Financed under a specific grant agreement no 2018/402-850 from EU IPA II Multi-Beneficiary Programme for Albania, Bosnia and Herzegovina, North Macedonia, Kosovo*, Montenegro and Serbia

Western Balkans Investment Framework Infrastructure Project Facility Technical Assistance 8 (IPF 8)

TA2018148R0 IPA

Mediterranean Corridor, Bosnia and Herzegovina - Croatia CVc Road Interconnection, Subsection: Konjic (Ovcari) - Prenj Tunnel - Mostar North

Gap Analysis & ESIA Disclosure Pack

WB20-BiH-TRA-02 Component 1

Volume 2: Technical Annexes to the ESIA

Annex D: Critical Habitat Assessment

December 2025

COWI | IPF

Western Balkans Investment Framework (WBIF)

Infrastructure Project Facility Technical Assistance 8 (IPF 8)

Infrastructures: Energy, Environment, Social, Transport and Digital Economy

TA2018148 R0 IPA

Volume 2: Technical Annexes to the ESIA

Annex D: Critical Habitat Assessment

December 2025

The Infrastructure Project Facility (IPF) is a technical assistance instrument of the Western Balkans Investment Framework (WBIF) which is a joint initiative of the European Union, International Financial Institutions, bilateral donors and the governments of the Western Balkans which supports socio-economic development and EU accession across the Western Balkans through the provision of finance and technical assistance for strategic infrastructure investments. This technical assistance operation is financed with EU funds.
Disclaimer: *The authors take full responsibility for the contents of this report. The opinions expressed do not necessarily reflect the view of the European Union or the European Investment Bank.*

PROJECT NO.	DOCUMENT NO.
WB20-BiH-TRA-02	

VERSION	DATE OF ISSUE	DESCRIPTION	PREPARED	CHECKED	APPROVED
1	25/09/2021	Annex D: Critical Habitat Assessment	Team of experts	Irem Silajdžić Konstantin Siderovski	Richard Thadani
2	21/11/2022	Annex D: Critical Habitat Assessment	Team of experts	Irem Silajdžić	Richard Thadani
3	03/03/2023	Annex D: Critical Habitat Assessment	Team of experts	Irem Silajdžić	Richard Thadani
4	10/10/2023	Annex D: Critical Habitat Assessment	Team of experts	Irem Silajdžić	Richard Thadani
5	06/01/2025	Annex D: Critical Habitat Assessment	Team of experts	Irem Silajdžić	Richard Thadani
6	01/08/2025	Annex D: Critical Habitat Assessment	Team of experts	Irem Silajdžić	Richard Thadani
7	31/12/2025	Annex D: Critical Habitat Assessment	Team of experts	Irem Silajdžić	Richard Thadani

CONTENTS

List of tables

List of figures

1 Introduction

1.1 Background

In August 2020, ENOVA ("the Consultant") was commissioned to conduct an environmental and social impact assessment referring to the Corridor Vc section Konjic (Ovcari) - Prenj Tunnel - Mostar North. The results of the previous biodiversity gap analysis indicated that additional information on biodiversity would be needed for an informed assessment of sensitive habitats and ecological characteristics. Additional information was obtained through field research and analysis of available literature and project documentation. The following field research has been done and is to be included in Annexes to the final Environmental and Social Impact Assessment (ESIA) Report:

- Annex A: Habitats, vegetation and invasive species
- Annex B: Invertebrates
- Annex C: Vertebrates
  - Annex C-1: Ichthyofauna
  - Annex C-2: Herpetofauna (amphibians and reptiles)
  - Annex C-3: Ornithofauna
  - Annex C-4: Mammals (Bats)
  - Annex C-5: Mammals (Large mammals).

Once the baseline data was collected, the Consultant was able to proceed with the next stage – critical habitat assessment. The purpose of this stage is to determine if any features in the study area qualify as priority biodiversity features or critical habitats following the definitions provided in EBRD's Performance Requirement 6 (2019) and Guidance Note for PR 6 (2022) as well as EIB Standard 4 (2022). These features require special attention in impact assessment and mitigation planning.

2 Methodology

2.1 Introduction

Assessment of potential impact upon sensitive biodiversity features that could be considered "Critical Habitat" and/or "Priority Biodiversity Feature" is done in accordance to EBRD Performance Requirement 6 (2019) and EIB Standard 4: Biodiversity and Ecosystems (2022).

Critical Habitat (CH) is a description of the most significant and highest priority areas of the planet for biodiversity conservation. It takes into account both global and national priority setting systems and builds on the conservation biology principles of 'vulnerability' (degree of threat) and 'irreplaceability' (rarity or uniqueness). Determination of CH is based upon quantitative thresholds of biodiversity priority which are largely based on globally accepted precedents

such as IUCN Red List (IUCN, 2025[1]) criteria, local Red Lists (FBiH Red List in this case) and Key Biodiversity Area (KBA) thresholds. The definition of the critical habitat is based on the presence of high biodiversity values whether or not a project is to be undertaken in that habitat.

EBRD PR 6 paragraph 14 (2019) and EIB Standard 4 paragraph 16 (2022) have comparable definitions of the critical habitats as the most sensitive biodiversity features with slight differences noted in the table below.

Table 1: Comparison of EBRD and EIB criteria for critical habitat designation

EBRD definition	EIB definition	Comment
Highly threatened or unique ecosystems	A highly threatened and/or unique ecosystem	-
Habitat of significant importance to endangered or critically endangered species	A habitat of priority and/or significant importance to critically endangered, endangered or vulnerable species, as defined by the IUCN Red List of threatened species and in relevant national legislation	IUCN Red List vulnerable species meet the criteria for priority biodiversity habitats according to the EBRD (unless a globally significant population is affected), while EIB considers them to be critical habitats
Habitats of significant importance to endemic or geographically restricted species	A habitat of priority and/or significant importance to a population, range or distribution of endemic or restricted-range species, or highly distinctive assemblages of species	EIB's definition is broader and more specific
Habitats supporting globally significant (concentrations of) migratory or congregatory species	A habitat required for the survival of migratory species and/or congregatory species	Wording of the two criteria is somewhat different; however, they are comparable in essence
Areas associated with key evolutionary processes	A habitat of key scientific value and/or associated with key evolutionary processes	Criteria are comparable
-	Biodiversity and/or an ecosystem of significant social, economic or cultural importance to local communities and indigenous groups	The EBRD does not include such features in critical habitat but in priority biodiversity features

EBRD PR 6 also uses the concepts of vulnerability and irreplaceability to define areas that, whilst not as globally important as CH, are still of significant

[1] All references to the IUCN Red List have been taken from the most recent update (Version 2025-1) which can be found at: http://www.iucnredlist.org/ (last accessed July 31, 2025)

ecological importance. Such areas are referred under the EBRD PR 6 Guidance[2] as Priority Biodiversity Features (PBFs). The EIB does not have this type of features defined in their Standards.

PBFs are defined as "a subset of biodiversity that is particularly irreplaceable or vulnerable, but at a lower priority level than critical habitats" by EBRD. They may include areas that contain:

- Threatened habitats
- Vulnerable species
- Significant biodiversity features identified by a broad set of stakeholders or governments
- Ecological structure and functions needed to maintain the viability of priority biodiversity features.

Critical Habitat Assessment (CHA) identifies the potential of the Project to impact species and habitats that could trigger CH and/or PBF criteria. This CHA has been undertaken separately to the ESIA but used the information from the ESIA to focus attention on areas where critical habitat trigger species were present or potentially present. This involved both the primary data and secondary data collected for the ESIA, plus the opinion of the local experts collecting and interpreting the data. The supplementary information has been gathered through both field surveys and an up-to-date desk study. Field studies of habitats, vegetation, invasive plant species, invertebrates of conservation concern and vertebrates (fish, herpetofauna, ornithofauna, large mammals and bats) were undertaken during spring, summer, and early autumn. Detailed survey findings have been presented in standalone reports, namely Annexes A-C.

2.2 CHA Process

In line with EBRD Guidance Note 6 and EIB Standard 4, the identification and characterisation of critical habitat is based on biodiversity baseline studies. The four principle steps for the collection of biodiversity baseline are:

- Defining the study area at the appropriate spatial scale - it is important to make the study area large enough to encompass a project's direct and indirect impacts and to characterise the ecological patterns, processes, and functions occurring in the project area.
- Scoping - A review of existing information, field reconnaissance, and stakeholder consultation can provide an initial idea of what features may be present in the study area.
- Conducting field work - Specialists in the relevant fields should establish biodiversity baseline through field work, following good international practices.

[2] EBRD (2022). EBRD Performance Requirement 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. Guidance Note. European Bank for Reconstruction and Development

- Critical habitat assessment – The assessment must determine whether the project will affect priority biodiversity features or critical habitat, the assessment relies on a set of criteria and conditions described below.

CHA process starts along with initial screening and scoping to identify biodiversity features that might trigger CH or PBF. With the aim of supplementing rapid field assessment, review of publicly available studies and data regarding the ecological characteristics of the study area has to be undertaken as well. Since this document relies on findings presented in Annexes A-C, all publications used for reference in this CHA have been noted in each Annex and therefore are not listed in this document.

In order to conduct a CHA, a **study area** needs to be defined, and baseline established following the steps summarised above. The CHA study area includes not only the Project footprint, where direct physical and operational impacts are expected, but also adjacent and ecologically connected areas where cumulative impacts on biodiversity may arise, such as habitat fragmentation, species displacement, and hydrological or ecological connectivity disruptions. The extent of this is dependent on the biodiversity features of interest and ecological functions that support them which can be different for each feature. CHA is usually carried out at a landscape scale. Such larger geographical areas determined based on features that may require additional studies or targeted mitigation are regarded as ecologically appropriate areas of analysis (EAAAs).

The EAAAs are determined to include the "wider distribution of potentially affected biodiversity features and the ecological patterns, processes and functions that are necessary for maintaining them throughout this distribution"[3]. Defining an appropriate EAAA is an important step in the CHA process as it ensures assessment of an ecologically relevant feature/area, rather than an area influenced only by the project footprint. It also has inherent appreciation of ecological function across an area and therefore avoids the risk of considering the specific areas in which a CH trigger may be present discontinuously or seasonally. Determination of EAAA is done separately for every biodiversity receptor, unless species belonging to a certain group have significant EAAA-overlap and EAAAs can be aggregated[4]. In case of uncertainty around distribution, conservative approach was applied and EAAA slightly enlarged as a part of precautionary measures. Further evaluation of EAAA was done with regard to extent of occurance (EOO) based on IUCN data (if available) and expert inputs to facilitate CHA.

The terrestrial study area was defined to encompass the broader landscape surrounding the Project, extending beyond the immediate footprint where necessary to capture ecological processes such as species movement, dispersal, foraging, and functional connectivity. The boundaries were informed by the distribution ranges of potentially affected biodiversity features (e.g. terrestrial fauna, priority habitats), and the presence of natural or man-made barriers (e.g.

[3] EIB Guidance Note for Standard 3 on Biodiversity and Ecosystems, 2018

[4] EBRD PR 6 Guidance Note, 2022

steep ridges, rivers, infrastructure) that limit the movement of non-volant terrestrial species. Although some species (particularly wide-ranging or volant species) may use habitats beyond the defined boundary, the terrestrial CHA study area represents a conservative yet ecologically sound extent within which Project-related impacts are most likely to occur, and where practical conservation measures can be planned and implemented. The aquatic CHA study area was delineated along the Rivers Neretva and Bijela, which are directly affected by project activities. Additionally, sections of the Rivers Ljuta and Tresanica were included to account for hydrological connectivity and potential indirect or cumulative effects on aquatic and riparian ecosystems. This broader aquatic extent allows for the consideration of upstream-downstream processes, sediment transport, water quality changes, and species movements particularly for fish species of conservation interest.

Overall, the CHA study area was defined to be commensurate with the scale of potential biodiversity impacts and to support ecologically relevant conservation planning that reflects both species-level sensitivities and ecosystem-level functions. The study area determined for this Project covers a total of 41,378 ha including (Figure 1):

- localities where endangered or geographically restricted flora species listed in Annex A: Habitats, vegetation and invasive species were found: Kuti-livac, Humi, Podgorani, Ovcari, Koritna Draga and Polje Bijela;
- habitats listed in Annex I of Habitats directive, with focus on (*) priority habitats: Ovcari and Mt. Zlatar, area east of northern portal of Prenj tunnel, north of Mostar, Polje Bijela;
- habitats of invertebrates of conservation concern, including Podgorani, Polje Bijela, Humilisani, Kuti-Livac, Podporim and Rakov Laz;
- natural salmonid spawning grounds which are situated on the river Neretva from the mouth of the river Krupac to the Old bridge in Konjic and from the Old Bridge to the mouth of the river Tresanica;
- habitats important to endangered amphibians and reptiles, as well as amphibians' breeding sites near river Tresanica, two periodical streams in Ovcari, unnamed stream near Repovica, Podvrabac stream in Mladeskovici, Klenovik spring, ponds Zelenika and Bosnjaci (coordinates given in the ESIA and Annex C-2 to the ESIA);
- territories of (i) great cormorant (*Phalacrocorax carbo*) and common kingfisher (*Alcedo atthis*) in Konjic, (ii) middle spotted woodpecker (*Dendrocopos medius*) in Konjic, Polje Bijela, Mladekovici, Zelenika and Humi, (iii) black woodpecker (*Dryocopus martius*) in Rakov Laz, (iv) white-backed woodpecker (*Dendrocopos leucotos*) located at chainages between 9 + 550 km and the Prenj tunnel in the zone of direct impact, (v) male turtle dove (*Streptopelia turtur*) on chainage between 26+800 and 26+950 and (vi) abandoned nest of golden eagle (*Aquila chysaetos*) in Klenova Draga;
- Konjicka Bijela due to highest bat diversity among surveyed localities;
- identified and mapped speleological objects.

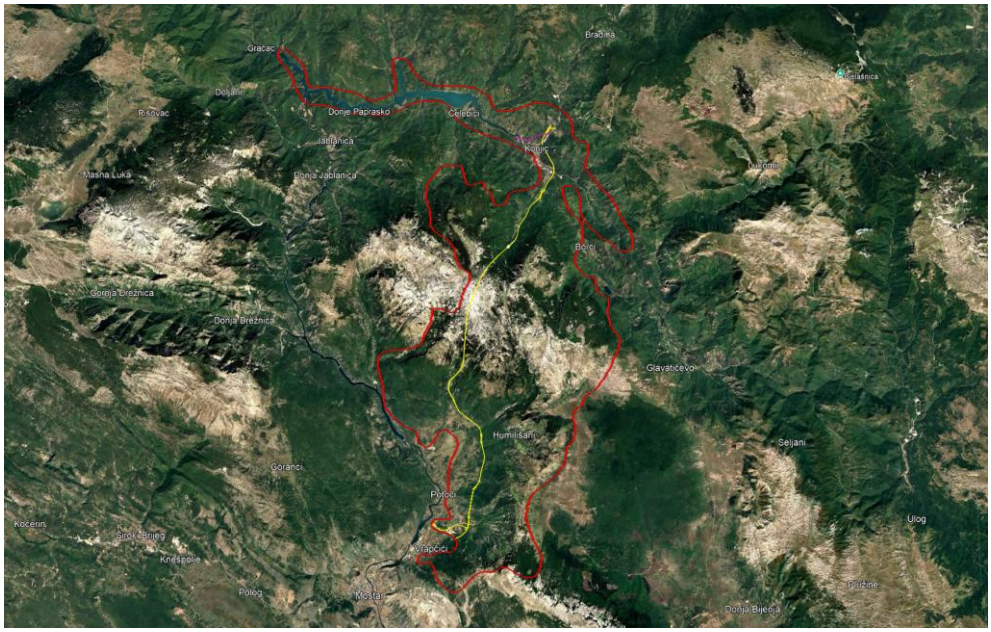


Figure 1: Aggregated EAAAs for PBFs and CHs comprising the CHA study area

Species found on-site and in literature were then assessed with regard to CH and PBF criteria. Assessment of each biodiversity receptor against the CH and PBF criteria uses both qualitative and quantitative thresholds. These are detailed within Table 2 below. Species that initially had the potential to trigger CH and PBF were brought forward for further assessment. Criteria used to select sensitive biodiversity features, namely species that need further assessment as part of the CHA, are as following:

- EU Habitats Directive[5] – Habitats listed in Annex I, species listed in Annex II or IV
- EU Birds Directive[6] – Species listed in Annex I
- Resolutions 4 and 6 of Bern Convention[7] – Resolution 4 (1996) listing endangered natural habitats requiring specific conservation measures (including revised Annex I to Resolution No. 4 (1996), adopted in 2014 by the Standing Committee), and Resolution 6 listing species requiring specific habitat conservation measures (including revised Annex I to Resolution No. 6 (1998), adopted in 2011 by the Standing Committee)
- IUCN Red List[8] – Species with CR, EN or VU conservation status
- FBiH Red List[9] – Species with CR or EN conservation status
- Species with restricted range
- Species that migrate and/or congregate.

[5] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

[6] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009

[7] Council of Europe, 1979. Convention on the Conservation of European Wildlife and Natural Heritage

[8] IUCN 2023. The IUCN Red List of Threatened Species. Version 2022-2

[9]Red List of Flora of Federation of Bosnia and Herzegovina (2013) and Red List of Fauna of Federation of Bosnia and Herzegovina (2013)

On the other hand, threatened habitats are habitats considered under pressure by national, regional or international assessments. These include natural and priority (*) habitats identified under the EU Habitats Directive (Annex I).

Table 2: EBRD criteria and conditions for identifying Priority Biodiversity Features and Critical Habitats

Criterion	Priority Biodiversity Feature	Critical Habitat
1. Priority Ecosystems		
1i Threatened ecosystems		
a) Habitats listed in Annex 1 of EU Habitats Directive (EU members only) or Resolution 4 of Bern Convention (signatory nations only) **b) IUCN Red-List EN or CR ecosystems**	a) EAAA is habitat type listed in Annex 1 of EU Habitats Directive or Resolution 4 of Bern Convention b) EAAA < 5% of the global extent of an ecosystem type with IUCN status of CR or EN	c) EAAA is habitat type listed in Annex 1 of EU Habitats Directive marked as "priority habitat type" d) EAAA ≥5% of global extent of an ecosystem type with IUCN status of CR or EN e) EAAA is ecosystem determined to be of high priority for conservation by national systematic conservation planning
2. Priority Ecosystems		
2i Threatened species		
a) Species and their habitats listed in EU Habitats Directive and Birds Directive (EU members only) or Bern Convention (signatory nations only) **b) IUCN Red List EN or CR species** **c) IUCN Red List VU species** **d) Nationally or regionally (e.g., Europe) listed EN or CR species**	a) EAAA for species and their habitats listed in Annex II of Habitats Directive, Annex I of Birds Directive, or Resolution 6 of Bern Convention b) EAAA supports < 0.5% of global population OR < 5 reproductive units of a CR or EN species. c) EAAA supports VU species d) EAAA for regularly occurring nationally or regionally listed EN or CR species	e) EAAA for species and their habitats listed in Annex IV of the Habitats Directive (See EU restrictions) f) EAAA supports ≥ 0.5% of the global population AND ≥ 5 reproductive units of a CR or EN species g) EAAA supports globally significant population of VU species necessary to prevent a change of IUCN Red List status to EN or CR, and satisfies threshold h) EAAA for important concentrations of a nationally or regionally listed EN or CR species
2ii Range-restricted species		

Criterion	Priority Biodiversity Feature	Critical Habitat
	a) EAAA for regularly occurring range-restricted species	b) EAAA regularly holds ≥ 10% of global population AND ≥ 10 reproductive units of the species
2iii Migratory and congregatory species		
	a) EAAA identified per Birds Directive or recognised national or international process as important for migratory birds (esp. wetlands)	b) EAAA sustains, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population at any point of the species' lifecycle EAAA predictably supports ≥10 percent of global population during periods of environmental stress

The criteria outlined by the EIB's Standards are, as aforementioned, comparable to the EBRD Policy. As the Guidance Note for the 2022 Standard 4 was not published to date, the following table presents the thresholds outlined in the 2018 Standard 3 Guidance Note in order to present some of the criteria and provide some insight into thresholds set by the EIB.

Criteria for Critical Habitat Designation	
Criterion 1: Highly Threatened or unique ecosystems	Areas will be considered critical habitat under Criterion 1 if they are occupied by or are needed to support: a) Priority Habitats listed in Annex I of the Habitats Directive and habitats considered to be their equivalent in countries outside the EU; b) ≥5% of the global extent of an ecosystem type meeting the criteria for IUCN's Red List of Ecosystems with a status of critically endangered or endangered; c) Examples of ecosystems outside the EU and not yet assessed by IUCN but determined to be of high priority for conservation on the basis of regional or national level systematic conservation planning or informed specialist input.
Criterion 2: Population of critically endangered, endangered or vulnerable species, as defined by the IUCN Red List of threatened species and in	Areas will be considered critical habitat under Criterion 2 if they are occupied by or are needed to support: a) A population of an IUCN Red-listed endangered or critically endangered species that is ≥ 0.5% of the global population and/or ≥ 5 established reproductive units of an endangered or critically endangered species; b) Significant concentration of an IUCN Red-listed vulnerable species or of multiple IUCN Red-listed vulnerable species, especially where the loss of the area would result in the change of the IUCN Red List status to endangered or critically endangered.

Criteria for Critical Habitat Designation	
relevant legislation	c) Nationally or regionally important concentration of a species listed as endangered or critically endangered on a regional/national IUCN Red List, or equivalent on national/regional listing. d) A population of species listed in Annex II and IV of the Habitats Directive.
Criterion 3: Population range or distribution of endemic or restricted-range species, or highly distinctive assemblages of species	Areas will be considered critical habitat under Criterion 3 if: a) They regularly hold ≥10% of the global population size and support ≥10 reproductive units of an endemic or restricted-range species b) They are considered by relevant specialists to support unique or rare assemblages of species that occur there habitually, predictably or repeatably. The constituent species may not meet other critical habitat thresholds mentioned here in their own right, but may present assemblages that are considered important to maintain high biodiversity in the area.
Criterion 4: Habitat required for the survival of migratory species and/or congregatory species	Areas will be considered as critical habitats under Criterion 4 if: a) They sustain ≥ 1%of the global population of a migratory or congregatory species at any point of the species' lifecycle on a cyclical or otherwise regular basis. b) They are needed to support migratory or congregatory species during periods of environmental stress.
Criterion 5: Biodiversity and/or ecosystem with significant social, economic, or cultural importance to local communities and indigenous groups.	Areas of semi-natural and natural habitat used by indigenous peoples and local communities to obtain essential or priority benefits will be considered critical from an ecosystem service perspective. Criteria for identifying priority ecosystem services should be developed for each project, with input from social specialists and the relevant users and beneficiaries.
Criterion 6: Habitat of key scientific value and/or associated with key evolutionary processes	This may include, but is not limited to, exceptional representations of: a) Landscapes with high spatial heterogeneity and therefore high levels of species diversity; b) Environmental gradients, also known as ecotones, that produce transitional habitat which is associated with the process of speciation and high species and genetic diversity; c) Edaphic interfaces that juxtapose soil types (e.g. serpentine outcrops, limestone and gypsum deposits), which have led to the formation of unique plant communities; d) Connectivity between habitats (e.g. biological corridors) with importance for species migration and gene flow, which is especially important in fragmented habitats and for the conservation of metapopulations. This also includes biological corridors across altitudinal and climatic gradients and from "crest to coast."

Criteria for Critical Habitat Designation	
	e) Sites of demonstrated importance to climate change adaptation for either species or ecosystems.

During 2013, the conservation status of part of the species has been assessed and published within the Red List of Flora and Fauna of FBiH in 2013. The assessment for the FBiH Red List has been determined based on the outdated literature data for most species. Although the categories used to determine the endangered status of species are complaint with the IUCN Red List categories, they were not adequately considered in accordance with the IUCN Red List Criteria or IUCN guidelines during development of the Red List of FBiH, due to the lack of spatial distribution of species and the status of the populations of species.

This issue has been recognised by the local authorities, and Federal Ministry of Environment and Protection has adopted the *Decision on Initiating the Public Procurement Procedure for Revision of the Red List of Flora, Fauna and Fungi of the Federation of Bosnia and Herzegovina* in September 2019.[10]

During November 2019, an intensive Red List Assessor training workshop was conducted in Sarajevo, BiH. The workshop was organised by UN Environment Programme in the frames of the GEF-6 MSP project "Achieving biodiversity conservation through creation, effective management and spatial designation of protected areas and capacity building" in BiH, **including the Revision and establishment of the Red List Index(es) in the country.** Due to these reasons, the FBiH RL statuses for specific species (CR and EN categories) could not have been considered as the sole criterion that may trigger critical habitat (CH), however the FBiH RL has been assessed with regard to the criterion of the priority biodiversity features (PBF) – *Significant biodiversity features identified by the broad set of stakeholders or governments.*

It is also important to note that, in BiH, there is no regular and systematic monitoring of biodiversity that could enable up-to date status of the populations for a range of categories of living world, and no databases are available with regard to distribution of the populations. This gap has been bridged by engaging and consulting the relevant local biodiversity experts that are/were included in various biodiversity surveys in the Project area, wider region of Herzegovina and continental areas of BiH. The expert judgment of the distribution of species and often their own personal experience has been included, particularly for ornithology, invertebrates, amphibians and reptiles, whereas the presence of mammal species has been assessed based on the consultative meetings with hunting society and assessment of potential habitats to sustain species of large mammals. The precautionary principle is applied for endemic species and other species of conservation concern potentially occurring in Project area.

[10] Web site of the Federal Ministry of Environment and Tourism, available https://www.fmoit.gov.ba/bs/javne-nabavke/odluke/odluka-o-pokretanju-postupka-javne-nabavke-revizija-crvenih-lista (last accessed on February 22, 2023)

2.3 Species for Further Assessment

Based on the field findings presented in Annexes A-C, a total of six habitat types and 63 species of flora and fauna with some level of sensitivity or conservation concern have been brought forward for further assessment.

The six habitat types assessed in the CHA have been found in the Project's area of influence and are listed in the Annex I of the Habitats Directive, two of which are priority habitats and one is an important orchid site (Table 3).

Table 3: Habitats brought forward for further assessment

No.	Habitat code	English name	Conservation status
1.	3240	Alpine rivers and their ligneous vegetation (*Salix eleagnos*)	HD I
2.	*6220	Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea*	HD I, priority
3.	6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates	HD I, important orchid site
4.	62A0	Eastern sub-Mediterranean dry grasslands	HD I
5.	95A0	High oro-Mediterranean pine forests	HD I
6.	*9530	(Sub-) Mediterranean pine forests with endemic black pines	HD I, priority

The species in the Table 4 below are those which are listed on Annex II or IV of the EU Habitats Directive, Resolution 6 of the Bern Convention, Annex I of the EU Birds Directive, or are listed as EN, CR or VU on either the IUCN[11] or FBiH Red List, and are considered likely to be subject to impacts from the project.

