degree 1	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A
BG0001386	1193	Bombina variegata	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A	Construction - N/A	Operation - Degree 1	Construction - N/A	Operation - N/A	Construction - Degree 1	Operation - N/A
BG0001386	1355	Lutra lutra	Construction - N/A	Operation - N/A	Construction - N/A	Operation - Degree 1	Construction - N/A	Operation - Degree 1	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A
BG0001386	1354	Ursus arctos	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A	Construction - N/A	Operation - Degree 1	Construction - N/A	Operation - N/A	Construction - N/A	Operation - N/A

**Legend: NA – Not Applicable**

### 6.3.2. Conclusion on the effectiveness of the mitigation measures of EIA Decision No 2-2/01.08.2017 of the MoEW in relation to the Site specific conservation objectives for the Protected Area BG0001386 "Yadenitsa".

#### **The following conclusions can be made about the effectiveness of the mitigation measures of EIA Decision No. 2-2/01.08.2017 of the MoEW regarding the Site specific conservation objectives for the Protected Area BG0001386 "Yadenitsa":**

The territory where the project "Yadenitsa" will be implemented is located at a significant distance from the boundaries of the Protected Area BG0001386 "Yadenitsa" (316 m in a straight line and 550 m along the river).

The implementation of the project will not have an impact on the integrity, structure and functions of the Protected Area BG0001386 "Yadenitsa", as its elements are outside the boundaries of the area and their implementation does not directly affect the types of natural habitats and habitats of species subject to conservation.

The protected area covers the right bank of the Yadenitsa River, after the confluence of the Yundolska River and this section is expected to be impacted by the implementation of the project.

- **Effectiveness of mitigation measures to reduce the impact on the affected natural habitat types in the Protected Area BG0001386 "Yadenitsa".**

The Yadenitsa Project will not have a direct impact on the target natural habitat types subject to conservation in the BG0001386 Yadenitsa Protected Area, both during construction and during operation.

The only possible negative impact of the implementation of the project is on the natural habitat 91 EC\* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*), presented along the bank of the Yadenitsa River from the site of the confluence under the dam with the Yundolska River until leaving the borders of the zone, in case of reduction of the current outflow of the river. Given the fact that during the operation of the project it is envisaged to ensure an outflow into the river not less than the current one, no prerequisites will be created for a significant negative impact on the habitat and the related species.

The condition proposed in EIA Decision No 2-2/01.08.2017 of the MOEW (item III.1. Maintenance of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River) and mitigation measures relevant to habitat 91 EC\* - M1, M10, M11, M16, M26, M27, M32, will contribute to minimizing and preventing possible negative impacts on the natural habitat.

In this regard, the mitigating measures envisaged in EIA Decision No 2-2/01.08.2017 of the MoEW are effective in terms of the expected impacts on habitat 91 EC\*, subject to conservation in the Protected Area BG0001386 "Yadenitsa", and no additional measures need to be planned.

- **Effectiveness of mitigation measures to reduce the impact on the affected habitats of fish species in the Protected Area BG0001386 "Yadenitsa"**

The conditions proposed in EIA Decision No 2-2/01.08.2017 of the MoEW (item I.1. Obtaining the necessary permits under the Water Act; item III.1. Maintenance of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River) and mitigation measures relevant to both species of fish - *Barbus cyclolepis* and *Sabanejewia balcanica* – M1, M10, M14, M15, M16, M28, M29, M40, M41, will contribute to minimizing and preventing possible negative impacts (pollution and clouding of water bodies, fine sedimentary deposits leading to filling of the spaces between the stones, etc.) due to incidents during construction and operation rather than planned activities.

Habitats of the species *Barbus cyclolepis* and *Sabanejewia balcanica* have been established within the zone only along the Chepinska River. These habitats are located at a significant distance from the territory where the Yadenitsa project will be implemented. In the Yadenitsa River, the species *Barbus cyclolepis* was registered only outside the zone, downstream of the river, and during the field studies in 2023 the species *Sabanejewia balcanica* was not found.

During construction, the discharge of the river outflow into the Yadenitsa will be carried out after the sedimentation of the construction, rain and slope waters from the construction sites in the existing mechanical settlements, thus the good ecological condition in terms of hydromorphological, biological and physicochemical elements for the quality of the Yadenitsa River, as a key element of the protected area, will not be degraded, respectively the habitats of the fish species.

