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SEASONAL REPORT

Subject:

ASSESSMENT STUDY FOR VULNERABLE TAXONOMIC GROUPS OF FAUNA (BIRDS AND BATS) ALONG THE 400 KV OVERHEAD TRANSMISSION LINE: SS BITOLA 2 – MACEDONIAN/ALBANIAN BORDER AND SS OHRID

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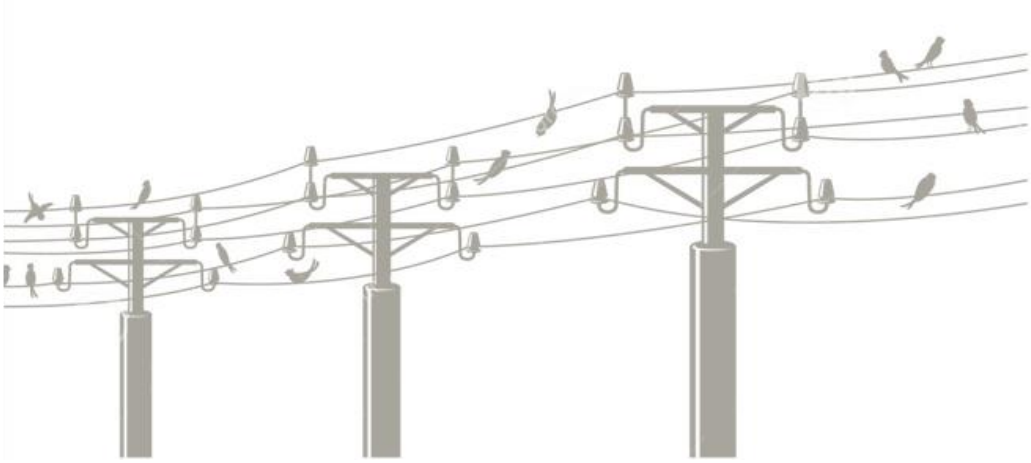
Assessment Study for Vulnerable Taxonomic Groups of Fauna (Birds and Bats) along the 400 kV Overhead Transmission Line: SS Bitola 2 – Macedonian/Albanian border and SS Ohrid

Autumn Season Report (2016)



Skopje, 2017

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Abreviations:

MOePP- Ministry for Environment and Spatial Planning

EU – Europian Union

CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora

AEWA – African-Eurasian Waterbird Agreement

SPA – Special Protection Area

IPA -Important Bird area

SAC – Special Area for Conservation

MES-Macedonian Ecological Society

EBRD- European Bank for Reconstruction and Development

PR - Performance Requirement

ESP- Environmental and Social Policy

ESAP- Environmental and Social Action Plan

ESIA- Environmental and Social Impact Assessment

MEPSO- The Joint Stock Company for Electricity Transmission and Power System Control

CEIM- Civil Engineering Institute Macedonia

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Cover Page Photos: Bitola 2 Generating Step-Up Transformer (back photo); Nesting birds with young: White Stork (Ciconia ciconia) in the village of Kriveni (Resen Municipality); Mixed colony of Greater Mouse-eared Bat (Myotis myotis) and Schreibers' Bat (Miniopterus schreibersii) in the Jaorec Cave, near the village of Velmej (Debarca Municipality).

Ref. Civil Engineering Institute Macedonia (CEIM), Skopje, Macedonia Contract 0902-458/1 with MEPSO Skopje, Macedonia Contract No. 02-1104/2 . Project "Construction of Interconnection 400 kV Transmission Line, SS Bitola 2 – Macedonian/Albanian border and SS Ohrid''

1. ASSESSMENT AND EVALUATION OF BIRDS AND BATS AUTUMN SEASON REPORT (2016)

1.1 Assessment and Evaluation of Birds (Autumn Season Report-2016)

1.1.1. Results

The Autumn Season Monitoring of Birds has been conducted on four occasions, in the period:

- September 17-18, 2016;
- October 22-23, 2016;
- November 18-20, 2016 and
- December 03-04, 2016.

Following the already ascertained methodology on assessment and evaluation of birds during the Summer Season Surveys, the monitoring of birds during the Autumn Season was conducted within the same five sections of the Overhead Transmission Line Corridor.

Section 1: Pelagonia Plain

The Overhead Transmission Line corridor of this section extends from the Bitola 2 Generating Step-Up Transformer in the East to the village of Krklino in the West, with total length of 14 km. Monitoring of birds on this section was conducted along single line transect that runs in East-West direction, located between the villages of Trn and Krklino, with total length of 7,000 m.

During the Autumn Season Monitoring of birds along the Corridor within Section 1 (Pelagonia Plain) presence of 18 bird species has been recorded, seven of which (printed in red) were recorded for the first time within the frames of this project (see Table 1).

Table 1. Birds recorded along the Overhead Transmission Line Corridor that extends across Section 1 (Pelagonia Plain) during the Autumn Season Monitoring (2016).