Table 4: Species brought forward fo further assessment

No.	English name	Scientific name	Conservation status
Plants			
1.	-	*Anthyllis vulneraria* L. subsp. *praepropera* Bornm.	FBiH CR
2.	Hollow-Stemmed Asphodel	*Asphodelus fistulosus* L.	FBiH CR
3.	Dalmatian Crocus	*Crocus dalmaticus* Vis.	IUCN LC, FBiH EN
4.	Ivy-leaved cyclamen	*Cyclamen hederifolium* Aiton.	IUCN LC, FBiH CR
5.	Hercules' All-Heal	*Opopanax chironium* (L.) W.D.J. Koch	FBiH EN
6.	Autumn Lady's-Tresses	*Spiranthes spiralis* (L.) Chevall.	FBiH EN
Invertebrates			

[11] IUCN 2023. The IUCN Red List of Threatened Species. Version 2022-2

No.	English name	Scientific name	Conservation status
7.	Southern Festoon	*Zerynthia polyxena*	IUCN LC, FBiH NT, HD IV
8.	Jersey Tiger	*Euplagia quadripunctaria*	HD II, Res. 6
9.	Long-Horned Beetle	*Morimus funereus*	IUCN VU, HD II, Res. 6
10.	European Stag Beetle	*Lucanus cervus*	IUCN NT, FBiH VU, HD II, Res. 6
11.	Cerambyx Longicorn	*Cerambyx cerdo*	IUCN NT, HD II, IV, Res. 6
Fish			
12.	Bullhead	*Cottus gobio* Linnaeus, 1758	IUCN LC, FBiH LC, HD II, Res. 6
13.	Adriatic Dace	*Squalius svallize* Heckel & Kner, 1858	IUCN VU, FBiH VU
14.	Neretvan Spined Loach	*Cobitis narentana* Karaman, 1928	IUCN VU
Amphibians			
15.	Yellow-bellied Toad	*Bombina variegata*	FBiH NT; HD II, IV; Res. 6
16.	Green Toad	*Bufotes viridis*	HD IV
17.	Greek Stream Frog	*Rana graeca*	FBiH NT, HD IV
18.	Common Fire Salamander	*Salamandra salamandra*	IUCN VU, FBiH LC
19.	Olm	*Proteus anguinus*	IUCN VU, FBiH EN, HD II, IV, Res. 6
Reptiles			
20.	The Hermann's Tortoise	*Testudo hermanni*	IUCN NT, FBiH VU, HD II, IV, Res. 6
21.	Glass Lizard	*Pseudopus apodus*	HD IV
22.	Dalmatian Wall Lizard	*Podarcis melisellensis*	HD IV
23.	Common Wall Lizard	*Podarcis muralis*	HD IV
24.	Sand Lizard	*Lacerta agilis*	HD IV
25.	Blue-Throated Keeled Lizard	*Algyroides nigropunctatus*	FBiH NT, HD IV
26.	Eastern Green Lizard	*Lacerta viridis*	HD IV
27.	Balkan Green Lizard	*Lacerta trilineata*	HD IV
28.	Nose-Horned Whiper	*Vipera ammodytes*	HD IV
29.	Dahls Whip Snake	*Platyceps najadum*	HD IV
30.	Dice Snake	*Natrix tessellata*	HD IV
31.	Four-Lined Snake	*Elaphe quatuorlineata*	IUCN NT, FBiH VU, HD II, IV, Res. 6
32.	Aesculapian Snake	*Zamenis longissimus*	HD IV
Birds			

No.	English name	Scientific name	Conservation status
33.	European Turtle-Dove	*Streptopelia turtur*	IUCN VU
34.	Pallid Swift	*Apus pallidus*	FBIH EN
35.	Golden Eagle	*Aquila chrysaetos*	BD I, FBIH EN, Res. 6
36.	Western Marsh Harrier	*Circus aeruginosus*	BD I, FBIH VU, Res. 6
37.	Middle Spotted Woodpecker	*Dendrocopos medius*	BD I, Res. 6
38.	White-Backed Woodpecker	*Dendrocopos leucotos*	BD I, FBIH VU, Res. 6
39.	Syrian Woodpecker	*Dendrocopos syriacus*	BD I, Res. 6
40.	Grey-Headed Woodpecker	*Picus canus*	BD I, Res. 6
41.	Black Woodpecker	*Dryocopus martius*	BD I, FBIH NT, Res. 6
42.	Red-Backed Shrike	*Lanius collurio*	BD I, Res. 6
Mammals			
43.	Wolf	*Canis lupus*	IUCN LC, FBiH EN, HD II, IV(*), Res. 6
44.	Brown Bear	*Ursus arctos*	IUCN LC, FBiH VU, HD II (*) IV, Res. 6
45.	Eurasian Lynx	*Lynx lynx*	IUCN LC, FBiH VU, HD II, IV, Res. 6
46.	Eurasian Otter	*Lutra lutra*	IUCN NT, FBiH EN, HD II, IV, Res. 6
47.	Balkan Chamois	*Rupicapra rupicapra balcanica*	IUCN LC, FBiH VU, HD II, IV, Res. 6
48.	European Wildcat	*Felis silvestris*	IUCN LC, FBiH LC, HD IV
49.	Balkan Snow Vole	*Dinaromys bogdanovi*	IUCN VU, FBiH VU, HD II, IV,
50.	Lesser Mouse-Eared Bat	*Myotis oxygnathus*	IUCN LC, FBiH EN, HD II, IV
51.	Whiskered Bat	*Myotis mystacinus*	IUCN LC, FBiH VU, HD IV,
52.	Geoffroy's Bat	*Myotis emarginatus*	IUCN LC, FBiH VU, HD II, IV, Res. 6
53.	Schreiber's Bent-winged Bat	*Miniopterus schreibersi*	IUCN VU, FBiH EN, HD II, IV, Res. 6
54.	Kuhl's Pipistrelle	*Pipistrellus kuhlii*	IUCN LC, FBiH VU, HD IV
55.	Nathusius' Pipistrelle	*Pipistrellus nathusii*	IUCN LC, HD IV
56.	Serotine Bat	*Eptesicus serotinus*	IUCN LC, HD IV
57.	Common Noctule	*Nyctalus noctula*	IUCN LC, FBiH EN, HD IV
58.	Leisler's Bat	*Nyctalus leisleri*	IUCN LC, HD IV
59.	Free-Tailed Bat	*Tadarida teniotis*	IUCN LC, HD IV

No.	English name	Scientific name	Conservation status
60.	Greater Horseshoe Bat	*Rhinolophus ferrumequinum*	IUCN LC, FBiH VU, HD II, IV, Res. 6
61.	Lesser Horseshoe Bat	*Rhinolophus hipposideros*	IUCN LC, FBiH EN, HD II, IV, Res. 6
62.	Mediterranean Horseshoe Bat	*Rhinolophus euryale*	IUCN NT, FBiH EN, HD II, IV, Res. 6
63.	Common Pipistrelle	*Pipistrellus pipistrellus*	IUCN LC, FBiH VU, HD IV, Res. 6

3 Critical Habitat Assessment Outcome

To determine whether the Project affects a CH or PBF, a literature review verified by field surveys was undertaken by biodiversity experts. An assessment of confirmed habitats and species which may trigger critical habitat for the above-mentioned criteria is presented in Table 5 and Table 6.

Table 5: Habitats of conservation concern that occur in the CHA study area

No.	Habitat code	English name	Conservation status	EBRD Crit. Met	EIB CH	Comment
1.	3240	Alpine rivers and their ligneous vegetation (*Salix eleagnos*)	HD I	**PBF** 1iaa	No	Within the study area, the habitat type has been found in only one locality north of Bijela. The spatial coverage of this habitat type in the Project buffer zone is about 0.59 km^2, therefore the EAAA is relatively low. Given its conservation status on the EU level, the EAAA is considered sufficient value to qualify the habitat for priority biodiversity status.
2.	*6220	Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea*	HD I, priority	**CH** 1iac	**Yes**	The habitat type is rare and has been found around Mostar and Ovcari. The spatial coverage of this habitat type is about 2.77 km^2. Given its priority status according to the EU Habitats Directive the EAAA is considered sufficient value to qualify for critical habitat according to both EBRD and EIB criteria.
3.	6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates	HD I, important orchid site	**PBF** 1iaa	No	This habitat type is present within the area around Konjic (Ovcari). The spatial coverage of this habitat type is about 0.83 km^2. Given its conservation status, the EAAA is considered sufficient value to qualify the habitat for priority biodiversity status.
4.	62A0	Eastern sub-Mediterranean dry grasslands	HD I	**PBF** 1iaa	No	Habitat is present in a number of localities within the study area: south of Podgorani and in the area around Konjic. The spatial coverage of this habitat type is about 3.45 km^2. Given its conservation status, the EAAA is considered sufficient value to qualify the habitat for priority biodiversity status.
5.	95A0	High oro-Mediterranean pine forests	HD I	**PBF** 1iaa	No	This habitat type is present within the buffer zone of 500 m and shown on the vegetation map. The spatial coverage of this habitat type is about 17.30 km^2. Given its conservation status, the EAAA is considered sufficient value to qualify the habitat for priority biodiversity status.

No.	Habitat code	English name	Conservation status	EBRD Crit. Met	EIB CH	Comment
6.	*9530	(Sub-) Mediterranean pine forests with endemic black pines	HD I, priority	**CH** 1iac	**Yes**	This habitat type is present within a buffer zone of 500 m around the Project. However, the habitat will not be impacted. The spatial coverage of this habitat type is about 3.27 km^2. Given its priority status the EAAA is considered sufficient value to qualify for critical habitat.

Table 6: Species of conservation concern that occur in the CHA study area

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
Plants						
1.	-	*Anthyllis vulneraria* L. subsp. *praepropera* Bornm.	FBiH CR	**PBF** 2idd	No	The species has been found in Albania, the Carpathians, the East Aegean islands, Greece, France, Monaco, Israel, Italy, San Marino, Malta, Croatia, Montenegro and BiH (Euro+Med, 2006-2021). The estimated EOO is quite large. In BiH, according to the available literature data and field surveys, it has been determined at approx. 20 localities, and the distribution is estimated at less than 40 km^2. Size of EAAA is 0.2 km^2. Anticipated project activities are unlikely to significantly impact the long-term survival of the species. The registered population is not of nationally or regionally important concentration and therefore does not meet the criteria for CH but does for PBF.
2.	Hollow-Stemmed Asphodel	*Asphodelus fistulosus* L.	IUCN LC, FBiH CR	**PBF** 2idd	No	This species is widespread in Europe in the following countries: Albania, Belgium, Spain, Luxembourg, BiH, Croatia, Montenegro, France, Germany, United Kingdom, Greece, Northern Ireland, Italy, San Marino, Turkey, Switzerland, etc. (Euro+Med, 2006-2021). The EOO is relatively large. According to the IUCN, it has the status of the least concerned (LC) species. This species is common in its natural range. It

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						produces large amounts of seeds leading to the rapid establishment of large populations. Based on the available literature research and field surveys, this species has been found at 12 known localities in BiH. EAAA size is 0.01 km^2. Anticipated project activities unlikely to significantly impact the long-term survival of the species.
3.	Dalmatian Crocus	*Crocus dalmaticus* Vis.	IUCN LC, FBiH EN	**PBF** 2idd	No	In Europe, this species has been found in Albania, Slovenia, Croatia, BiH, Montenegro and Serbia (Euro+Med, 2006-2021). According to the IUCN, it has the status of the least concerned (LC) species. IUCN (2018 assessment) states that this species is numerous and common. Overall status of the species population is stable, with localised population declines. Based on the available literature research and field surveys, this species has been found at more than 10 localities in BiH. EAAA size is 0.01 km^2. Anticipated project activities unlikely to significantly impact the long-term survival of the species.
4.	Ivy-leaved cyclamen	*Cyclamen hederifolium* Aiton.	IUCN LC, FBiH CR	**PBF** 2idd	No	In Europe, this species is widespread in: Albania, Bulgaria, Croatia, Serbia, BiH, Montenegro, Greece, Spain, Malta, Turkey, Switzerland, Cyprus, Northern Macedonia, Kosovo, Switzerland (Euro+Med, 2006-2021). The EOO is relatively large. According to the IUCN, it has the status of the least concerned (LC) species. IUCN (2025) states that no data are available on the abundance of this species. Based on the available literature research and field surveys, this species has been found in BiH at more than 20 localities. EAAA size is 0.25 km^2, 6.2% of which will be under direct impact of the Project. Anticipated project activities are unlikely to significantly impact the long-term survival of the species.
5.	Hercules' All-Heal	*Opopanax chironium* (L.) W.D.J.Koch	FBiH EN	**PBF** 2idd	No	In Europe, this species is represented in Albania, Bulgaria, Croatia, BiH, Montenegro, Italy, France, Greece, Romania, Northern Macedonia, Slovenia, Spain, Andorra, Gibraltar, etc. (Euro+Med, 2006-2021). The EOO is relatively large. Based on the available literature research and field surveys, this species has been found at about 30 localities in BiH. EAAA size is 0.01 km^2. Anticipated project activities unlikely to significantly impact the long-term survival of the species.

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
6.	Autumn Lady's-Tresses	*Spiranthes spiralis* (L.) Chevall.	IUCN LC, FBiH EN	**PBF** 2idd	No	In Europe, this species is widespread in: Croatia, BiH, Montenegro, Albania, Austria, Italy, Belgium, Austria, Albania, Bulgaria, Czech Republic, France, Cyprus, Germany, Greece, Hungary, Ireland, Malta, Moldova, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Switzerland, Turkey, Ukraine and the United Kingdom (Euro+Med, 2006-2021). IUCN states that this species is rare in its entire distribution but has a large areal. The population trend is unknown, but existing threats to species and habitats are unlikely to cause a rapid population decline in the near future and is therefore labeled as least concern (LC) species. In BiH, especially in Herzegovina, the populations are large and stable. EAAA size is 0.01 km^2 and will not be directly impacted by the Project. Anticipated project activities unlikely to significantly impact the long-term survival of the species.
Invertebrates						
7.	Southern Festoon	*Zerynthia polyxena*	IUCN LC, FBiH NT, HD IV	**CH** 2iae	No	EOO greater than 20,000 km^2; the species is found in more than 10 localities in BiH, there is no data on the size of the population in BiH; no data on population dynamics as well. The species is widespread in BiH and neighbouring countries. Areas inhabited by this species are open meadow habitats. The female lays eggs on species of the genus Aristolochia. No habitats with a nourishing plant from the genus Aristolochia were found within the route area indicating the Project area is not of importance for species' reproduction.
8.	Jersey Tiger	*Euplagia quadripunctaria*	HD II, Res. 6	**PBF** 2iaa	No	EOO greater than 20,000 km^2; the species is found in more than 10 localities in BiH, there is no data on the size of the population in BiH; no data on population dynamics as well. The species is widespread in BiH and neighbouring countries. Areas inhabited by this species are thermophilic deciduous forests and forest edges. The larvae feed on various plant species. Opening of forest habitats that will occur as a result of the Project favour the species tied to the forest edge. The exact localities where this species was found during the survey are not directly affected by the

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						implementation of the Project and no adverse effects are expected. Potential habitat fragmentation can occur in the intersection of motorway with Natura 2000 Prenj-Cvrsnica-Cabulja site where prefered habitat was found.
9.	Long-Horned Beetle	*Morimus funereus*	IUCN VU, HD II, Res. 6	**PBF** 2iaa, 2iac	No	EOO greater than 20,000 km^2; the species is found in more than 10 localities in BiH, there is no data on the size of the population in BiH; no data on population dynamics as well. The species is widespread in BiH and neighbouring countries. Works on the Corridor Vc route will not disturb the habitats of the species outside the direct impact zone.
10.	European Stag Beetle	*Lucanus cervus*	IUCN NT, FBiH VU, HD II, Res. 6	**PBF** 2iaa	No	This species is widespread across most of Europe, inhabiting old forests (mainly Oak) up to 2,000 m asl. Its primarly habitat are decaying wood near or below soil surface. This species was not confirmed but is expected in the area of Ovcari, Zlatar, southern slopes of Prenj mountain. Negative impact on this species, if found, are reflected in habitat loss and fragmentation due to removal of old trees that represent primary habitat for this species. However, this impact will not be significant as suitable habitat is present in wider area of the project therefore anticipated Project activities are unlikely to significantly impact the long-term survival of the species.
11.	Cerambyx Longicorn	*Cerambyx cerdo*	IUCN NT, HD II, IV, Res. 6	**CH** 2iae	**Yes**	The species was not found during field survey, but according to its habitat preferences it is expected in the area of Ovcari, Zlatar, southern slopes of Prenj mountain. As it shares habitat preference and bihevioral pattern as *Lucanus cervus*, expected negative impact, if found, will be same as for *Lucanus cervus*.
Fish						
12.	Bullhead	*Cottus gobio*	IUCN LC, FBiH LC, HD II, Res. 6	**PBF** 2iaa	No	The species is widely spread in the Central and North Europe. Inhabits the cold, clear and fast-flowing water of small stream to medium-sized rivers. Its distribution is limited by higher temperatures and lower oxygen levels. This species was recorded at several locations along the River Neretva which does not fall under Prenj-Cvrsnica-Cabulja Natura 2000 site. While the proximity of localities this species was recoreded

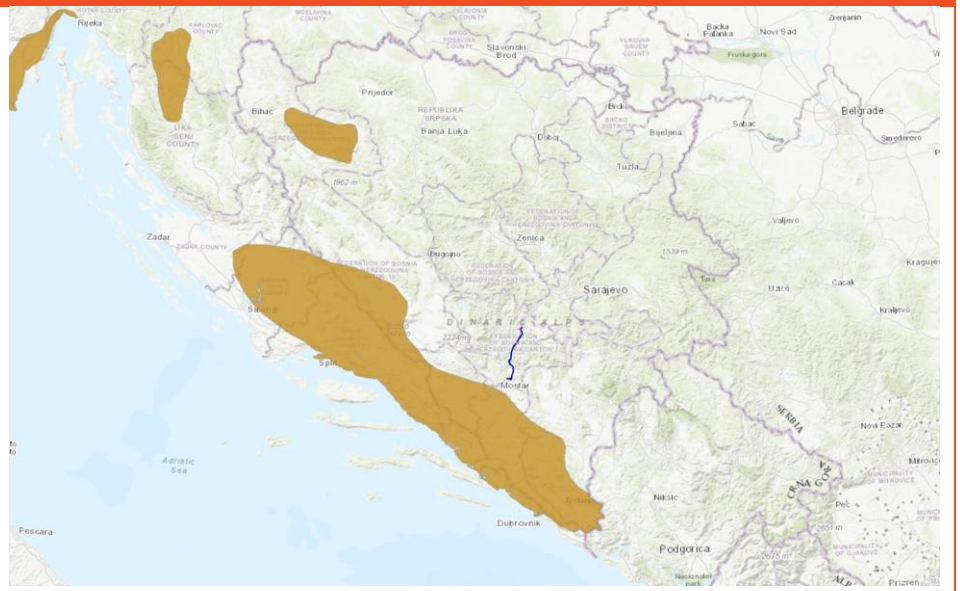
No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						in, to the motorway route, the impacts are unlikely to directly compromise the local species population.
13.	Adriatic Dace	*Squalius svallize*	IUCN VU, FBiH VU	**PBF** 2iac	No	The Adriatic dace is a native species to the catchment area of the River Neretva. It inhabits karst waters and mostly lives in larger groups. Known to inhabit at least 12 localities in BiH. During the survey the species has been recorded at several sites, including the mouth of Grabovka, Drezanka, and the Neretva downstream of Salakovac. Direct impacts are not expected, and indirect downstream impacts may affect species locally in the event of accidents, but it will not impact the long-term survival.
14.	Neretvan Spined Loach	*Cobitis narentana*	IUCN VU	**PBF** 2iac	No	Characteristic for River Neretva and its tributaries but is also present in Croatia. Known to inhabit at least 10 localities in B&H. Anticipated project activities unlikely to significantly impact the long-term survival of the species.
Amphibians						
15.	Green Toad	*Bufotes viridis*	IUCN LC, FBiH LC, HD IV, Res. 6	**CH** 2iae	No	Confirmed during field surveys. The species is considered to be widespread in and outside of BiH and considered to be of least concern. It is common and present in whole BiH. It is listed in Annex IV of the HD and therefore meets the EBRD criteria for critical habitat. Anticipated loss of habitats unlikely to significantly impact the long-term survival of the species.
16.	Yellow-bellied Toad	*Bombina variegata*	IUCN LC, FBiH NT, HD II, IV, Res. 6	**CH** 2iae	**CH**	The European fire-bellied toad is found throughout Central and Eastern Europe. It is mainly diurnal and aquatic, spending much of its time in slow-moving waters of marshes and ponds. The species was registered along the unnamed stream near Repovica (Konjic bypass). It is listed in the Annexes II and IV of the HD and therefore meets the criteria for critical habitat of both EBRD and EIB. There will be no loss of habitat as the species EAAA is located above a planned tunnel.

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
17.	Greek Stream Frog	*Rana graeca*	IUCN LC, FBiH NT, HD IV	**CH** 2iae	No	Confirmed during field surveys. The species is endemic to Balkan peninsula. The habitat of the species includes clear streams, springs, and small rivers with running water during the whole year. Species inhabits mostly deciduous and mixed forests, but also hilly and mountainous valleys. It is listed in Annex IV of the HD and therefore meets the criteria for critical habitat. EAAA is considered unlikely to support regionally important concentrations and loss of habitat unlikely to significantly impact the long-term survival of the species.
18.	Common Fire Salamander	*Salamandra salamandra*	IUCN VU, FBiH LC	**PBF** 2iac	No	Fire salamander is present across much of central, eastern and southern Europe. This species is associated with wet cool deciduous, mixed, or rarely, coniferous forests with well shaded brooks and small rivers which the species uses for reproduction. It is widespread and numerous species across the country with no data on population structure and abudance. During the field study it was found in areas of Konjicka Bijela, Klenova Draga, Ovcari, Podgorani, Konjic bypass. Anticipated loss of habitats will not significantly impact the long-term survival of the species.
19.	Olm	*Proteus anguinus*	IUCN VU, FBiH EN, HD II, IV, Res. 6	**CH** 2iae	**Yes**	This species is endemic to the European region, where it is restricted to subterranean aquatic habitats within the Dinaric Karst region of the Balkans. EOO is 55,994 km^2. Due to its inaccessible habitat, few data are available on the abundance of this species. This species was not identified as potentially present during the desktop survey. In order to assess the potential presence of the species, an eDNA analysis was conducted to detect *Proteus anguinus* in aquifers under the Prenj and T6 (Orlov Kuk) tunnels[12]. The results confirmed that all samples tested negative for the presence of species' eDNA. Based on the results and latest data on this species

[12] Aljancic, G. (2025). *Report on the detection of the environmental DNA of Proteus anguinus in aquifers under the Prenj and Orlov Kuk tunnels* (Annex I: Stankovic, D., & Strah, S. (2025). *Detection of Proteus anguinus using eDNA analysis on three water samples from Bosnia and Herzegovina – Technical Report*). Tular Cave Laboratory.

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						distribution assessed via eDNA analysis[13], presence of this species in caverns of Prenj Monutain is unlikely to occur. Additionally, known distribution of the species does not include Mt. Prenj, as shown in the figure below (European Red List; EC & IUCN 2024. *Proteus anguinus*. The IUCN Red List of Threatened Species. Version 2024-2) in relation to the motorway (shown in blue). As a result, the species can be excluded from the assessment.

[13] Goricki, S., Stankovic, D., Snoj, A. *et al.* (2017). Environmental DNA in subterranean biology: range extension and taxonomic implications for *Proteus*. *Sci Rep 7*, *45054*. https://doi.org/10.1038/srep45054

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						
Reptiles						
20.	The Hermann's Tortoise	*Testudo hermanni*	IUCN NT, FBiH VU, HD II, IV, Res. 6	**CH** 2iae	**Yes**	This species prefers open patchy evergreen Mediterranean oak forest, but in its absence inhabits maquis, garrigue, dune scrub and maritime grassland, as well as agricultural and railway edge habitats, thus showing the adaptability to various range of habitats. The species is endemic to southern Europe. It is very common and widespread in Herzegovina. The species was recorded at multiple sites and can be considered ubiquitous. The distribution is within the zone of potential direct impact due to habitat alteration, noise, vibration, and potential mortality during construction

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						activities, including access road creation. However, due to the adaptability of the species and the absence of evidence for a regionally important population, the magnitude of impact on the species at a population level, as well as the conservation objectives throughout the site is expected to be low. EAAA considered unlikely to support regionally important concentrations of the species and loss of habitat unlikely to significantly impact the long-term survival of the species.
21.	Glass Lizard	*Pseudopus apodus*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. Although lacking in some parts of the Europe, the species is considered to be widespread outside of BiH and considered to be of least concern. Due to preferring warmer habitats it is present in southern BiH. It is a very common species. Anticipated loss of habitat unlikely to significantly impact the long-term survival of the species.
22.	Dalmatian Wall Lizard	*Podarcis melisellensis*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. Stable population and considered to be of least concern. This species occurs in Mediterranean and sub-Mediterranean zones from extreme north-eastern Italy through southwestern Slovenia, Croatia, southern Bosnia-Herzegovina, and southern Montenegro to north-western Albania. It is present on many Adriatic islands. The species habitats range from sea level up to 1,400 m a.s.l. It is very common and numerous in warmer regions within BiH: Herzegovina and western Bosnia. EAAA considered unlikely to support regionally important concentrations and loss of habitat unlikely to significantly impact the long-term survival of the species.
23.	Common Wall Lizard	*Podarcis muralis*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. The species is considered to be widely spread in Europe and of least conservation concern. This is a very common and widespread species, well adjusted to natural and urban habitats in whole BiH, excluding very dry and warm southernmost area of Herzegovina. Anticipated loss of habitat unlikely to significantly impact the long-term survival of the species.

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
24.	Sand Lizard	*Lacerta agilis*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. The species is considered to be widespread outside of BiH and considered to be of least concern. It can be found in the central and northern areas of BiH and not expected in the Mediterranean area. The species inhabits a variety of habitats, including meadows, arable land, grasslands, steppe, subalpine and alpine meadows, shrubs, hedges, open forests, alpine areas, traditionally cultivated agricultural land, and rural gardens. Anticipated loss of habitat unlikely to significantly impact the long-term survival of the species.
25.	Blue-Throated Keeled Lizard	*Algyroides nigropunctatus*	IUCN LC, FBiH NT, HD IV	**CH** 2iae	No	Confirmed during field surveys. The species is a Balkan subendemic lacertid lizard. In BiH it inhabits the Mediterranean and sub-Mediterranean area and can be found throughout Herzegovina all the way to mountains Cvrsnica and Cabulja. It prefers habitats with vertical structures (rocks or trees) with sufficient shade and humidity, rural gardens and urban areas and frequently can be found near streams or lakes. EAAA considered unlikely to support regionally important concentrations and loss of habitat unlikely to significantly impact the long-term survival of the species.
26.	Eastern Green Lizard	*Lacerta viridis*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. The species is considered to be widespread outside of BiH in areas of Southeast and East Europe and of least conservation concern. In BiH, it is very common in whole BiH excluding the southernmost area inhabited by *L. trilineata*. Anticipated loss of habitat unlikely to significantly impact the long-term survival of the species
27.	Balkan Green Lizard	*Lacerta trilineata*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. Stable population and considered to be of least concern. This species is present from coastal Croatia, Bosnia-Herzegovina, Serbia, Montenegro, east to Bulgaria, south-eastern Romania, Albania, Macedonia, Greece (including the Ionian Islands and many Aegean Islands including Crete, Lesvos and Rhodes), and western and central Turkey. It ranges from sea level to at least 1,600 m a.s.l. In BiH, it inhabits submediterranean parts of BiH where it is very common. EAAA considered unlikely to support regionally important concentrations and loss of habitat unlikely to significantly impact the long-term survival of the species.

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
28.	Nose-Horned Whiper	*Vipera ammodytes*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. The species is considered to be widely spread in Mediterranean and South Europe as well as East Asia and of least conservation concern. It is common and widespread in whole BiH. Anticipated loss of habitat unlikely to significantly impact the long-term survival of the species.
29.	Dahls Whip Snake	*Platyceps najadum*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. The species is considered to be widely spread in Europe and BiH and of least conservation concern. It is a common species and inhabits southern BiH. Anticipated loss of habitat unlikely to significantly impact the long-term survival of the species.
30.	Dice Snake	*Natrix tessellata*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. The species is considered to be widespread outside of BiH and associated with rivers, coasts, streams, lakes, ponds and the surrounding terrestrial habitat. Anticipated loss of habitat unlikely to significantly impact the long-term survival of the species since such areas will not to be disturbed.
31.	Four-Lined Snake	*Elaphe quatuorlineata*	IUCN NT, FBiH VU, HD II, IV, Res. 6	**CH** 2iae	**Yes**	Eastern Mediterranean type of snake found along forest edges and hedges, open forests and rocky slopes. It prefers warm and shady places, mostly humid habitats, as well as wetlands, and it could also be found near puddles and streams. The species is not too common in BiH and it is present in Herzegovina. The species was recorded at Klenova Draga. The Project lies in the large area of habitats suitable for the species. Anticipated loss of habitat unlikely to significantly impact the long-term survival of the species in the Project area.
32.	Aesculapian Snake	*Zamenis longissimus*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	Confirmed during field surveys. The species prefers forested, warm but not hot, moderately humid but not wet, hilly or rocky habitats with proper insolation and varied, not sparse vegetation that provides sufficient variation in local microclimates. Frequented locations include places such as forest clearings in succession, shrublands at the edges of forests interspersed with meadows. They avoid open plains and agricultural deserts. In BiH, it is a common species that can be found throughout the

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						country. Anticipated loss of habitat unlikely to significantly impact the long-term survival of the species.
Birds						
33.	European Turtle-Dove	*Streptopelia turtur*	IUCN VU, FBiH LC	**PBF** 2icc	No	EOO is greater than 20,000 km^2; the species is found in more than 10 localities in BiH, the size of the population in BiH is estimated at 5,000-10,000 pairs; data on dynamics are not available. The species is widespread in BiH and neighbouring countries. Works on the route of Corridor Vc, subsection Mostar North - Tunnel Prenj - Konjic (Ovcari) are not expected to significantly impact the long-term survival and behavioural pattern of the species.
34.	Pallid Swift	*Apus pallidus*	IUCN LC, FBIH EN	**PBF** 2iaa	No	EOO is greater than 20,000 km^2; the species is found in more than 10 localities in BiH, the size of the population in BiH is estimated at 1,000-2,000 nesting pairs; with a population growth trend. The species is widespread in BiH and neighbouring countries. Works on the route of Corridor Vc, subsection Mostar North - Tunnel Prenj - Konjic (Ovcari) are not expected to significantly impact the long-term survival and behavioural pattern of the species.
35.	Golden Eagle	*Aquila chrysaetos*	BD I, IUCN LC, FBIH EN	**PBF** 2iaa	No	EOO is greater than 20,000 km^2; the species is found in more than 10 localities in BiH, the size of the population in BiH is estimated at 50-80 nesting pairs; the population is stable. The species is widespread in BiH and neighbouring countries, mainly associated with the hilly and mountainous, rocky areas of the country, while it is completely absent from the flatland habitats in the north of BiH. The species prefers flat or rocky, mostly open terrain, and are mainly a sedentary species, with daily migrations ranging from 20 to 30 km from nesting ground, maintaining some of the largest known home ranges (or territories) of any bird species. There is much variation of home range size across the range, possibly dictated by food abundance and habitat preference (it can range from 20 to 200 km^2).

