

MERCAN REGULATOR AND HEPP OPERATION BIODIVERSITY ACTION PLAN

1.1 Entrance

Mercan Hydroelectric Power Plant (HEPP), operated by Zorlu Doğal Elektrik Üretimi A.Ş., is located in Tunceli province, in the Upper Euphrates Basin of the Eastern Anatolia Region, and was established on the Mercan Stream. The province, which lies entirely within the Euphrates Basin, is a high region surrounded by natural borders. The extensions of the Eastern Taurus Mountains extend in the east-west direction, covering almost the entire northwest, north, and northeast of the province. Mercan HEPP is approximately 13 km from Ovacık District and approximately 71 km from Tunceli Province.

Mercan HEPP receives the necessary water from Mercan Stream. The water taken from the regulator is transmitted to the loading pool through a closed channel with a cross-section of 4 x 4 m and a length of 14 km. The elevation of the loading pool is 1497.67 m, and the outlet water elevation is 1293.25 meters. The water in the loading pool is conveyed to the turbines through a penstock pipe with a length of 400 m, a diameter of 1.5 m, and a thickness of approximately 25 mm, which is divided into three branches at the entrance of the power plant.

The construction works of Mercan HEPP, which started in 1985, were completed in 2003. It was put into operation on 08.10.2003 with the completion of the electromechanical equipment installation and has been in operation since 2003.

After it was put into operation, it was operated under the Keban Operation Directorate, which was transferred to Elektrik Üretim A.Ş. (EÜAŞ) by the General Directorate of DSI. It was included in the scope of privatization by the Privatization High Council with its decision numbered 2006/100 on 27.12.2006. On 30 June 2007, the operating rights were transferred to Ankara Doğal Elektrik Üretimi A.Ş. (ADÜAŞ) and as a result of the tender held with the decision of the Privatization High Council dated 07.05.2008 and numbered 2008/29, the operating rights were transferred to Zorlu Doğal Elektrik Üretimi A.Ş. on 01.09.2008 for 30 years.

From a bird's eye view of the project area, the village of Şahverdi is approximately 0.9 km away. Approximately, Havuzlu village is 2.9 km away, Gözeler village is 5 km away, Köşeler village is 11.2 km away, Paşadüzü village is 9.8 km away, Ovacık village is 8.8 km away, Konaklar village is 8.8 km away, Sarıtosun village is 8.3 km away, Güneykonak village is 6.9 km away, Yaylargünü village is 7.8 km away, Yoncalı village is 10 km away, Çayüstü village is 8.9 km away, Akyayık village is 3.7 km away, and Öveçler village is 9.8 km away (Figure 5-6).

Around the project area, there are significant water bodies that may attract birds, with the Munzur River being 6.9 km away as the crow flies (Figure 7-9).