The assessment formed by the analysis of the IP with other existing water catchments of the tributaries of the Yadenitsa River and the river itself in the area of the dam, shows that given the liquidation of the existing water catchment No. 5 of the Yundolska River will ensure an increase in the flow of the Yadenitsa River in the area, which creates conditions for preserving and improving the current conditions in the habitats and species of fish in the Yadenitsa Protected Area.

In this regard, the mitigating measures envisaged in EIA Decision No 2-2/01.08.2017 of the MoEW are effective in terms of the expected impacts on the habitats of the two species of fish - Marishka barbell (*Barbus cyclolepis*) and Balkan barbell (*Sabanejewia balcanica*), subject to conservation in the Protected Area BG0001386 "Yadenitsa", and no additional measures need to be planned.

- **Effectiveness of mitigation measures to reduce the impact on affected habitats of aquatic invertebrate species in the Protected Area BG0001386 "Yadenitsa"**

The conditions proposed in EIA Decision No 2-2/01.08.2017 of the MoEW (item I.1. Obtaining the necessary permits under the Water Act; item III.1. Maintenance of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River) and mitigation measures relevant to the species \*Stone crayfish (*Austropotamobius torrentium*) and \*Oval river mussel (*Unio crassus*) - M1, M10, M14, M15, M16, M28, M29, M40c, will contribute to minimizing and preventing possible negative impacts (pollution and clouding of water bodies, fine sedimentary deposits leading to filling of the spaces

between the stones, etc.) due to incidents during construction and operation rather than planned activities.

During the field studies conducted in 2023, the species \*Stone crayfish (*Austropotamobius torrentium*) was found with good population status (106 individuals in total) in all transects studied on two of the rivers (Yadenitsa – a total of 9 individuals in 3 transects; Yundolska – a total of 97 individuals in 4 transects). The four deposits from the Yundolska River and two of the deposits on the Yadenitsa River (opposite peak Parnevo and in the locality of Pazovitsa) are new to the area. The average abundance of the species in the studied 15 transects of the protected area is 7 individuals in 100 m linear transect (0.07 ind./m<sup>2</sup>; 700 ind./ha). Data from these studies show that \*Stone crayfish (*Austropotamobius torrentium*) is relatively common and with stable populations in very good condition in the "Yadenitsa" spa, especially in the Yundolska and Yadenitsa rivers, where the species is found in all the studied transects.

In the Yadenitsa river suitable habitats for \*Oval river mussel (*Unio crassus*) have been established, but they have a significantly smaller area. In the studies conducted in 2023, the species was not registered in any of the studied rivers in the protected area, which is a confirmation of the data from the previous studies and evidence that if the species is found within the zone, it is relatively rare and has a very small population.

In this regard, the mitigation measures envisaged in EIA Decision No 2-2/01.08.2017 of the MoEW are effective in terms of the expected impacts on the habitats of the two species of aquatic invertebrates - \*Stone crayfish (*Austropotamobius torrentium*) and \*Oval river mussel (*Unio crassus*), subject to conservation in the Protected Area BG0001386 "Yadenitsa", and no additional measures need to be planned.

- **Effectiveness of mitigation measures to reduce the impact on affected habitats of amphibian species in the Protected Area BG0001386 "Yadenitsa"**

The conditions proposed in EIA Decision No 2-2/01.08.2017 of the MoEW (item I.1. Obtaining the necessary permits under the Water Act; item III.1. Maintenance of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River) and mitigation measures relevant to the species Yellow-bellied toad (*Bombina variegata*) – M1, M2, M10, M14, M15, M16, M28, M29, M30, M31, M32, M33, M40, will contribute to minimizing and preventing possible negative impacts (pollution and clouding of water bodies, fine sedimentary deposits leading to filling of the spaces between the stones, etc.) due to incidents during construction and operation rather than to planned activities.

Given the nature of the national range of the species Yellow-bellied toad (*Bombina variegata*) - a typical low- and mid-mountainous species, widely distributed in the country, Protected Area BG0001386 "Yadenitsa" is not of primary importance for its conservation, but the area is important for ensuring the connectivity of the network in the continental and alpine biogeographical region.

The impact on the populations of the species and its habitats will be indirect and will be insignificant in extent. The structure of the species populations in the area will not be disturbed due to a possible deterioration of the parameters and the occurrence of hydrological changes during the construction and exploitation of the waters of the Yadenitsa River after the dam wall.