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						The construction of the Corridor Vc motorway, subsection Mostar North - Tunnel Prenj - Konjic (Ovcari), is not anticipated to significantly impact the long-term survival or behavioral patterns of the species. However, due to the proximity of the recorded abandoned nest at Klenova Draga, located within the Natura 2000 site Prenj-Cvrsnica-Cabulja, direct and indirect impacts during the construction phase cannot be ruled out. These potential impacts include habitat fragmentation, abandonment of nesting and foraging grounds, and disturbances caused by construction activities if the nest is inhabited prior or during construction. Once the motorway is operational, negative impacts are expected to be minimised. Nonetheless, long-term disturbances from traffic or other anthropogenic factors may still influence the species' territory.
36.	Western Marsh Harrier	*Circus aeruginosus*	BD I, IUCN LC, FBIH VU, Res. 6	**PBF** 2iaa	No	EOO is greater than 20,000 km^2; the species is found in more than 10 localities in BiH, the size of the population in BiH is estimated at 350-700 nesting pairs; the population is stable. The species is widespread in BiH and neighbouring countries. The species inhabits extensive areas of dense marsh vegetation, in fresh or brackish water, generally in lowlands. The species requires extensive wetland in its breeding range. Works on the route of Corridor Vc, subsection Mostar North - Tunnel Prenj - Konjic (Ovcari) are not expected to significantly impact the long-term survival and behavioural pattern of the species. While the Project site may not support regular foraging or breeding, due to the lack of wetland or marsh-like environments the species might occasionally traverse or visit the site during dispersion, particularly in search of alternative prey or habitat patches.
37.	Middle Spotted Woodpecker	*Dendrocopos medius*	BD I, IUCN LC, FBiH LC, Res. 6	**PBF** 2iaa	No	EOO is greater than 20,000 km^2; the species is found in more than 10 localities in BiH, the size of the population in BiH is estimated at 3,000-5,000 nesting pairs; the population is stable. The species is widespread in BiH and neighbouring countries. Construction of the motorwaz Mostar North - Tunnel Prenj - Konjic (Ovcari) is not expected to significantly impact the long-term survival and behavioural pattern of the species.

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
38.	White-Backed Woodpecker	*Dendrocopos leucotos*	BD I, IUCN LC, FBIH VU, Res. 6	**PBF** 2iaa	No	EOO is greater than 20,000 km^2; the species is found in more than 10 localities in BiH, the size of the population in BiH is estimated at 350-500 nesting pairs. The species is widespread in BiH and neighbouring countries, occurs in broad-leaved forest. It uses old-growth and overmature but relatively open deciduous and mixed forest with a high proportion of dead trees and fallen timber. The White-backed Woodpecker was recorded near Rakov Laz. As one territory of this species was recorded within the AoI of the Project, construction activities, particularly deforestation and habitat modification, pose a risk of habitat degradation and fragmentation, which could disrupt the species foraging and nesting behavior. Forest cover removal must be minimised to the absolute necessity, preserving critical habitat features such as standing dead trees and coarse woody debris.
39.	Syrian Woodpecker	*Dendrocopos syriacus*	BD I, IUCN LC, FBiH DD, Res. 6	**PBF** 2iaa	No	EOO is greater than 20,000 km^2; the species is found in more than 10 localities in BiH, the size of the population in BiH is estimated at 75-150 nesting pairs; the population trend is not known. The species is widespread in BiH and neighbouring countries. Works on the route of Corridor Vc, subsection Mostar North - Tunnel Prenj - Konjic (Ovcari) are not expected to significantly impact the long-term survival and behavioural pattern of the species.
40.	Grey-Headed Woodpecker	*Picus canus*	BD I, IUCN LC, FBiH LC, Res. 6	**PBF** 2iaa	No	EOO is greater than 20,000 km^2; the species is found in more than 10 localities in BiH, the size of the population in BiH is estimated at 1,500-3,000 nesting pairs; the population is stable. The species is widespread in BiH and neighbouring countries. Along the motorway route, this species was recorded at the Neretva River near Konjic. Works on the route of Corridor Vc, subsection Mostar North - Tunnel Prenj - Konjic (Ovcari) are not expected to significantly impact the long-term survival and behavioural pattern of the species.
41.	Black Woodpecker	*Dryocopus martius*	BD I, IUCN LC, FBIH NT, Res. 6	**PBF** 2iaa	No	EOO is greater than 20,000 km^2; the species is found in more than 10 localities in BiH, the size of the population in BiH is estimated at 1,500-2,500 nesting pairs; the population is stable. The species is widespread in BiH and neighbouring countries. Works on the route of Corridor Vc, subsection Mostar North - Tunnel Prenj - Konjic

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						(Ovcari) are not expected to significantly impact the long-term survival and behavioural pattern of the species.
42.	Red-Backed Shrike	*Lanius collurio*	BD I, IUCN LC, FBiH LC, Res. 6	**PBF** 2iaa	No	The species is considered to be widely distributed across Europe, Asia, and Africa, and is classified as Least Concern. In BiH, it has been recorded in karst fields and grasslands at elevations above 500 m a.s.l., indicating that the Project area located at lower altitudes does not represent optimal habitat for this species. Works on the route of Corridor Vc, subsection Mostar North - Tunnel Prenj - Konjic (Ovcari) are not expected to significantly impact the long-term survival and behavioural pattern of the species.
Mammals						
43.	Wolf	*Canis lupus*	IUCN LC, FBiH EN, HD II, IV(*), Res. 6	**CH** 2iad	**Yes**	EOO bigger than 20,000 km^2; the species is found in more than 10 localities in BiH, there is no data on the size of the population in BiH; as well as data on the dynamics of wolf populations, widespread in the Dinaric Alps in BiH and inhabits high forests. The wolf in the area of influence of the motorway section does not have the habitats necessary for breeding and feeding. Prenj Mt. and its surroundings represent permenant habitat of wolves, however, suitable habitats are outside of the zone of influence of the Project. Possible negative effects of the Project are reflected in temporary changes in the behavior of local populations due to noise and the presence of people. The biggest pressure will be the construction of access roads and enabling easier access to the area of the Mt. Prenj, which will increase the number of tourists, hunters and investments in the construction of facilities.
44.	Brown Bear	*Ursus arctos*	IUCN LC, FBiH VU, HD II, IV(*), Res. 6	**CH** 2iad	**Yes**	EOO bigger than 20,000 km^2; the species is found in more than 10 localities in BiH, there is no data on the size of the population in BiH; as well as data on the dynamics of brown bear populations, widespread in the Dinaric Alps in BiH and inhabits high forests. The brown bear in the area of influence of the motorway section does not have the habitat necessary for breeding and feeding. Based on most recent literature[14] higher altitudes of Prenj Mountain represent permenant habitat of Brown

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						Bear, however this habitat will not be under the impact of the Project. The habitats of the brown bear that could be under indirect pressure are the areas of the Mt. Prenj. Possible negative effects are reflected in temporary changes in the behavior of local populations due to noise and the presence of people. Habitats in the Project buffer zone can only be considered an occastional transit area.
45.	Eurasian Lynx	*Lynx lynx*	IUCN LC, FBiH VU, HD II, IV, Res. 6	**CH** 2iae	**Yes**	EOO bigger than 20,000 km^2; the species is found in more than 10 localities in BiH, there is no data on the size of the population in BiH; as well as data on the dynamics of Eurasian lynx populations, widespread in the Dinaric Alps in BiH and inhabits high forests. The Eurasian lynx in the area of influence of the motorway section does not have the habitat necessary for breeding and feeding. There is suggested sporadic presence based on information gathered during meetings with stakeholders, however, based on the most recent literature data[14] lynx is not permanently present in the Project area. Therefore, possible indirect impacts can be excluded due to sporadic occurrence of this species and an inadequate habitat.
46.	Eurasian Otter	*Lutra lutra*	IUCN NT, FBiH EN, HD II, IV, Res. 6	**CH** 2iae	**Yes**	EOO bigger than 20,000 km^2; the species is found in more than 10 localities in BiH, there is no data on the size of the population in BiH; as well as data on dynamics of Eurasian otter populations, widespread in BiH inhabiting wide variety of aquatic habitats, preferably slower, clean streams. Presence of this species was not confirmed during the conducted field survey; however, its presence was mentioned by local fishermen and what is presumed to be otter scat was found by the Bijela stream by the Bankwatch representatives[15]. Despite this stream not representing permanent habitat for this species, impact on the behaviour of the specimen potentially visiting

[14] Kaczensky, Petra; Ranc, Nathan; Hatlauf, Jennifer et al. (2024). Large carnivore distribution maps for Europe 2017 – 2022/23 [Dataset]. Dryad. https://doi.org/10.5061/dryad.3xsj3txrc

[15] Information assessed from Bankwatch comments on ESIA package Prenj – Annex C-5 Mammals (Large mammals), page 52 out of 61

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						the Project area can be expected. Long-term effects on the population of this species caused by the Project cannot be expected.
47.	Balkan Chamois	*Rupicapra rupicapra balcanica*	IUCN LC, FBiH VU, HD II, IV, Res. 6	**CH** 2iae	**Yes**	EOO of this species exceeds 20,000 km², though no specific estimate is available for this subspecies. In BiH, it inhabits altitudes from 120 to 2,385 m in dry karst mountains like Cvrsnica, Prenj, Velez, Bjelasnica, Treskavica, Zelengora and Susica. While not confirmed in the Project area, based on information provided by the stakeholders, its presence may be expected in Bijelo Polje, Podgorani, and Humilisani, potentially occurring during seasonal migrations due to heavy snow in winter. The species may occasionally pass through the area around Konjicka Bijela and Mt. Prenj, which has dense forest cover. Negative effects may arise from construction noise, increased human activity, and easier access to Mt. Prenj due to construction of access roads.
48.	European Wildcat	*Felis silvestris*	IUCN LC, FBiH LC, HD IV	**CH** 2iae	No	The European Wildcat in central-western Europe mostly inhabits the wooded low mountain regions with its large, temperate deciduous and mixed forests. EOO bigger than 20,000 km^2; the species is found in more than 10 localities in BiH, there is no data on the size of the population in BiH; as well as data on dynamics of European wildcat populations. The wildcat in the area of influence of the motorway section does not have the habitat important for breeding and feeding. Based on suggestions of members of hunting organisation it's presence can sporadically occur in hunting area Sections Bijelo Polje, Podgorani and Humilisani.
49.	Balkan Snow Vole	*Dinaromys bogdanovi*	IUCN VU, FBiH VU, HD II, IV	**CH** 2iae	**Yes**	The Balkan Snow Vole is endemic to the western Balkan states. EOO is 111,387 km^2; has highly specific habitat requirements; found exclusively in rocky karst limestone areas, in accumulations of rocks and boulders, on cracks in cliffs. As this species tends to inhabit isolated, inaccessible areas over 1,500 m, that are subject to little human disturbance, no direct impact is expected. Minor indirect impact can be present only if noise and soil tremor from construction reaches these elevations which is unlikely.

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
50.	Lesser Mouse-Eared Bat	*Myotis oxygnathus*	IUCN LC, FBiH EN, HD II, IV	**CH** 2iae	**Yes**	EOO is greater than 20,000 km^2; the species inhabits the Mediterranean regions of Europe the most; no population estimate has been made for the species in BiH; the species inhabits open meadows, wet meadows, karst areas and the like. They roost in caves and other underground locations. The Project will not disturb the habitat of the species as no known caves are on the Project footprint.
51.	Whiskered Bat	*Myotis mystacinus*	IUCN LC, FBiH VU, HD IV	**CH** 2iae	No	EOO is greater than 20,000 km^2. The species is widespread on the Balkan Peninsula; no population estimate has been made for the species in BiH; inhabits wet meadows, open meadows, forest habitats. Summer litters find suitable habitat under bridges and hollows in the rocks. The Project will not disturb the habitat of the species.
52.	Geoffroy's Bat	*Myotis emarginatus*	IUCN LC, FBiH VU, HD II, IV, Res. 6	**CH** 2iae	**Yes**	EOO is greater than 20,000 km^2; the species inhabits the Mediterranean regions of Europe; roosting in caves and buildings; can be found up to 2,200 m asl.; no estimate of the population size in BiH has been made but it is a widespread species. It was not confirmed during the field surveys, but it is expected on Prenj Mt. Impacts may include habitat loss, disturbance and displacement from roosts and foraging areas however, they do not pose significant threat to the species.
53.	Schreiber's Bent-winged Bat	*Miniopterus schreibersi*	IUCN VU, FBiH EN, HD II, IV, Res. 6	**CH** 2iae	**Yes**	EOO is greater than 20,000 km^2; can be found up to 2,200 m asl.; no estimate of the population size in BiH has been made but it is widespread species; forages in different habitats, including forest, shrubs, hedgerows and mature orchards; foraging areas have been found within 10-30 km of the roost. It was not recorded during field survey but it is expected in Kutilivac, Humilisani, Gornje selo, Konjicka Bijela, Ovcari.
54.	Kuhl's Pipistrelle	*Pipistrellus kuhlii*	IUCN LC, FBiH VU, HD IV	**CH** 2iae	No	EOO is greater than 20,000 km^2; the species inhabits the Mediterranean regions of Europe; a very synanthropic species and is often found in towns and settlements and is usually found on small elevations below 1000 m; often hunts around populated areas for the species; no estimate of the population size in BiH has been made; inhabits wet meadows, open meadows, forest habitats. The Project will not significantly disturb the habitat of the species and will not cause long-term impacts.

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
55.	Nathusius' Pipistrelle	*Pipistrellus nathusii*	IUCN LC, HD IV	**CH** 2iae	No	EOO is greater than 20,000 km^2; the species is widely distributed in Europe; no estimate of the population size in BiH has been made; inhabits naturally rich forest habitats; deciduous mixed forests, moist lowland forests, coastal forests, coniferous forests and parks. It is often found near water bodies. The Project will not result in significant long-term conservation of the species.
56.	Serotine Bat	*Eptesicus serotinus*	IUCN LC, HD IV	**CH** 2iae	No	EOO is greater than 20,000 km^2; widely distributed in Europe, especially in the Mediterranean; no estimate of the population size in BiH has been made; It can be found throughout the spectrum of Central European and Mediterranean habitats. Long-term impact on the species' local populations or conservation status cannot be expected as a result of the Project.
57.	Common Noctule	*Nyctalus noctula*	IUCN LC, FBiH EN, HD IV	**CH** 2iae	No	EOO is greater than 20,000 km^2; widely distributed in Europe; no estimate of the population size in BiH has been made; inhabits mostly forest habitats up to 550 m a.s.l. In addition to coastal forests, beech forests and transitions from oak forests to Mediterranean oak forests, it uses a wide range of habitats including cities. Their litters are mostly in woodpecker holes, a small part of the population of this species uses other cracks in the trees up to 30 m high. The Project might result in species disturbance, but any damage to roosting sites must be compensated for.
58.	Leisler's Bat	*Nyctalus leisleri*	IUCN LC, HD IV	**CH** 2iae	No	EOO is greater than 20,000 km^2; widespread in BiH; no estimate of the population size in BiH has been made; it primarily inhabits forest habitats. The impacts from the Project may arise during construction and operation as it often litters in tree cavities. Most often, they use beech and oak trees, and the litters are at an average height of 18-19 m. As a result, all large trees must be checked prior to clearance in line with BMP.
59.	Free-Tailed Bat	*Tadarida teniotis*	IUCN LC, HD IV	**CH** 2iae	No	EOO is greater than 20,000 km^2; inhabits the Mediterranean and sub-Mediterranean part of BiH; no estimate of the population size in BiH has been made; inhabits areas

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
						and over 2000 m a.s.l. The Project does not have the potential to affect the species-local population in the long-term.
60.	Greater Horseshoe Bat	*Rhinolophus ferrumequinum*	IUCN LC, FBiH VU, HD II, IV, Res. 6	**CH** 2iae	**Yes**	EOO is greater than 20,000 km^2; widespread in BiH; widely distributed in both Europe and the Mediterranean region; no estimate of the population size in BiH has been made; inhabits forest habitats and pastures. The motorway's area of influence extends 500 m from the route, covering areas where *Rhinolophus ferrumequinum* has been recorded, particularly at Podporim and Konjicka Bijela. Both construction and increased traffic could disturb the species' roosting and foraging activities. If roosts are located near the route, these activities could directly impact the species by causing habitat loss, disturbance, or displacement. Such impacts are addressed by the mitigation measures.
61.	Lesser Horseshoe Bat	*Rhinolophus hipposideros*	IUCN LC, FBiH EN, HD II, IV, Res. 6	**CH** 2iae	**Yes**	EOO is greater than 20,000 km^2; widespread in BiH; no estimate of the population size in BiH has been made; inhabits habitats of preserved structure. Direct impacts could result from construction and operational activities. These impacts may include habitat loss, disturbance, and displacement from roosts and foraging areas. Impacts, however, are not expected to be significant and do not pose a long-term threat to this species.
62.	Mediterranean Horseshoe Bat	*Rhinolophus euryale*	IUCN NT, FBiH EN, HD II, IV, Res. 6	**CH** 2iae	**Yes**	EOO is greater than 20,000 km^2; widespread in BiH; mostly a circum-Mediterranean species showing a patchy distribution; no estimate of the population size in BiH has been made; inhabits habitats of preserved structure. This species was not confirmed during the field survey on this section of the motorway; however, it is expected in Kutilivac, Humilisani, Gornje selo, Konjicka Bijela, Ovcari and Zlatar. The Project will not significatly disturb the habitat and behaviour of the species as it can be found in places other *Rhinolophus* species inhabit.

No.	English name	Scientific name	Conservation status	EBRD Crit. Met	EIB CH	Comment
63.	Common Pipistrelle	*Pipistrellus pipistrellus*	IUCN LC, FBiH VU, HD IV, Res. 6	**CH** 2iae	No	EOO is greater than 20,000 km^2; widespread in BiH and Europe; no estimate of the population size in BiH has been made; a very flexible species in terms of habitat, inhabiting cities and rural human settlements. The Project will not disturb the habitat of the species. Litters and maternity colonies are found in abandoned buildings.

4 Recommendations and Conclusion

4.1 Summary of CHA Findings

The project is considered to trigger the criteria regarding priority ecosystems for habitats listed in Annex I of the Habitats directive as follows:

- EAAA is habitat type listed in Annex I of EU Habitats directive (HD) – A total of four registered habitats habitats meet this criterion: 3240 Alpine rivers and their ligneous vegetation (*Salix eleagnos*), 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates, 62A0 Eastern sub-Mediterranean dry grasslands and 95A0 High oro-Mediterranean pine forests. The listed EAAAs are PBFs.
- EAAA is habitat type listed in Annex I of EU Habitats Directive marked as „priority habitat type". Two habitats confirmed during field surveys met this criterion: *6220 Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea* and 62A0 Eastern sub-Mediterranean dry grasslands. Due to being of large importance for the EU and preserving efforts, EAAA of said habitats are CHs both by EBRD and EIB criteria.

Regarding the criteria for priority species and their habitat, the project triggers multiple criteria set out by the EBRD.

The first analysed criterion is Species and their habitats listed in EU Habitat Directive and Birds Directive/Bern Convention – a number of fauna species meet this criterion, for both PBF and CH:

- EAAA for species and their habitats listed in Annex II of the Habitats Directive, Annex I of the Birds Directive, Resolution 6 of Bern Convention - four invertebrate, one fish, three amphibans, two reptiles, eight bird and 13 mammal species meet this criterion and therefore qualify as PBFs. However, some of the assessed species are listed both in Annex II and Annex IV and therefore are assessed as CH as seen below.
- EAAA for species and their habitats listed in Annex IV of the Habitats Directive – two invertebrate, four amphibian, 13 reptile and 21 mammal species and their habitats meet the criteria for critical habitat.

Second and third criteria for threatened species are based on conservation status according to IUCN (VU, EN, CR) and FBiH RL (EN, CR). Endangered and critically endangered species on international level were not found during surveys, although eight confirmed species are vulnerable. No species and their habitats meet the benchmark for critical habitat; however, several species are PBFs on the following basis:

- EAAA supports IUCN VU species: one invertebrate, two amphibian, two fish, one bird and two mammal species are vulnerable based on IUCN's assessment and therefore their EAAAs are classified as PBFs.

- The criterion for nationally or regionally listed EN or CR species is met by a total of 15 species, three of which were listed as critically endangered (plants) and 12 were listed as endangered (three plants, one amphibian, one bird and seven mammals). These species and their habitats are thus PBFs.

There are no range-restricted species confirmed in the surveyed area, all species have extent of occurrence larger than 50.000 km^2. In addition to this, no IBA or Ramsar sites are located within the project area or the area of 10 km radius.

A total of 63 biodiversity receptors confirmed during the field survey or by gathering additional information is listed above out of which 40 meet the criteria for critical habitat, while 23 meet the criteria for PBF. Species satisfying multiple criteria for both CH and PBF are regarded as CH.

- The following species and their habitats are CH: southern festoon (*Zerynthia polyxena*), cerambyx longicorn (*Cerambyx cerdo*), yellow bellied toad (*Bombina bombina*), green toad (*Bufotes viridis*), Greek stream frog (*Rana graeca*), olm (*Proteus anguinus*), Hermann's tortoise (*Testudo hermanni*), glass lizard (*Pseudopus apodus*), Dalmatian wall lizard (*Podarcis melisellensis*), common wall lizard (*Podarcis muralis*), sand lizard (*Lacerta agilis*), blue-throated keeled lizard (*Algyroides nigropunctatus*), eastern green lizard (*Lacerta viridis*), Balkan green lizard (*Lacerta trilineata*), nose-horned viper (*Vipera ammodytes*), Dahl's whip snake (*Platyceps najadum*), dice snake (*Natrix tessellate*), four-lined snake (*Elaphe quatuorlineata*), Aesculapian snake (*Zamenis longissimus*), wolf (*Canis lupus*), brown bear (*Ursus arctos*), Eurasian lynx (*Lynx lynx*), European wildcat (*Felis silvestris*), Eurasian otter (*Lutra lutra*), Balkan snow vole (*Dinaromys bogdanovi*), Balkan chamois (*Rupicapra rupicapra balcanica*), Geoffry's bat (*Myotis emarginatus*), Schreiber's bent-winged bat (*Miniopterus schreibersii*),lesser mouse-eared bat (*Myotis oxygnathus*), whiskered bat (*Myotis mystacinus*), common pipistrelle (*Pipistrellus pipistrellus*), Kuhl's pipistrelle (*Pipistrellus kuhlii*), Nathusius' pipistrelle (*Pipistrellus nathusii*), Serotine bat (*Eptesicus serotinus*), common noctule (*Nyctalus noctula*), Leisler's bat (*Nyctalus leisleri*), free-tailed bat (*Tadarida teniotis*), Greater horseshoe bat (*Rhinolophus ferrrumequinum*), lesser horseshoe bat (*Rhinolophus hipposideros*) and Mediterranean horseshoe bat (*Rhinolophus euryale*) .
- Species and their habitats that are PBFs are: *Anthyllis vulneraria* subsp. *praepropera, Asphodelus fistulosus, Crocus dalmaticus, Cyclamen hederifolium, Opopanax chironium, Spiranthes spiralis*, jersey tiger (*Euplagia quadripunctaria*), long-horned beetle (*Morimus funereus*), European stag beetle (*Lucanus cervus*), bullhead (*Cottus gobio*), Adriatic dace (*Squalius svallize*), Neretvan spined loach (*Cobitis narentana*), Common Fire Salamander (*Salamandra salamandra*), European turtle-dove (*Streptopelia turtur*), pallid swift (*Apus pallidus*), golden eagle (*Aquila chrysaetos*), western marsh harrier (*Circus aeruginosus*), middle spotted woodpecker (*Dendrocopos medius*), white-backed woodpecker (*Dendrocopos leucotos*), Syrian woodpecker (*Dendrocopos syriacus*), grey-headed woodpecker (*Picus canus*), black

woodpecker (*Dryocopus martius*) and red-backed shrike (*Lanius collurio*).

- An important thing to note is that several species were not confirmed during field suveys. Despite that they are included in critical habitat assessment due to conservation statuses and the precautionary principle. Following species meet that criteria: wolf (*Canis lupus*), brown bear (*Ursus arctos*), Eurasian lynx (*Lynx lynx*), European wildcat (*Felis silvestris*), Olm (*Proteus anguinus*), Eurasian otter (*Lutra lutra*), Balkan snow vole (*Dinaromys bogdanovi*), Balkan chamois (*Rupicapra rupicapra balcanica*), Geoffry's bat (*Myotis emarginatus*), Schreiber's bent-winged bat (*Miniopterus schreibersii*), Mediterranean horseshoe bat (*Rhinolophus euryale*), European stag beetle (*Lucanus cervus*), Cerambyx longicorn (*Cerambyx cerdo*). Presence of these species was not confirmed and the habitats within the Project's area of influence are not thought to be able to support life habits of these species. Concerning large carnivores, despite not having suitable habitat for breeding and feeding, the species have a very large range and project area might be used as a corridor. Therefore, mitigation measures relating to wolf, bear and lynx are proposed as a part of this assessment as well as in Biodiversity Management Plan (BMP).

In addition to adhering to EBRD criteria, the criteria set forth by the EIB were also followed. Habitats and species met the following EIB criteria:

- Criterion 1: Highly Threatened or unique ecosystems - Priority Habitats listed in Annex I of the Habitats Directive and habitats considered to be their equivalent in countries outside the EU;
- Criterion 2: Population of critically endangered, endangered or vulnerable species, as defined by the IUCN Red List of threatened species and in relevant legislation - A population of species listed in Annex II and IV of the Habitats Directive.

Based on the criteria two habitat types and 19 species are identified as critical habitat. The habitat types meeting the Criterion 1 are: *6220 Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea* and 95A0 High oro-Mediterranean pine forests. Species that meet the Criterion 2 are: cerambyx longicorn (*Cerambyx cerdo*), yellow bellied toad (*Bombina bombina*), olm (*Proteus anguinus*), Hermann's tortoise (*Testudo hermanni*), four-lined snake (*Elaphe quatuorlineata*), wolf (*Canis lupus*), brown bear (*Ursus arctos*), Eurasian lynx (*Lynx lynx*), Eurasian otter (*Lutra lutra*), Balkan snow vole (*Dinaromys bogdanovi*), Balkan chamois (*Rupicapra rupicapra balcanica*), lesser mouse-eared bat (*Myotis oxygnathus*), Geoffry's bat (*Myotis emarginatus*), Schreiber's bent-winged bat (*Miniopterus schreibersii*), Greater horseshoe bat (*Rhinolophus ferrrumequinum*),lesser horseshoe bat (*Rhinolophus hipposideros*) and Mediterranean horseshoe bat (*Rhinolophus euryale*).

Based on the requirement of the PR 6 paragraph 13 and 15, critical habitat must not be further fragmented, converted or degraded to the extent that its ecological integrity or biodiversity importance is compromised. No net loss of habitats and species that triggered PBF is allowed, and project must be designed

to deliver net gains for features that triggered CH. EBRD's requirements can only be achieved through specific and targeted mitigation in line with mitigation hierarchy of avoiding the negative impact to these habitats and species. Mitigation measures for all species of conservation concern have been given in BMP and this ESIA and must be implemented effectively, adequately and timely.

Considering the above, direct impact regarding critical habitat fragmentation and convertion must be assessed. Negative direct and indirect impacts can occur as a result of Project implementation, and such will be addressed in accordance with EBRD and EIB requirements. Following the EBRD PR 6 (paragraph 13 and 15) implementation of the project if it compromises biodiversity can be done if no other viable alternatives within the region exist for development of the project in habitats of lesser biodiversity value which applies to this project. Same is addressed by EIB Standard 4 which states that no project activities should implement in areas of critical habitat unless, no other viable alternatives for the project exists either in terms of location or design, and there is rigorous justification of overriding public interest based on human health, public safety considerations and/or beneficial consequences of primary importance for the environment. Furthermore, it also states that project activities in areas of critical habitat can be condiered if the project does not lead to measurable adverse impacts that will result in any detrimental effect on the ecological and conservation status of the critical habitat, and impacts are avoided and minimised to the extent possible through changes in footprint or design (paragraph 17). All EBRD and EIB criteria and comment whether these criteria are met by the Project, and how, are given in Table 7.