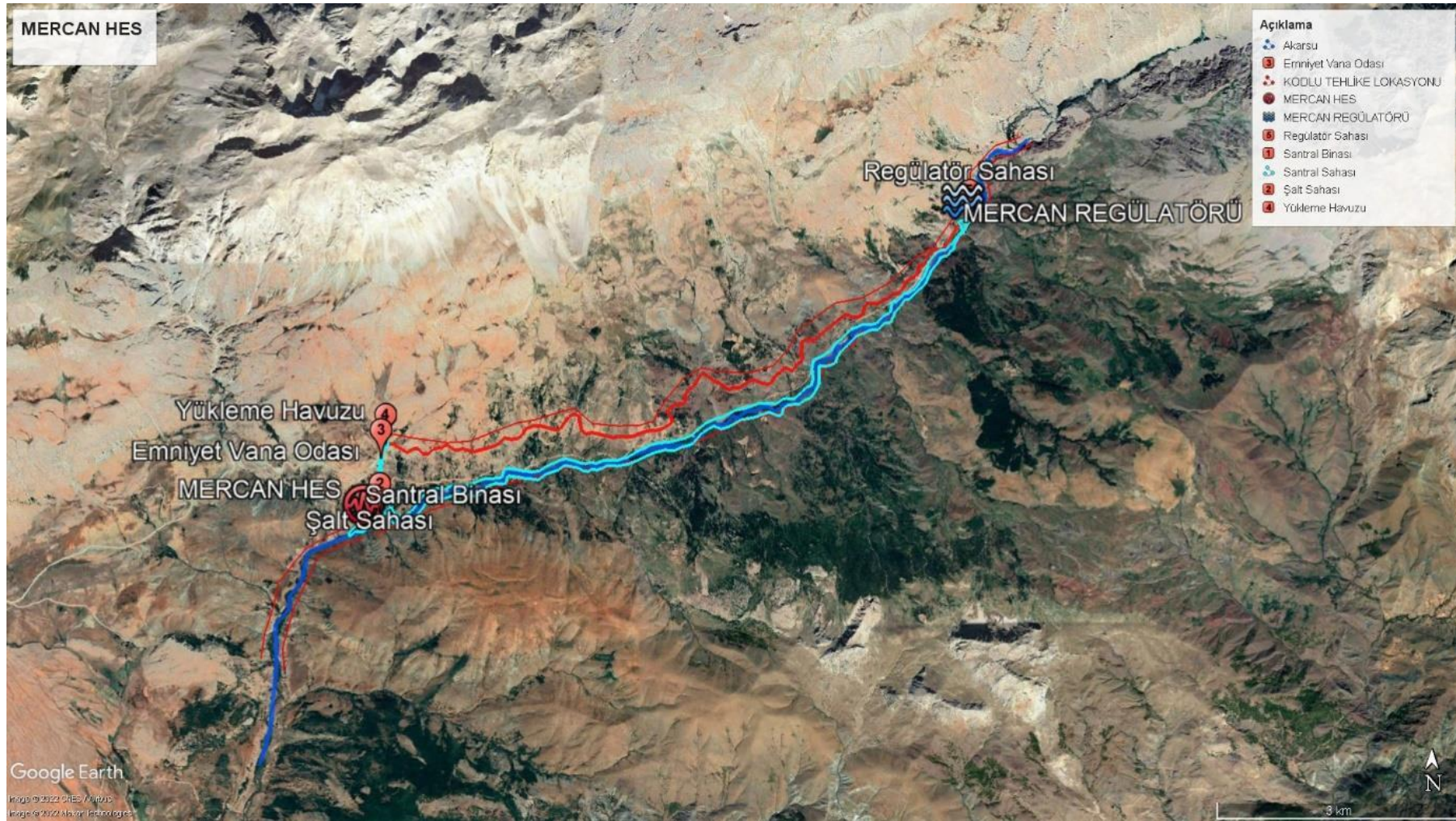


Figure 1: Satellite Image of Mercan HEPP Project Area



Figure 2: Satellite Image of Mercan HEPP Project Area

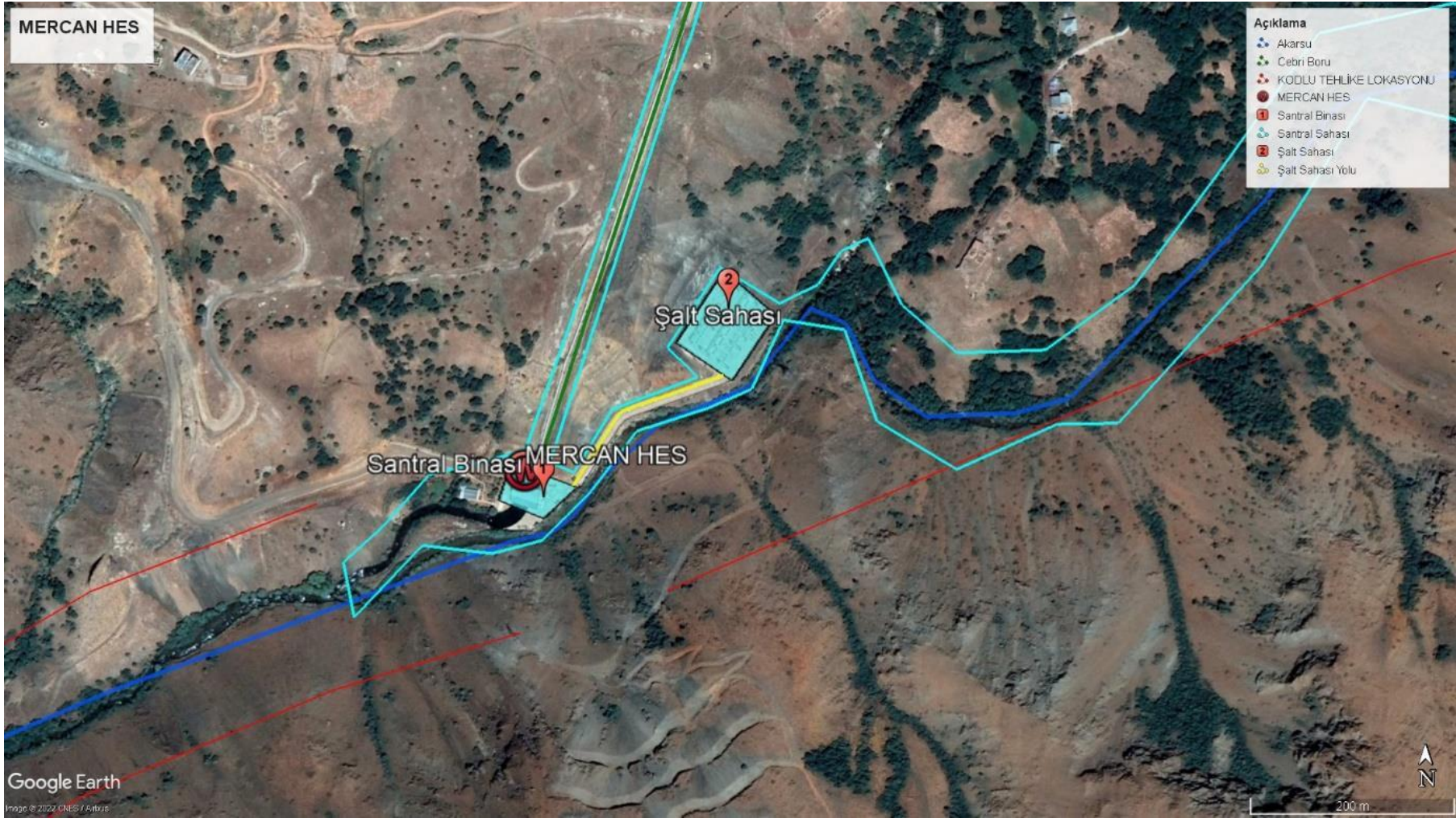


Figure 3: Satellite Image of Mercan HEPP Project Area



Figure 4: Satellite Image of Mercan HEPP Project Area



Figure 6: Distance of the Project Area to Important Centers

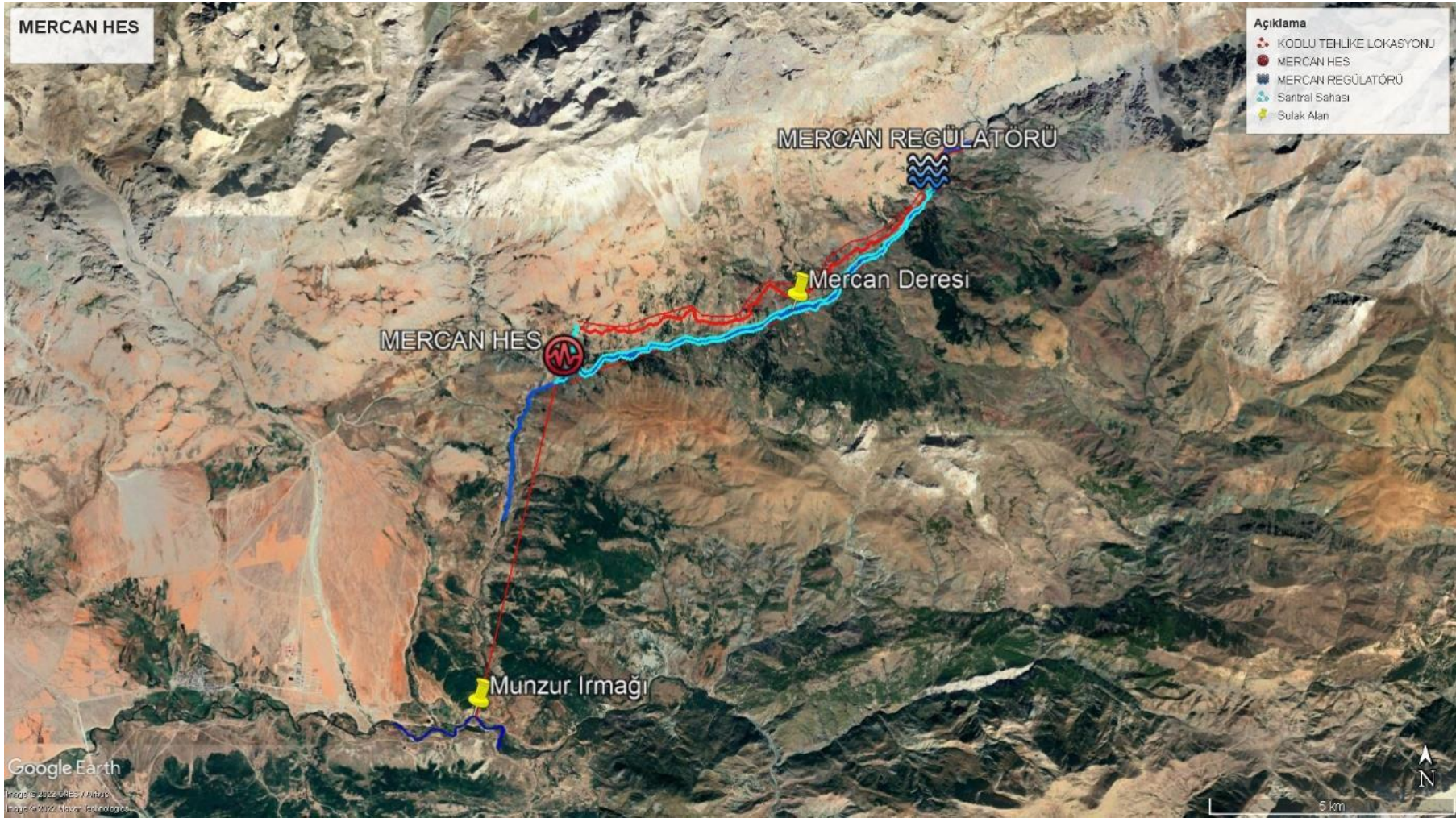


Figure 7: Important Water Bodies Around the Project



Figure 8: Important Water Bodies Around the Project

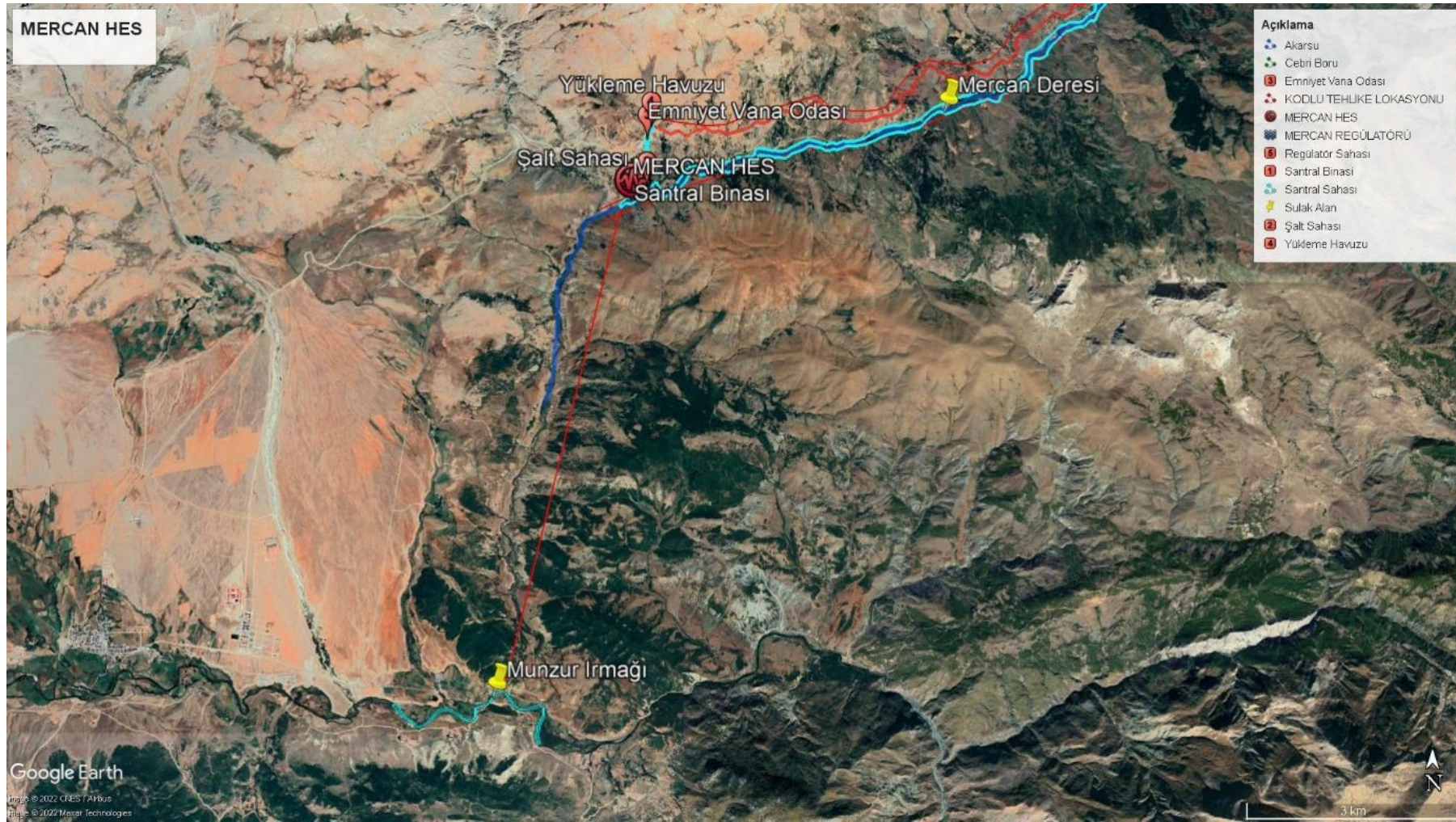


Figure 9: Important Water Bodies Around the Project

1.2 Relationship of the Area with Protected and Special Status Areas

The Mercan HEPP site is located within the Munzur Valley National Park (MP). Additionally, from a bird's eye view, Esen Tepe Nature Park is approximately 35.2 km away from the project site, and Ekşisu Sazlığı Important Nature Area is 30 km away. Moreover, the project area falls within the Munzur Mountains Important Nature Area (Figures 10-12).

Munzur Valley National Park

Munzur Valley National Park is one of the exceptional corners of our country, rich in natural data including river sources, springs, endemic plant species, local animal species, rich vegetation, and the existence of wild animals.

The rare trout species indigenous to the region are commonly and abundantly found in the Munzur and Mercan rivers. Additionally, the two types of mountain goats, known as the mountain goat and the hooked horned mountain goat, along with game birds, represent the unique values of wildlife in the area.

Crater lakes on peaks approaching 3000 meters in the Munzur Mountains, springs, canyons in the Ovacık district plain, and waterfalls flowing throughout the valley enrich the natural values of the park. The Kırk Merdiven Waterfalls, located on the slopes of the Munzur Mountains descending into Mercan Valley, consist of a series of waterfalls flowing in a narrow, small valley. With its abundant water, natural environment, and landscape features, Kırk Merdiven Waterfalls offer an interesting and attractive visual richness, being one of the first stopping places on the route to the plateaus north of Ovacık.

Located at an altitude of 1636 meters northwest of Şahverdi village in the north of Munzur Valley National Park, the site ruins of Kale Tepe Locality have been registered as a 1st Degree Archaeological Site by the Ministry of Culture and Tourism, Erzurum Cultural and Natural Heritage Preservation Board. Additionally, the Tülin Tepe, Tepecik, and Pulur mounds near the borders of Munzur Valley National Park are important historical sites that indicate the presence of settlements during the Chalcolithic and Neolithic periods.

The unique natural view and all wildlife can be easily viewed in every corner of the national park. 1518 various plants have been identified in the flora of Munzur Valley National Park, which is very rich in terms of vegetation, of which 43 species are endemic to the Munzur Mountains and 227 species are endemic to Turkey.

The dominant tree species in the national park are oaks and various species. Rocky hills and slopes where there are none are covered with oak forests. There is a rich vegetation consisting of mixed elm, maple, ash, plane, vine, birch, walnut, wild hazelnut, poplar, willow, and shrub species on the valley floor and along the waterways.

There are wolves, foxes, martens, bears, lynx, otters, badgers, squirrels, rabbits, wild boars, and wild goats in the National Park. The brown bear, which lives in caves and rock cavities, is one of the important large mammals of Munzur wildlife

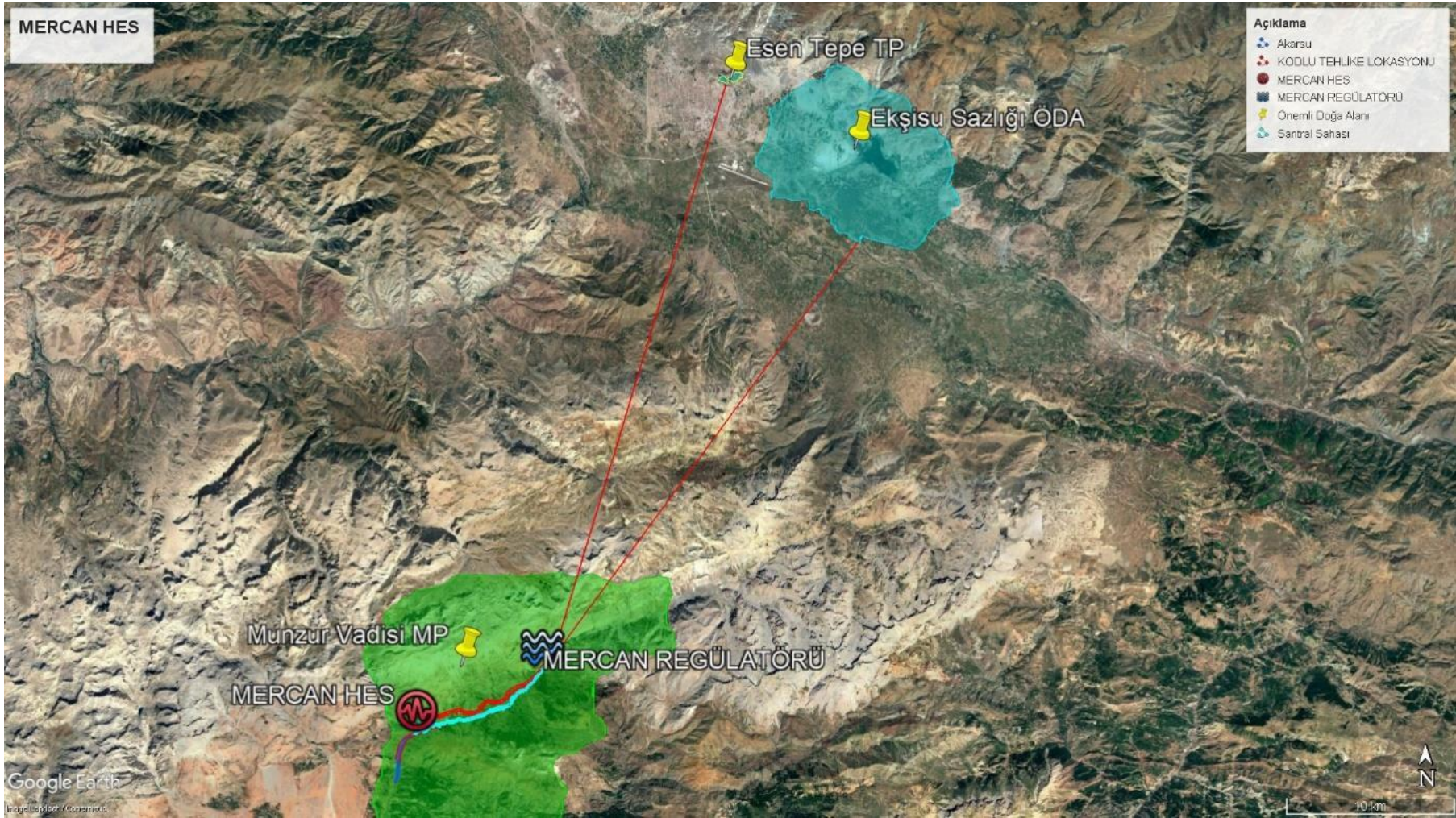


Figure 10: Satellite Image Showing the Relationship Between the Project Site and Protected Areas



Figure 11: Satellite Image Showing the Relationship Between the Project Site and Protected Areas

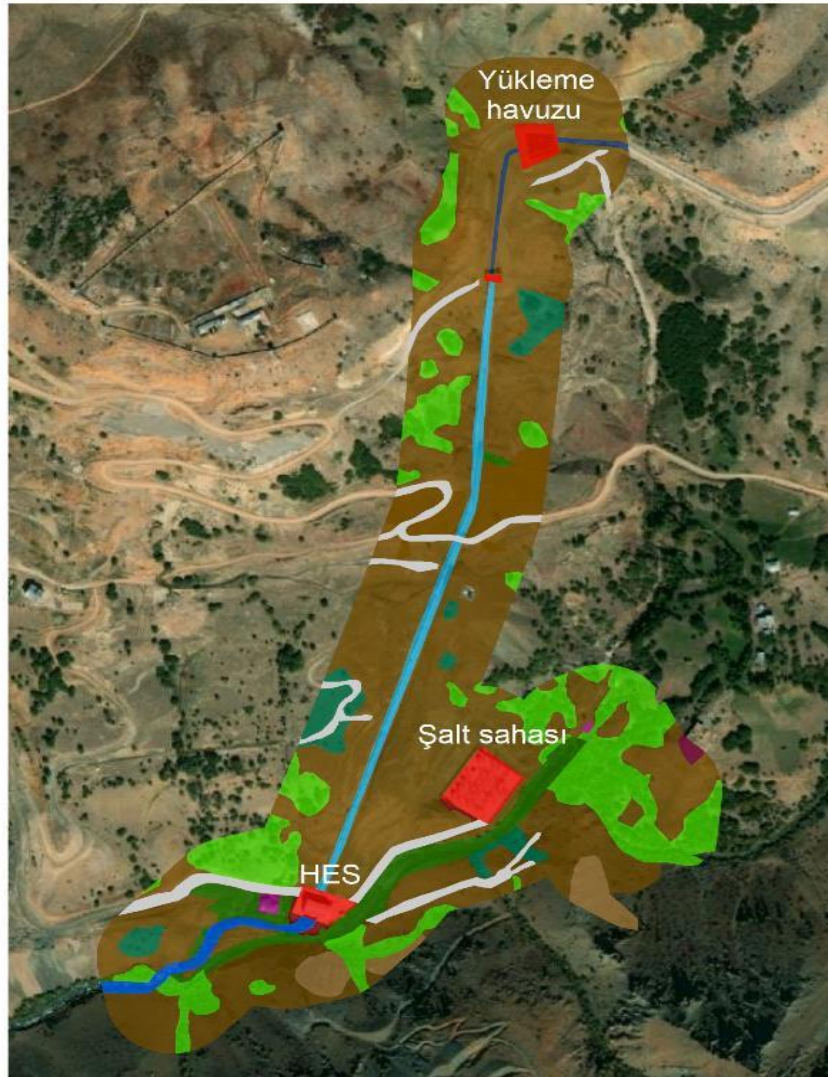


Figure 12: Satellite Image Showing the Relationship Between the Project Site and Important Nature Area (INA)

1.3 Identification and Classification of Habitats in the Impact Area of Mercan Regulator and HEPP Facility

Zorlu Doğal Elektrik Üretimi A.Ş. Mercan Hydroelectric Power Plant (HEPP) Tunceli, operated by the province of East Anatolia Region, is located in the Upper Euphrates Basin and was established on the Mercan Stream. The province, which lies entirely within the Euphrates Basin, is a high region surrounded by natural borders. The extensions of the Eastern Taurus Mountains extend in the east-west direction, covering almost the entire northwest, north, and northeast of the province. Mercan HEPP is approximately 13 km from Ovacık District and approximately 71 km from Tunceli Province.