In this regard, the mitigating measures envisaged in EIA Decision No 2-2/01.08.2017 of the MoEW are effective in terms of the expected impacts on the habitats of the species *Bombina variegata*, subject to conservation in the Protected Area BG0001386 "Yadenitsa", and no additional measures need to be planned.

- **Effectiveness of mitigation measures to reduce the impact on affected mammalian species' habitats in the Protected Area BG0001386 "Yadenitsa"**

The conditions proposed in EIA Decision No 2-2/01.08.2017 of the MoEW (item I.1. Obtaining the necessary permits under the Water Act; item II. 2. During construction, dangerous substances should not be present at the sites and facilities subject of the IP. III.1. Maintenance of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River), and mitigation measures relevant to the Otter (*Lutra lutra*) - M1; M8; M10; M16; M23; M24; M25; M28; M29; M30; M31; M32; M33; M41, will contribute to minimizing and preventing possible negative impacts (pollution and clouding of water bodies, fine sedimentary deposits leading to filling the spaces between the stones, etc.) due to incidents during construction and operation rather than planned activities.

During construction, the discharge of the river outflow into the Yadenitsa will be carried out after the sedimentation of the construction, rain and slope waters from the construction sites in the existing mechanical settlements, thus the good ecological condition in terms of hydromorphological, biological and physicochemical elements for the quality of the Yadenitsa River, as a key element of the protected area, will not be degraded, respectively the habitats of the Otter (*Lutra lutra*).

The assessment of the extent of fragmentation of the habitats of the Otter (*Lutra lutra*) in the area will also be insignificant. The implementation of the project will affect the Yadenitsa River as a bio-corridor for the otter in its part outside the protected area and near the dam. Given the ability of the species to inhabit the coastal areas of the Yadenitsa River with a width of 20 m, and that the food base in the river is assessed as low, the impact will be small and will not lead to negative consequences for the population of the species in the area.

In this regard, the mitigating measures provided for in EIA Decision No 2-2/01.08.2017 of the MoEW are effective in terms of the expected impacts on the habitats of the species *Lutra lutra*, subject to conservation in the Protected Area BG0001386 "Yadenitsa", and no additional measures need to be planned.

### 6.3.3. Protected Area BG0000636 "Niska Rila"

Table 27 presents an assessment of the effectiveness of the mitigation measures of EIA Decision No 2-2/01.08.2017 of the Ministry of Environment and Water, in relation to the Site specific conservation objectives for the Protected Area BG0000636 "Niska Rila".

**Table 27 Effectiveness of mitigating measures from EIA Decision No 2-2/01.08.2017 of the MoEW, in relation to the Site specific conservation objectives for the Protected Area BG0000636 "Niska Rila".**

Area code	Code of the destination site	Name of the destination site	Impact type					Measure number/ condition of the EIA Decision	Relevance to a parameter from the Specific and detailed conservation targets	Effectiveness of the measure
			Loss of Habitat	Habitat fragmentation	Change of habitat	Disturbance of species	Mortality of individuals			
BG0000636	91BA	Moesian fir forests	X	-	-	-	-	M1c M26c M27c	Area, Structure and Functions	<ul style="list-style-type: none"> <li>Control of the implementation of environmental protection measures;</li> <li>Conservation of the vegetation outside the water reservoir;</li> <li>Prevention of the development of aggressive plant species;</li> <li>Prevention of damage/ destruction of natural habitats;</li> </ul>
BG0000636	91EO	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i> )	X	-	X	-	-	M1c M10c M11c M16c M26c M27c  VIII.1e	Area, Structure and Functions	<ul style="list-style-type: none"> <li>Control of the implementation of environmental protection measures;</li> <li>Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>Reducing the negative impacts on the inflows of the Yadenitsa River in the area of the</li> </ul>

										dam; <ul style="list-style-type: none"> <li>• Prevention of the development of aggressive plant species;</li> <li>• Prevention of damage/ destruction of natural habitats;</li> <li>• Conservation of the vegetation outside the water reservoir;</li> </ul>
BG0000636	1086	<i>Cucujus cinnaberinus</i>	X	-	-	-	-	M1c M8c M22c M26c	Population Habitat of a species	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Environmental protection, incident prevention;</li> <li>• Conservation of the vegetation outside the water reservoir;</li> <li>• Prevention of damage/destruction of habitats of species;</li> </ul>
BG0000636	6908	<i>Morimus asper funereus</i>	X	-	-	-	-	M1c M8c M22c M26c	Population Habitat of a species	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Environmental protection, incident prevention;</li> <li>• Conservation of the vegetation outside the water reservoir;</li> <li>• Prevention of damage/destruction of habitats of species;</li> </ul>
BG0000636	1093	<i>Austropotamobius torrentium</i>	X	-	X	-	-	VI.1n VIII.1e  M1c M10c M14c M15c M16c M28c M29c M40c	Population Habitat of a species	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Protection of the quality of water in a surface water body;</li> <li>• Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>• Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> </ul>