Table 7: Criteria that have been met by the Project given in EBRD and EIB documents on assessing the impacts on biodiversity

EBRD PR 6 paragraph 13	EBRD PR 6 paragraph 15	EIB Standard 4	Comment
› The client can demonstrate that there are no technically and economically feasible alternatives	› No other viable alternatives within the region exist for development of the project in habitats of lesser biodiversity value	› No other viable alternatives for the project exist either in terms of location or design, and there is rigorous justification of overriding public interest based on human health, public safety considerations and/or beneficial consequences of primary importance for the environment	› Alternatives were assessed through a Multi-Criteria Analysis (MCA) including environmental, social, and technical criteria. The selected alignment minimises displacement and maximises safety. › The entire project region contains extensive areas of high biodiversity value. Alternative alignments still intersect critical or priority habitats. Alternatives involving different corridors were also considered but all would have intersected candidate Emerald sites or potential Natura 2000 sites due to the ecological richness of the wider general area. A map route and the presence of sensitive areas (e.g., potential Natura 2000/Emerald sites) is provided below for visual verification (Figure 2). The current alignment avoids and minimises impacts on sensitive ecosystems to the maximum possible extent given the location. › There are no viable alternatives to the current alignment with regard to avoidance of priority biodiversity features or critical habitats as the extent of such habitats is major in the Project area, i.e. there is no alternative within the region for development of the Project in habitats of lesser biodiversity value. › The subsection through Mt. Prenj is planned as a tunnel, substantially reducing surface-level ecological fragmentation and disturbance. › The BiH Ministry of Transport and Communications adopted a Decision on Public Interest for the construction of the Corridor Vc motorway through BiH in 2003, initiating the preparation of spatial, planning, and technical documentation. Subsequently, in June 2022, the Government of the Federation of BiH (FBiH) issued two separate decisions designating the construction of the Konjic (Ovcari) – Prenj

EBRD PR 6 paragraph 13	EBRD PR 6 paragraph 15	EIB Standard 4	Comment
			Tunnel subsection and the Prenj Tunnel – Mostar North subsection as projects of public interest. In November 2022, the Government of FBiH further adopted a decision declaring the construction of the Prenj Tunnel specifically as being of public interest, thereby enabling the initiation of preparatory works, including the expropriation process.
› Stakeholders are consulted in accordance with PR 10	› Stakeholders are consulted in accordance with PR 10	› Stakeholders are consulted in accordance with Standards 2 and 7, as defined in paragraph 11 of Standard 4	› Public consultations were held throughout the alignment selection and local EIA and ESIA development phases. › Consultations included disclosure in local languages, iterative engagement, and development of Stakeholder Engagement Plan and grievance mechanisms. › Recognizing the value of the wider Project area, public consultations during the local EIA process and ESIA development included targeted engagement with biodiversity-focused stakeholders, including organizations such as: Federal Ministry of Environment and Tourism, NGO Aarhus Centre Sarajevo, NGO Zeleni Neretva, Hunting Association Konjic, Sports Fisherman Organisation Konjic, Hunting Organisation Koznik, Biospeleological Organisation Biospeld.
› The project is permitted under applicable environmental laws, recognising the priority biodiversity features	› The project is permitted under applicable environmental laws, recognising the priority biodiversity features	› N/A	› On January 22, 2024, FBiH Ministry of Environment and Tourism issued *Decision on Approval of the Environmental Impact Assessment Study for the new motorway section between Konjic (Ovcari) and Mostar North*, after the completion of all legal procedures, including public consultations. › Biodiversity features were duly recognised and considered during screening, baseline studies, and impact assessments and CHA was a part of the EIA Package submitted to the Ministry.

EBRD PR 6 paragraph 13	EBRD PR 6 paragraph 15	EIB Standard 4	Comment
› Appropriate mitigation measures are put in place, in accordance with the mitigation hierarchy, to ensure no net loss and preferably a net gain of priority biodiversity features and the habitats and ecological functions that support them over the long term to achieve measurable conservation outcomes	› The project is designed to deliver net gains for critical habitat impacted by the project › A robust and appropriately designed, long-term biodiversity monitoring and evaluation program aimed at assessing the status of critical habitat is integrated into the client's adaptive management program	› Positive conservation outcomes (Net Positive Impact) and continued ecological functionality are achieved though appropriate compensation measures for residual impacts that would otherwise occur despite impact avoidance, minimisation and restoration measures › A robust, appropriately designed and long-term biodiversity monitoring and evaluation programme aimed at assessing the status of the critical habitat is integrated into the promoter's adaptive management programme	› A robust BMP has been developed and includes avoidance, mitigation, and compensation measures aligned with the mitigation hierarchy. › Avoidance was prioritised wherever feasible (e.g., route placed underground through Prenj avoiding areas of the highest value predominantly present at higher altitudes; disposal sites placed outside protected or internationally recognised areas based on the feedback to Designers during the development of this ESIA). › The BMP outlines restoration and compensation actions designed to result in no net loss and, where required, net gain for affected biodiversity features. Compensation measures are ecologically relevant, geographically proximate, and additional—i.e., they go beyond business-as-usual or regulatory requirements. These include habitat enhancement, assisted natural regeneration and species conservation actions, such as bat boxes and habitat management aimed at preservation of PBF/CH species. › The monitoring programme includes provisions for third-party audits, regular public disclosure, and consultation with key stakeholders, including conservation NGOs and national institutions.
N/A	› The project is not anticipated to lead to a net reduction in the population of any endangered or critically endangered species,	› The project does not lead to a net reduction in the population of any vulnerable, endangered or critically endangered species over a	› Comprehensive baseline studies conducted as part of the ESIA identified the presence of certain threatened species within the broader area. However, these species are either widely distributed within the landscape or occur in relatively low densities near the project footprint.

EBRD PR 6 paragraph 13	EBRD PR 6 paragraph 15	EIB Standard 4	Comment
	over a reasonable time period › The project does not lead to measurable adverse impacts on those biodiversity features for which the critical habitat was designated as outlined in paragraph 14 (of PR 6)	reasonable period of time › The project does not lead to measurable adverse impacts that will result in any detrimental effect on the ecological and conservation status of the critical habitat, and impacts are avoided and minimised to the extent possible through changes in footprint or design	› The most sensitive areas, including those associated with recorded occurrences of vulnerable or endangered species, were either avoided (e.g. via realignment or tunnelling) or buffered with appropriate mitigation measures. Where impacts are unavoidable, they are localised, temporary, and not population-limiting in nature. › Based on the species' ecology and population dynamics, and supported by expert judgement, the Project is not expected to contribute to a negative trend in any endangered, critically endangered, or vulnerable species over time. › No core populations or irreplaceable ecological functions will be impacted. No local extinctions or elevated risks to any species are anticipated. › The residual impacts that could affect critical habitat have been addressed through targeted mitigation, including avoidance (e.g. placement of tunnelling under sensitive areas), minimisation, and compensatory measures.

Considering geographical and biodiversity features of the country of implementation, this project consideres best option with lowest possible net loss than any other alternative to avoid impact on critical habitat. Any other alternative would have at least comparable impacts on biodiversity, as demonstrated by lack of alternatives passing through designated sites (Figure 2).

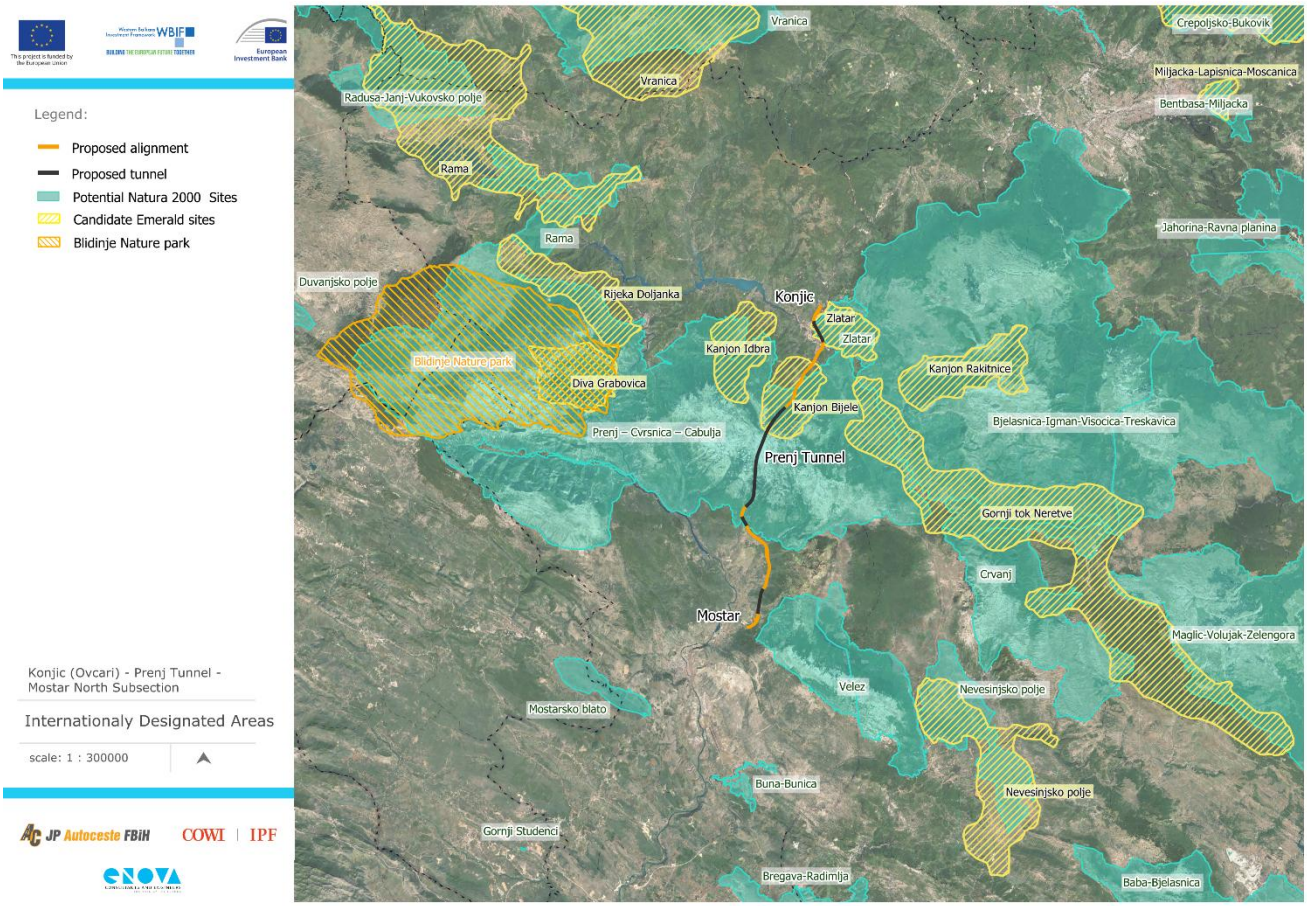


Figure 2: Project in relation to designated areas

4.2 Impact Identification and Mitigation Measures

No net loss of aquatic habitats and species will be achieved through specific and targeted mitigation in line with mitigation hierarchy of avoiding the negative impact to aquatic habitats and species. Mitigation will require preservation of same conditions of the watercourse Neretva without disturbance, preservation of the riparian vegetation and preservation of the flow regime same as the current conditions downstream of the affected area. Fish EAAA, along with all EAAAs of PBFs and CHs, are provided in Chapter 5 and only the ones potentially directly affected by the project will be assessed below.

Net gain is applicable for the aquatic species as well, however due to the reason that restocking, if not implemented properly, can do more harm to the autochthonous species, restocking with native fish species needs to be implemented by engaging the suitable local biodiversity experts with relevant professional background along with a local fishing society.

Mitigation measures for terrestrial species of conservation concern can be implemented effectively for terrestrial ecology, as given in BMP, whereas below only the main mitigation measures for terrestrial habitats and species are given:

- Due to potential loss of Annex I habitats, it will be needed to include the requirement for habitat revitalisation and aforestation after the completion of construction by planting native plant species characteristic for this area (e.g. Dalmatian Laburnum, Bosnian pine, hornbeam, oak etc.) and to prevent the growth and spread of invasive species.
- Habitat type 3240 Alpine rivers and their ligneous vegetation with *Salix elaeagnos* (PBF) is found near the northern portal of tunnel Prenj (Figure 3). As a result, no significant impact is expected as a result of Prenj tunnel construction.

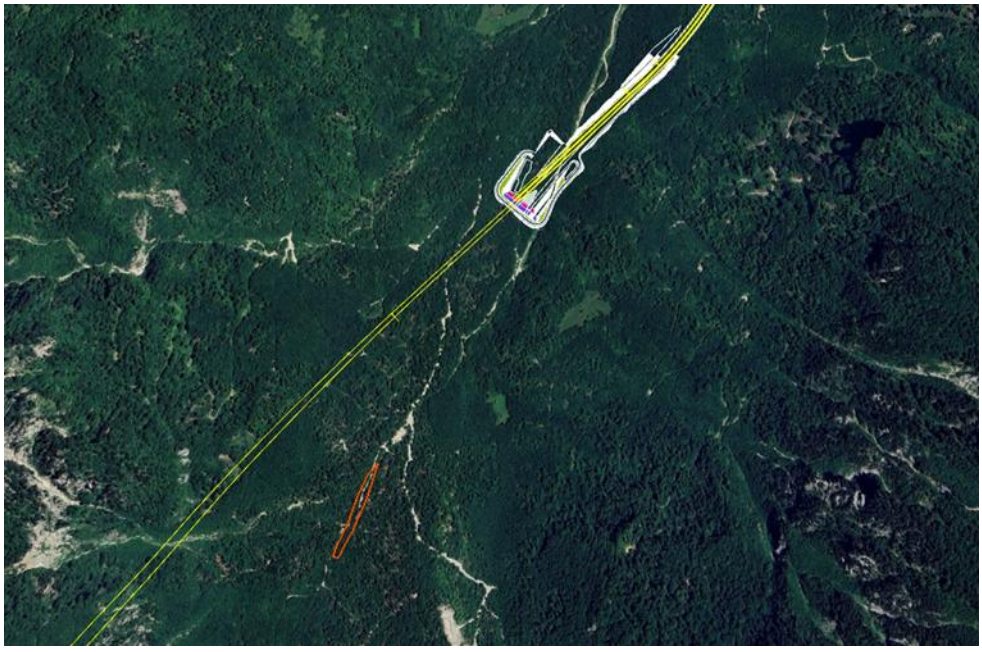


Figure 3: EAAA of habitat type 3240 Alpine rivers and their ligneous vegetation with Salix eleagnos in relation to the north portal of Prenj tunnel

- Four EAAAs of 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates habitat type (PBF) were found in the Project's general area, of which one, located in Ovcari, requires special compensation measures to ensure no net loss. It is positioned in the hilly area above settlement (Figure 4). Compensation requirements and recommendations are given in the BMP.

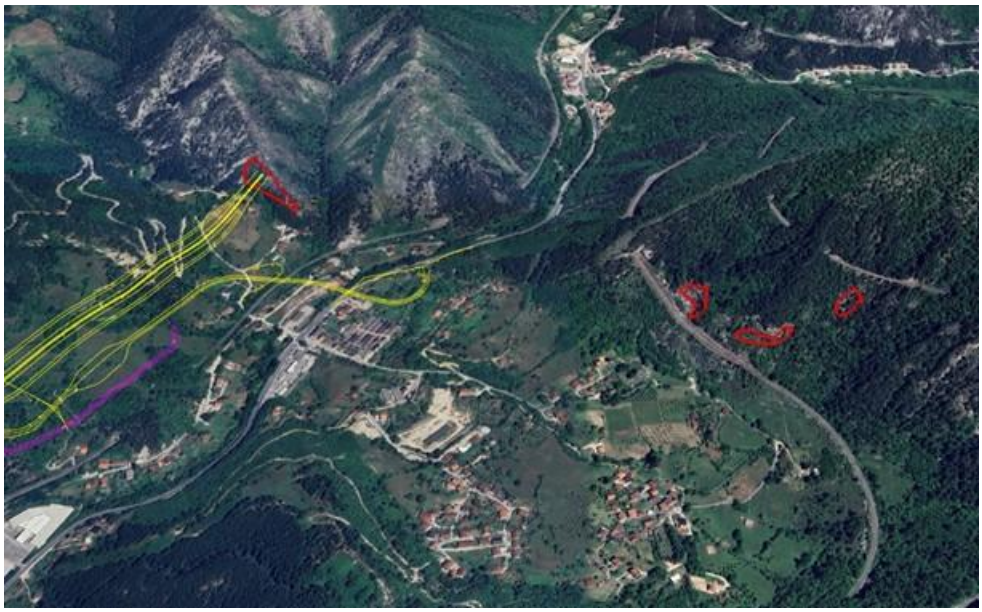


Figure 4: EAAA of habitat type 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates in Ovcari

- Habitat type 62A0 Eastern sub-Mediterranean dry grasslands (*Scorzoneratalia villosae*) (PBF) is a common and widespread habitat in this area of Europe. It is also present in the Project area, in multiple locations around Konjic and Podgorani. The EAAAs around Konjic will not be impacted by the construction works; however, approx 0.03 ha will be under direct impact in Podgorani (Figure 5). Net gain must be achieved by revitalisation of surrounding habitats according to the recommendations and requirements provided in BMP. It is to be assumed that, due to movement of machinery, a somewhat larger area might be affected, at least 0.05 ha gain of this habitat but be achieved through habitat revitalisation and active management.

Figure 5: EAAAs of habitat type 62A0 Eastern sub-Mediterranean dry grasslands (Scorzoneratalia villosae) is Podgorani

- 62A0 habitat type is also present in Kutilivac – approx 100 m north of a souther portal of a tunnel (Figure 6). It is assumed that, due to the route passing under the habitat, no direct impacts will be present. However, precautionary mitigation measure of no machinery movement or destruction of this habitat is allowed in the area.

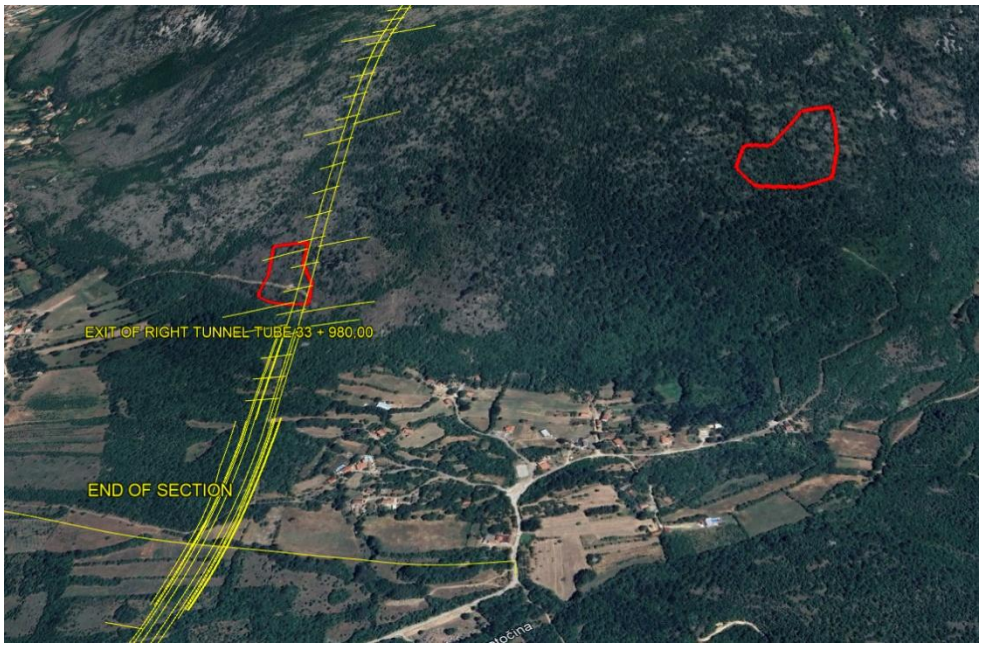


Figure 6: EAAA of habitat type 62A0 Eastern sub-Mediterranean dry grasslands (Scorzoneratalia villosae) is Kutilivac

- Priority habitat type *6220 Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea (CH) is found on a number of locations around the planned route, two of which stand our for protection from negative impacts during construction – a total of four EAAAs in Ovcari and Kutilivac (Figure 7 and Figure 8). This habitat must not be disturbed during construction. However, due to the fact that the EAAA in Kutilivac are close to the portal of the tunnel (distance of approx. 100 m) some adverse impact might be expected. If any do occur, the Client is obligated to conduct revitalisation of said habitats in a larger area than area lost.

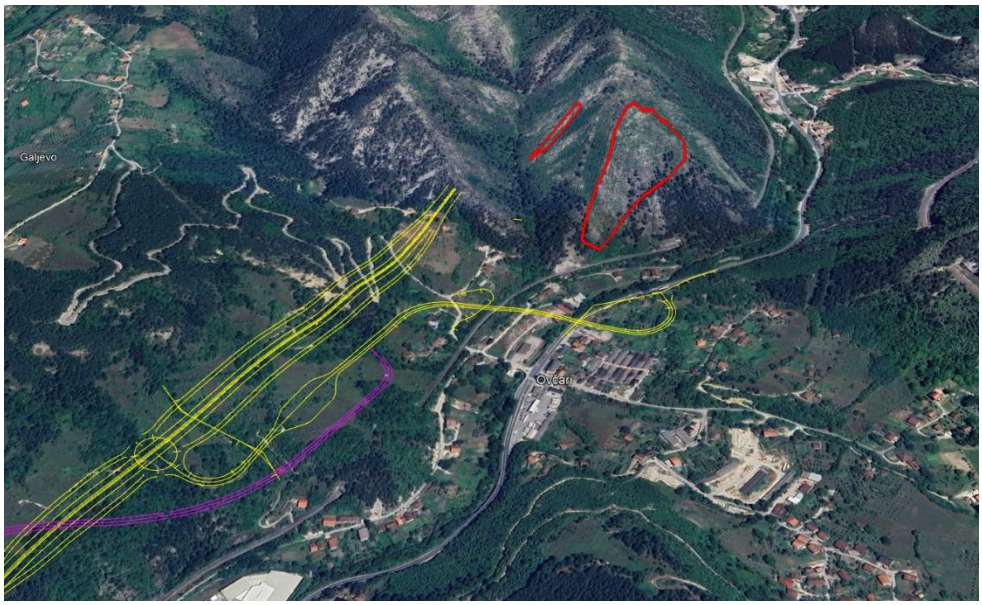


*Figure 7: EAAAs of *6220 Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea habitat type in Ovcari*

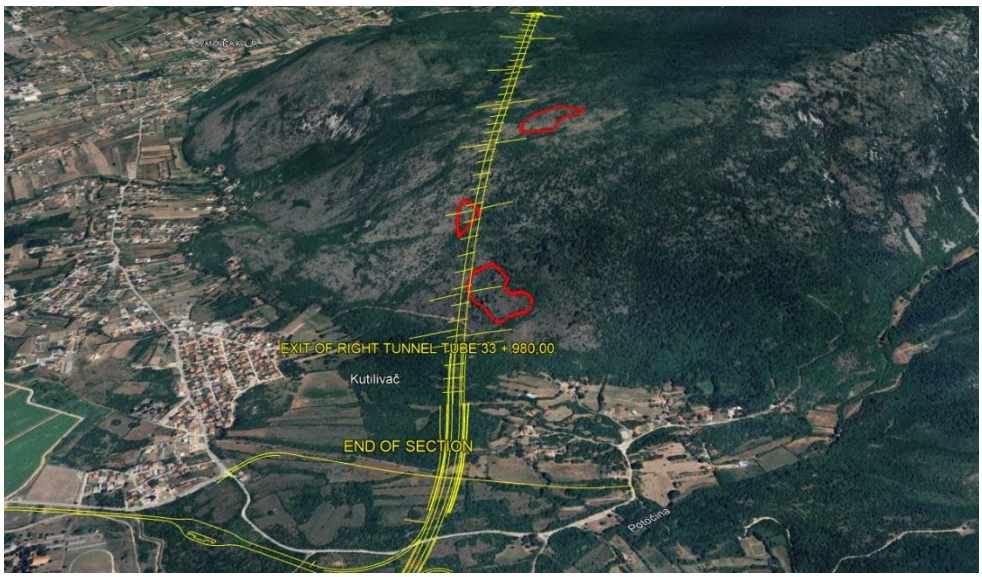


*Figure 8: EAAAs of *6220 Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea habitat type in Kutilivac*

Plant species *Spiranthes spiralis* is a PBF therefore ther must not be a loss of this species or its habitat. Two EAAAs are positioned in a way that makes them possibly succept to adverse impact of motorway construction. Precisely, they are located in Humilisani, approx 1,400 m and 2,800 m via existing R435a road away from the planned route (Figure 9). Due to the fact that these existing roads will likely be used as access roads, it is important not to allow the machinery to exit the roads and widen them.

Figure 9: Two EAAAs of Spiranthes spiralis in Humilisani in relation to the motorway route

- Species *Anthyllis vulneraria* L. subsp. *praepropera* is a PBF as well and two EAAAs might be impacted by the project. No loss of habitats marked in Figure 10 and Figure 11 are allowed.

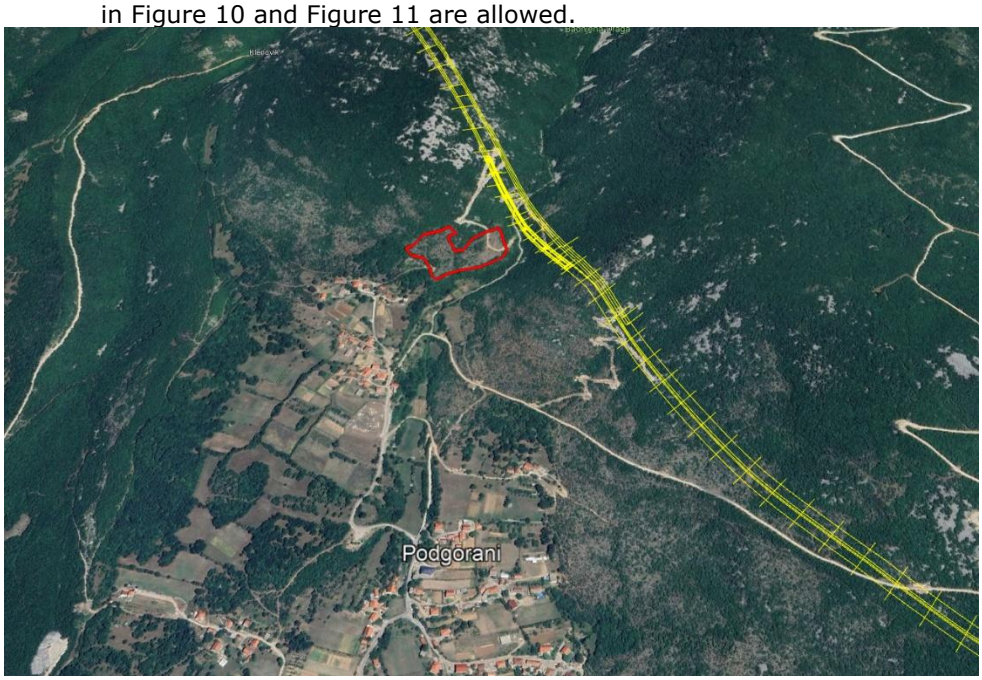


Figure 10: Anthyllis vulneraria L. subsp. praepropera EAAA north of Podgorani in relation to the motorway route

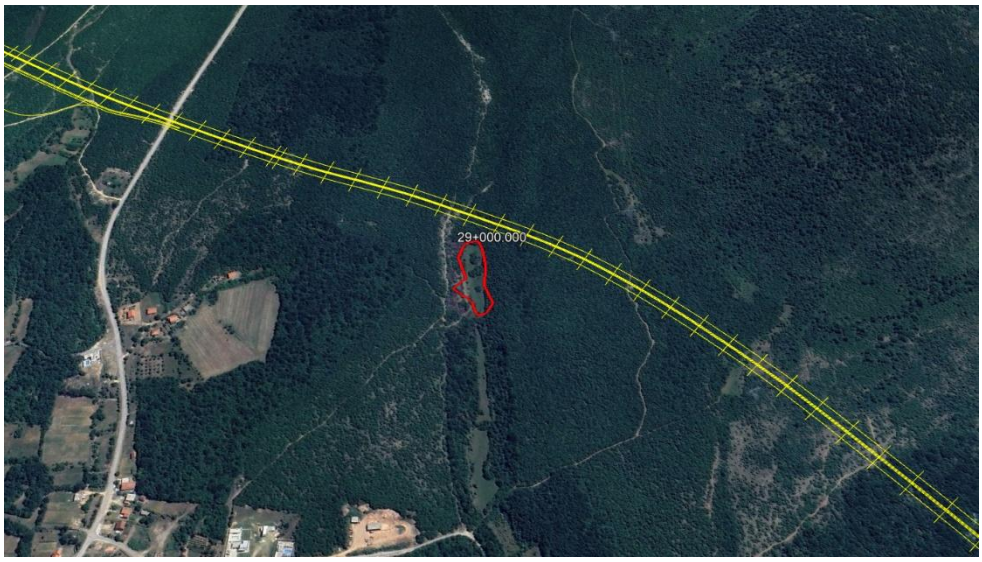


Figure 11: Anthyllis vulneraria L. subsp. praepropera EAAA in Humilisani in relation to the motorway route

- *Crocus dalmaticus* is a plant species qualifying for PBF due to being EN in FBiH. The Project will not impact the conservation status of this species due to two small EAAAs being located in Project's impact area (Figure 12). It can be assumed that, due to their position, no habitat loss will be caused.

Figure 12. Crocus dalmaticus EAAAs in Podgorani

- *Cyclamen hederifolium* is a PBF (CR in FBiH). Based on the available literature research and field surveys, this species has been found in BiH at about 20 localities. EAAA size is 0.25 km^2. Anticipated Project activities unlikely to significantly impact the long-term survival of the species. There are multiple EAAAs of this species located directly on the footprint (Figure 13), meaning that there will be unavoidable loss of this species' habitat. The Client must ensure there is no net loss by avoiding

any impact where possible, revitalisation of all affected habitats and net gain of said habitats in the amount of at least 1 ha.