There are 11 different habitat types in the project area. 6 of these habitats are natural, and the remaining 5 are modified habitats. The 1st, 2nd, and 3rd Level codes and vegetation types of the vegetation types that develop in natural areas according to the EUNIS Habitat Classification are given below (Figure 13-14).

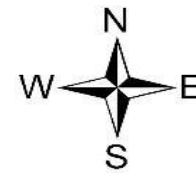


Mercan HES EUNIS

Habitat Haritası 1

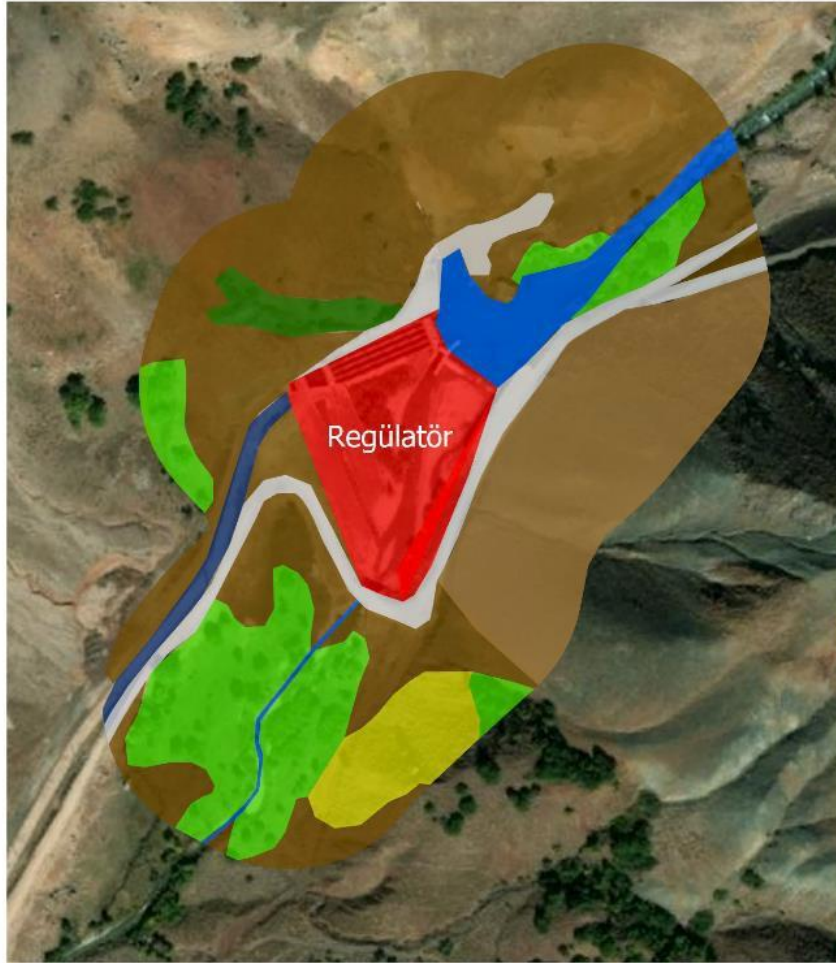
Ölçek: 1:10,000

- ** Tesis binaları
- * C2.3: Mevsimsel olmayan hızlı akan akarsular
- * G1 :Yaprak döken ormanlar
- * G5 :Antropojenik ormanlar, baltalıklar, ağaç hatları
- * G5.6 :Gelişmekte olan doğal ve yarı doğal ormanlar
- * H3 :Sarp yamaçlar ve ana kayanın yüzeye çıktığı taşlık alanlar
- * H5 :Bitki örtüsü seyrek açıklık alanlar
- ** J2.3 :Kırsaldaki aktif kullanılan endüstriyel yapılar
- ** J2.6 :Kırsaldaki terk edilmiş endüstriyel yapılar
- ** J4.2 :Yol ağları
- ** J4.6 : Kaldırımlar, beton yüzeyler ve rekreasyon alanları
- ** J5.41 :İnsan yapımı tatlı su kanalları
- ** J5.43 :İnsan yapımı yeraltı su kanalları



0 200 400
Meters

Shape 13 Coral HEPP EUNIS habitat Map one



Mercan HES EUNIS Habitat Haritası 2

Ölçek: 1:5,000

- ** ■ Tesis binaları
- * ■ C2.3: Mevsimsel olmayan hızlı akan akarsular
- * ■ F3 : Ilıman Akdeniz-dağlık bodur çalıları
- * ■ G1 :Yaprak döken ormanlar
- * ■ G5:Antropojenik ormanlar, baltalıklar, ağaç hatları
- * ■ H3 :Sarp yamaçlar ve ana kayanın yüzeye çıktığı taşlık alanlar
- * ■ H5 :Bitki örtüsü seyrek açık alanlar
- ** ■ J4.2 :Yol ağları
- ** ■ J5.43 :İnsan yapımı yeraltı su kanalları



0 100 200
Meters

Shape 14 Coral HEPP EUNIS habitat map 2

Natural Habitats

C2. Superficial Fluidity Showing Waters

Characteristic taxa of riparian habitats that form year-round streamside vegetation at an altitude of 1400 m; *Fraxinus angustifolia*, *Alnus glutinosa*, *Geranium pyrenaicum*, *Lathyrus pratensis*, *Lathyrus chloranthus*, *Filipendula ulmaria*, *Geum urbanum*, *Rubus canescens* var. *canescens*, *Agrimonia eupatoria*, *Agrimonia repens*, *Sanguisorba minor* subsp. *lasiocarpa*, *Epilobium anatolicum* subsp. *anatolicum*, *Tanacetum parthenium*, *Primula auriculata*, *Lysimachia vulgaris*, *Myosotis sylvatica* subsp. *rivularis*, *Scrophularia scopolii* var. *scopolii*, *Kickxia spuria* subsp. *integrifolia*, *Veronica beccabunga* subsp. *beccabunga*, *Stachys balansae* subsp. *balansae*, *Nepeta nuda* subsp. *albiflora*, *Prunella vulgaris*, *Mentha longifolia* subsp. *typhoides* var. *typhoides*, *Euphorbia orientalis*, *Allium schoenoprasum*, *Dactylorhiza iberica*, *Poa pratensis*.



Photos 1: Superficial Fluidity Showing Habitats (EUNIS: C2)

G1. Leaf-Shedding Oak Communities

The participants of the oak communities observed in the form of patches in the upper parts of the stream bed at an altitude of 1500 m are *Lathyrus roseus* subsp. *roseus*, *Tanacetum cilicicum*, *Tanacetum vulgare*, *Echinops galaticus*, *Echinops viscosus* subsp. *bithynicus*, *Mulgedium quercinum*, *Cephalorrhynchus tuberosus*, *Onosma rascheyanum*, *Brunnera orientalis*, *Verbascum phoeniceum*, *Stachys cretica* subsp. *garana*, *Salvia macrochlamys*, *Euphorbia macrocarpa*, *Euphorbia denticulata*, *Euphorbia cheiradenia*, *Euphorbia iberica*, *Juglans regia*, *Allium chrysanthrum*.



Photos 2 Leaf-Shedding Oak Communities (EUNIS: G1)

H3 Bedrock Soil to the Surface Rocky Fields

Plant Communities Forming the Vegetation Structure Formed on Rocky and Stony Areas at Points Where Rain and Surface Runoff Is Fast Due to the Increase in Slope Around 1700 M Altitude and Bedrock Appears; *Delphinium albiflorum*, *Papaver persicum* subsp. *persicum*, *Ricotia aucheri*, *Alyssum armenum*, *Arabis caucasica* subsp. *caucasica*, *Aubrieta canescens* subsp. *macrostyla*, *Erysimum pulchellum*, *Stellaria kotschyana*, *Dianthus hymenolepis*, *Silene bupleuroides*, *Silene stenobotrys*, *Paronychia kurdica* subsp. *kurdica* var. *kurdica*, *Atraphaxis spinosa*, *Linum mucronatum* subsp. *mucronatum*, *Genista albida*, *Oxytropis persica*, *Trifolium hirtum*, *Lotus corniculatus* var. *alpinus*, *Hedysarum syriacum*, *Potentilla argentea*, *Umbilicus erectus*, *Eryngium billardieri*, *Ferulago setifolia*, *Valerianella dactylophylla*, *Senecio eriospermus* var. *eriospermus*, *Anthemis triumfettii*, *Crepis foetida* subsp. *rhoeadifolia*, *Teucrium orientale* var. *puberulens*.



Photos 3 Bedrock Soil to the Surface Rocky Fields (EUNIS:H3)

H5 Herb Cover Rare Clearance Areas

This habitat type is observed in oak and rocky areas where a relatively certain soil layer is formed and the slope is lower than in rocky areas. Plants with steppe characteristics are represented in these areas by the following taxa; *Colutea cilicica*, *Astragalus tigridis*, *Lathyrus boissieri*, *Trigonella fischeriana*, *Medicago radiata*, *Medicago rigidula* var. *rigidula*, *Onobrychis galegifolia*, *Lisaea strigosa*, *Asyneuma lobelioides*, *Asyneuma rigidum* subsp. *rigidum*, *Onosma rascheyanum*, *Verbascum oreophilum* var. *joannis*, *Veronica orientalis* subsp. *orientalis*, *Teucrium multicaule*, *Teucrium chamaedrys* subsp. *sinuatum*, *Ziziphora clinopodioides*, *Nigella arvensis* var. *glauca*, *Consolida scleroclada* var. *rigida*, *Adonis flammea*, *Brassica elongata*, *Arabis alpina* subsp. *alpina*, *Dianthus crinitus* var. *crinitus*, *Petrorhagia cretica*, *Silene alba* subsp. *divaricata*.



Photos 4 Herb Cover Rare Openness Fields (EUNIS:H5)

G5. Anthropogenic Character Coppice Forests

This forest type consists of degraded oak populations, and its cover has been broken. The species composition is almost the same as the G1 habitat code.

G5.6 Developing Semi-Natural Forests

These forests, which have an anthropogenic character, are communities where woody forest fruit trees (pear, hawthorn, wild apple) join the oak taxa. The species composition shows transition with the G1 coded habitats.

Modified Habitats

Areas with habitat codes J2.3, J2.6, J4.2, J5.41, J5.43 are either concrete or asphalt and do not have a floral content. However, cleaning the seeds that germinate in the cracks in these structures is important for the integrity of the system. Care should be taken to ensure that landscaping plants used only in habitat coded J4.6 are not invasive species.



Photos 5 in the countryside Active Used Industrial Buildings (EUNIS: J2.3)



Photos 6 Path networks With sidewalks And Recreation Fields (EUNIS: J4.2 And J4.6)



Photos 7 Person making Underground Stream lines (EUNIS: J5.43)



Photos 8 Person making Salty Non This channels (EUNIS: J5.41)



Photos 9 *hesperis breviscapa* (IUCN:EN)

When looking at the vegetation structure of the project site and its surroundings; A large part of it consists of herbaceous plant composition of meadow-pasture nature. Natural forest areas consist of *Quercus petraea-Quercus cerris* taxa, while the woodland areas exposed to human influence are mostly shaped as coppice communities with broken cover. There are also *Alnus glutinosa-Fraxinus angustifolia* (Alder-Ash) riparian gallery forests along the stream.

Aquatic Habitats

Habitat degradation and decline in aquatic ecosystems is increasing day by day due to anthropogenic factors and climate change. Interventions in the water regime, deterioration of water quality, poaching, and uncontrolled activities damage aquatic creatures and the habitats around them. It is important to have information about the spatial distribution of habitats and to map habitats in order to understand, control, and manage human impact on aquatic ecosystems.

In the classification of aquatic habitats in the area, the most current version of the EUNIS Habitat Classification was taken into consideration, and an appropriate classification was made. This classification method is one that allows a broader analysis of habitats in relation to ecological zones, climate, soil, and pressures on the environment, as well as species. It also provides a standardized terminology for comparing data with other countries, organized into main categories and their subheadings.

In the examinations and studies carried out, the pH of Mercan stream, which is characteristic, was determined to be 8.2. This condition affects the distribution of aquatic creatures. The most visible effect is that aquatic creatures cannot grow too large due to the alkalinity. Apart from this, no special habitat type was found in the area. Semi-natural habitats stand out in the regulator and power plant areas, while other areas maintain their natural habitat structure along the stream. Fish that feed on algae, zooplankton, or benthic creatures living in the area are at the top of the food chain in the water. Fish habitats in the Mercan HEPP area where observations were made are provided in Table 1.