										<ul style="list-style-type: none"> <li>• Conservation of the species;</li> </ul>
BG0000636	1193	<i>Bombina variegata</i>	X	-	X	-	X	<b>VI.1n</b> <b>VIII.1e</b>  <b>M1c</b> <b>M2c</b> <b>M10c</b> <b>M14c</b> <b>M15c</b> <b>M16c</b> <b>M28c</b> <b>M29c</b> <b>M30c</b> <b>M31c</b> <b>M33c</b> <b>M40c</b>	<b>Population</b> <b>Habitat of a</b> <b>species</b>	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Protection of the quality of water in a surface water body;</li> <li>• Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>• Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>• Minimizing disturbance and conservation of the species populations;</li> <li>• Prevention of damage/destruction of habitats of species;</li> <li>• Limiting individual's mortality.</li> </ul>
BG0000636	1352	<i>Canis lupus</i>	X	-	-	X	-	<b>M1c</b> <b>M28c</b> <b>M31c</b>	<b>Population</b> <b>Habitat of a</b> <b>species</b>	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Minimizing disturbance and conservation of the species populations;</li> <li>• Prevention of damage/destruction of habitats of species;</li> </ul>
BG0000636	1354	<i>Ursus arctos</i>	X	-	X	X	-	<b>M1c</b> <b>M28c</b> <b>M31c</b>	<b>Population</b> <b>Habitat of a</b> <b>species</b>	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Minimizing disturbance and conservation of the species populations;</li> <li>• Prevention of damage/destruction of habitats of species;</li> </ul>
BG0000636	1355	<i>Lutra lutra</i>	X	X	X	-	-	<b>VI.1n</b> <b>VII.2c</b>	<b>Population</b> <b>Habitat of a</b>	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection</li> </ul>

									<b>VIII.1e</b>  <b>M1c</b> <b>M8c</b> <b>M10c</b> <b>M16c</b> <b>M23c</b> <b>M24c</b> <b>M25c</b> <b>M28c</b> <b>M29c</b> <b>M30c</b> <b>M31c</b> <b>M33c</b> <b>M41c</b>	<b>species</b>	measures; <ul style="list-style-type: none"> <li>• Protection of human health and the environment, prevention of incidents;</li> <li>• Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>• Ensuring and maintaining the biological integrity of the river ecosystem of the Yadenitsa River.</li> <li>• Providing restoration of the damaged lands outside the facilities;</li> <li>• Reducing the noise impact on the environment;</li> <li>• Minimizing disturbance and conservation of the species populations;</li> <li>• Conservation of the species;</li> <li>• Prevention of damage/destruction of habitats of species;</li> </ul>
BG0000636	4042	<i>Polyommatus eroides</i>	X	-	-	-	-	<b>M1c</b> <b>M8c</b> <b>M22c</b> <b>M26c</b>	<b>Population Habitat of a species</b>	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Environmental protection, incident prevention;</li> <li>• Conservation of the vegetation outside the water reservoir; Prevention of damage/destruction of habitats of species;</li> </ul>	
BG0000636	4046	<i>Cordulegaster heros</i>	X	-	X	-	-	<b>M1c</b> <b>M8c</b> <b>M10c</b> <b>M16c</b> <b>M22c</b> <b>M26c</b> <b>M29c</b>	<b>Population Habitat of a species</b>	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Environmental protection, incident prevention;</li> <li>• Creating conditions for renaturalization and gradual improvement of the ecological status of the Yadenitsa River.</li> <li>• Ensuring the biological integrity</li> </ul>	