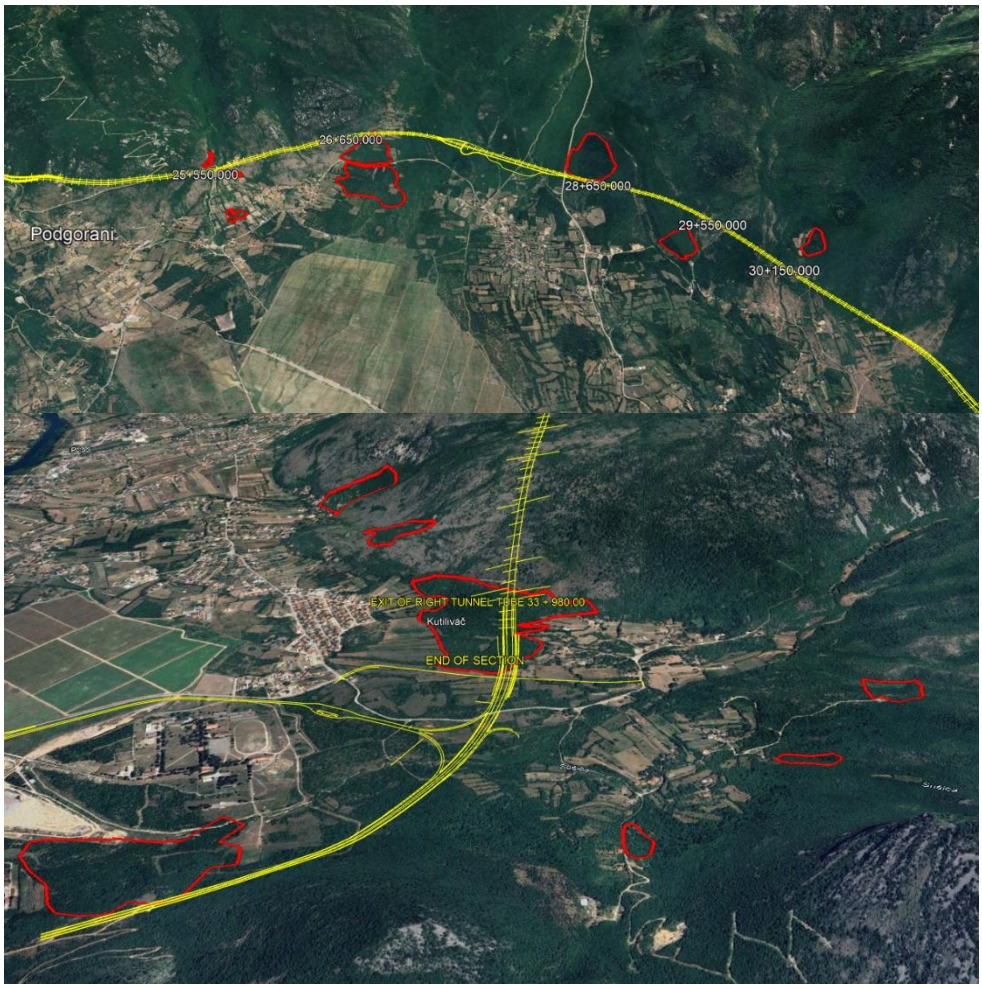


Figure 13: EAAAs of Cyclamen hederifolium in relation to the motorway route

- Regarding invertebrates assessed as a part of the CHA (one CH, two PBF), due to the wide distribution of found species and the possibility of subsequent recolonisation of habitats, no significant irreversible negative effects are expected. The species *Zerynthia polyxena* (CH) was found in Podgorani. Areas inhabited by this species are open meadow habitats. Opening of forest habitats, provided that the area is maintained in a way to promote the development of meadows rather than lawns along the motorway, can lead to an increase in open micro-habitats of this species. This is the case for *Euplagia quadripunctaria* (PBF) as well; while *Morimus funereus* (PBF) depends on preserved forest areas, old beech and oak trees. During cutting down of trees in the belt of the route, at least 5% of trees are to be stacked in piles that will remain in the area along the route to ensure that individuals developing in the trees complete the cycle. Whenever possible, avoid unnecessary cutting of older trees and removal of dead wood.

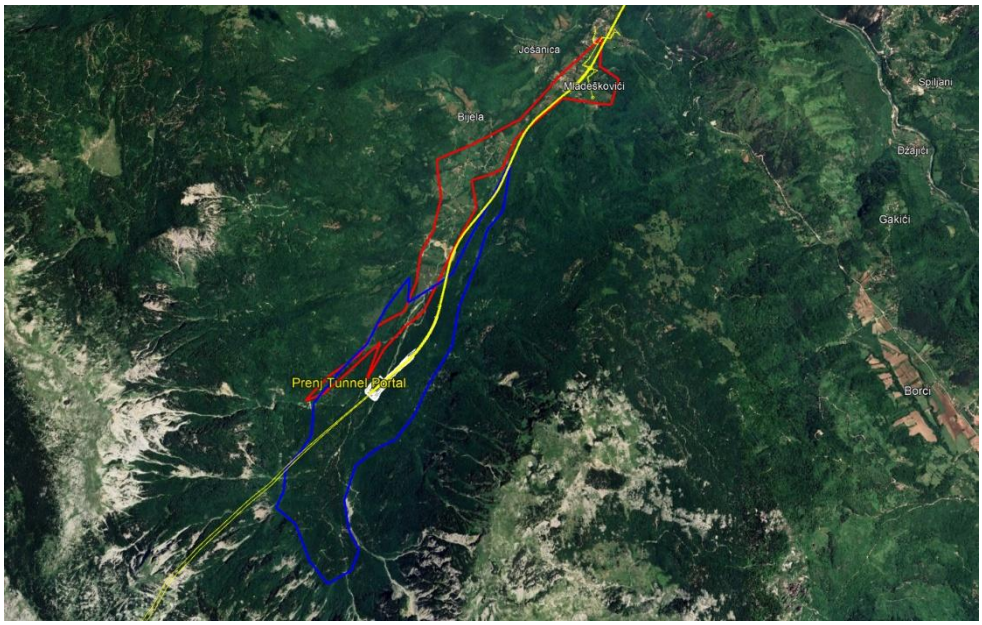


Figure 14: Euplagia quadripunctaria (delineated in red) and Morimus funereus (delineated in blue) EAAAs north of Prenj tunnel

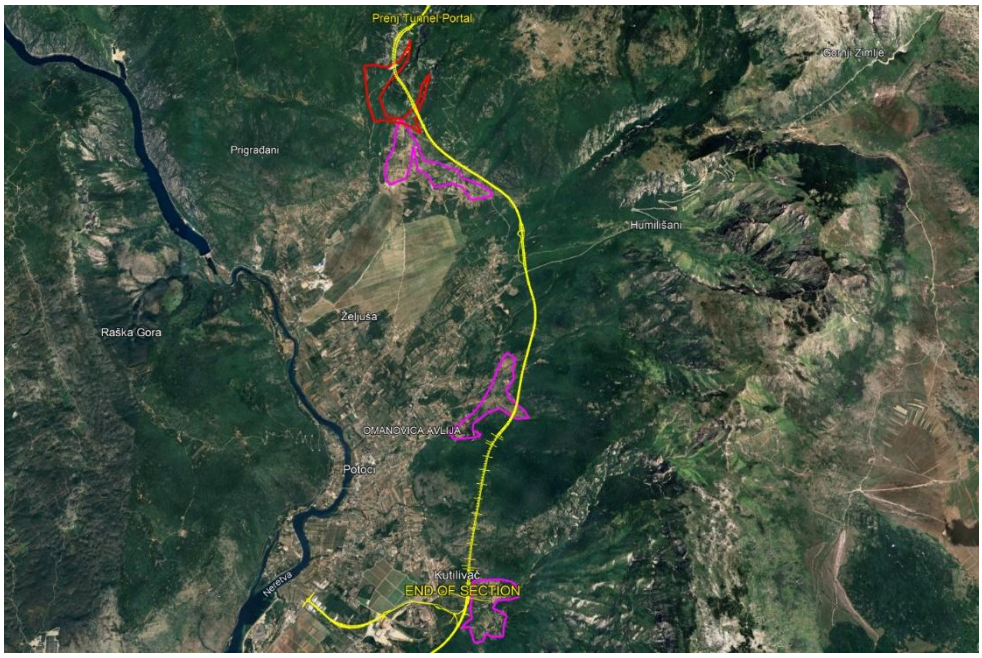


Figure 15: Euplagia quadripunctaria (delineated in red) and Zerynthia polyxena (delineated in purple) EAAAs south of Prenj tunnel

- The motorway construction requires regulation of a 600 m stretch of the Bijela River to protect a downstream water source, resulting in the loss of approximately 0.12 ha of high-quality aquatic habitat (habitat quality score 0.75 Qha) of *Cottus gobio*. This will require targeted offset for the species outlined in BMP and further to be defined in BOP.

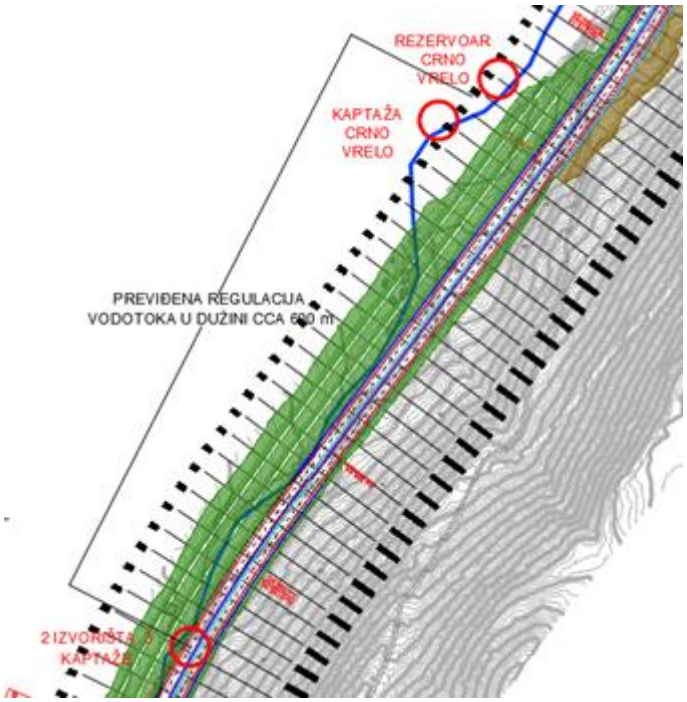


Figure 16: Planned regulation of River Bijela in length of approx. 600 m

- Habitats of reptiles are dominant in the area south of Prenj tunnel, while amphibian habitat dominate in the area noth of the tunnel due to more humid climate and more watercourses and streams. All of the registered species listed in Table 4 are either PBFs or CHs meaning their habitats must not suffer loss of, additionally, have net gain.
- Avoid habitat destruction and alteration outside of the defined Project footprint to the best extent possible.
- There must be no loss of amphibians or reptiles of conservation importance. If found, they must be relocated by a qualified and experiences ecologist to the appropriate pristine and safe habitat nearby.
- It is necessary to perform daily checks for the presence and removal of individuals of the species Hermann's tortoise (*Testudo hermanni)* within the motorway section under construction, and, if species are found, safely remove them from the area to the habitat of the same type away from machines, local roads and other dangers. EAAA of said species is shown in Figure 17 and, due to the EAAA and Project footprint overlapping, a walkover of the construction site in search for individuals must be performed as they are numerous in the area and might find their way into the site.

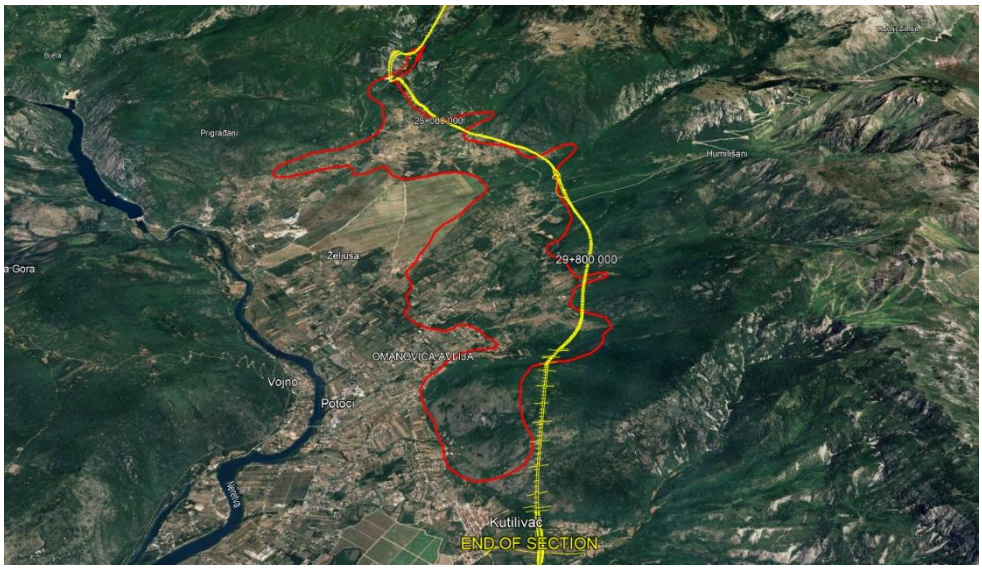
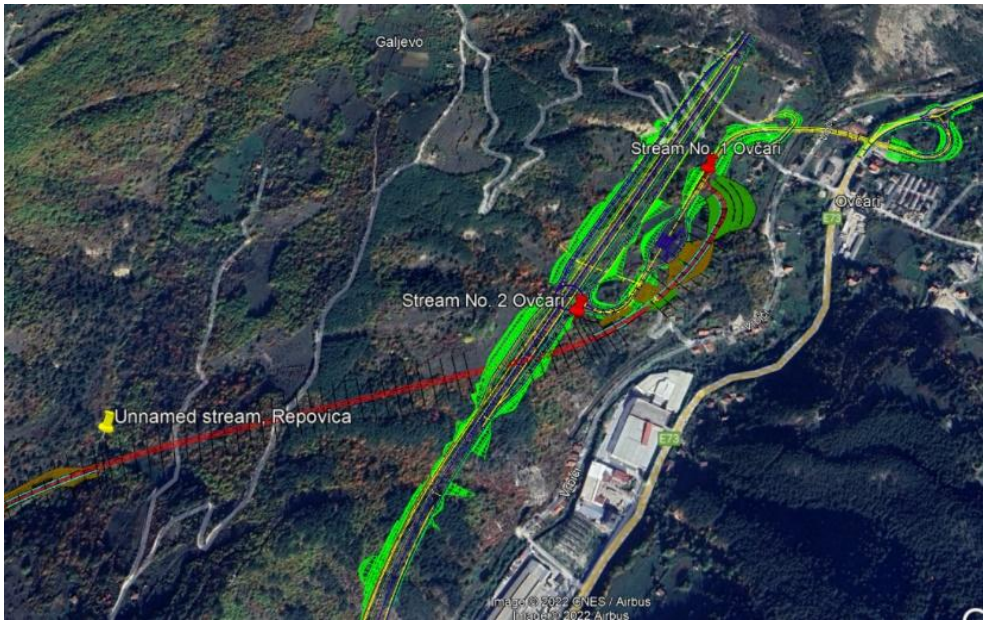


Figure 17: Hermann's tortoise EAAA

- Fragmented and small habitats, suitable for amphibians found in the area of Konjic bypass, Ovcari, Mladeskovici, Klenova draga, Zelenika and Bosnjaci (coordinates are provided in Annex C-2: Herpetofauna) must not be disturbed by heavy machinery during construction (Figure 18 and Figure 19).



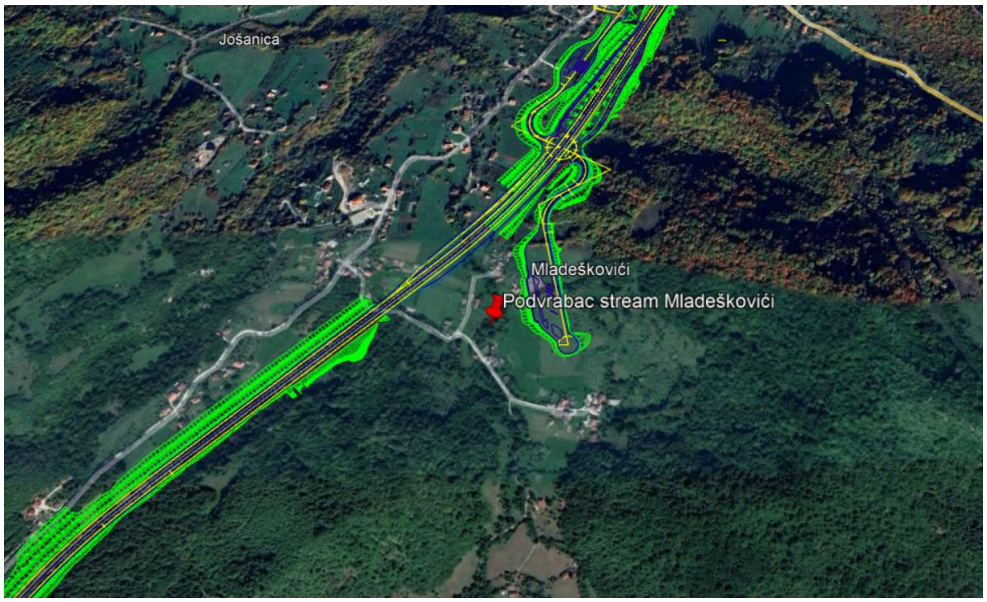


Figure 18: Amphibian breeding sites north of Prenj tunnel

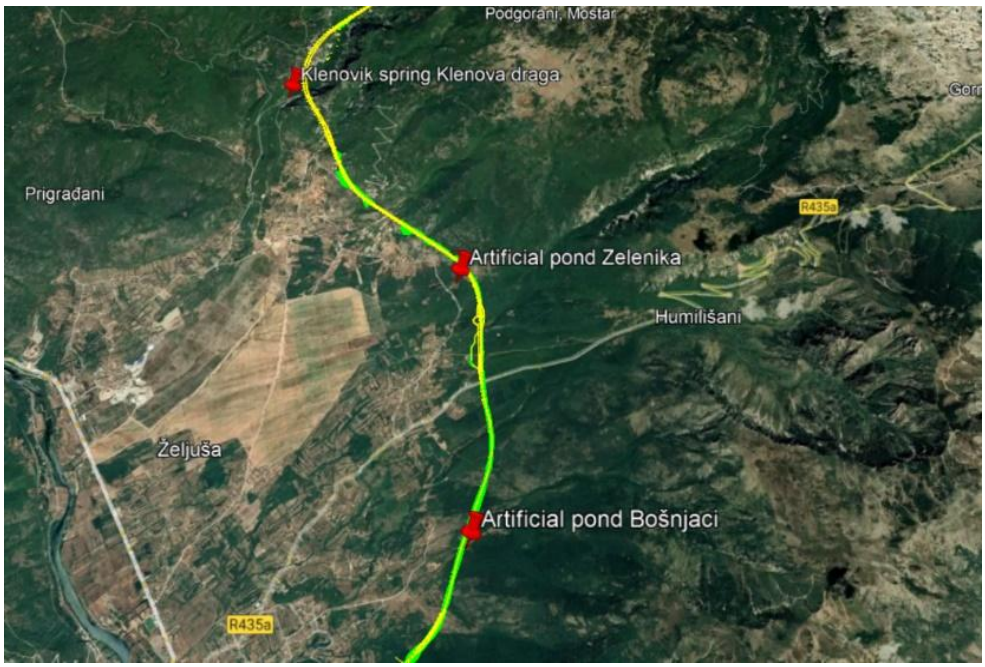


Figure 19: Amphibian breeding sites south of Prenj tunnel

- In aforementioned locations, due to identification of a large number of amphibians and potential habitat fragmentation, tunnels should be set up to allow the unimpeded passage of animals.

When it comes to ornithofauna, in order to preserve the bird population in the referenced area, it is necessary to apply the following mitigation measures during the construction phase:

- It is necessary to install protective panels on the bridges over the River Tresanica in Ovcari, over the River Neretva and in Mladeskovici. At these localities, a high frequency of birds feeding high in the sky is noticeable, which is why it is possible for them to get hurt due to collisions with

moving cars. Protective panels must be placed on both sides of the road at a height of 1.5 m. In order to reduce the collision of birds with protective panels, it is necessary to stick black and white foil over the transparent plexiglass, which increases the visibility of the panels for birds, or silhouettes of birds of prey, which would scare the birds and move them away from the route.

- On the part of the route prior to entering the Prenj Tunnel in the zone of direct impact, one territory of the white-backed woodpecker and two territories of the black woodpecker have been registered (Figure 20). Both species are indicators of old and preserved forests with a lot of rotten trees on the ground. In order to protect these species, it is necessary to reduce removal of the forest cover to the required minimum.

Figure 20: Pinned territory of white-backed woodpecker (Dendroocopos leucotos) in relation to the planned motorway route

In the area of Klenova Draga, an abandoned nest of a Golden Eagle and one individual flying over Klenova Draga has been registered (Figure 21). If it is established that in the following seasons the pair is active at the given locality, it is necessary to apply a number of protective measures:

- There are no access roads for the transport of machinery and materials for the construction of the motorway at the given locality. It is necessary to break through the access roads in the off-breeding period from July to February, i.e. to suspend the works from the beginning of incubation to the take-off of the fledglings (beginning of March-end of June).
- Remove trees from access roads only to the width of the road. The existence of a living barrier made of trees will significantly absorb noise, and tree canopies will reduce the visibility of machines, which could reduce the negative impact of disturbance.
- If a pair stays in the nest during the motorway construction phase by putting motorway into operation, there will probably be no major negative impacts on this nesting pair.

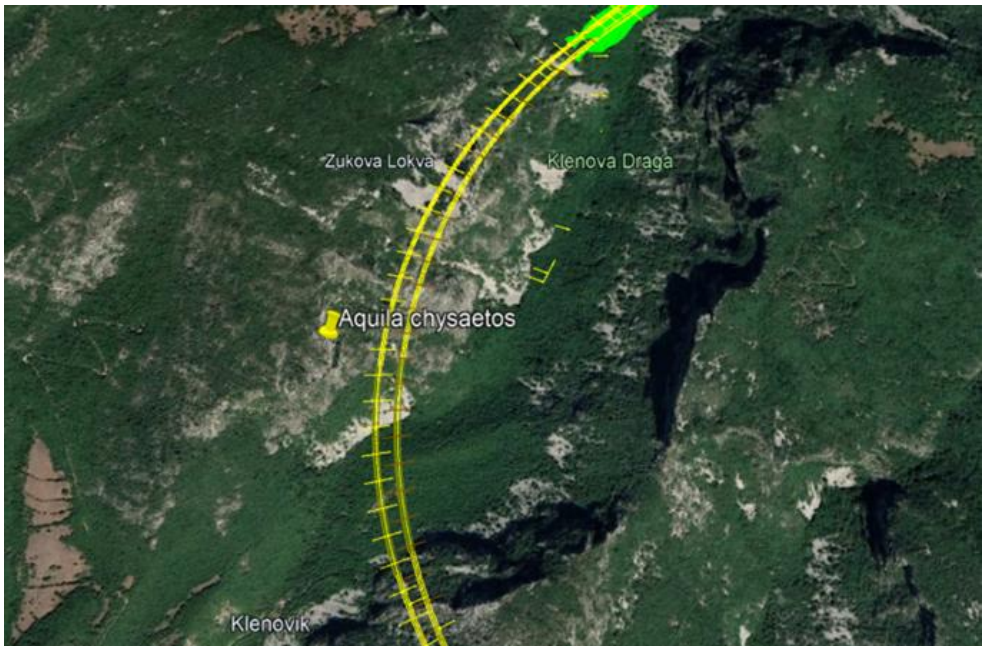


Figure 21: Location of the inactive nest of golden eagle (Aquila chrysaetos) in relation to the planned motorway route

- On the chainage between km 26+800 and km 26+950, it is necessary to remove woody vegetation on the right side of the route within the 50 m belt, where one territorial male turtle dove, a vulnerable species according to IUCN status, was found (Figure 22), requiring targeted mitigation in line with BMP.

Figure 22: Territory of male turtle dove (Streptopelia turtur) in relation to the planned motorway route

In order to prevent adverse impact to bat species, which all meet the criteria for critical habitat (Figure 23), measures presented in BMP regarding development of Main Design and planning of construction works must be respected:

- Deforestation should be reduced to a minimum, only the necessary interventions required for the implementation of project activities. Due

to the fact that bats use forests as a shelter, reforestation with autochtonous species is necessary.

- No roost sites have been identified during desk or field surveys. Their potential destruction would be an unaccaptable loss of biodiversity therefore if any are found during construction, a biodiversity expert must be included in planning of adverse impacts mitigation such as relocation to alternative sites.

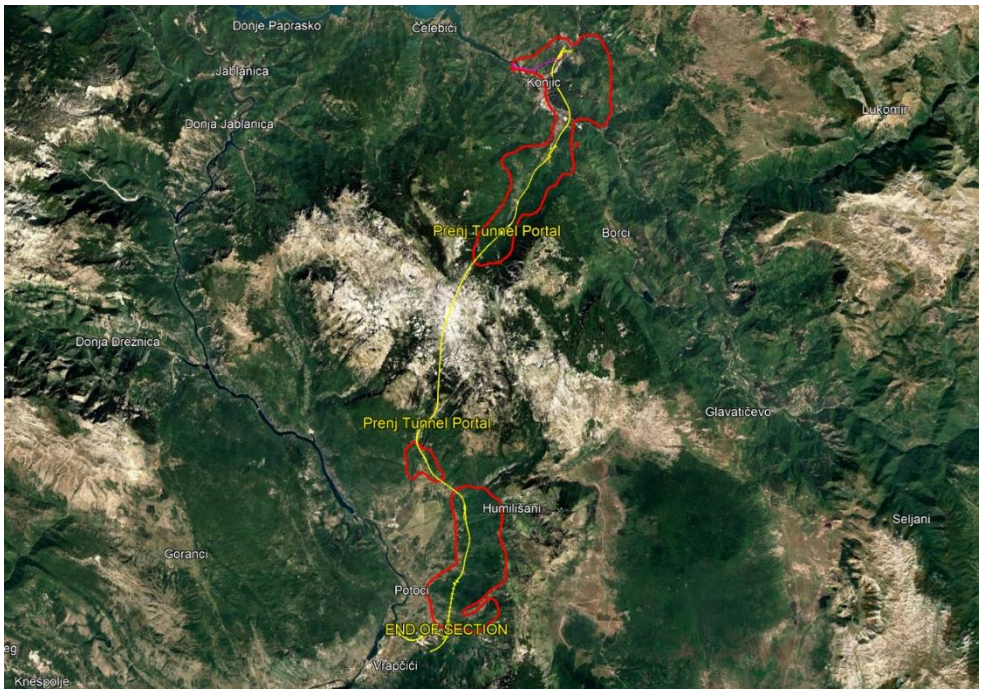


Figure 23: Bat EAAAs were aggregated due to siginificant overlap

In general, other main mitigation measures are:

- adequate planning of works is essential to maintaining the good state of biodiversity receptors,
- conduct rapid biodiversity assessment if the pre-construction phase doesn't begin within five years after completion of field surveys as a part of this ESIA (finalised in 2021 for the motorway and 2022 for the Konjic bypass) in order to establish whether any changes occurred and, if they have, to respond adequately,
- develop and implement Invasive Species Management Plan, Land and Habitat Restoration Plan,
- timely implement the set of mitigation measures listed in the BMP,
- conduct monitoring as defined in BMP,
- promote the aim of no net loss of biodiversity, and tend to achieve a net gain of biodiversity (implement tree planting, restocking of fish and construct open channels for fauna where proposed by the BMP),
- properly recultivate the construction waste landfills, by using autochthonous species in order to preserve the domestic gene pool.

4.3 Residual Impacts

For the purpose of the CHA report, residual impacts refer to those biodiversity impacts predicted to remain after the application of mitigation measures, either in construction or operation phase. The following table summarises the **identified significant biodiversity impacts** and their assessment after implementation of mitigation measures. With adequate, timely and strict application of mitigation measures, along with the ones propsed in the BMP, impacts cannot be fully mitigated. Due to permanent nature of the object, some habitats will be inevitably lost by the construction and residual impacts are expected.