Table 1: Mercan HEPP aquatic habitat And Features

EUNIS CODE	HABITAT NAME	FEATURES	RAID SPECIES
C2	surface streams	in the field other permanent or seasonal streams are representatives of this habitat type in the area	Top Trout generation; <i>salmo macrostigma</i> , Lower Trout generation. Trout And Golyan (Pearl) snapper (<i>Alburnoides bipunctatus</i>) moustachioed Fish Generation: moustachioed fish (<i>Barbus lacerta</i>), woodfish (<i>Acanthobrama marmid</i>) and roughhead (<i>Chondrostoma regium</i>), freshwater mullet (<i>Squalius cephalus</i>) type diversity more is too much.

The stream bed generally looks like a natural habitat (Photo 11). The deteriorated habitat structures around Mercan HEPP, which was established within the borders of the national park, have adapted to the natural environment since there has been no external influence on date.



Photos 10 Semi-Natural Habitat Structure Around the Outlet in Mercan Creek Regulator Area.



Photos 11 Natural Habitat Structure of Mercan Stream

1.4 Coral regulator And HEPP facility Effect in the field floristic biodiversity Definition

When looking at the vegetation structure of the project site and its surroundings; A large part of it consists of herbaceous plant composition of meadow-pasture nature. Natural forest areas consist of *Quercus petraea-Quercus cerris* taxa, while the woodland areas exposed to human influence are mostly shaped as coppice communities with broken cover. There are also *Alnus glutinosa-Fraxinus angustifolia* (Alder-Ash) riparian gallery forests along the stream.

The project area is an area rich in floristic diversity and contains endemic rare plant taxa. Critical plant taxa found in the region are presented in Table 2.

Table 2: Distribution of Plant Taxa and Habitats Protected in CR and EN Statuses within the Scope of IUCN

Critical Herb taxa	English Name	Critical habitats	IUCN status
<i>Iris galatica</i>	Galatic Iris	G1 H3 H5 G5 G5.6	CR
<i>Ornithogalum munzureense</i>	Munzur Star-of-Bethlehem	H3 H5	CR
<i>Chaenorhinum huber-morathii</i>	Huber-Morath's Toadflax	H3 H5	EN
<i>Stachys tundjeliensis</i>	Tunceli Woundwort	G1 G5 G5.6	EN
<i>Colchicum munzureense</i>	Munzur Meadow Saffron	G1 H3 H5	EN
<i>Bellevia anatolica</i>	Anatolian Hyacinth	H3 H5	EN
<i>Silene manissadjianii</i>	Manissadjian's Catchfly	G1 H3 H5	EN
<i>Campanula yildirimlii</i>	Yildirim's Bellflower	H3 H5	EN
<i>Campanula quercetorum</i>	Oak Bellflower	G1 G5	EN
<i>Isatis undulata</i>	Curly Indigo	G1 G5 G5.6	EN
<i>Hesperis breviscapa</i>	Short-Stalked Dame's Rocket	H3 H5	EN
<i>Trigonostadium intermedium</i>	Intermediate Three-Fruit	H5	EN

A comprehensive list of the project, Area of Analysis (AoA), CR, EN, and VU types (VU types likely to trigger Criterion 1b) has been developed based on baseline data. In this context, critical flora species have been identified around the project area, and the critical habitats determined in the project area are given in Table 2. As a result of the studies, 12 critical species were identified in the project area and its surroundings (Table 2). Among these species, the IUCN Status of "Iris galatica" and "Ornithogalum munzureense" is CR, and all other species are in EN Status. In this context, the habitats where these species occur are designated as critical habitats, and attention should be paid to the actions provided in the Biodiversity Action Plan related to these habitats.

1.5 Mercan Regulator and HEPP Facility Impact Area Faunistic Biodiversity Assessment

1.5.1 Amphibians

Amphibian species found and likely to be found in the project area are listed in Table 3, and their conservation statuses are given. According to this list, there is an endemic species (**Neurergus strauchii munzurensis**) that is vulnerable (VU) in the project area.

Table 3 Project in the field Found and Finding Likely Amphibian Types

SET , - idae : Family, Type	English Name	IUCN	BERN	CITES	Habitats Directive	END
ANURA						
Bufonidae						
1. <i>Bufotes sitibundus</i>	Variable patterned night frog	D.D.	Ann-III	-	-	
hylidae						
2. <i>Hyla savignyi</i>	Green frog	LC	Ann-III	-	-	
Ranidae						
3. <i>Rana macrocnemis</i>	Uludag frog	LC	Ann-III	-	-	
4. <i>Pelophylax ridibundus</i>	Plain frog	LC	Ann-III	-	Ann- IV	
URODELA	salamanders					
Salamandridae						
5. <i>Neurergus strauchii munzurensis</i>	Mottled salamander	VU	Ann- II	-	-	+
6. <i>Salamandra infraimmaculata</i>	Turkish salamander	NT	Ann-III	-	-	

The Munzur salamander (*Neurergus strauchii munzurensis*) subspecies has been identified approximately 40 km east of the Mercan HEPP area and it is possible that this species can be found in the project area. The IUCN criterion for the species is VU and this subspecies is endemic to the region. This type is also It is on the Annex-II list of the Bern Convention (Fauna species to be strictly protected).

However, since the facility directly consists of using some of the water in the area for electricity generation and then releasing it back into the stream bed, it is possible that all water-dependent species will be directly affected by this. Other amphibian species found or likely to be found in the project area are *Bufotes sitibundus*, *Pelophylax ridibundus*, *Rana macrocnemis*, *Hyla savignyi* and *Salamandra infraimmaculata* , and they are not endangered or endemic species.

Criterion 1: Refers to Critically Endangered (CR) and/or Endangered (EN) Species. There are no amphibian species in the CR and/or EN category in the project area.

Criterion 2: Refers to Endemic and/or Narrowly Ranged Species. Possibility of presence of endemic **Munzur salamander (*Neurergus strauchii munzurensis*) subspecies in the project area** has. This subspecies is also a subspecies with a narrow distribution in the Eastern Anatolia Region. The species appears to meet the Critical species criterion, being both endemic and narrowly distributed (Criterion 2). The distribution area of this subspecies is more than 50,000 square kilometers (km²). is less. **However**, it is not possible to say that the project site is an area that regularly hosts $\geq 10\%$ of the global population size of this species and ≥ 10 of the reproductive units of a species. It is not yet known whether this species lives in the area. In this regard, according to available information, the project site **does not meet the threshold value for Criterion 2** . However, Biodiversity Action Action is taken regarding the existence and population density of this species in the project area. Attention should be paid to the actions given in the plan.

Criterion 3: Refers to Migratory and/or Community Concentrated Species. There is no amphibian species in the project area that meets this criterion.

Criterion 4: Refers to Highly Threatened and/or Uniquely Rare Ecosystems. Important habitats for amphibian species in the project area are aquatic habitats. The project has been operating in the area for many years. Life water is released into the stream bed. The river environment is largely composed of natural habitats. is formed. In the current situation, it is not possible to say that the river habitat and its immediate surroundings are under high threat.

1.5.2 Reptiles

There are no endemic reptile species in the project area. According to IUCN lists, the only endangered reptile species is **the Tortoise (*Testudo graeca*)** and it is listed in the VU category. Tortoise is also included in the BERN Convention ANNEX-II and CITES ANNEX-II lists.

Mauremys caspica, *Natrix tessellata* and *Natrix natrix*, which are partially or largely water-dependent reptile species. The impact of these species will be due to the decrease in water in the section between the regulator and the power plant area in the stream bed. The reason for the decrease in water is due to the water taken for electricity production. The decrease in the amount of water in the stream is water dependent. This will mean habitat reduction for these species. Thanks to the living water left in the stream bed, their existence will not end, and their total amount in the area will probably decrease. This reduction is more likely in *Mauremys caspica*, and *Natrix tessellata* species, and the less water-dependent Semi-aquatic snake (*Natrix natrix*) will be less affected.

In this context, if we make a critical habitat assessment of the project area in line with faunistic data;

Criterion 1: Refers to Critically Endangered (CR) and/or Endangered (EN) Species. **There are no** reptile species in the CR and/or EN category in the project area.

Criterion 2: Refers to Endemic and/or Narrowly Ranged Species. **There is no** endemic or narrow-ranging reptile species in the project area.

Criterion 3: Refers to Migratory and/or Community Concentrated Species. **There is no** reptile species in the project area that meets this criterion.

Criterion 4: Refers to Highly Threatened and/or Uniquely Rare Ecosystems. The important habitat types for reptile species in the project area are the natural habitats in the region. The project has been operating in the area for many years. Natural habitats in the project area have not been negatively affected by the project. Since the project has been in operation for many years, the negative effects that occurred during the construction phase seem to have largely returned to normal. Currently, no adverse effects **have been observed on the reptile species widespread in the region.**

1.5.3 Mammals

Lynx (*Lynx lynx*), one of the species distributed in the region, according to the IUCN Mediterranean assessment MOST in the category, **Mountain goat** (*Capra aegagrus*) IUCN Mediterranean It is listed in the VU category according to its evaluation. However, the project area remains outside the IUCN Mediterranean evaluation area, the Mediterranean area is generally Aegean, marmara And Mediterrenian regions It covers. This two-type spherical in evaluation It is not listed as endangered. Despite this, in this report, these two species are considered to be Critical species, and an evaluation has been made here. **Rocky Sleeper** (*Dryomys laniger*) is also distributed in the region, and the habitat of the species is the rocky areas above 1600 m just north of the project area. *Dryomys laniger* is an endemic mammal species. The IUCN criterion of the species is DD (Data Deficient) and since it is endemic and the IUCN criterion has not been determined, it has been considered as an important species and has been specially evaluated here.

Criterion 1: Refers to Critically Endangered (CR) and/or Endangered (EN) Species. **There are no** mammal species in the CR and/or EN category in the project area.

Criterion 2: Refers to Endemic and/or Narrowly Ranged Species. adjacent to the project site high And Cliff in the hills endemic *Dryomys laniger* spread available. However, it has been evaluated that this species is not present in the project area in terms of habitat structure and altitude. This species is **not affected by the project**.

Criterion 3: Refers to Migratory and/or Community Concentrated Species. **There is no** mammal species in the project area that meets this criterion.

Criterion 4: Refers to Highly Threatened and/or Uniquely Rare Ecosystems. The important habitat types for mammal species in the project area are the natural habitats in the region. The project has been operating in the area for many years. Natural habitats in the project area have not been negatively affected by the project. Since the project has been in operation for many years, the negative effects that occurred during the construction phase seem to have largely returned to normal. Currently, no adverse effects have been observed on mammal species distributed in the region. The most important negativity observed for mammal species is the barrier effect created by the channel carrying water to the power plant. Suggestions have been made to reduce this impact.

Criterion 5: Topography, geology, soil, temperature, vegetation, and combinations of these factors. One of the region structural features species local to take shape and ecological features. It can affect the evolutionary processes that lead to. In some cases, distinctive spatial features form populations or subpopulations of genetically unique plant and animal species. associated with their populations. Physical or spatial features have been identified as spatial catalysts for evolutionary and ecological processes, and such features are often associated with species diversity. Species (or subpopulations of species) that emerge due to the maintenance of basic evolutionary processes inherent in an area have become the main focus in recent years, along with the conservation of biodiversity, especially the process of preserving genetic diversity. By maintaining species diversity in an area, the genetic diversity within species as well as the processes that drive speciation ensure evolutionary resilience in a system, which is especially important in rapidly changing climate conditions.

For illustrative purposes, here are some potential examples of areal features associated with evolutionary processes,

Regions with high spatial heterogeneity are a positive force for speciation, as species are naturally selected for their ability to adapt and diversify.

Environmental gradients, also known as ecotones, produce transitional habitat that is associated with the process of speciation and high species and genetic diversity.

Edaphic interfaces are the formation of soil types (e.g. serpentine outcrops, limestone) that lead to the formation of unique plant communities characterized by both rarity and endemism. and gypsum sediments) are special sequences.

Connection between habitats (e.g. biological corridors), especially fragmented It is important in the maintenance of habitats and metapopulations and ensures species migration and gene flow. This connectivity also includes biological corridors across elevational and climate gradients and “crest to coast.”

Areas with proven importance for adaptation to climate change for both species and ecosystems are also included in this criterion.

The importance of structural features in an area that can influence evolutionary processes will be determined on a case-by-case basis, and the determination of critical habitat will be largely based on scientific knowledge. In many cases, this criterion will apply to areas that have been previously investigated and are known or suspected to be associated with unique evolutionary processes. Although systematic methods exist to measure and prioritize evolutionary processes in a field, these methods are beyond the reasonable conditions of evaluations typically conducted by the private sector.

Criterion 5 was evaluated together for Amphibians, Reptiles and Mammals. Criterion 5 involves evaluating whether the region generally contains significant evolutionary processes. The area where Mercan HEPP is located is located on the Munzur Mountains. Munzur Mountains have a geological structure that is different from many other areas in Eastern Anatolia. The mountain itself reaches quite high altitudes and its higher parts are rocky. With this structure, it differs from many other hilly mountains in Eastern Anatolia. Due to this unique structure, it is one of the rare places in Eastern Anatolia where the endemic mammal species called *Dryomys laniger* is found. Munzur salamander (*Neurergus strauchii munzurensis*) has also been described from this region. Munzur Mountain is also home to many endemic plant species. Due to unique features such as these, the region has already been declared a National Park. Therefore, extreme caution should be exercised in the work carried out in this region and attention should be paid to the actions given in the Biodiversity Action Plan.