										of the river ecosystem of the Yadenitsa River. <ul style="list-style-type: none"> <li>• Conservation of the vegetation outside the water reservoir;</li> <li>• Conservation of the species;</li> <li>• Prevention of damage/destruction of habitats of species;</li> </ul>
BG0000636	4053	<i>Paracaloptenus caloptenoides</i>	X	-	-	-	-	M1c M8c M22c M26c	Population Habitat of a species	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Environmental protection, incident prevention;</li> <li>• Conservation of the vegetation outside the water reservoir;</li> </ul> Prevention of damage/destruction of habitats of species;
BG0000636	6199	<i>Euplagia quadripunctaria</i>	X	-	-	-	-	M1c M8c M22c M26c	Population Habitat of a species	<ul style="list-style-type: none"> <li>• Control of the implementation of environmental protection measures;</li> <li>• Environmental protection, incident prevention;</li> <li>• Conservation of the vegetation outside the water reservoir;</li> </ul> Prevention of damage/destruction of habitats of species;

Table 28 presents the degree of impact after applying the mitigating measures of EIA Decision No 2-2/01.08.2017 of the MoEW, regarding the natural habitats in the Protected Area BG0000636 "Niska Rila".

**Table 28. Assessment of the degree of impact after the application of the mitigation measures of EIA Decision No 2-2/01.08.2017 of the MoEW, in relation to the natural habitats in the Protected Area BG0000636 "Niska Rila".**

Area code	Code of the destination site	Name of the destination site	Parameter Area		Parameter Structure and function	
			Loss of Habitat	Change of habitat		
BG0000636	91BA	<i>Moesian fir forests</i>	Construction Degree 2	Operation - NA	Construction - NA	Operation - NA
BG0000636	91EO	<i>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</i>	Construction Degree 2	Operation - NA	Construction - NA	Operation - Degree 1

**Legend: NA – Not Applicable**

Table 29 presents the degree of impact after applying the mitigating measures of EIA Decision No 2-2/01.08.2017 of the MoEW, in respect of the species in the Protected Area BG0000636 "Niska Rila".

**Table 29. Assessment of the degree of impact after the application of the mitigation measures of EIA Decision No 2-2/01.08.2017 of**

**the MoEW, in respect of the species in the Protected Area BG0000636 "Niska Rila".**

Area code	Code of the destination site	Name of the destination site	Parameter Habitat of a species						Parameter "Population"			
			Loss of Habitat		Habitat fragmentation		Change of habitat		Disturbance of species		Mortality of individuals	
BG0000636	1086	<i>Cucujus cinnaberinus</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	6908	<i>Morimus asper funereus</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	1093	<i>Austropotamobius torrentium</i>	Construction Degree 2	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation Degree 1	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	1193	<i>Bombina variegata</i>	Construction Degree 2	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation Degree 1	Construction – NA	Operation – NA	Construction Degree 1	Operation – NA
BG0000636	1352	<i>Canis lupus</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA
BG0000636	1354	<i>Ursus arctos</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation Degree 1	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA
BG0000636	1355	<i>Lutra lutra</i>	Construction Degree 2	Operation – NA	Construction – NA	Operation Degree 1	Construction – NA	Operation Degree 1	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	4042	<i>Polyommatus eroides</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	4046	<i>Cordulegaster heros</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation Degree 1	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	4053	<i>Paracaloptenus caloptenoides</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA
BG0000636	6199	<i>Euplagia quadripunctaria</i>	Construction Degree 1	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA	Construction – NA	Operation – NA

**Legend: NA – Not Applicable**

#### 6.3.4. Conclusion on the effectiveness of the mitigation measures of EIA Decision No 2-2/01.08.2017 of the MoEW, in relation to the defined Site specific conservation objectives for the Protected Area BG0000636 "Niska Rila"

**The following conclusions can be drawn about the effectiveness of the mitigation measures from the EIA Decision No. 2-2/01.08.2017 of the Ministry of Environment and Water, regarding the Site specific conservation objectives for the Protected Area BG0000636 "Niska Rila":**

- **Effectiveness of mitigation measures to reduce the impact on the affected natural habitat types in the Protected Area BG0000636 "Niska Rila".**

The area of the types of natural habitats that will be destroyed during construction will be restored in compliance with condition II.3 "Carrying out technical and biological reclamation of the affected lands outside the facilities in accordance with the requirements of *Ordinance No. 26 of 2.10.1996 on the reclamation of disturbed lands, improvement of poorly productive lands, removal and utilization of the humus layer*" and application of measure (M27) of EIA Decision No. 2-2/01.08.2017 of the Ministry of Environment and Water related to "Use of typical for the region plant species that were cut during the construction of the IP". The restoration of appropriate habitats should be made on the basis of a prepared "Reclamation Project", which provides for the use of local species, with the aim of restoring the habitat to its characteristics.