Table 8: Residual impacts

Phase	Identified impact	Impacts evaluation/ significance before mitigation	Proposed mitigation measures	Assessment of impacts after mitigation	Residual impact after mitigation
Habitats					
Pre-construction	Adverse impacts due to inadequate planning of works and Main Design requirements	Major / Significant	19.1.1 in ESMP, BMP	If the Main Design is developed to include revitalisation of habitats after the construction is finalised with planting autochthonous plant species characteristic for the area and prevent growing and spread of invasive species and if mitigation measures given in BMP are implemented, this impact will be fully mitigated.	No
Pre-construction	Lack of up-to-date baseline conditions	Major / Significant	19.1.2 in ESMP, BMP	Impact may occur only if construction doesn't start within five years of ESIA survey finalization. The impact can be fully mitigated by conducting surveys as	No

Phase	Identified impact	Impacts evaluation/ significance before mitigation	Proposed mitigation measures	Assessment of impacts after mitigation	Residual impact after mitigation
				given in the ESMP and BMP.	
Construction	Loss of habitats due to preparation of the construction site and performing construction works	Major / Significant	19.1.3 in ESMP, BMP	With implementation of the proposed measures, it is not possible to fully mitigate this measure. This impact is considered to be the project permanent impact. PBFs and CHs recorded in the Project area will likely be under adverse pressures of different nature. These pressures can be partly mitigated by the proposed measures; however, some of the features will be under direct and unavoidable impact due to their position in relation to the planned motorway route. This residual impact is not acceptable as is, and compensation will have to be included.	Yes
Construction	Potential additional unplanned disturbance of habitats	Moderate / Significant	19.1.3 in ESMP, BMP	If the mitigation measures given in BMP are implemented, this impact will be fully mitigated.	No

Phase	Identified impact	Impacts evaluation/ significance before mitigation	Proposed mitigation measures	Assessment of impacts after mitigation	Residual impact after mitigation
Construction	Spread of invasive species	Moderate / Significant	19.1.4 in ESMP, BMP	The impact can be fully mitigated by conducting surveys as given in the ESMP and BMP.	No
Operation	Habitat fragmentation	Moderate / Significant	19.1.5 in ESMP, BMP	With implementation of the proposed measures, it is not possible to fully mitigate this measure. This impact is considered to be the project permanent impact. Compensational measures will have to be implemented as given in the BMP.	Yes
Vegetation and flora					
Pre-construction	Adverse impacts due to inadequate planning of works	Moderate / Significant	19.1.6 in ESMP, BMP	If the Main Design is developed to include Invasive Species Management Plan to prevent growth and spread of invasive species and if mitigation measures given in BMP are implemented, this impact will be fully mitigated.	No
Pre-construction	Lack of up-to-date baseline conditions	Moderate / Significant	19.1.6 in ESMP, BMP	The requirements regarding updating baseline conditions are given in the BMP. If they are completed	No

Phase	Identified impact	Impacts evaluation/ significance before mitigation	Proposed mitigation measures	Assessment of impacts after mitigation	Residual impact after mitigation
				as required, the impact will be fully mitigated.	
Construction	Vegetation removal and clearance of flora species in the phase of preparation of construction site and during the performance of construction works	Moderate / Significant	19.1.7 in ESMP, BMP	With implementation of the proposed measures, it is not possible to fully mitigate this measure. This impact is considered to be the project permanent impact. Due to this reason, the Project requires compensation as given in the BMP.	Yes
Fauna					
Pre-construction	Adverse impacts due to inadequate planning of works and Main Design requirements	Major / Significant	19.1.9 in ESMP, BMP	If the Main Design is developed to include protective bird panels and to avoid any possible roosts and hibernations sites, and if mitigation measures given in BMP are implemented, this impact will be fully mitigated	No
Pre-construction	Lack of up-to-date baseline conditions	Moderate / Significant	19.1.10 in ESMP, BMP	The requirements regarding updating baseline conditions are given in the BMP. If they are completed as required, the impact will be fully mitigated.	No

Phase	Identified impact	Impacts evaluation/ significance before mitigation	Proposed mitigation measures	Assessment of impacts after mitigation	Residual impact after mitigation
Construction	Disturbance of fauna	Moderate / Significant	19.1.11 in ESMP, BMP	This impact is temporary and might cause reversible change in fauna behaviour. If the mitigation measures given in BMP are implemented, this impact will be fully mitigated.	No
Construction	Potential disturbance of nests/roosts of species that have a seasonally variable vulnerability due to breeding, feeding times or seasonal migrations	Moderate / Significant	19.1.12 in ESMP, BMP	If the mitigation measures given in BMP are implemented, this impact will be fully mitigated.	No
Construction	Potential fatalities or injuries of fauna species due to vegetation removal and movement of heavy machinery	Moderate / Significant	19.1.13 in ESMP, BMP	If the mitigation measures given in BMP are implemented, this impact will be fully mitigated.	No
Operation	Habitat fragmentation	Moderate / Significant	19.1.14 in ESMP, BMP	Assuming successful implementation of mitigation measures, and maintenance of amphibian funnels and passages under the viaducts, this impact can be fully mitigated.	No

Residual impacts on CH and PBF are not acceptable by the EBRD and EIB. If the mitigation hierarchy is implemented and the impacts cannot be avoided,

minimised and/or mitigated, biodiversity compensation (offset) is required. The table below provides the list of CH/PBF that will be directly impacted and gives information on how the residual impact will be compensated. Further details on compensation strategy are provided in Chapter 7 of the BMP as a part of framework given for the Biodiversity Offsetting Plan. The units of measure for impact assessment must be consistent with those for measuring the benefits of a biodiversity offset. They should reflect both the quantity and quality of the feature. For example, if a threatened species' habitat is measured, its extent as well as its quality relative to the species' optimal habitat requirements are important to consider. In this case, quality (Q) might be expressed as a coefficient (0-1) multiplied by the area (e.g., hectares), providing the unit of measure Qha. For the habitat types and species' habitats where it was possible to estimate the net gain in hectares at this moment, the quality and size of the area needed to achieve NNL/NG was provided.

Table 9: Summary of needed compensation for residual impacts on PBF/CH

Biodiversity receptor	Impact	Residual impact	Impacted area (ha)	Habitat quality	Compensation measure	Acceptable if BMP measures implemented?
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates	Direct habitat loss	Yes	0.17	0.25	This habitat type is of very low quality and already disturbed by forest fires that occurred on this habitat and adjacent black pine forests in April 2020. This provides an opportunity to enhance biodiversity and compensate for lost habitat on site. Seminatural grasslands require low intensity or extensive management to maintain their nature conservation value. JPAC must try to reach an agreement with farmers in the immediate vicinity (if any, that information shall be available upon completion of LARP) regarding farmers bringing a limited number (up to three individuals) of domestic farm animals to the site to graze on the grass for 10-15 weeks of the year. If that is not possible, mowing of the grass and removal of leaf litter as a part of regular motorway maintenance is to be performed in order to prevent succession.	Yes
62A0 Eastern sub-Mediterranean dry grasslands (*Scorzoneratalia villosae*)	Direct habitat loss	Yes	1.1	0.5	Grasslands are prone to succession process and regular maintenance and mowing is needed. As the area intended for conversion into grassland is adjacent to the habitat, it can be safely assumed species shall spread naturally as conditions for their establishment are met. Review of satellite imagery has shown that succession and densification of shrubs in the area is evident. By cutting down of the shrubs of low conservation value	Yes

Biodiversity receptor	Impact	Residual impact	Impacted area (ha)	Habitat quality	Compensation measure	Acceptable if BMP measures implemented?
					and doing in regularly in June every year, the succession process shall be stopped, and grassland habitats enhanced.	
Zerynthia polyxena	Potential habitat degradation	No	1.45	-	Opening of forest habitats, provided that the area is maintained in a way to promote the development of meadows rather than lawns along the motorway, can lead to an **increase** in open micro-habitats of these species.	Yes
Euplagia quadripunctaria	Potential habitat degradation	No	21.14	-		Yes
Morimus funereus	Direct habitat loss	Yes	15.22	0.75	Since these species (*L. cervus* and *C. cerdo* unconfirmed in Project area) inhabit beech and oak forests, and as during the construction of access and auxiliary roads, their removal may occur, no less than 5% of cut beech and oak trees shall be stacked in piles. This action ensures that individuals developing in cut trees can complete their life cycle.	Yes
Lucanus cervus		Potential	N/A	-		
Cerambyx cerdo	Habitat fragmentation	Potential	N/A	-		
Cottus gobio	Direct habitat loss	Yes	0.12	0.75	The motorway construction requires regulation of a 600 m stretch of the Bijela River to protect a downstream water source. The Tresanica River, specifically the BA_NTRB_Tres_2 waterbody (Podorasac to 500 m a.s.l.), has been identified as a potential offset site. This waterbody has a High ecological status under the Water Framework Directive, supporting suitable cold-water conditions and native species such as Brown Trout and Eurasian Minnow. Although *Cottus gobio* has not been confirmed here, the habitat is suitable for colonization or managed reintroduction,	

Biodiversity receptor	Impact	Residual impact	Impacted area (ha)	Habitat quality	Compensation measure	Acceptable if BMP measures implemented?
					pending feasibility assessment. Compensation efforts aim to establish at least 600 m of habitat with similar quality (0.75 Qha) to offset impacts. The final suitability of BA_NTRB_Tres_2 will be determined through the BOP, developed in collaboration with the local fishing society and stakeholders. If unsuitable, alternative offset locations within the City of Konjic will be proposed to ensure effective, ecologically relevant compensation.	
Pseudopus apodus *Testudo hermanni* *Podarcis melisellensis* *Lacerta trilineata*	Direct habitat loss Habitat fragmentation	Yes	26.98	0.5	Compensation for aforementioned species can be done on one site as they share a very similar scrubby habitat. The size of the proposed area for compensation is approx. 32.6 ha. This is an area with overgrown vegetation and going through succession due to change in human activities in the area (especially reduced grazing and agricultural activities). Afforestation and grazing abandonment in steppe-like grasslands alters the characteristics of open natural areas. Species of open habitats have virtually disappeared from the general area surrounding the project due to abandonment. The proposed strategy of clearing tertiary vegetation and trees to revitalise the original habitat and create a mosaic of diverse types of vegetation is a good approach to support the target species and promote biodiversity. Not all trees are to be removed. Mosaic habitats with different type of vegetation are high in species diversity and can support a high number of species. In this way, species already inhabiting this	Yes
Algyroides nigropunctatus				0.25		
Platyceps najadum			2.83	0.25		

Biodiversity receptor	Impact	Residual impact	Impacted area (ha)	Habitat quality	Compensation measure	Acceptable if BMP measures implemented?
					area will remain, and new ones will appear. Such management must be performed at least 100 m from the regional road and the motorway (besides the thin strip connecting this area to the reptile passage) to prevent fauna fatalities. Through removal of overgrown vegetation and installing at least 100 m of drywalls, net gain of habitats for aforementioned reptiles and the turtle dove would be ensured. Habitat connectivity is to be ensured by one of the reptile tunnels that is to be constructed as elaborated in the BMP Chapter 5.3.2. Maintenance programme must be developed and strictly implemented permanently as any non-compliance will result in rapid succession.	
Vipera ammodytes	Habitat loss	No	14.3	0.5	The species is ubiquitous in the area and targeted compensation for its habitat is not necessary due to the percentage of EAAA compared to habitat availability being negligible.	Yes
Lacerta agilis	Direct habitat loss	Yes	0.37	0.5	Compensation targeted solely at this species is not necessary. Through compensation for habitat type 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates, suitable habitat for this species will be created.	Yes
Podarcis muralis	Direct habitat loss	No	Approx. 90	0.75	Both *Lacerta viridis* and *Podarcis muralis* are common, generalist species widely distributed across a variety of habitats in BiH, including urban edges, forest margins, grasslands, and rocky outcrops. Neither species is listed as EN, CR or VU on the IUCN Red List (both listed as LC), indicating their favourable	Yes
Lacerta viridis	Direct habitat loss	No	Approx. 70	0.5		Yes

Biodiversity receptor	Impact	Residual impact	Impacted area (ha)	Habitat quality	Compensation measure	Acceptable if BMP measures implemented?
					conservation status. Their ecological plasticity allows them to thrive in both natural and modified environments, including areas affected by infrastructure development. Construction of the motorway will affect its existing habitats, but the species is highly adaptable and the motorway surroundings present a suitable habitat for the species that will enable them to inhabit areas such as embankments and non-vertical cuts. The habitats affected by the project are not unique or critical to the survival of these species, and similar or better-suited habitats are abundant in the surrounding landscape. Therefore, there will be no measurable or significant net loss.	
Woodpeckers	Direct habitat loss	Yes	10	0.75	Expert opinion is that its territory will not be directly impacted, however, approx. 10 ha of forest and potential habitat of woodpeckers will be removed in its general surroundings. It is important to ensure that the habitat of the white-backed woodpecker is not lost or degraded, even if the territory is not directly impacted. Due to this, no net loss must be assured. Woodpeckers are under the pressure from forest management that is not line with preservation of its habitat, especially extensive logging. Designating a core habitat for the woodpeckers, where logging is forbidden and the forest is managed to meet their conservation needs, is a good alternative strategy to achieve no net loss. This approach will help to	Yes

Biodiversity receptor	Impact	Residual impact	Impacted area (ha)	Habitat quality	Compensation measure	Acceptable if BMP measures implemented?
					maintain the existing habitat of the woodpeckers and prevent any further loss.	
Bats	Disturbance and light polution	Yes	N/A, ubiquitous	0.5	Reforestation with autochtonous species is necessary. Regarding the light pollution, it is necessary to implement lighting-related mitigation as given in the BMP and ESMP and provide alternative roosts nearby the construction site. Provide alternative roosts in form of dark chambers and bat boxes for any damage to potential roosting sites. Bat hop-over on chainage 10+580.00 to ensure habitat connectivity.	Yes

Note: Features marked in green denote PBFs and the ones marked in orange denote CHs.

4.4 Monitoring Requirements

It is important to emphasise the CHA and BMP are living documents that will need to be updated and revised to reflect any new findings in the period prior to and during preconstruction phase. As new findings are collected these two documents will require updating to reflect the additional data and adjusting the mitigation measures, which need to be agreed by the EBRD.

Further, any changes to the need for offsets or mitigation measures will be publicly disclosed.

Should any threatened species or habitats, or species and habitats of conservation concern be identified before or during preconstruction period, CHA and BMP update must include additional mitigation measures to ensure no net loss and net gain of biodiversity. BMP needs to be updated prior to finalisation of the Main Design to enable potential additional mitigation measures to be included in the Main Design.

The scope and the timing of the required monitoring is defined in BMP.

Due to the complexity on biodiversity features and ecosystem services, the aim will be to adopt a practice of adaptive management in which the implementation of mitigation and management measures are responsive to the changing conditions and the results of monitoring throughout the Project's lifecycle. This BMP should therefore be reviewed on an annual basis during the construction phase in order to review the mitigation contained herein.

The plan will be reviewed in conjunction with the following stakeholders:

- JPAC (including Head of Project)
- Contractor's Representative – qualified biologist/ecologist and
- Supervising Authority
- The EBRD.

5 Annex

5.1 EAAAs of PBFs

5.1.1 Habitats

Figure 24: EAAA of 3240 (delineated in red) above the north portal of Prenj tunnel (white)

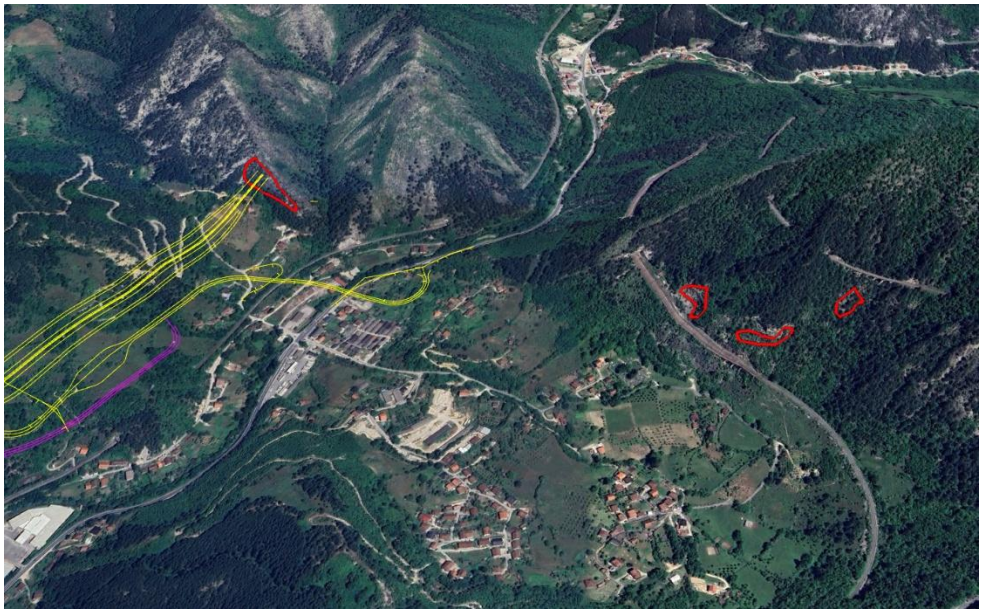


Figure 25: EAAAs of 6210 (delineated in red) in relation to the motorway (yellow) in Ovcari

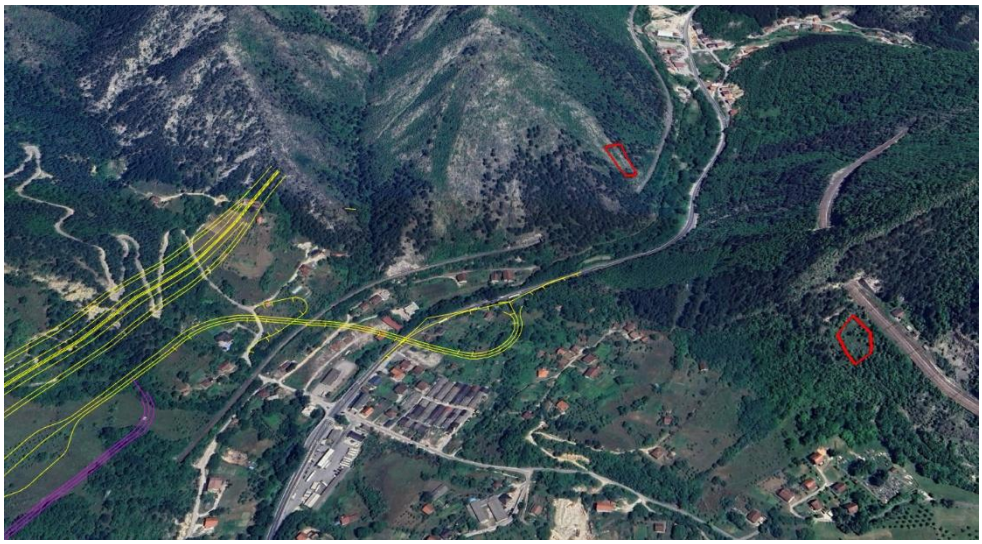


Figure 26: EAAAs of 62A0 (delineated in red) in relation to the motorway (yellow) in Ovcari

Figure 27: EAAAs of 62A0 (delineated in red) in relation to the motorway (yellow) above Podgorani settlement

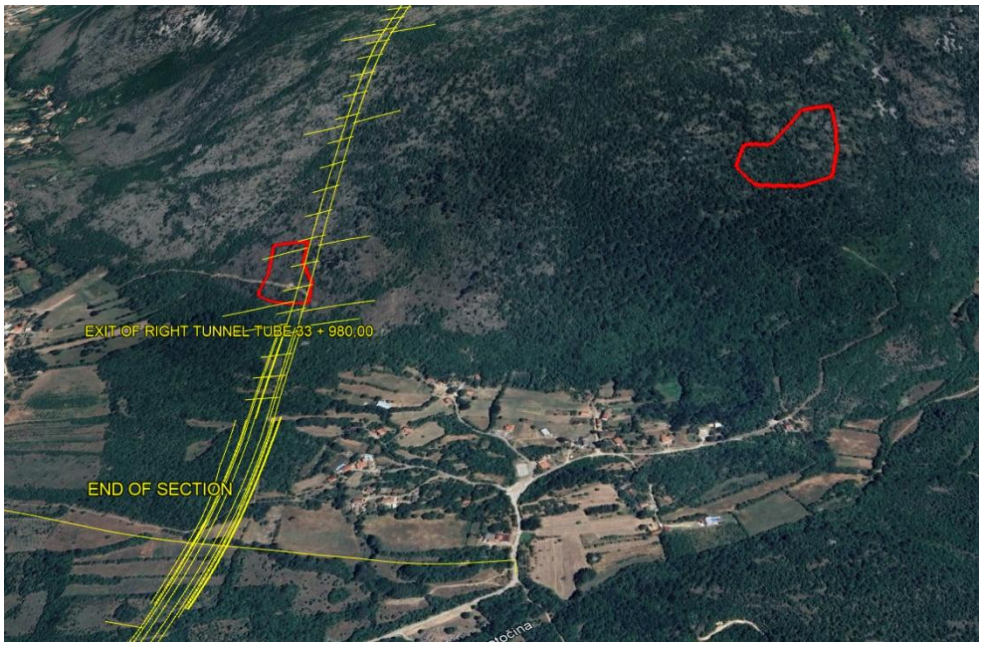


Figure 28: EAAAs of 62A0 (delineated in red) in relation to the motorway (yellow) in Kutilivac settlement

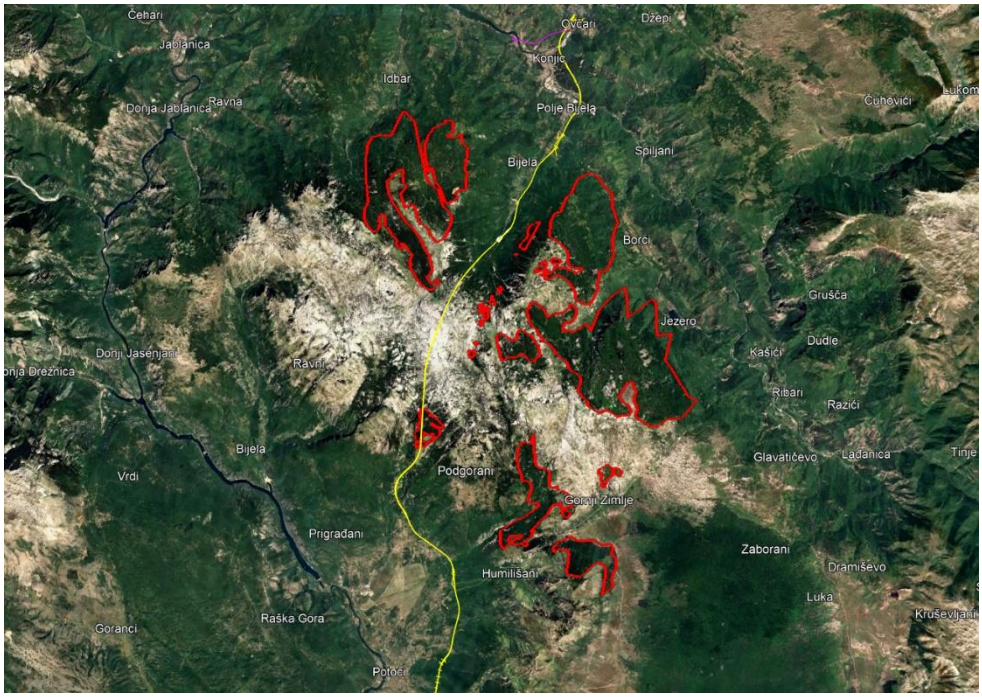


Figure 29: EAAAs of 95A0 (delineated in red) located on Prenj Mt. above the motorway (yellow)

5.1.2 Flora

Figure 30: EAAAs of Anthyllis vulneraria subsp. Praepropera (delineated in red) in Podgorani

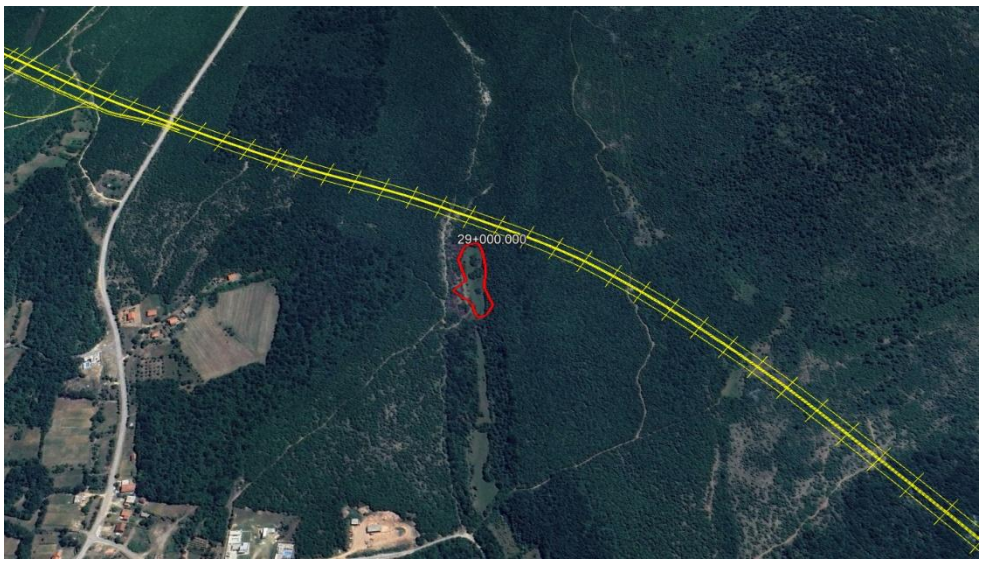


Figure 31: EAAAs of Anthyllis vulneraria subsp. praepropera (delineated in red) near chainage 29+000.000 of the motorway (yellow)

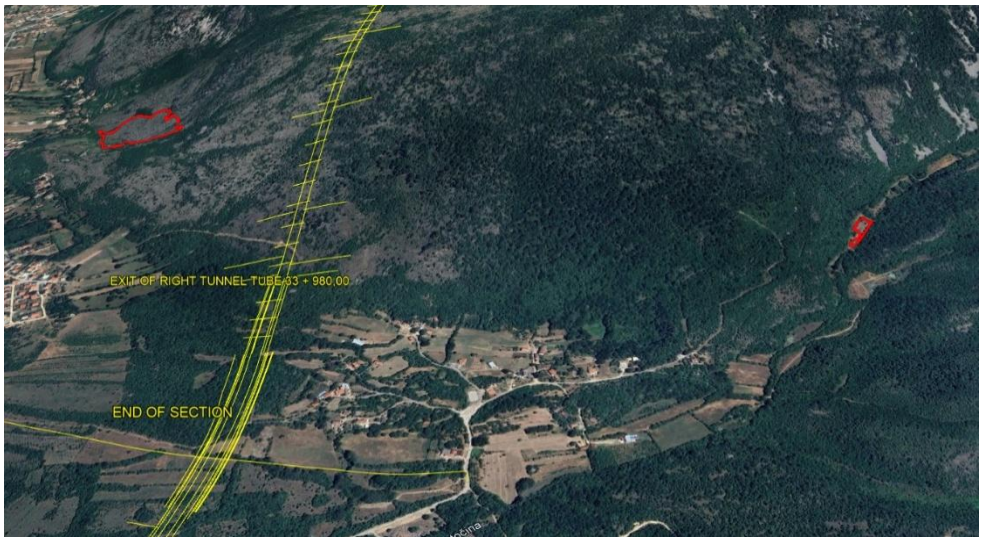


Figure 32: EAAAs of Anthyllis vulneraria subsp. praepropera (delinated in red) near the Tunnel T6 in Kutilivac

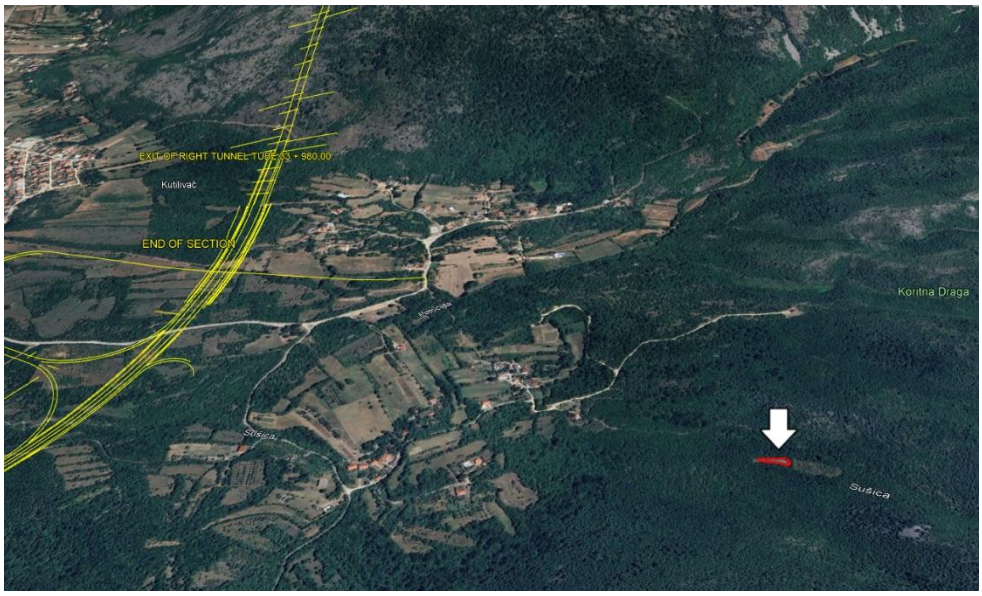


Figure 33: EAAA of Asphodelus fistulosus (delineated in red) southeast of Kutilivac