1.5.4 Ornithology

As a result of the studies, a total of 78 bird species were identified in the project area and its immediate surroundings. The list of these species, their global Red List status, and the status of the species in BERN, CITES and 2022 MAK decisions are given in Table 4 below.

Two of the species found around the facility are threatened on a global scale. These species are the Little Vulture (*Neophron percnopterus*). Among these species, the Red List status of the Robin (*Streptopelia turtur*) has been determined as "VU" vulnerable, and the Lesser Vulture (*Neophron percnopterus*) has been identified as "EN" endangered. Of the bird species found around the facility, 57 are in BERN Agreement Annex-2, 12 are in BERN Agreement Annex-3, 2 are in CITES Annex-1, 10 are in CITES Annex-2 and three are in CITES Annex-3. It is located in.

In this context, if we make a critical habitat assessment of the project area in line with faunistic data;

Criterion 1: Habitats Important to Critically Endangered (CR) or Endangered (EN) Species

The Lesser Vulture (*Neophron percnopterus*) species has a global Red List status of "EN" endangered. The species is expected to be seen in the project area during migration and in the spring and summer months corresponding to the breeding season (Kirwan et al., 2008). In order for this criterion to be evaluated properly, very detailed scientific studies aimed at making population size estimates are required in the region (see Biodiversity Action Plan).

Criterion 2: endemic And Narrow widespread Species for Important habitats

Facility around found birds This criterion It does not trigger.

Criterion 3: Habitats Hosting Globally Significant Numbers of Migratory and Foraging Species

It has been determined that there are migratory birds among the listed species in and around the facility area. Considering the topographic location of the facility, the project is not expected to cause a serious problem for migratory bird populations.

Criterion 4: High at level Threatening under And/Or Unique Rare ecosystems

None of the habitats around the site are listed as high level or unique ecosystems on the IUCN Red List of Ecosystems and therefore this criterion will not be triggered.

Criterion 5: Important Evolutionary Processes With identified habitats

Munzur Mountain is also home to many endemic plant species. Due to unique features such as these, the region has already been declared a National Park. Therefore, extreme caution should be exercised in the work carried out in this region and attention should be paid to the actions given in the Biodiversity Action Plan.

Table 4 Project in the field Found And Finding Likely Bird Types

Type scientific First Name	English name	endemism	IUCN (Spherical)	BERN	MAKK	CITES
<i>Alectoris chukar</i>	Hennaed partridge	not endemic	LC	Annex 3	Annex 2	KD
<i>Anthus campestris</i>	Dirt pipit	not endemic	LC	Annex 2	KD	KD
<i>Anthus spinoletta</i>	Mountain pipit	not endemic	LC	Annex 2	KD	KD
<i>Apus apus</i>	Swift	not endemic	LC	Annex 3	KD	KD
<i>Apus melba</i>	Akkarınlı swift	not endemic	LC	Annex 2	KD	KD
<i>Aquila chrysaetos</i>	Rock eagle	not endemic	LC	Annex 2	KD	Annex 2
<i>Buteo buteo</i>	Hawk	not endemic	LC	Annex 2	KD	Annex 3
<i>Buteo rufinus</i>	Red hawk	not endemic	LC	Annex 2	KD	Annex 3
<i>Caprimulgus europaeus</i>	Goatsucker	not endemic	LC	Annex 2	KD	KD
<i>Carduelis carduelis</i>	Joke	not endemic	LC	Annex 2	KD	KD
<i>Carpodacus erythrinus</i>	Chitre	not endemic	LC	Annex 2	KD	Annex 3
<i>Cettia had</i>	reed warbler	not endemic	LC	Annex 2	KD	KD
<i>Cinclus cinclus</i>	breech	not endemic	LC	Annex 2	KD	KD
<i>Circaetus gallicus</i>	Snake eagle	not endemic	LC	Annex 2	KD	Annex 2
<i>Clang pomarina</i>	Small forest eagle	not endemic	LC	Annex 2	KD	Annex 2
<i>Columba livia</i>	Rock pigeon	not endemic	LC	Annex 3	Annex 2	KD
<i>Columba palumbus</i>	Tahtali	not endemic	LC	KD	KD	KD
<i>Corvus corax</i>	Raven	not endemic	LC	Annex 3	Annex 1	KD
<i>Corvus cornix</i>	Carrion crow	not endemic	LC	KD	Annex 2	KD
<i>Coturnix coturnix</i>	Quail	not endemic	LC	Annex 3	Annex 2	KD
<i>Curruca curruca</i>	Small white-throated warbler	not endemic	LC	Annex 2	Annex 2	KD
<i>Cyanistes caeruleus</i>	Blue tit	not endemic	LC	Annex 2	Annex 2	KD
<i>Delichon urbicum</i>	House swallow	not endemic	LC	Annex 2	Annex 2	KD
<i>Dendrocopos major</i>	Forest pied woodpecker	not endemic	LC	Annex 2	Annex 2	KD
<i>Dendrocopos syriacus</i>	pied woodpecker	not endemic	LC	Annex 2	Annex 2	KD

Type scientific First Name	English name	endemism	IUCN (Spherical)	BERN	MAKK	CITES
<i>Dendrocoptes medius</i>	Middle Spotted Woodpecker	Not endemic	LC	Annex 2	KD	KD
<i>Emberiza calandra</i>	Corn Bunting	Not endemic	LC	Annex 3	Annex 1	KD
<i>Emberiza melanocephala</i>	Black-headed Bunting	Not endemic	LC	Annex 2	KD	KD
<i>Eremophila alpestris</i>	Horned Lark	Not endemic	LC	Annex 2	KD	KD
<i>Falco subbuteo</i>	Eurasian Hobby	Not endemic	LC	Annex 2	KD	Annex 2
<i>Falco tinnunculus</i>	Common Kestrel	Not endemic	LC	Annex 2	KD	Annex 2
<i>Ficedula parva</i>	Red-breasted Flycatcher	Not endemic	LC	Annex 2	KD	KD
<i>Ficedula semitorquata</i>	Semi-collared Flycatcher	Not endemic	NT	Annex 2	KD	KD
<i>Fringilla coelebs</i>	Common Chaffinch	Not endemic	LC	Annex 3	Annex 1	KD
<i>Galerida cristata</i>	Crested Lark	Not endemic	LC	Annex 3	Annex 1	KD
<i>Garrulus glandarius</i>	Eurasian Jay	Not endemic	LC	KD	Annex 2	KD
<i>Gypaetus barbatus</i>	Bearded Vulture	Not endemic	NT	KD	KD	Annex 2
<i>Hieraaetus pennatus</i>	Booted Eagle	Not endemic	LC	Annex 2	KD	Annex 1
<i>Hirundo rustica</i>	Barn Swallow	Not endemic	LC	Annex 2	KD	KD
<i>Iduna pallida</i>	Eastern Olivaceous Warbler	Not endemic	LC	Annex 2	KD	KD
<i>Lanius collurio</i>	Red-backed Shrike	Not endemic	LC	Annex 2	Annex 1	KD
<i>Lanius minor</i>	Lesser Grey Shrike	Not endemic	LC	Annex 2	KD	KD
<i>Lanius nubicus</i>	Masked Shrike	Not endemic	LC	Annex 2	KD	KD
<i>Linaria cannabina</i>	Common Linnet	Not endemic	LC	Annex 2	KD	KD
<i>Lullula arborea</i>	Woodlark	Not endemic	LC	Annex 3	Annex 1	KD
<i>Luscinia megarhynchos</i>	Common Nightingale	Not endemic	LC	Annex 2	KD	KD
<i>Merops apiaster</i>	European Bee-eater	Not endemic	LC	Annex 2	KD	KD
<i>Milvus migrans</i>	Black Kite	Not endemic	LC	Annex 2	Annex 2	Annex 2
<i>Monticola saxatilis</i>	Rufous-tailed Rock Thrush	Not endemic	LC	Annex 2	KD	KD
<i>Dendrocoptes medius</i>	Middle Spotted Woodpecker	Not endemic	LC	Annex 2	KD	KD

Type scientific First Name	English name	endemism	IUCN (Spherical)	BERN	MAKK	CITES
<i>Montifringilla nivalis</i>	White-winged Snowfinch	Not endemic	LC	Annex 2	KD	KD
<i>Motacilla alba</i>	White Wagtail	Not endemic	LC	Annex 2	KD	KD
<i>Motacilla cinerea</i>	Grey Wagtail	Not endemic	LC	Annex 2	KD	KD
<i>Motacilla flava</i>	Yellow Wagtail	Not endemic	LC	Annex 2	KD	KD
<i>Muscicapa striata</i>	Spotted Flycatcher	Not endemic	LC	Annex 2	KD	KD
<i>Neophron percnopterus</i>	Egyptian Vulture	Not endemic	EN	Annex 2	KD	Annex 2
<i>Oenanthe isabellina</i>	Isabelline Wheatear	Not endemic	LC	Annex 2	Annex 1	KD
<i>Oenanthe melanoleuca</i>	Eastern Black-eared Wheatear	Not endemic	LC	Annex 2	KD	KD
<i>Oenanthe oenanthe</i>	Northern Wheatear	Not endemic	LC	Annex 2	Annex 1	KD
<i>Oriolus oriolus</i>	Eurasian Golden Oriole	Not endemic	LC	Annex 2	KD	KD
<i>Otus scops</i>	Eurasian Scops Owl	Not endemic	LC	KD	Annex 2	Annex 2
<i>Parus major</i>	Great Tit	Not endemic	LC	Annex 2	KD	KD
<i>Passer domesticus</i>	House Sparrow	Not endemic	LC	KD	Annex 2	KD
<i>Pernis apivorus</i>	European Honey Buzzard	Not endemic	LC	Annex 2	Annex 2	Annex 2
<i>Petronia petronia</i>	Rock Sparrow	Not endemic	LC	Annex 2	KD	KD
<i>Phoenicurus ochruros</i>	Black Redstart	Not endemic	LC	Annex 2	KD	KD
<i>Phylloscopus trochilus</i>	Willow Warbler	Not endemic	LC	Annex 2	KD	KD
<i>Pica pica</i>	Eurasian Magpie	Not endemic	LC	Annex 2	Annex 2	KD
<i>Picus viridis</i>	European Green Woodpecker	Not endemic	LC	Annex 2	KD	KD
<i>Ptyonoprogne rupestris</i>	Eurasian Crag Martin	Not endemic	LC	Annex 2	KD	KD
<i>Pyrrhocorax graculus</i>	Alpine Chough	Not endemic	LC	Annex 2	KD	KD
<i>Pyrrhocorax pyrrhocorax</i>	Red-billed Chough	Not endemic	LC	Annex 2	KD	KD
<i>Sitta europaea</i>	Eurasian Nuthatch	Not endemic	LC	Annex 2	KD	KD
<i>Streptopelia turtur</i>	European Turtle Dove	Not endemic	VU	Annex 3	Annex 2	KD
<i>Tetraogallus caspius</i>	Caspian Snowcock	Not endemic	LC	KD	KD	Annex 1

Type scientific First Name	English name	endemism	IUCN (Spherical)	BERN	MAKK	CITES
<i>Turdus merula</i>	Common Blackbird	Not endemic	LC	Annex 3	Annex 2	KD
<i>Turdus viscivorus</i>	Mistle Thrush	Not endemic	LC	Annex 3	Annex 1	KD
<i>Upupa epops</i>	Eurasian Hoopoe	Not endemic	LC	Annex 2	KD	KD

1.1 Identification of Hydrobiological Biodiversity in the Impact Area of Mercan Regulator and HEPP Facility

Sixteen taxa belonging to four families were identified within the project area and its immediate surroundings (Table 8). Regarding the IUCN criteria for these species, 5 are classified as "NE" (Not Evaluated), 1 as "DD" (Data Deficient), and 10 as "LC" (Least Concern).

The Cyprinidae family is represented by the highest number of species, with 11 taxa being caught. Among the Salmonidae family, *Salmo macrostigma* is considered the most important fish species in the Mercan Stream. Additionally, the genera *Barbus*, *Capoeta*, and *Squalius* stand out in terms of species diversity. It has been determined that *Salmo macrostigma* (Mountain Trout), *Capoeta umbla* (Deer Fish), and *Chondrostoma regium* are the species with the highest population density, respectively. These species are widespread and abundant in the inland waters of Anatolia.

In these areas, there are also species from the Cobitidae family, which prefer flowing waters and seek shelter and food. Notably, *Sabanejewia aurata* is represented with a high density. This species is found in the Eastern and Southeastern Anatolia regions.

Salmo macrostigma (Mountain Trout) and *Oncorhynchus mykiss* (Rainbow Trout) from the Salmonidae family were identified. *Salmo macrostigma* is widespread throughout the Mercan Stream and is considered highly delicious and economically important, although fishing it is prohibited. The capture of this species outside the borders of the national park is prohibited year-round according to the circulars published by the Ministry of Agriculture and Rural Affairs. *Oncorhynchus mykiss* (Rainbow Trout) is generally used and farmed in aquaculture. This species is not native to Turkey but is an exotic species introduced from abroad. It was raised in an aquaculture environment and has adapted to natural waters in Turkey.

The species *Glyptothorax armeniacum* is a suction cup fish found throughout the Tigris and Euphrates River systems, which prefers flowing waters.

The *Glyptothorax armeniacum* species is a suction cup fish that is found throughout the Tigris and Euphrates system and loves flowing waters.