The mitigation measures relevant for habitat 91 VA-M1, M26, M27 proposed in EIA Decision No 2-2/01.08.2017 of the MoEW; as well as condition (item III.1. Maintenance of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River) and mitigation measures relevant for habitat 91 EC\* - M1, M10, M11, M16, M26, M27, will contribute to minimizing and preventing possible negative impacts on natural habitats.

In this regard, the mitigating measures envisaged in EIA Decision No 2-2/01.08.2017 of the MoEW are also effective in terms of the expected impacts on the natural habitat types subject to conservation in the Protected Area BG0000636 "Niska Rila", and no additional measures need to be planned.

- **Effectiveness of mitigation measures to reduce the impact on the affected habitats of invertebrate species in the Protected Area BG0000636 "Niska Rila".**

The area of the appropriate habitats of the invertebrate species that will be destroyed during construction will be restored in compliance with condition II.3 "Carrying out technical and biological reclamation of the affected lands outside the facilities in accordance with the requirements of *Ordinance No. 26 of 2.10.1996 on the reclamation of disturbed lands, improvement of poorly productive lands, removal and utilization of the humus layer*" and the application of measure (M27) of EIA Decision No. 2-2/01.08.2017 of the Ministry of Environment and Water related to "Use of typical for the region plant species that were cut down during the construction of the IP". The restoration of appropriate habitats should be made on the basis of a prepared "Reclamation Project", which provides for the use of local species, and the goal is for

the habitat to regain its characteristics, according to the ecology of the species concerned.

**Regarding the effectiveness of mitigating measures to prevent pollution and clouding of water bodies, fine sedimentary deposits leading to the filling of the spaces between the stones, etc., respectively reducing the impact on the habitats of aquatic invertebrates in the Protected Area BG0000636 "Niska Rila".**

The conditions proposed in EIA Decision No 2-2/01.08.2017 of the MoEW (item I.1. Obtaining the necessary permits under the Water Act; item III.1. Maintenance of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River) and mitigation measures relevant to the species *Austropotamobius torrentium* - M1; M10; M14; M15; M16; M28; M29; M40, will contribute to minimizing and preventing possible negative impacts (pollution and clouding of water bodies, fine sedimentary deposits leading to filling of the spaces between the stones, etc.) due to incidents during construction and operation rather than planned activities.

The mitigation measures proposed in EIA Decision No 2-2/01.08.2017 of the MoEW relevant to the other invertebrate species - M1, M8, M22, M26, will contribute to minimizing and preventing possible negative impacts on their habitats in the area.

In this regard, the mitigation measures envisaged in EIA Decision No 2-2/01.08.2017 of the MoEW are also effective in terms of the expected impacts on invertebrate species subject to conservation in the Protected Area BG0000636 "Niska Rila" and no additional measures need to be planned.

- **Effectiveness of mitigation measures to reduce the impact on the affected habitats of amphibian species in the Protected Area BG0000636 "Niska Rila".**

The area of the appropriate habitats of the amphibian species that will be destroyed during construction will be restored in compliance with condition II.3 "Carrying out technical and biological reclamation of the affected lands outside the facilities in accordance with the requirements of *Ordinance No. 26 of 2.10.1996 on the reclamation of disturbed lands, improvement of poorly productive lands, removal and utilization of the humus layer*" and the application of measure (M27) of EIA Decision No. 2-2/01.08.2017 of the Ministry of Environment and Water related to "Use of typical for the region plant species that were cut during the construction of the IP". The restoration of appropriate habitats should be made on the basis of a prepared "Reclamation Project", which provides for the use of local species, and the goal is for the habitat to regain its characteristics, according to the ecology of the species concerned.

The conditions proposed in EIA Decision No 2-2/01.08.2017 of the MoEW (item I.1. Obtaining the necessary permits under the Water Act; item III.1. Maintenance of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River) and mitigation measures relevant to the species Yellow-bellied toad (*Bombina variegata*) - M1; M2; M10; M14; M15; M16; M28; M29; M30; M31; M33; M40, will contribute to minimizing and preventing possible negative impacts (pollution and overshadowing of water bodies,

fine sedimentary deposits leading to filling of the spaces between the stones, etc.) due to incidents during construction and operation rather than planned activities.