Figure 34: EAAAs of Crocus dalmaticus (delineated in red) near motorway (yellow) in Podgorani

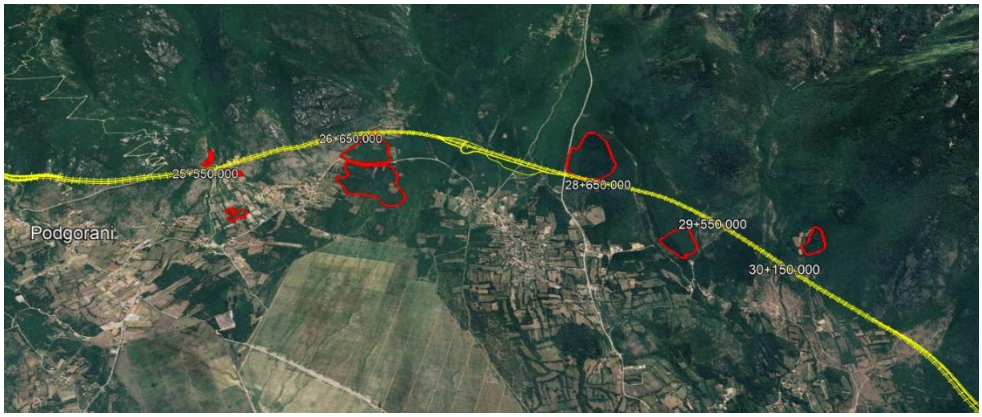


Figure 35: EAAAs of Cyclamen hederifolium (delineated in red) in relation to the motorway (yellow) near Podgorani and Prigradjani

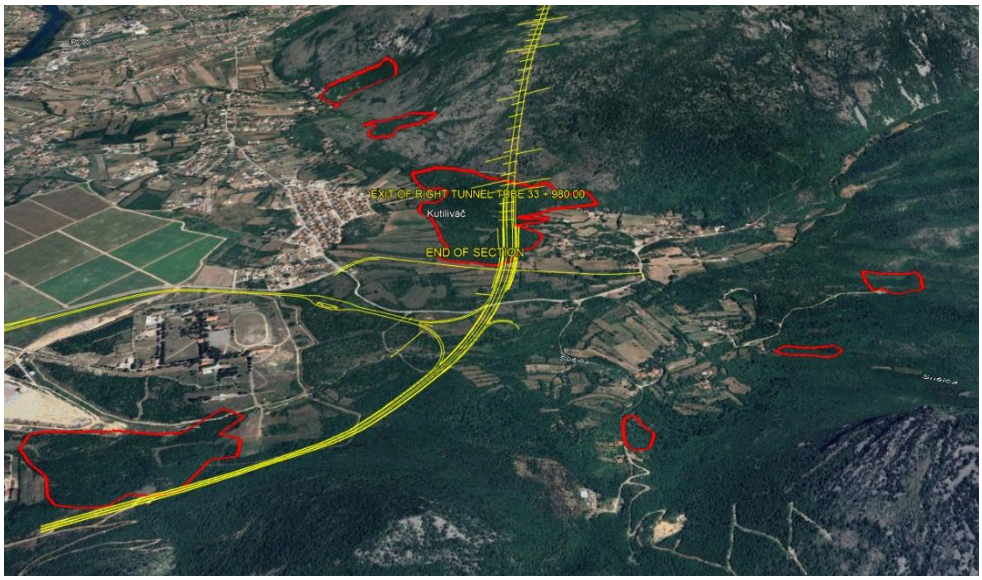


Figure 36: EAAA of Cyclamen hederifolium (delineated in red) in Kutilivac

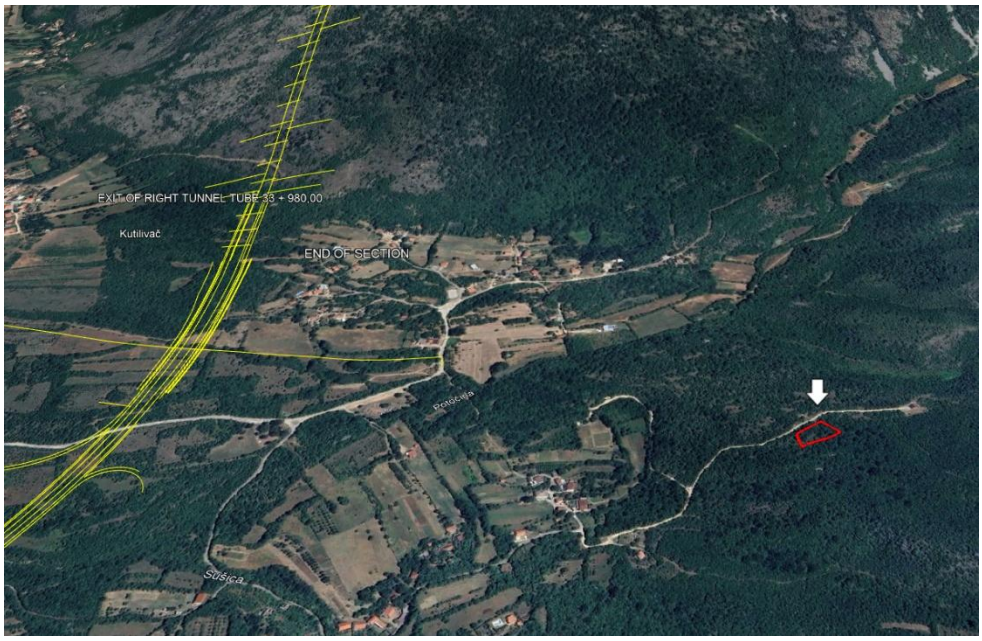


Figure 37: EAAA of Opopanax chironium (delineated in red) near the end of the section in Kutilivac

Figure 38: EAAAs of Spiranthes spiralis (delineated in red) in Humilisani

5.1.3 Invertebrates

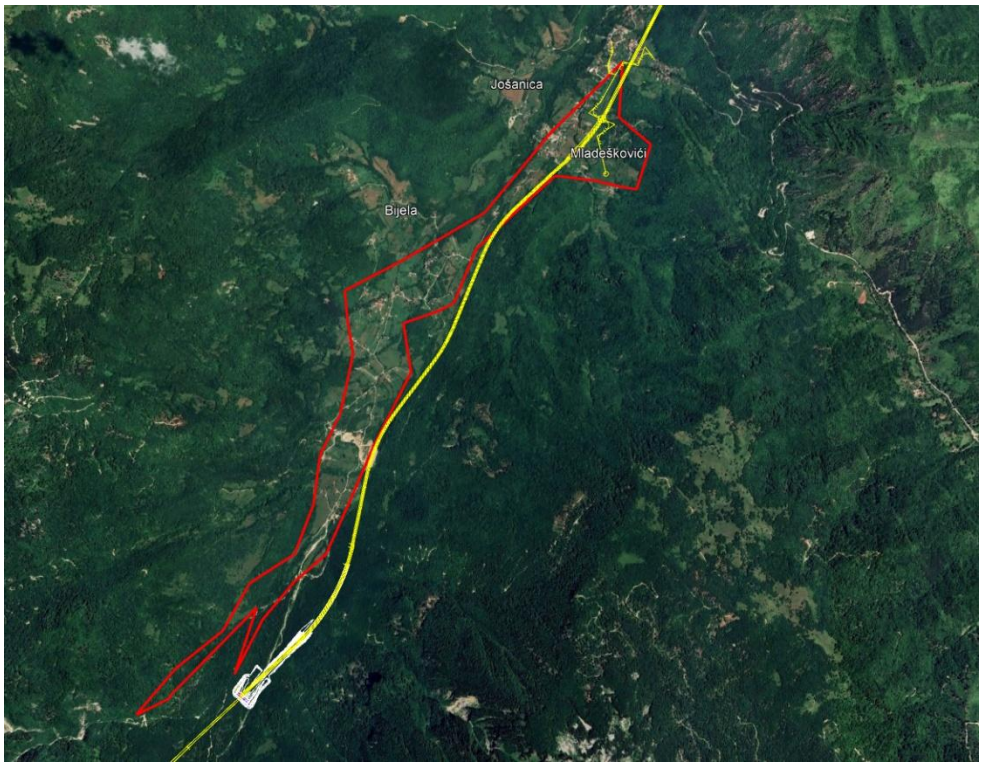


Figure 39: EAAA of Euplagia quadripunctaria (delineated in red) in relation to the motorway (yellow) north of Mt. Prenj

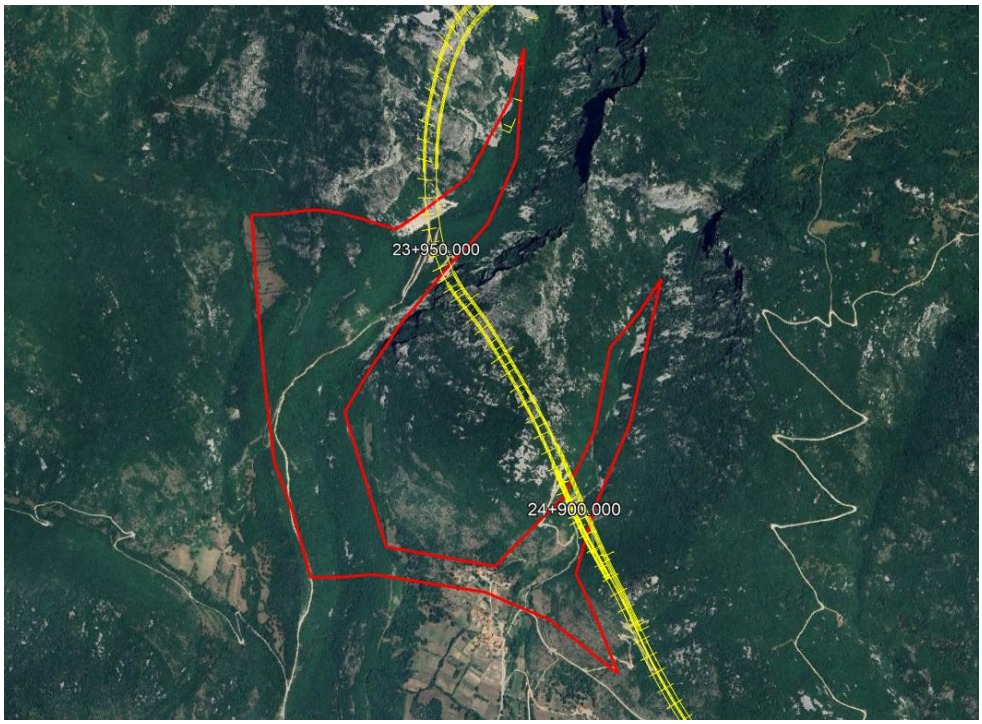


Figure 40: EAAA of Euplagia quadripunctaria (delineated in red) in relation to the motorway (yellow) south of Mt. Prenj

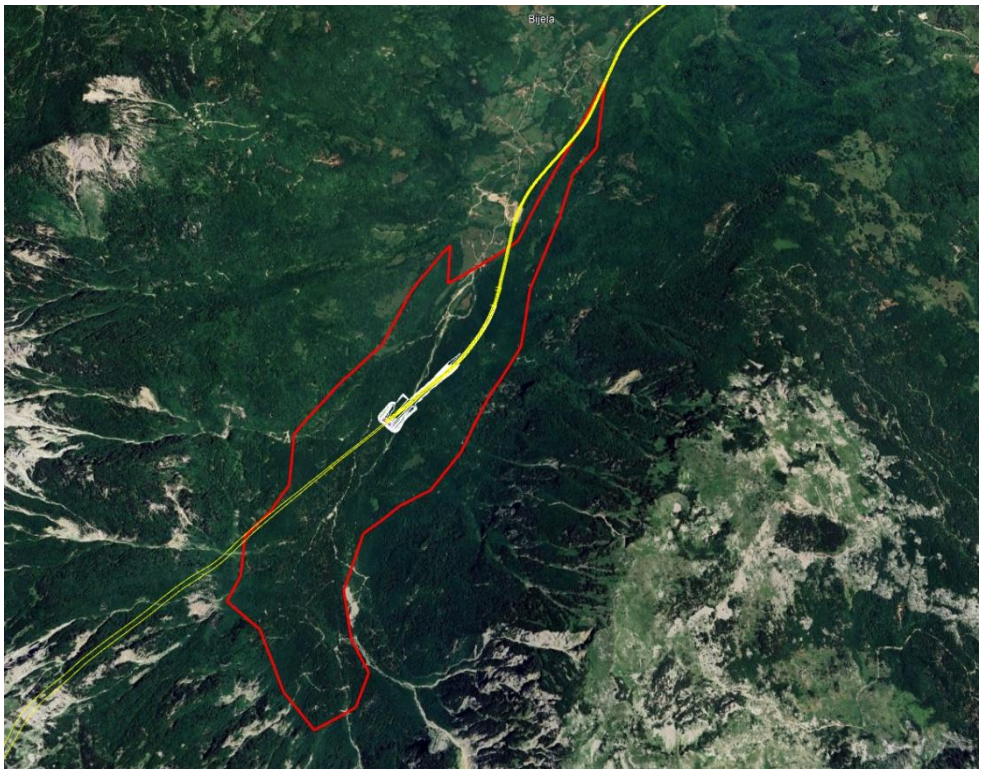


Figure 41: EAAA of Morimus funereus (delineated in red) in woodland habitats prior to motorway's (yellow) entry into Prenj mountain (northern portal shown in white)

5.1.4 Fish

Figure 42: Aggregated EAAA (delineated in red) of fish species north of Mt. Prenj

5.1.5 Birds

All bird EAAAs have been given in chapter 4.2.

5.2 EAAAs of CHs

5.2.1 Habitats

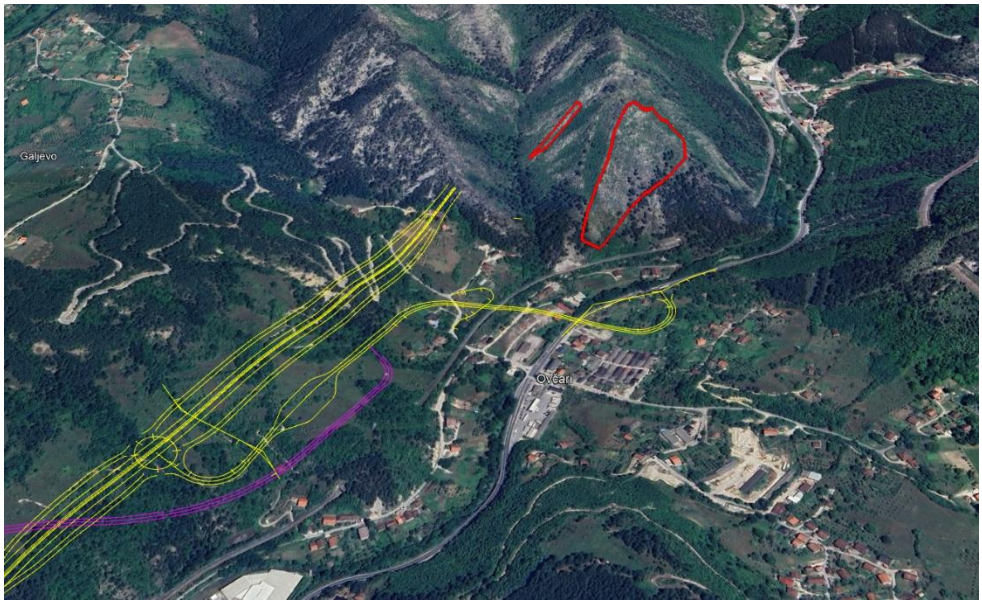


*Figure 43: EAAAs of *6220 (delineated in red) in relation to the start of the section (yellow) and Konjic bypass (purple) in Ovcari*

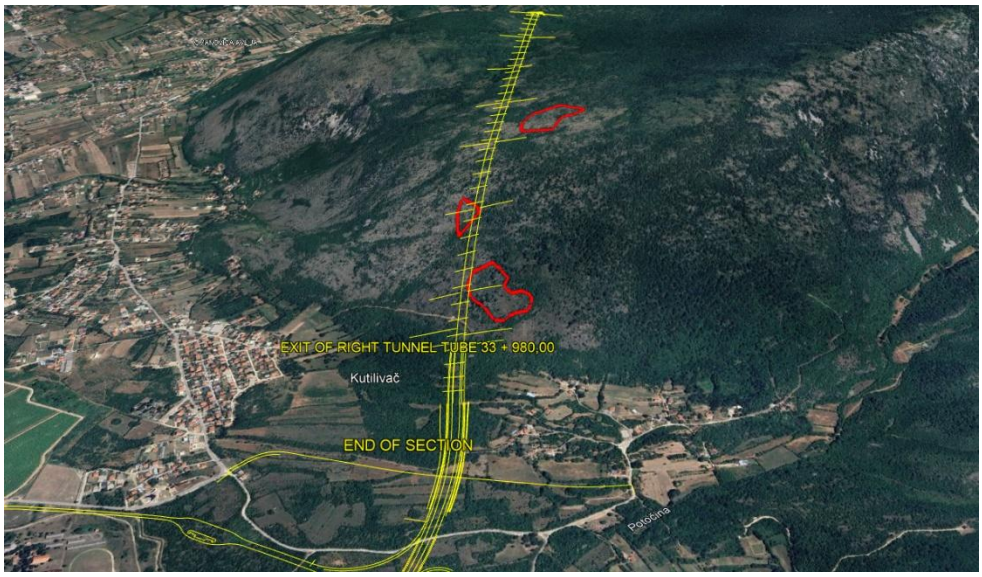


*Figure 44: EAAAs of *6220 (delineated in red) above Tunnel T6 in Kutilivac*

*Figure 45: EAAA of *9530 (delineated in red) in relation to the motorway (yellow) and the Konjic bypass (purple) in Ovcari*

5.2.2 Invertebrates

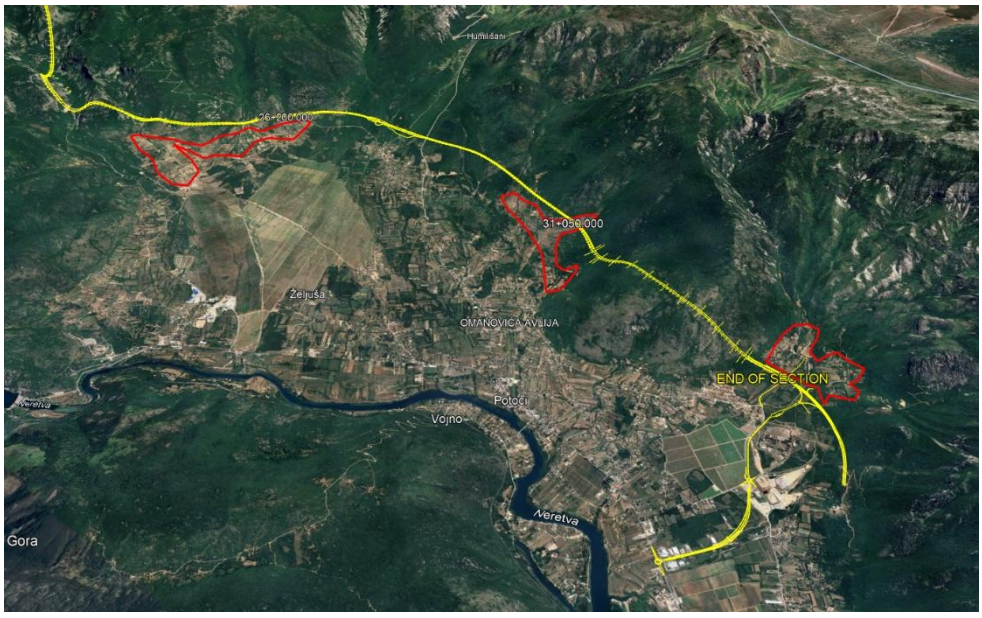


Figure 46: EAAAs of Zerynthia polyxena (delinated in red) in Podgorani, Humilisani and Kutilivac

5.2.3 Amphibians

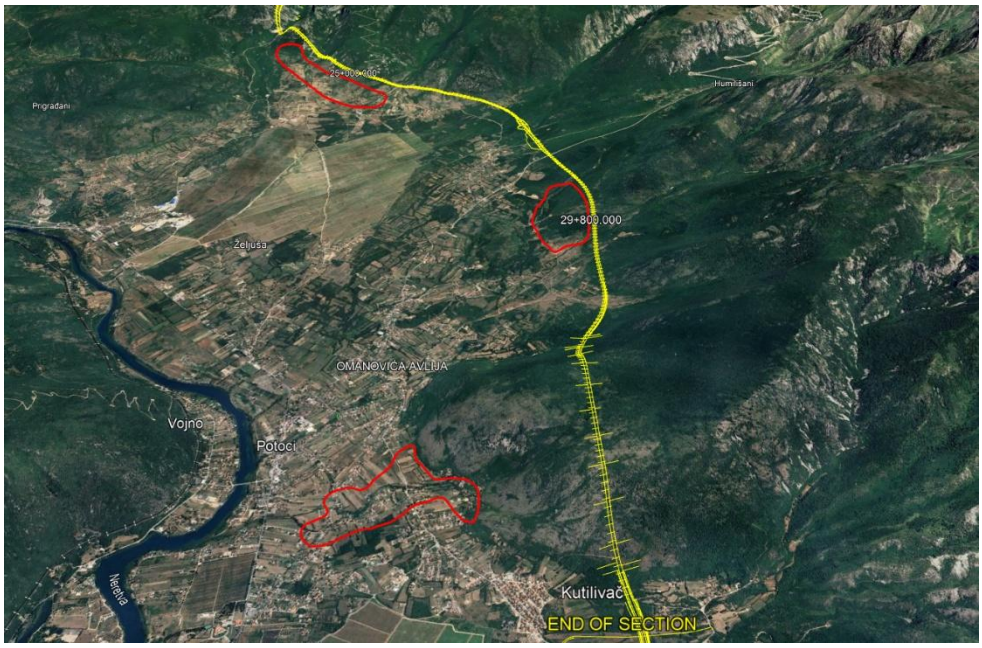


Figure 47: EAAAs of Bufotes viridis (delineated in red) in relation to the motorway (yellow)

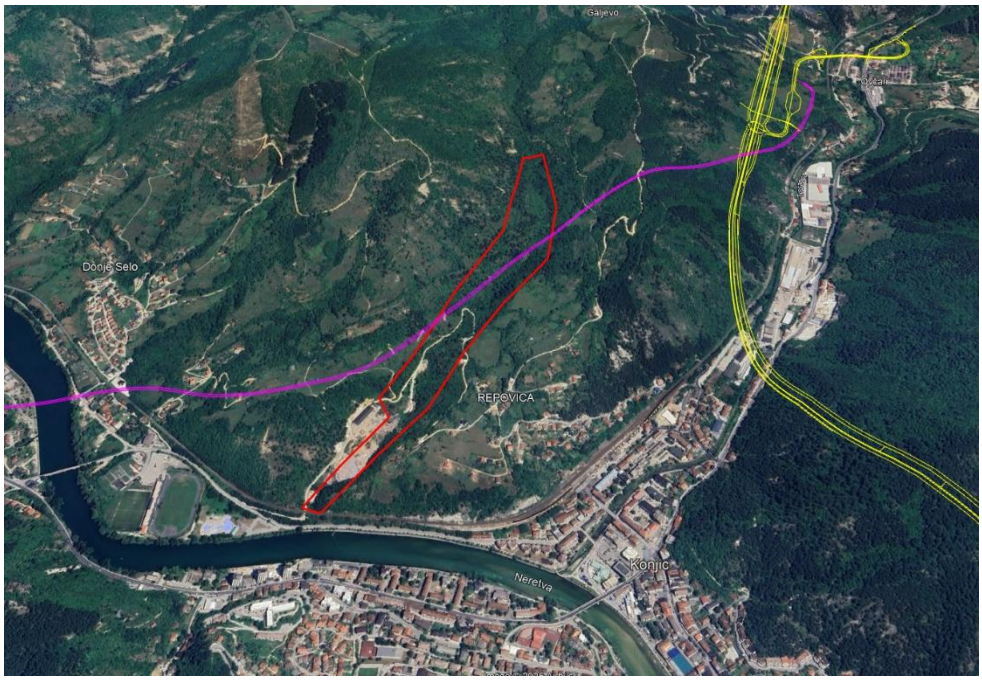


Figure 48: EAAA of Bombina variegata and Salamandra salamandra (delineated in red) in relation to the Konjic bypass (purple)

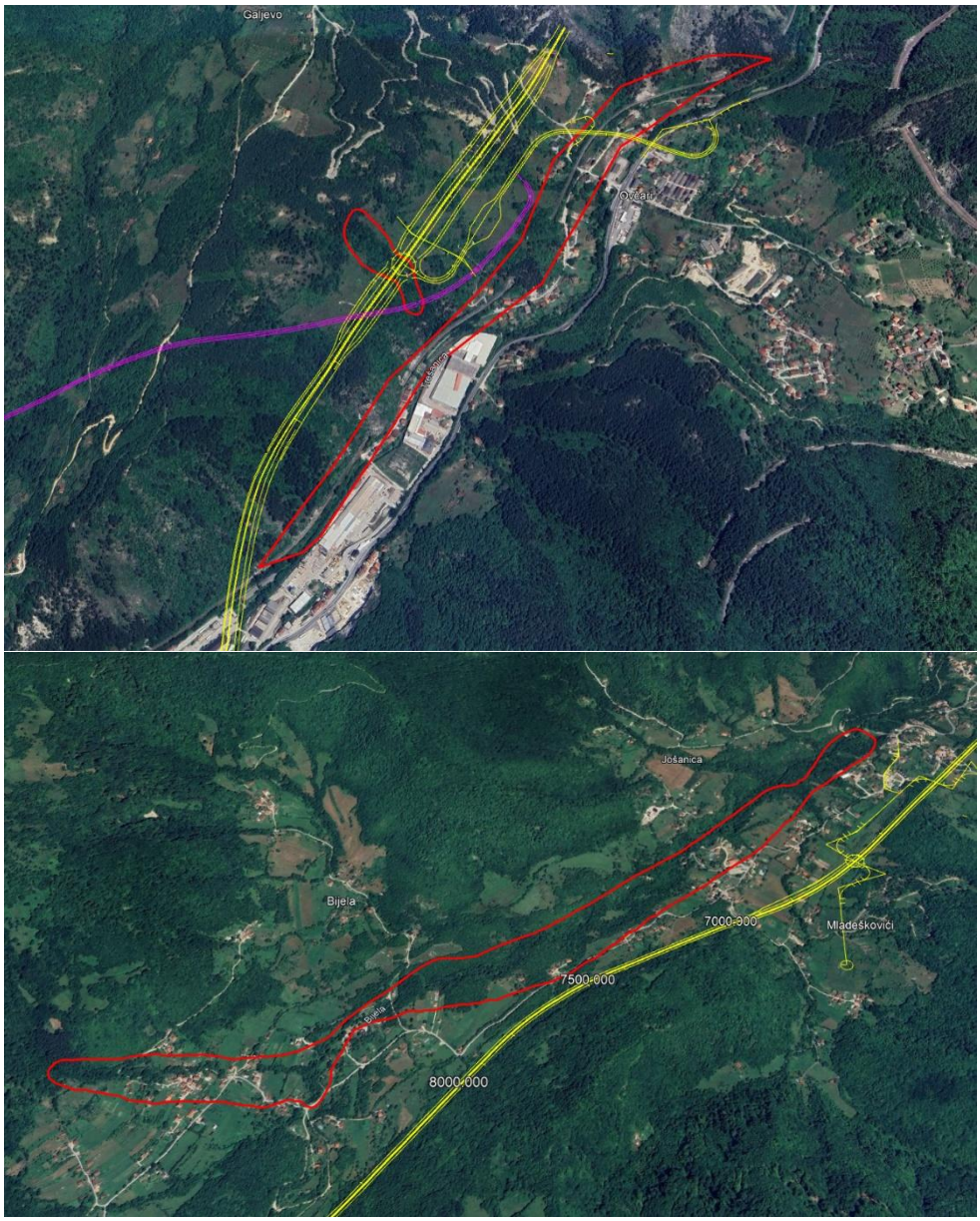


Figure 49: EAAAs of Rana graeca and Salamandra salamandra (delineated in red) in relation to the motorway (yellow) and Konjic bypass (purple)