Table 5 Mercan stream Alga Types

Class: BACILLORIOPHYCEA
Order: pennales
Family: Achnanthacea
<i>Achnanthes flexella</i> there is. <i>flexella</i>
<i>Achnanthes bireviceps</i> there is. <i>intermedia</i>
<i>Achnanthes microcephala</i>
<i>Achnanthes minutissima</i>
<i>coconeis placenta</i> there is. <i>euglypta</i>
Family: naviculacea
<i>amphora commutata</i>
<i>amphora ovalis</i>
<i>amphora veneta</i>
<i>stauroneis smithii</i>
<i>anomoeoneis sphaerophora</i>
<i>caloneis bacillum</i>
<i>caloneis permagna</i>
<i>Cymbella affinis</i>
<i>Cymbella amphicephala</i>
<i>Cymbella asperaea</i>
<i>Cymbella caespitosa</i>
<i>Cymbella cistula</i>
<i>Cymbella lanceolata</i>
<i>Cymbella minuta</i>
<i>Cymbella tumidula</i>
<i>didymosphaenia geminata</i>
<i>Diploneis ovalis</i>
<i>gomphonema acuminatum</i>
<i>gomphonema angustatum</i>
<i>gomphonema gracile</i>
<i>gomphonema olivaceum</i>
<i>gomphonema parvalum</i>
<i>gyrosigma acuminatum</i>
<i>gyrosigma attenuatum</i>
<i>Navicula cincta</i>
<i>Navicula cryptocephala</i>
<i>Navicula cuspidata</i>
<i>Navicula nivalis</i>
<i>Navicula pygmaea</i>
<i>Navicula radiosa</i>
<i>Navicula tuscula</i>
<i>Navucila bacillum</i>
<i>neidium dubium</i>
<i>pinnularia borealis</i>
<i>pinnularia microstauron</i>
<i>pinnularia viridis</i>
<i>Rhoicosphenia abbreviata</i>
Family: Epithemiacea
<i>caretoneis arcus</i>
<i>denticula kuetzingii</i>
<i>Epithemia Argus</i>

<i>Epithemia sorex</i>
<i>Rhopalodia gibba</i>
Family: Bacillariacea
<i>Bacillaria paradoxa</i>
<i>hantzschia amphioxys</i>
<i>Nitzschia amphibia</i>
<i>Nitzschia constricta</i>
<i>Nitzschia gracilis</i>
<i>Nitzschia hungarica</i>
<i>Nitzschia obtusa</i>
<i>Nitzschia palea</i>
<i>Nitzschia sigmoidea</i>
<i>Nitzschia tryblionella</i>
Family: surirellacea
<i>Cymatopleura solea</i>
<i>surirella brebissonii</i>
<i>surirella ovalis</i>
Family: Fragilariacea
<i>diatom tenuis</i>
<i>diatom vulgaris</i>
<i>diatom monoliformis</i>
<i>Fragilaria capucina</i>
<i>Fragilaria contruens</i>
<i>Fragilaria dilatata</i>
<i>Fragilaria ulna</i>
<i>meridion circulare</i>
Order: centrales
Family: Melosiraceae
<i>Melosira varians</i>
Family: Thalassiosiraceae
<i>aulacoseira granulate</i>
<i>cyclotella comta</i>
<i>cyclotella meneghiniana</i>
<i>cyclotella ocellata</i>
Class: CYANOPHYCEA
Order: Chroococcales
<i>Chroococcus turgidus</i>
<i>gomphosphaeria aponina</i>
<i>Merismopedia glauca</i>
<i>Merismopedia punctate</i>
<i>microcystis aeruginosa</i>
Order: Hormogonales
<i>anabaena komvophoron</i>
<i>calothrix fusca</i>
<i>Lynbya hieronymusii</i>
<i>nostoc commune</i>
<i>Oscillatoria formosa</i>
<i>Oscillatoria limosa</i>
<i>Oscillatoria rubescens</i>
<i>Oscillatoria subbrevis</i>

<i>spirulina laxissima</i>
<i>spirulina major</i>
<i>spirulina sp.1</i>
<i>pseudoanabaena sp.</i>
<i>Schizothrix natans</i>
<i>Gloeotrichia echinulata</i>
Class: CHLOROPHYCEA
Order: Volvocales
<i>Chlamydomonas globosa</i>
<i>Gonium pectoral</i>
Order: Tetrasporales
<i>Gloeocystis sp.</i>
Order: ulothrichales
<i>ulothrix subconstricta</i>
Order: Cladophorales
<i>Cladophora fracta</i>
<i>Cladophora glomerata</i>
Order: oedogoniales
<i>oedogonium sociale</i>
Order: chlorococcales
<i>Ankistrodesmus falcatus</i>
<i>coelastrum sp.</i>
<i>oocystic borgei</i>
<i>oocystic Crassa</i>
<i>Pediastrum borianum</i>
<i>Pediastrum duplex</i>
<i>Pediastrum simplex</i>
<i>Scenedesmus acuminatus</i>
<i>Scenedesmus in quadricau</i>
<i>tetrahedron minimum</i>
Order: Zygnematales
<i>Mougeotia sp.</i>
<i>Spirogyra dubia</i>
<i>Spirogyra sp. one</i>
<i>Spirogyra sp. 2</i>
<i>Zygnema ericetorum</i>
<i>Zygnema sp.</i>
Order: Desmidiiales
<i>Closterium aciculare</i>
<i>Closterium lunula</i>
<i>cosmarium obtusatum</i>
<i>cosmarium botrystis</i>
<i>cosmarium garnet</i>
Class: EUGLENOPHYCEA
Order: Euglenales
<i>Euglena sp.</i>
<i>Euglena oxyrus</i>
<i>Euglena polymorpha</i>
<i>Phacus in curvicau</i>
<i>trachelomonas sp.</i>

Class: PYRROPHYCEAE
Order: peridinales
<i>glenodinium sp.</i>
<i>peridinium sp.</i>

Table6 Mercan of your tea zooplanktonic Types

ROTIFERA
<i>brachionus patulus</i>
<i>brachionus calyciflorus</i>
<i>brachionus urceolaris</i>
<i>colurella colurus</i>
<i>colurella adriatica</i>
<i>colurella obtusa</i>
<i>cephalodella gibba</i>
<i>cephalodella catellina</i>
<i>cephalodella ventripes</i>
<i>Dissotrocha sp.</i>
<i>Euchlanis sp.</i>
<i>keratella quadrata</i>
<i>keratella tecta</i>
<i>hexarthra sp.</i>
<i>Lecane closterocerca</i>
<i>Lecane lunaris</i>
<i>Lecane hamata</i>
<i>lepadella patella</i>
<i>lepadella quadricarinata</i>
<i>Lindia sp.</i>
<i>polyarthra remata</i>
<i>proales theodora</i>
<i>proales fallaciosa</i>
<i>philodina megalotrocha</i>
<i>Bedelloid rotifer</i>
CLADOCERA
<i>Alona rectangular</i>
IN COPEPO
<i>cyclops vicinus</i>
<i>Nauplius</i>

Table 7 Mercan stream benthic organisms

Branch: MOLLUSIAN
Class: GASTROPODA
Set: PROSOBRAHCHIATA
Family: Valvatidae
<i>Valvata piscinalis</i> Müller
Set: PULMONATA
Family: Planorbidae
<i>gyraulus albus</i> Müller
Family: Ancyridae
<i>Ancylus fluviatilis</i> mulle
Branch: ANNELIDA
Class: CLITELLATA
Set: HIRUDINEA
Family: Erpobdellidae
<i>Erpobdella octoculata</i> L.
Class: OLIGOCHAETA
Set: LUMBRICULIDAE
<i>Lumbriculus variegatus</i> (Müller, 1774)
Set: TUBIFICIDA
Family: tubificidae
<i>tubifex tubifex</i> (Müller, 1774)
Family: Naididae
<i>Nais communis</i> Piguët, 1906
Branch: PLATYHELMINTHES
Class: TURBELLARIA
Set: TRICLADIDA
Family: Planariidae
<i>Planaria</i> sp.
Branch: ARTHROPODA
Class: CRUSTACEA
Set: AMPHIPODA
Family: Gammaridae
<i>gammarus pulex</i>
<i>gammarus lacustris</i>
Set: IN DECAPO
Family: Oniscidae
<i>Potamon</i> sp.
Class: INSECTA
Set: HEMIPTERA
Family: Hydrometridae
<i>hydrometra</i> sp.
Family: Corixidae
<i>Corixa</i> sp.
Family: Gerridae
<i>Geris</i> sp.
Family: Notonectidae
<i>notonecta</i> sp.

Set: COLEOPTERA
Family: Elmidae
<i>Elmis</i> sp.
<i>Limnius</i> sp
Family: Hydrophilidae
<i>Hydrobius fuscipes</i> (Linnaeus, 1758)
Family: Noteridae
<i>noterus</i> (<i>Noterus</i>) <i>clavicornis</i> (Also Geer, 1774)
Family: Dytiscidae
<i>Hydroporus marginatus</i> (Duftschmid, 1805)
<i>laccophilus minutus</i> (Linnaeus, 1758)
Set: EPHEMEROPTERA
Family: Baetidae
<i>Baetis rhodani</i> Pict.
<i>Baetis vernus</i> (Curtis, 1834)
<i>cloeon dipterum</i> (Linnaeus, 1761)
Family: Oligoneuriidae
<i>oligoneuriella orontensis</i> Koch
<i>oligoneuriella zanga</i>
Family: heptageniidae
<i>Ecdyonurus autumnalis braasch</i>
<i>Rhithrogena anatolica earnings</i>
<i>Rhithrogena caucasica</i>
<i>iron alpestris braasch</i>
<i>iron caucasicus</i>
<i>heptagenia</i> sp.
<i>heptegenia longicauda</i> (Stephens, 1835)
Family: Ephemerellidae
<i>Ephemeralla ignita</i> (Poda, 1761)
Family: Caenidae
<i>Caenis macrura</i>
Set: PLECOPTERA
Family: nemouridae
<i>nemoura</i> sp.
Family: Taeniopterygidae
<i>taeniopteryx</i> sp .
Family: perlodidae
<i>isoperla obscura</i>
<i>perlodes</i> sp .
Family: perlidae
<i>perla marginate</i>
Set: TRICHOPTERA
Family: Rhyacophilidae
<i>rhyacophila</i> sp .
Family: psychomyidae
<i>psychomyia compass</i> Fbr.
Family: Hydroptilidae
<i>hydroptila</i> sp.
Family: Limnophilidae
<i>limnephilus</i> sp .
Family: Hydropsychidae
<i>hydropsyche</i> sp .

Family: Leptoceridae
<i>Leptocerus</i> sp.
Set: ODONATA
Family: Aeshnidae
<i>Anax imperator</i>
<i>Aeshna</i> sp.
Family: Cordulegasteridae
<i>Cordulegaster boltonii</i>
Family: calopterygidae
<i>calopteryx splendens</i>
Family: Coenagrionidae
<i>coenagrion</i> sp.
Set: DIPTERA
Family: Blephariceridae
<i>liponeura cinerascens</i>
Family: Limoniidae
<i>dicranota bimaculata</i>
<i>Eriocera</i> sp.
Family: Simuliidae
<i>Simulium</i> sp.
<i>Simulium morcitance</i>
<i>Simulium angustipes</i>
<i>prosimulium</i> sp.
Family: Empididae
<i>Wiedemannia</i> sp.
Family: Athericidae
<i>Atherix ibis</i> F.
Family: chironomidae
<i>Orthacladiinae</i> sp.
<i>Procladius (Holotanypus)</i> sp.
<i>Corynoneura</i> sp.
<i>Thienemanniella</i> sp.
Class: ARACHNIDAE
Set: Aranea
Family: arachnidae
<i>araneagen</i> sp.

Table 8 Mercan Tea I Fish Types And Protection Status

Family	Type And subspecies	English Name	endemism	BERN	IUCN	CITES	natural kind	exotic species
<i>Salmonidae</i>	Salmo Macrostigma (DUMERIL, 1858)	Brown Trout	-	-	D.D.	-	X	-
<i>Salmonidae</i>	Oncorhynchus Mykiss (WALBAUM, 1792)	Rainbow Trout	-	-	NE	-	-	X
<i>Cyprinidae</i>	Acanthobrama marmid HECKEL, 1843	Tigris Bream	-	-	LC	-	X	-
<i>Cyprinidae</i>	alburnoides bipunctatus (BLOCH, 1782)	Dotted Barbel	-	-	LC	-	X	-
<i>Cyprinidae</i>	Alburnus mossulensis HECKEL, 1843	Mosul Bleak	-	-	NE	-	X	-
<i>Cyprinidae</i>	barbus lacerta (HECKEL, 1843)	Moustached Barbel	-	-	LC	-	X	-
<i>Cyprinidae</i>	Luciobarbus mystaceus (Pallas 1814)	Lake Trout	-	-	NE	-	X	-
<i>Cyprinidae</i>	Capoeta umbla (HECKEL, 1843)	Tigris Barb	-	-	LC	-	X	-
<i>Cyprinidae</i>	Capoeta trutta (HECKEL, 1843)	Karaburun Bleak	-	-	LC	-	X	-
<i>Cyprinidae</i>	chondrostoma regime (HECKEL, 1843)	Common Goby	-	-	LC	-	X	-
<i>Cyprinidae</i>	gobio gobio HECKEL, 1843	Doctor Fish	-	-	LC	-	X	-
<i>Cyprinidae</i>	garra rufa (HECKEL, 1843)	Chub	-	-	LC	-	X	-
<i>Balitoridae</i>	Squalius cephalus (L., 1758)	Golden Spined Loach	-	-	LC	-	X	-
<i>Balitoridae</i>	Sabanejewia aurata FILLIPPI, 1865	Stone Loach	-	-	LC	-	X	-
<i>Sisoridae</i>	Paracobitis malapterura (Valenciennes 1846)	Armenian Catfish	-	-	LC	-	X	-
<i>Salmonidae</i>	Salmo Macrostigma (DUMERIL, 1858)	Brown Trout	-	-	D.D.	-	X	-

1.6 Biodiversity Risk Evaluation

1.6.1 Flora

A comprehensive list of the project, Area of Analysis (AoA), CR, EN and VU types (VU types likely to trigger Criterion 1b) has been developed based on baseline data. In this context, critical flora species have been identified around the project area, and the critical habitats determined in the project area are given in Table 2. made as a result of the studies, 12 critical species were identified in the project area and its surroundings (Table 2). Among these species, the IUCN Status of "*Iris galatica*" and "*Ornithogalum munzurensense*" is CR, and all other species are in EN Status. In this context, the habitats where these species occur have been determined as critical habitats, and information about critical habitats is given in Table 9.