In this regard, the mitigating measures envisaged in EIA Decision No 2-2/01.08.2017 of the MoEW are also effective in terms of the expected impacts on the species of amphibians subject to conservation in the Protected Area BG0000636 "Niska Rila" and no additional measures need to be planned.

- **Effectiveness of mitigation measures to reduce the impact on the affected habitats of mammal species in the Protected Area BG0000636 "Niska Rila".**

The area of the appropriate habitats of the mammal species that will be destroyed during the construction will be restored in compliance with condition II.3 "Carrying out technical and biological reclamation of the affected lands outside the facilities in accordance with the requirements of *Ordinance No. 26 of 2.10.1996 on the reclamation of disturbed lands, improvement of poorly productive lands, removal and utilization of the humus layer*" and the application of measure (M27) of EIA Decision No. 2-2/01.08.2017 of the Ministry of Environment and Water related to "Use of typical for the region plant species that were cut during the construction of the IP". The restoration of appropriate habitats should be made on the basis of a prepared "Reclamation Project", which provides for the use of local species, and the goal is for the habitat to regain its characteristics, according to the ecology of the species concerned.

The mitigation measures relevant to the species of Wolf (*Canis lupus*) and Brown Bear (*Ursus arctos*) proposed in EIA Decision No 2-2/01.08.2017 of the MoEW - M1; M28; M31, will contribute to minimizing and preventing possible negative impacts on the habitats of the species. The duration of the impact of species concerns during construction is temporary, reversible and local in nature and will not be significant, given the already built facilities, water supply, sewerage, electricity supply and communications at the two construction sites "Yadenitsa" and "Chaira", and in the reverse pressure tunnel, as well as the proposed measures.

In addition, conditions (i. I.1. Obtaining the necessary permits under the Water Act; item II. 2. During construction, dangerous substances should not be present at the sites and facilities subject of the IP. III.1. Maintenance of the accepted minimum allowable flow of 0.080 m<sup>3</sup>/s for the Yadenitsa River under the Yadenitsa Dam before the confluence of the Yundolska River), and mitigation measures relevant to the Otter (*Lutra lutra*) - M1; M8; M10; M16; M23; M24; M25; M28; M29; M30; M31; M33; M41, will contribute to minimizing and preventing possible negative impacts (pollution and clouding of water bodies, fine sedimentary deposits leading to filling of the spaces between the stones, etc.) due to incidents during construction and operation rather than planned activities.

During construction, the discharge of the river outflow into the Yadenitsa will be carried out after the sedimentation of the construction, rain and slope waters from the construction sites in the existing mechanical settlements, thus the good ecological condition in terms of hydromorphological, biological and physicochemical elements for the quality of the Yadenitsa River, as a key element of the protected area, will not be degraded, respectively the habitats of the Otter (*Lutra lutra*).

The assessment of the extent of fragmentation of the habitats of the Otter (*Lutra lutra*) in the area will also be insignificant. The implementation of the project will affect the Yadenitsa River as a bio-corridor for the otter near the dam. Given the ability of the species to inhabit the coastal areas of the Yadenitsa River with a width of 20 m, and that the food base in the river is assessed as low, the impact will be small and will not lead to negative consequences for the population of the species in the area.

In this regard, the mitigating measures envisaged in EIA Decision No 2-2/01.08.2017 of the MoEW are also effective in terms of the expected impacts on mammal species subject to conservation in the Protected Area BG0000636 "Niska Rila" and no additional measures need to be planned.

### 6.3.5. Monitoring the effectiveness of mitigation measures

In order to ensure the effectiveness of the mitigation measures envisaged in the project, it is necessary to implement a system of quality assessment and control at the stage of construction of the facilities and at the stage of their operation.

For this purpose, a condition is included in EIA Decision No 2-2/01.08.2017 of the MoEW in the design phase - item I.2. 2. Preparing and coordinating with the Regional Inspectorate of Environment and Water-Pazardzhik and the River Basin Directorate "East Aegean Region" Self-Monitoring Plan.