5.2.4 Reptiles

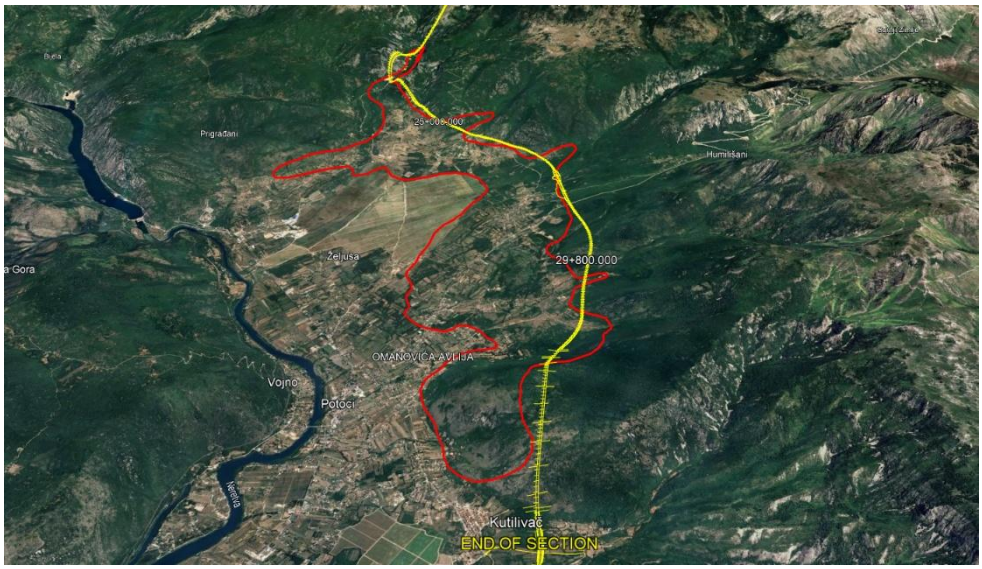


Figure 50: Aggregated EAAAs of Testudo hermanni, Pseudopus apodus, Podarcis melisellenis, Algyroides nigropunctatus and Lacerta trilineata (delinated in red)

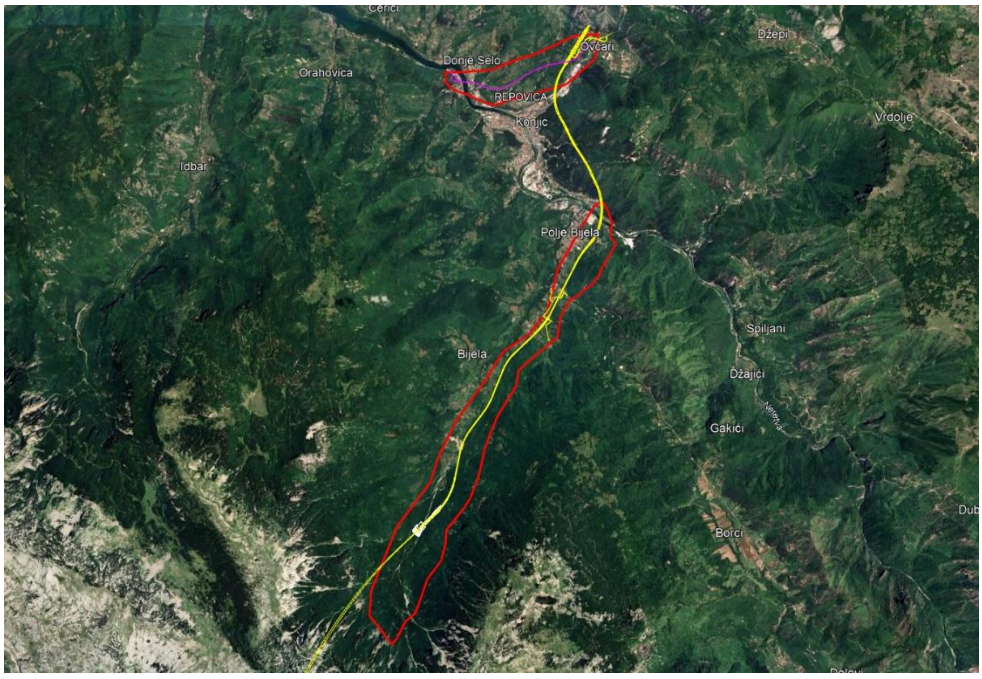


Figure 51: Aggregated EAAAs of Lacerta viridis and Podarcis muralis (delineated in red) in relation to the motorway (yellow) and Konjic bypass (purple)

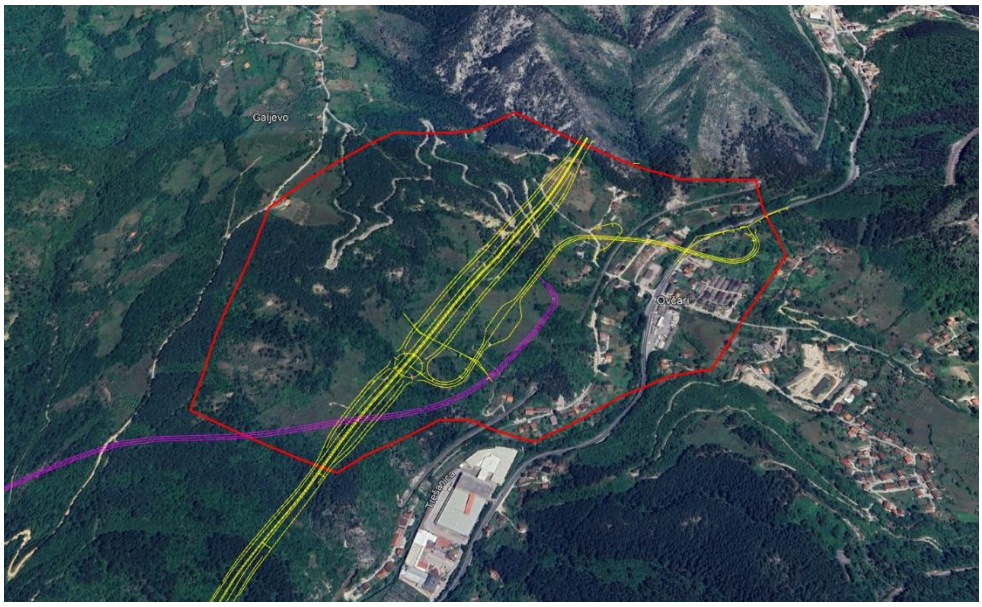
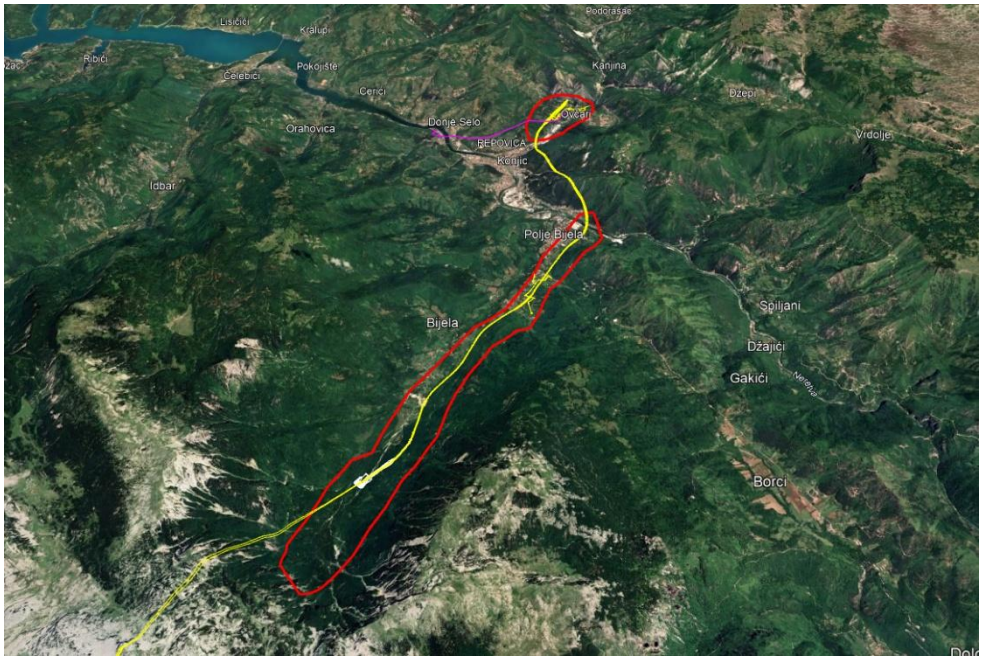


Figure 52: EAAA of Lacerta agilis in Ovcari



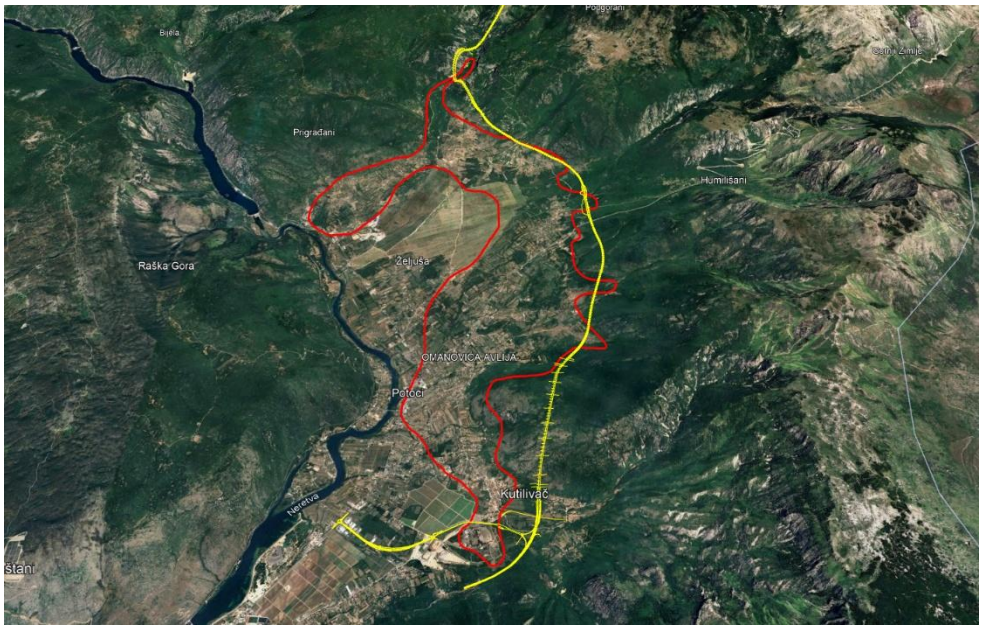


Figure 53: EAAAs of common and widespread Vipera ammodytes

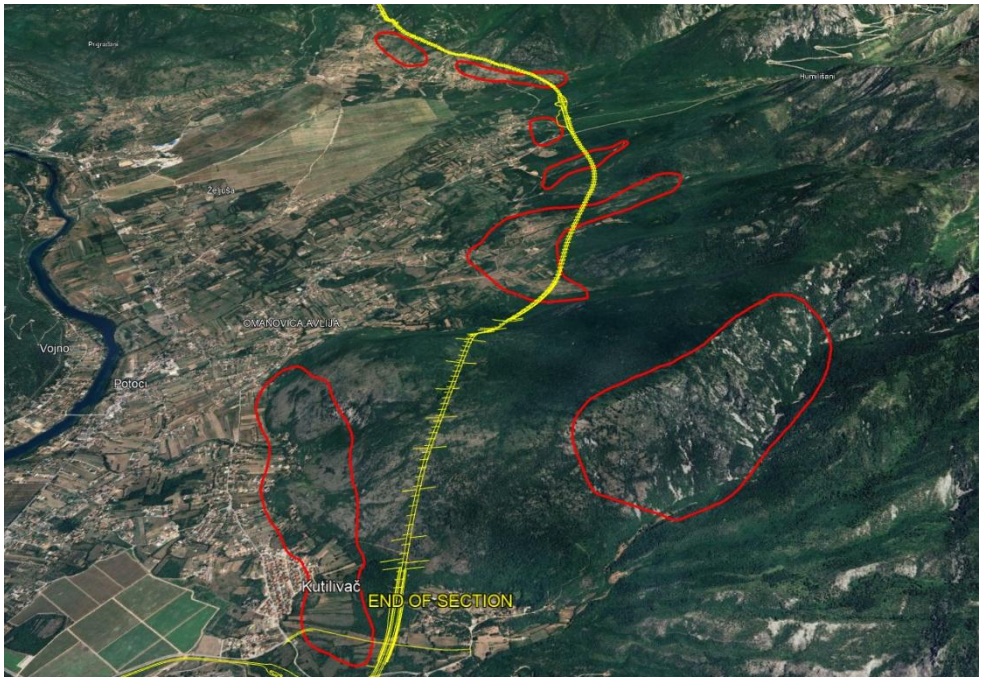


Figure 54: EAAAs of Platyceps najadum

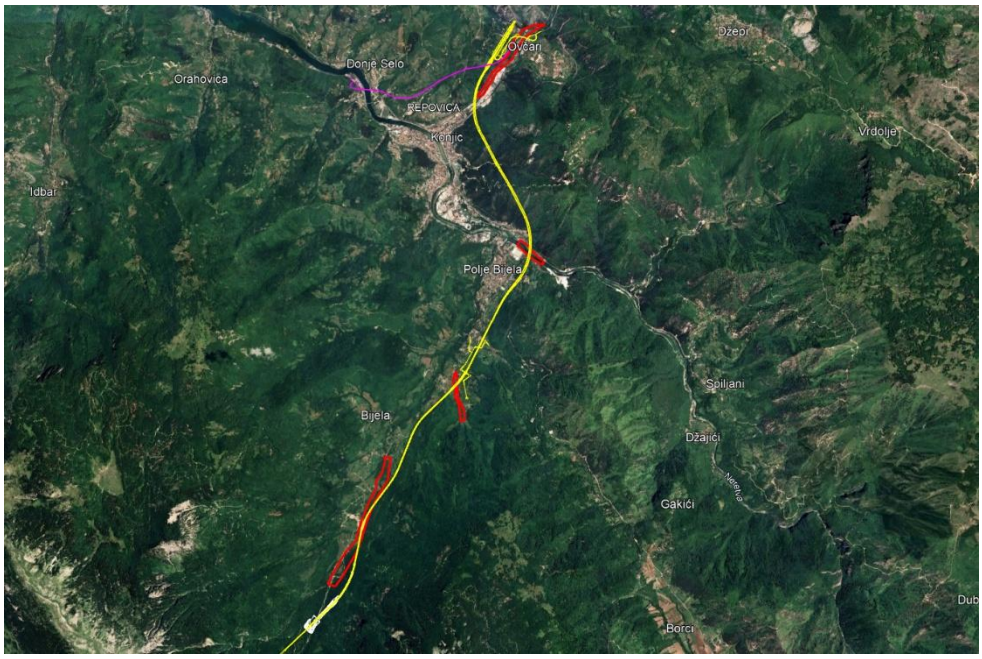


Figure 55: EAAAs of Natrix tessellata north of Mt. Prenj

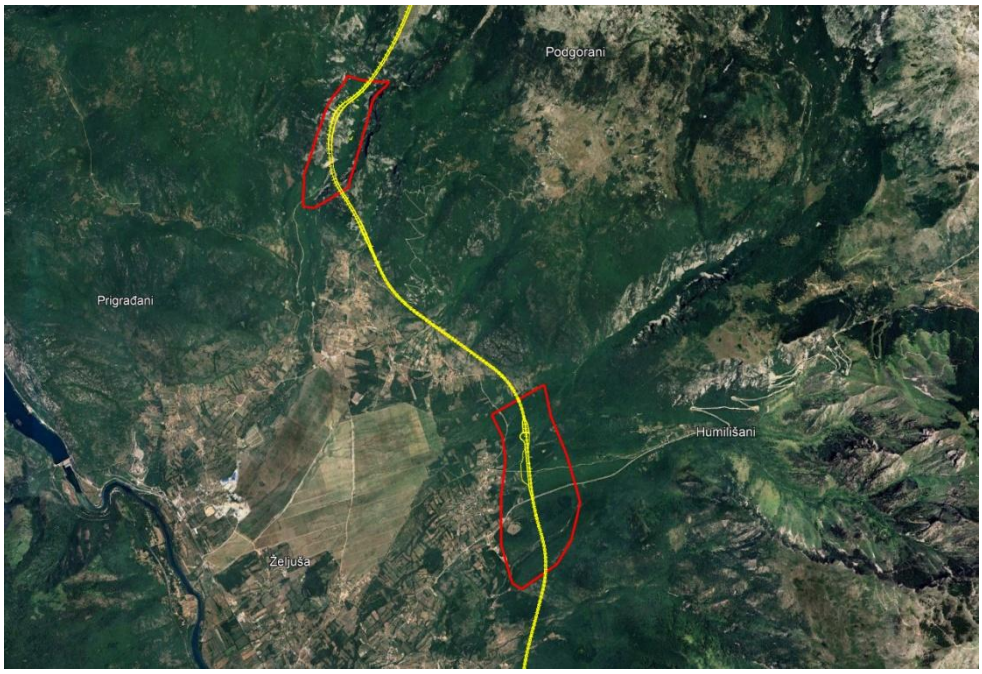


Figure 56: EAAAs of Elaphe quatuorlineata

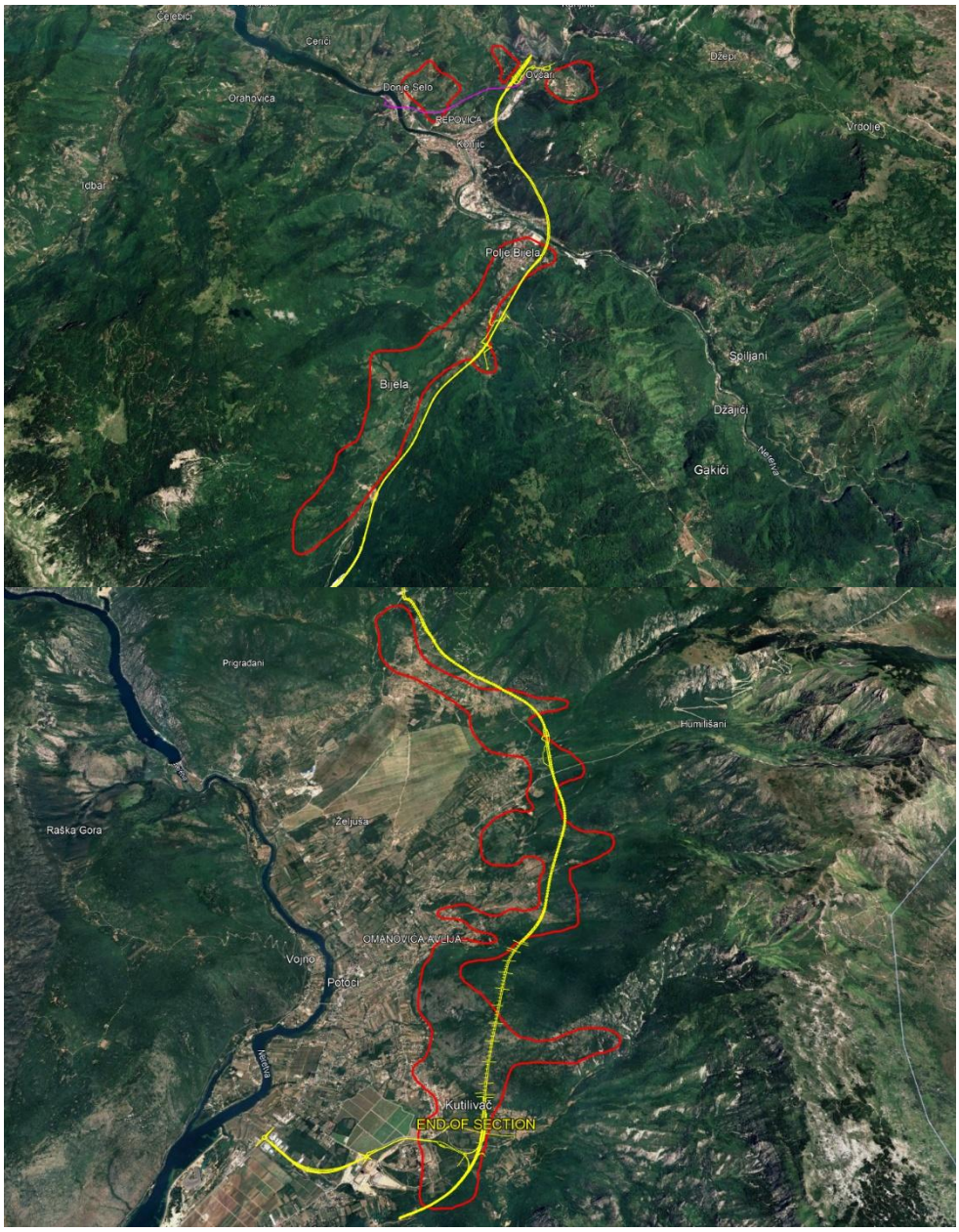


Figure 57: EAAAs of Zamenis longissimus north and south of Prenj

5.2.5 Mammals

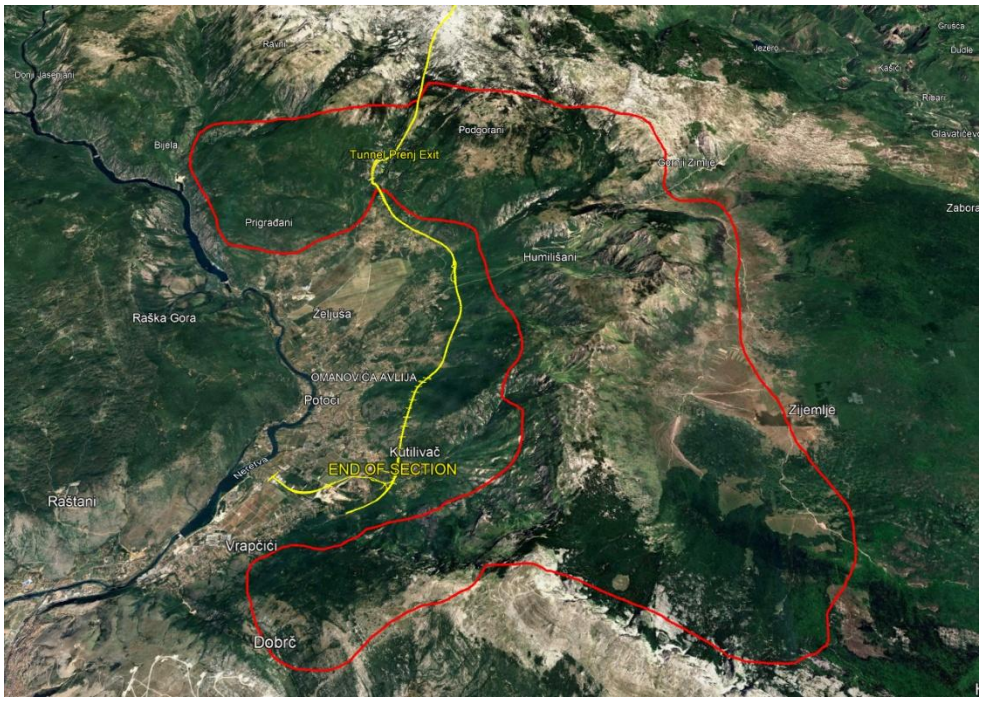


Figure 58: EAAA of Canis lupus

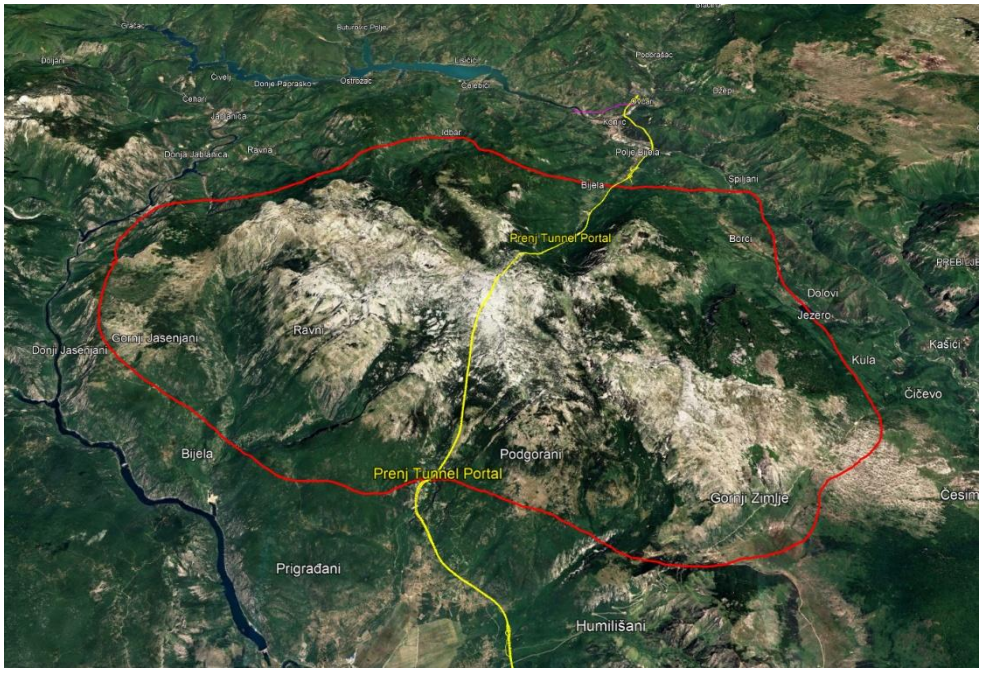


Figure 59: EAAA of Ursus arctos

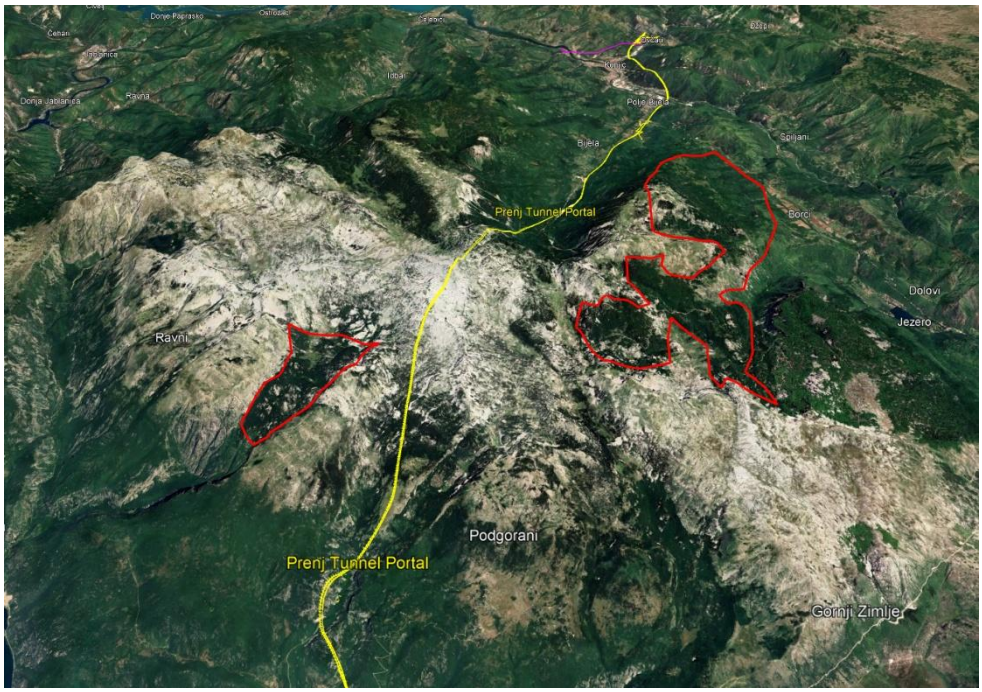


Figure 60: EAAAs of Lynx lynx

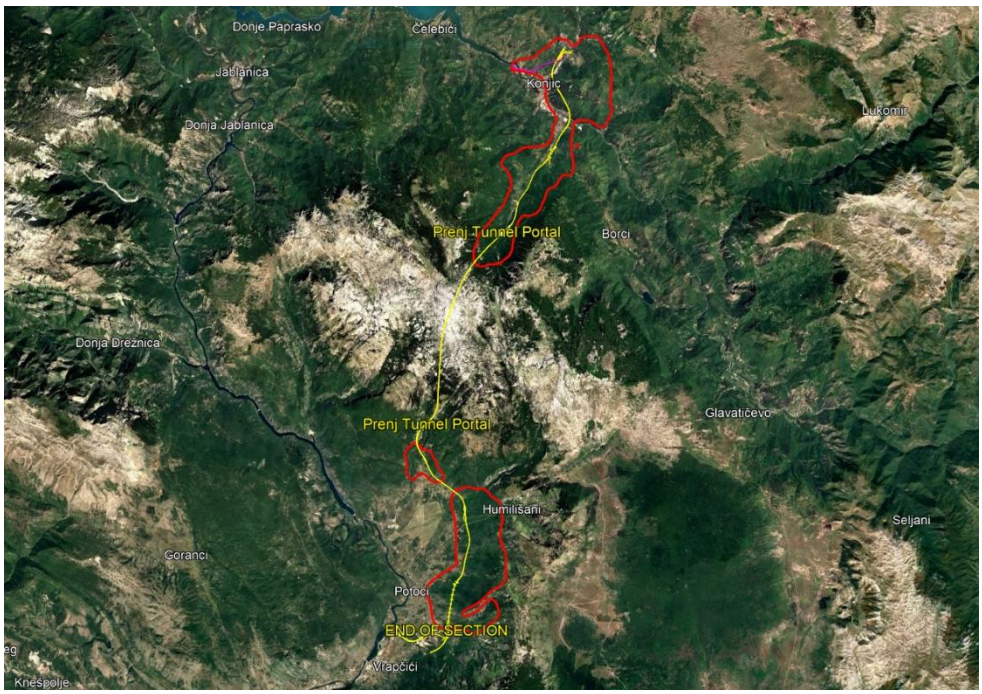


Figure 61: Aggregated bat EAAAs