Table9 IFC In the scope of Critical Type And habitat Evaluation

Critical Herb taxa	English Name	Critical habitats
<i>Iris galatica</i>	Galactic Iris	G1, H3, H5, G5, G5.6
<i>Ornithogalum if necessary</i>	Munzur Star	H3, H5
<i>Chaenorhinum huber-morathii</i>	Ozge Snapdragon	H3, H5
<i>Stachys tundjeliensis</i>	Tundjeli's Stachys	G1, G5, G5.6
<i>Colchicum if necessary</i>	Munzur Crocus	G1, H3, H5
<i>Bellevalia anatolica</i>	Anatolian Bellevalia	H3, H5
<i>Silene manissadjianii</i>	Manissadjian's Silene	G1, H3, H5
<i>Campanula yildirimlii</i>	Yildirimli's Bellflower	H3, H5
<i>Campanula quercetorum</i>	Oak Campanula	G1, G5
<i>Isatis undulata</i>	Wavy Leaf Woad	G1, G5, G5.6
<i>Hesperis breviscapa</i>	Short-Stemmed Hesperis	H3, H5
<i>Trigonosciadium intermedium</i>	Intermediate Trigonosciadium	H5

1.6.2 Invasive Species

Alien invasive species, whether by accident or intention, expand beyond their native geographic regions and become problematic. This often happens due to the globalization of the economy, which facilitates the movement of people and goods, including ship transportation, the shipment of wood products, insect-infested consignments, or the transfer of ornamental plants to new regions. The European Union (EU) has developed Regulation (EU) 1143/2014 to actively address the issue of alien invasive species.

Invasive species (IAS) can have severe ecological impacts on the environments they invade. These species often lack natural predators in their new surroundings, allowing them to proliferate and spread rapidly. They can carry diseases, outcompete or prey on native species, disrupt food chains, and even alter ecosystems, such as by changing soil composition or creating conditions that favor wildfires. These effects can lead to the extinction of native species on a local or global scale, ultimately causing ecological destruction.

Invasive species also present significant socio-economic challenges. The EU incurs annual losses of approximately EUR 12 billion due to the effects of IAS on human health, infrastructure, and agriculture.

Europe is home to over 12,000 alien species, with 15% classified as invasive. Invasive species are the third most significant threat to endangered species in Europe. A 2015 report indicated that 354 endangered species (229 animals, 124 plants, and 1 fungus) are affected by IAS, accounting for 19% of all threatened species in Europe. The EU's newly adopted Biodiversity Strategy emphasizes the importance of addressing this threat by managing established invasive species and aiming to reduce the number of Red List species they endanger by 50% by 2030.



In 2013, the European Commission (EC) proposed a law under an EU Directive on IAS, focusing on preventing the introduction of these species, providing early warning and rapid response, and ensuring effective and coordinated management. Since 2016, the International Union for Conservation of Nature (IUCN), through a series of service contracts and collaboration with the IUCN Invasive Species Specialist Group (ITSG), has been providing technical and scientific support for implementing the EU IAS Regulation.






Invasive flora species have been identified within the project's impact area (Table 10). Compliance with the Biodiversity Action Plan is required.





Energy investment areas are regions shaped by human activity. Construction activities, arising from the nature of the investment in these areas, have been rehabilitated through landscape planning around roads and buildings. The ability of some plant species used in these rehabilitations to survive and spread in the area leads to their classification as invasive species. Besides rehabilitation efforts, species carried by floods or faunistic sources may also exhibit invasive characteristics. For these reasons, to preserve the natural areas within the energy investment site, it is necessary to remove these plants and their diaspores (reproductive units) from the area.





Timing: The control of invasive plant species should be carried out before the plants go to seed. If the plant can be identified by its above-ground parts before flowering, removal should be done in the spring; if not, it should be removed immediately after flowering.






Table 10: Invasive Species Found in the Project Area





<p><i>Acer negundo</i> (ash tree leafy maple) Areas open to andropogenic influence</p>	
<p><i>agropyron repens</i> (Separate herb) Field, open area</p>	

<p><i>ailanthus altissima</i> (Kokarağaç) andropogenic to the effect open spaces</p>		
<p><i>amaranthus retroflexus</i> (Fox dry) Field, open area</p>		
<p><i>Boreava orientalis</i> (Sariot) field, roadside</p>		
<p><i>chenopodium album</i> (Sneezing) Flood, flood bearings</p>		
<p><i>Cirsium arvense</i> (Köygöçüren) Flood, flood bearings</p>		

<p><i>conyza canadensis</i> (cypress) andropogenic to the effect open fields</p>	
<p><i>conyza bonariensis</i> (Coyote) andropogenic to the effect open fields</p>	
<p><i>conyza albida</i> (maplewort) andropogenic to the effect open spaces</p>	
<p><i>Cuscuta campestris</i> (Turkish) meadow-pasture habitats</p>	

<p><i>Lepidium draba</i> (Diġnik) andropogenic to the effect open spaces</p>	
<p><i>nasturtium officinale</i> (Suteresi) streamside</p>	
<p><i>Reseda lutea</i> (Love flower) Path edge, field</p>	
<p><i>rumex acetocella</i> (Sorrel) Path edge, field And barren places</p>	

<p><i>Senecio vernalis</i> (Canary herb) Path edge And person Fields shaped by the influence</p>	
<p><i>Sicyos angulatus</i> (Itmolanbacı) Damp fields</p>	
<p><i>Solanum americanum</i> (Push grape) This edge And damp shady places</p>	
<p><i>portulaca oleracea</i> (Purslane) Field, open area</p>	
<p><i>Phytolacca americana</i> (Candymaker's paint) Stream beds and moist habitats</p>	

<p><i>Paspalum distichum</i> (This discrete) This communities inside on channels</p>		
<p><i>Robinia pseudoacacia</i> (White flowering liar acacia) roadsides</p>		
<p><i>Xanthium strumarium</i> (Big Pitarak) Flood, flood bearings</p>		
<p><i>Xanthium spinosum</i> (Yellow Pitarak) Flood, flood bearings</p>		

Viscum album (Lime herb) to the trees interference



1.6.2 Fauna

Considering the criteria of IFC PS-6 and Guidance Note 6, the "critical species" and "critical habitat" evaluations were conducted in section 3.5. It was determined that there are no critical species in terms of fauna (Amphibia, Reptile, Mammal) in the region, and consequently, no critical habitats are present.

Risk Assessment for Munzur Salamander (*Neurergus strauchii munzurensis*):

This species of salamander is water-dependent. The Mercan HEPP facility, being water-based, has the potential to affect this species. However, to determine the extent of any impact, it must first be established whether the species is actually present in the project area. During the April-May period, when the species is active in water and can be detected, the presence and abundance of the species in the project area must be assessed. It is crucial to conduct this study before the regulator area in the watercourse, between the regulator area and the section where the power plant releases water back into the stream, and after the power plant. This will help to interpret whether there is a significant decrease in the species' population in areas where the power plant diverts water into a closed channel and consequently reduces the water flow in the stream bed. Additionally, small wetlands with rich biodiversity have formed along the edge of the channel in some areas where water leaks from the closed channel carrying water from the regulator to the loading pool. The Munzur salamander should be investigated in these areas, and its positive contribution to the species' shelter should be demonstrated. After gathering this data, if the species is found to be widespread in the project area, the positive or negative effects of the facility on the species can be accurately assessed.

Risk Assessment for Tortoise (*Testudo graeca*): This species has been observed around the area, and its presence in the region has been assessed as sparse. Since it is not a water-dependent species, it has been determined that the facility does not negatively impact this species. However, raising awareness about this species and taking certain precautions to prevent harm, particularly during human-tortoise encounters, would be beneficial. These issues are detailed in the Biodiversity Action Plan.

Risk Assessment for Lynx (*Lynx lynx*): The habitat of the project area and its surroundings appears very suitable for this species. The lynx is difficult to spot because it prefers to stay away from humans and is very well camouflaged. Due to the lynx's lifestyle, it is unlikely that it would be adversely affected by the HEPP facility. However, increasing awareness about the species and taking precautions to prevent harm, particularly during human-lynx encounters, would be helpful. These issues are detailed in the Biodiversity Action Plan.

Risk Assessment for Mountain Goat (*Capra aegagrus*): The project area and its surroundings contain very suitable habitats for this species. Due to the animal's lifestyle and mobility, it is not expected to be negatively impacted by the existing facility. However, attention should be paid to the issues highlighted in the Biodiversity Action Plan, particularly concerning the risks of falling into the facility's water channels and the potential disturbance caused by facility vehicles and personnel.

Risk Assessment for the Rock Sleeper (*Dryomys laniger*): The interior of the project site does not seem suitable as a habitat for this species. In previous studies conducted to identify this species in the region, it was observed that the rock sleeper prefers rocky habitats, particularly those above 1800 meters. Even in suitable habitats around 1500 meters, no specimens of the species were captured. Although the species is generally distributed in the region, it is unlikely to be found within the project site and the immediate surroundings within a 250-meter radius for two reasons. First, the altitude range of the facility is between 1250-1600 meters, and the elevations above 1800 meters preferred by the species are not present in the project area. Second, the species' typical habitat consists of cracked rocky areas and regions with abundant fragmented stones from these rocks. Such habitats are not found in the project area, which is mostly composed of soil-based regions. Therefore, it was concluded that the species does not inhabit the area, and no action was recommended for this species.

1.6.3 Ornithology

Taking into account the criteria of IFC PS-6 and Guidance Note 6, the "critical species" and "critical habitat" evaluations were conducted in section 3.5. It was determined that there are critical species in terms of birds in the region. The critical species identified is the Lesser Vulture (*Neophron percnopterus*). Attention should be given to the actions outlined in the Biodiversity Action Plan concerning this species.

Additionally, several other soaring bird species have been detected around the facility, and there is a risk of these species colliding with transmission lines. Among these species are the Red Hawk (*Buteo rufinus*) and the Lesser Forest Eagle (*Clanga pomarina*). The facility's location at the valley floor helps reduce the risk of bird collisions with the electrical transmission lines within the facility (Hanssen et al., 2020). The facility and the regulator's reduction of water flow directly impact birds that rely on the stream and its riparian habitats. These birds include the Brook Wagtail (*Cinclus cinclus*), White Wagtail (*Motacilla alba*), and Mountain Wagtail (*Motacilla cinerea*). Therefore, it is crucial to ensure that sufficient water flow is maintained at all times in the region between the regulator and the HEPP to support these bird species. Necessary assessments should be made on this matter, and if required, measures should be taken according to the results (see Biodiversity Action Plan). Apart from this, the facility does not have a direct negative impact on bird diversity and populations.

1.6.4 Hydrobiology

The construction of the Mercan HEPP regulator dam has raised concerns, particularly regarding the adaptation of fish species living in the Mercan Stream to the newly formed stagnant water habitat. Aquatic species typically adapt to the specific living conditions in a river section, forming characteristic biocoenoses shaped by the change in abiotic factors along the stream (Vannote et al., 1980). Algae, zooplankton, and benthic organisms living in the stream environment may also lead to significant changes in the food pyramid by forming new communities within this biocoenosis. More productive stagnant water environments can become essential feeding grounds for all aquatic organisms.

Fishing activities in Mercan Stream are entirely prohibited since the area lies within national park boundaries. No economic fish species, particularly *Salmo macrostigma*, are allowed to be caught with fishing rods or other tools. Furthermore, the area is inspected by the Ministry of Forestry and Water Affairs. Despite these prohibitions and inspections, illegal fishing activities still occur in the region, carried out by local people using fishing nets and rods. In this context, attention should be given to the actions outlined in the Biodiversity Action Plan specific to the project area.

1.6.5 Environmental Risk Analysis

The project is not likely to adversely affect human health or the environment, directly or indirectly. Environmental Risk It is called. Estimating the magnitude of risk in all its activities and Deciding whether the risk can be tolerated is called **Risk Assessment**.

Environmental Risk Assessment, Appropriate methods are used to identify environmental hazards in the working environment, reveal risks and control risks through systematic methods. qualitative and/or It is a set of studies conducted using quantitative methods.

In order to determine the environmental impacts that are likely to occur in the periods determined within the scope of the environmental management and monitoring plan and to minimize the impacts of the project by collecting the relevant data and comparing the compliance of the studies carried out with the legislation;

- of the business management,
- wastes,
- air emissions,
- noisy,
- wastewater,

like effects will be monitored.

A Waste Management Plan must be prepared for the wastes generated and likely to be generated within the scope of the project, and it is necessary to continue to act in accordance with the issues specified in the waste plan and the applicable legislation at all stages of the project. Waste Management that should be implemented within the scope of the project is given in Table 11.