#### **Monitoring during the construction**

According to the current legislation, during construction, independent construction supervision of the compliance of all construction activities, including the mitigation measures that are an integral part of the project, is required. During the implementation, on-site inspections should be carried out at the construction site, including by an environmental expert (biologist, ecologist) to monitor the proper construction of the facilities and give recommendations and corrective actions in case of established deviation/non-compliance with the requirements and standards. Before putting the site into operation, it is necessary to make the required, according to the legislation, samples and tests of the facilities. They aim to determine whether they are fit and safe to operate. The results of the inspections and tests carried out shall be documented and protocols drawn up in accordance with the Spatial Planning Act and Ordinance No. 3/2003 on the drawing up of acts and protocols during construction.

#### **Monitoring during the operation**

The "Yadenitsa" Dam will be performed:

- ✓ technical monitoring
- ✓ environmental monitoring

#### **Technical monitoring**

Technical monitoring is monitoring that includes observations and measurements on the dam and water reservoir.

The role of technical monitoring is:

- to provide a real assessment of the condition of the dam wall, a forecast for its operation with an assessment of its structural and technological security;
- to ensure, according to the specified periods, the preparation of a water balance and alluvial balance in the "Yadenitsa" water reservoir.

## **Environmental monitoring**

The results of the technical monitoring are taken into account by the monitoring of the state of the environment, because they ensure the safe operation of the dam.

The purpose of the Self-Monitoring Plan of the status of the environment is to ensure the performance of systematic, quality and independent observations, measurements and control during the construction and operation of the "Yadenitsa" Project. During construction, monitoring is performed by the selected contractor and controlled by the contracting authority, and during operation by the owner of the facility.

In accordance with their powers, the Regional Inspectorate of Environment and Water-Pazardzhik and the River Basin Directorate "East Aegean Region" should carry out on-the-spot inspections in terms of compliance with the conditions and measures in EIA Decision No 2-2/01.08.2017 of MoEW, the implementation of Self-Monitoring Plan, as well as the implementation of the given injunctions (where given).

## VII. Conclusion

### 7.1. Conclusion on the extent of the impact of the project on the Site specific conservation objectives for the Protected Area BG0000495 "Rila"

No significant negative impact of the implementation of the project on the site specific conservation objectives of the protection of the SAC BG0000495 "Rila" is expected.

### 7.2. Conclusion on the extent of the impact of the project on the Site specific conservation objectives for the Protected Area BG0002129 "Rila Buffer"

No significant negative impact of the implementation of the project on the site specific conservation objectives of the protection of the SPA BG0002129 "Rila Buffer" is expected.

### 7.3. Conclusion on the extent of the impact of the project on the Site specific conservation objectives for the Protected Area BG0001386 "Yadenitsa"

No significant negative impact of the implementation of the project on the site specific conservation objectives of the protection of the SAC BG0001386 "Yadenitsa" is expected.

### 7.4. Conclusion on the extent of the impact of the project on the Site specific conservation objectives for the Protected Area BG0000636 "Niska Rila"

No significant negative impact of the implementation of the project on the site specific conservation objectives of the protection of the SAC BG0000636 "Niska Rila" is expected.

## VIII. Data and information used

### **1. Data and information included in the EIA report and its annexes, including Non-technical summary, Water and Environment Report, etc., which include:**

- ✓ Data and information about the project, including description, characteristics, map material, etc.;
- ✓ Models of atmospheric air and noise emissions, a model for preserving the biological integrity of the river ecosystem;
- ✓ Data from the work on the Water and Environment Report from 2016, including registrations of species from the own study within the project ranges;

### **2. Data and information available in the reports with the developed specific objectives of the four protected areas, which include:**

- ✓ Information on the target sites – environmental characteristics, biogeographical/national level status, protected area level status, field data from surveys of the target sites;
- ✓ Parameters for defining the objectives of the individual target objects – target values, present value, clarifications on the target and present value, goal to be achieved;
- ✓ Proposed changes to the Standard Data Form (SDF);
- ✓ Map material on the distribution of natural habitat types and species habitats in the four protected areas, in a GIS environment.

To the extent that the Site specific conservation objectives for the four protected areas have been elaborated in the last two years (data collection and designation), the information on the target species and natural habitat types can be considered to be the latest scientific information and should guide the impact assessment process.

### **3. Data and information from the project "Mapping and determining the conservation status of natural habitats and species – phase I", MoEW, 2013.**

### **4. Data, information and approaches from other studies, reports and analyses related to the assessment of infrastructure projects for compliance with certain Site specific conservation objectives in Bulgaria and other EU Member States.**