Table 11 Implementation Required Waste Management

STAGE	SUBJECT		PRECAUTION
BUILDING AND BUSINESS PHASE	Noisy And Vibration		During the operation phase of the project, noise generation will arise from vehicles. However, still operating owner by activity any One negative of the effect absence for the purpose of All necessary security measures must be taken and any complaints or suggestions from nearby settlements must be taken into consideration and necessary action must be taken by the activity owner.
	Weather emissions	Vehicle Welding	The vehicles used in the project area were published in the Official Gazette dated 11.03.2017 and numbered 30004. into force entering "Exhaust gas emission Control Regulation with Gasoline And Diesel quality "Regulation" to the provisions to be complied with is required.
	Waste Management	domestic Qualified Thick Wastes	Project in the scope of formed domestic qualified thick wastes smell, insect And negative to the effects It must be collected in sealed containers.
		PACKAGING waste	domestic qualified thick of waste management for 02.04.2015 history And 29314 numbered Official Newspaper' It is necessary to comply with the provisions of the "Waste Management Regulation", which was published and entered into force. Back gain possible non- organic origin domestic qualified thick wastes whereas mouth It should be collected in closed domestic waste bins and delivered to the relevant Municipality. Recyclable wastes (glass, paper/cardboard, metal, etc.) must be collected separately from other wastes, deposited in containers, and recycled by companies licensed by the Ministry of Environment, Urbanization and Climate Change. Regarding the issue dated 26.06.2021 and 31523 numbered Official Newspaper' also by publishing into force entering PACKAGING of waste The provisions of the Control Regulation must be complied with. of waste is accumulated containers continually aspect closed by keeping rodent animal And Pest prevention must be ensured.
		domestic Qualified Waste water	Business in the phase formed wastewater in the scope of 31.12.2004 History And 25687 Numbered In the Official Gazette by publishing into force entering "This pollution Control "Regulation" provisions must be complied with. Business during This pollution Control Regulation, Drinking-Use juice The provisions of the Regulation on the Protection of Basins must be complied with. of the project all in stages 23.12.1960 date and 10688 numbered Official Newspaper' also published "Law on Groundwater No. 167" and "On the Protection of Groundwater Against Pollution and Deterioration" published in the Official Gazette No. 28257 dated 07.04.2012 Regulation" to the provisions respect to be is required.

STAGE	SUBJECT		PRECAUTION
		Waste Battery And Accumulators	<p>process in the scope of formed waste battery and accumulators in the scope of, Waste Battery and In accordance with Article 13 of the Accumulator Control Regulation;</p> <p>By collecting waste batteries separately from household waste, businesses that distribute and sell battery products or by municipalities will be created collection to the points waste batteries delivery After becoming waste, the resulting cells, accumulators and/or accumulators used in transformers should not be kept on a sealed surface within the site for more than ninety days until they are delivered to the manufacturer.</p> <p>31.08.2004 history and 25569 numbered Official in the newspaper by publishing into force entering "Waste Battery It is necessary to ensure that waste is disposed of in accordance with the provisions of the "Regulation on the Control of Batteries and Accumulators".</p>
		Medical Wastes	<p>For medical waste generated within the scope of the activity; waste at the source -most member will download system establishment</p> <p>of waste separate collection, moving and temporary storage with One accident instantly Preparing and complying with an in-unit industrial waste management plan that includes the measures to be taken. Collecting medical, hazardous and domestic wastes and packaging wastes separately at the source without mixing with each other, Medical wastes with cutting-piercing waste while collecting technical features In the regulation using specified bags and containers,</p> <p>Separate collected medical and domestic qualified waste Only This work for allocation has been Vehicles with separate transported separately</p> <p>waste temporary to store for the purpose of temporary waste warehouse construction will be or</p> <p>It is required to have a container,</p> <p>Legislation to the provisions to be complied with is required.</p>
		Waste Electronic Things	<p>It is possible that electronic waste will be generated during the process. The electronic waste generated is temporary waste storage on the forehead by accumulating licensed disposal/return earnings to the company must be given. Compliance with the provisions of the Regulation on the Control of Waste Electrical and Electronic Equipment, which came into force after being published in the Official Gazette dated 22.05.2012 and numbered 28300.</p> <p>to be is required.</p>

		Waste oils	<p>Within the scope of waste oils generated at all stages of the project, the "Waste Oils Management Regulation", which came into force after being published in the Official Gazette dated 21.12.2019 and numbered 30985, and the "Waste Management Regulation", which came into force after being published in the Official Gazette dated 02.04.2015 and numbered 29314. "Regulation" to the provisions respects to be is required. Formed waste oils Temporary</p>
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STAGE	SUBJECT		PRECAUTION
			It is stored in the Waste Storage Area and collected by the Ministry of Environment, Urbanization and Climate Change. licence given by companies back gain and/or disposal ensuring is required
		Waste Vegetable Waste oils	of the project vegetable waste oil formation in case 06.06.2015 history and 29378 numbered Official It is necessary to comply with the relevant provisions of the "Regulation on the Control of Waste Vegetable Oils", which came into force after being published in the Gazette.
		of your life Completed Tires	Any One for this reason promise subject of waste welding in case your life expired tires, dated 25.11.2006 and numbered 26357 "Control of End-of-Life Tires" Regulation”) to the provisions respect to be is required.
		Dangerous Wastes	In case of fluorescent lamps used in lighting, printing toners from printers used in the administrative building, contaminated waste and other hazardous wastes at any stage of the process, they will be stored in the Temporary Waste Storage Area in accordance with waste codes. Environment urbanism And Climate change ministry by license given by companies back gain and/or disposal ensuring is required
		Oily Mud mud	of the process any One in the phase or equipment care from his work caused Oily sludges must be sent to licensed companies and disposed of.

The relevant applications within the scope of the Regulation on Amendments to the Zero Waste Regulation of the facility have been completed and it has a zero-waste certificate. Waste Management Regulation of the Facility in the scope of prepared Industrial Waste Management plan is available is, it has been determined that it has been approved by the Provincial Directorate of Environment, Urbanization and Climate Change. It has been determined that the packaging waste generated in the facility is separated on site in accordance with its codes and is regularly stored in the Temporary Waste Storage Area. The stored waste is recycled through licensed companies.

It has been determined that waste scrap materials are stored on soil ground in some areas of the facility, and care should be taken to store scrap materials on concrete floors.

Domestic wastewater generated within the scope of the project is collected in the septic tank, and it has been determined that it is disposed of by using a sewage truck service.

However, it was observed that the project was outside the scope of the Environmental Permit and License Regulation. However, it has been determined that no application has been made under the Environmental Permit and License Regulation. Applications must be made urgently for the facility in question within the scope of the Environmental Permit and License Regulation.

1.7 Biodiversity Action plan

Mercan regulator And hes facility biodiversity Action plan							
Action Code	Habitat Class	Action Subject	Action Zone	Action Rationale	Action/Application Details	Action Period	Action Duration
M1	Critical Habitats	Critical Habitat Protection	Critical Habitats (G1, H3, H5, G5, G5.6)	Project Effect Area It should be protected because it contains habitats that have not lost their naturalness and contain critical flora species.	Tree segments of Prevention, Not Throwing Waste or Residual Materials, Not Lighting Fires, Preventing Dust Emission from Vehicles and Raising Awareness with Warning Signs Your studies to be done	During Operation	During Operation
M2	Critical Habitats	Critical Conservation of Plant Species	(G1, H3, H5, G5, G5.6)	Endangered Flora types Research should be conducted in the Project Area and its surroundings	Species/Population by Expert Biologists Level Monitoring	During Operation	Between March and November Each Moon 3 Days, Total 27 Days 5 Years Population Views And Mapping
M3	All Habitats	Critical Conservation of Fauna Species	General Area	Endangered Fauna types Research Particularly Little Vulture (<i>Neophron Percnopterus</i>) Type in Project Area and Surroundings It should be investigated	Species/Population by Expert Biologists Level Monitoring	During Operation	2 Year Duration: March-November Between

M4	All Habitats	Critical Conservation of Fauna Species	General Area	Munzur Salamander (<i>Neurergus Strauchii Munzurensis</i>) The Project Area and Its Surroundings Should Be Investigated	Species/Population by Expert Biologists Level Monitoring	During Operation	April-May 2023 per year one Times
M5	Business	Critical Fauna	Project Area	Munzur salamander	subject professional	Business	2024 Year

Mercan regulator And hes facility biodiversity Action plan							
Action Code	Habitat Class	Action Subject	Action Zone	Action Rationale	Action/Application Details	Action Period	Action Duration
		Conservation of Species	And surroundings	(<i>Neurergus Strauchii Munzurensis</i>) Type About Facility To its employees Training Should Be Given	biologists Training Should Be Provided by	During	April-May per year one Times
M6	Business	Fauna Conservation of Species	Project Area And surroundings	Facility Employees Should Be Provided Training About the Tortoise (<i>Testudo Graeca</i>) Species. Pay Attention to Certain Points of the Project Area Tortoise may come out signs It must be placed.	Biologists who are experts on the subject Training Should Be Provided by	During Operation	April-May 2024 one Times
M7	Business	Fauna Conservation of Species	Project Area And surroundings	In order to prevent tortoises and other animals from being crushed by vehicles while crossing the roads, vehicle speeds should be limited to 30 km/h within the facility. With Limitation, Transition your priority Each Time to Give to Animals It is necessary.	Company By	During Operation	Continually

M8	Business	Fauna Conservation of Species	Project Area And surroundin gs	<p>Tortoise (<i>Testudo Graeca</i>), Mountain goat (<i>Capra Aegagrus</i>) and Lynx <i>Lynx</i> in the Field 4 points along the canal in order not to cause a barrier effect of the canals on the mobility and mobility of other animals. More Animal Must be paraded</p>	In the Coordination of Biologists Expert on the Subject By Company	During Operatio n	2023 May- August
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Mercan regulator And hes facility biodiversity Action plan							
Action Code	Habitat Class	Action Subject	Action Zone	Action Rationale	Action/Application Details	Action Period	Action Duration
M9	Business	Fauna Conservation of Species	Project Area And surroundings	In and Around the Field All razor blade And Barbed Wires Should Be Removed. These Wires May Injure Animals Trying to Enter and Exit the Field. Fences to be used in and around the field must be in the form of cage wire and must be of a structure that will not cause injury to animals. to be It is required	Company By	During Operation	Continually

Mercan regulator And hes facility biodiversity Action plan							
Action Code	Habitat Class	Action Subject	Action Zone	Action Rationale	Action/Application Details	Action Period	Action Duration
M10	Business	Fauna Conservation of Species	Project Area And surroundings	<p>Pet Cats Should Never Be Kept in the Facility. It is recommended not to have pet dogs, but even if they are kept, they should not be allowed to roam freely, especially at night.</p> <p>Otherwise, These Species And surrounding They Can Cause Serious Damage to Wild Animals. Instructions for keeping a pet should be prepared in facilities where pet dogs are kept, these pets should be chipped, the number of pets, the conditions under which they are kept in the facility, the purpose for which they are used, annual veterinary examination. Peak Who is Responsible for Reports and Maintenance?</p> <p>It must be reported.</p>	Company By	During Operation	Continually
M11	All Habitats	Invader Blocking Species	Project Area And surroundings	<p>Investigation of Invasive Species Found in the Project Area and Surroundings</p> <p>Project Area And Around by watching dismantling of your plan Must be prepared</p>	Species/Population by Expert Biologists Level Monitoring	During Operation	one Year Duration in July and August

Mercan regulator And hes facility biodiversity Action plan							
Action Code	Habitat Class	Action Subject	Action Zone	Action Rationale	Action/Application Details	Action Period	Action Duration
M12	Business	Fish Conservation of Species	Project Area	Some Fish Species Have Long Distance and Some Have Short Distance Migration They are the species that can . Particularly Gene Diversity of Fish It is important to make a fish passage to prevent it from narrowing.	In the Coordination of Biologists Expert on the Subject By Company	During Operation	2023 May-August
M13	Business	Prevention of Environmental Pollution	Project Area	Licensed in accordance with the Waste Codes for Hazardous Wastes Generated within the Business Companies Delivery to Recycling/Disposal Facilities by It should be done.	Company By	During Operation	6 on the moon one
M14	Business	Prevention of Environmental Pollution	Project Area	Licensed in accordance with the Waste Codes for Non-Hazardous Wastes Generated within the Business Companies Delivery to Recycling/Disposal Facilities by It should be done.	Company By	During Operation	per year one
M15	Business	Prevention of Environmental Pollution	Project Area	domestic wastewater Towing with a Sewage Truck	Company by	During Operation	septic tank 80% When You Reach Your Level

M16	Business	Regulatory Compliance	Project Area	Obtaining Environmental Permit Exemption It is necessary.	Company by	During Operation	2022 December
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PROJECT TEAM

Name- Surname/Title	In Report/Study Department He is Assigned to	Sign ature
<i>Specialist Biologist Tariq BATUHAN</i>	Project And Report Coordination Ecological Assessment	
<i>Prof. Dr. Mustafa SÖZEN</i>	Fauna Evaluation	
<i>Prof. Dr. Tahir SHOOTER</i>	hydrobiological Evaluation	
<i>Dr. Lecturer Member of Karim SOUTH</i>	Flora And Vegetation Evaluation	
<i>Kaan ÖZGENCİL</i>	Ornithological Evaluation And GIS Studies	
<i>Biologist Mehmet Ali YUKSEL</i>	Ecological Studies And Land Coordination	
<i>Experienced Bird Observer Ayhan BATUHAN</i>	Bird observation	