	Taxonomic Group/Species	English Common Name	Macedonian Common Name
Order Pelecaniformes			
Family Pelecanidae (Pelicans); (Pelikani)			
1.	*Pelecanus crispus*	Dalmatian Pelican	Dalmatinski (Kadroglav) Pelikan
Order Ciconiiformes			
Family Ardeidae (Herons, Egrets, Bitterns); (Chapji)			
2.	*Ardea cinerea*	Grey Heron	Siva Chapja
3.	*Egretta garzetta*	Little Egret	Mala Bela Chapja
4.	*Casmerodius albus*	Great White Egret	Golema Bela Chapja
Order Anseriformes			
Family Anatidae (Swans, Geese, Ducks); (Lebedi, Guski, Shatki)			
5.	*Anas platyrhynchos*	Mallard	Diva Shatka

Order Accipitriformes			
Family Accipitridae (Hawks, Eagles, Vultures); (Orli, Eji, Lunji, Jastrebi)			
6.	*Circus cyaneus*	Hen Harrier	Polska Eja
7.	*Accipiter gentilis*	Goshawk	Jastreb Kokoshkar
8.	*Buteo buteo*	Common Buzzard	Obichen Jastreb Gluvchar
9.	*Aquila heliaca*	Imperial Eagle	Carski (Krstat) Orel
Order Falconiformes			
Family Falconidae (Falcons); (Sokoli)			
10.	*Falco tinnunculus*	Kestrel	Obichna Vetrushka
Order Galliformes			
Family Phasianidae (Partridges, Quails, Pheasants); (Erebici, Potpoloshki, Fazani))			
11.	*Perdix perdix*	Common Partridge	Polska Erebica
Order Charadriiformes			
Family Charadriidae (Plovers); (Dozhdosvirci)			
12.	*Vanellus vanellus*	Lapwing	Kalugjerka
Order Columbiformes			
Family Columbidae (Pigeons); (Gulabi, Grlici i Gugutki)			
13.	*Columba palumbus*	Wood Pigeon	Gulab Grivnesh
Order Piciformes			
Family Picidae (Wrynecks, Woodpeckers); (Vrtivratki, Klukajdrvci)			
14.	*Picus viridis*	Green Woodpecker	Zelen Klukajdrvec
Order Passeriformes			
Family Turdidae (Thrushes, chats, Wheatears and Robins); (Drozdovi)			
15.	*Turdus philomelos*	Song Thrush	Drozd Pejach
Family Certhiidae (Treecreepers); (Drvolazachki)			
16.	*Certhia familiaris*	Eurasian Treecreeper	Gorska Drvolazachka
Family Sittidae (Nuthatches); (Lazachki)			
17.	*Sitta neumayer*	Rock Nuthatch	Lazachka Kamenjarka
Family Sturnidae (Starlings); (Skolovranci)			
18.	*Sturnus vulgaris*	Common Starling	Obichen Skolovranec

*Species printed in Red Letters: Bird Species that have not been recorded during the Summer Season Monitoring.

Of the Birds of Prey (Accipitriformes and Falconiformes) that are highly sensitive to power lines, the Imperial Eagle (*Aquila heliaca*) has been recorded by only one young individual on passage. The Goshawk (*Accipiter gentilis*) has been also recorded but with low frequency, whiles the Hen Harrier (*Circus cyaneus*), the Kestrel (*Falco tinnunculus*) and especially the Common Buzzard (*Buteo buteo*) were with high frequency and population density.

The Common Starling (*Sturnus vulgaris*) has been recorded on several locations crowded in large flocks, each flock being consisted of several thousand individuals. Nevertheless the starlings were attacked by birds of prey in close neighborhood of existing power transmission lines no casualties as a result of collisions was detected.

Large flocks of Wood Pigeon (*Columba palumbus*) each consisted of several hundred individuals were also recorded. This species is also highly sensitive to power transmission lines with high risk of casualties as a result of both electrocution and collision.

Small flocks of Mallard (*Anas platyrhynchos*) consisted of about 30 individuals have been recorded on passage from North to the South, in direction to the Zhabeni and Bukri Fishponds that

are occasionally used as feeding sites located outside the Project Area. The Mallard is especially sensitive to power transmission lines with high risk of casualties as a result of collision.

On two occasions, small flocks of Dalmatian Pelican (*Pelecanus crispus*) consisted of 3-5 individuals were recorded on a daily passage between the fishponds in Northern and Southern Pelagonia and the lakes in Northern Greece. The Pelicans are also highly sensitive to power transmission lines with high risk of casualties as a result of both electrocution and collision.

The other bird species that have been recorded during the Autumn Season Monitoring were represented mainly by single birds that are not faced with high risk of casualties as a result of collisions caused by the construction of the Overhead Power Transmission Line.

Sections 2, 3 and 4: Mountainous area between Pelagonia Plain and Strushko Pole Plain

Section 2 extends across mountainous area between the village of Krklino and the Mountain Pass Gjavato. Section 3 extends from the Mountain Pass Gjavato to the village of Leva Reka running across mountainous area north of the Prespa Valley. Section 4 starts north of the village of Leva Reka thence runs westward in direction to the villages of Kuratica-Livoishta and Trebenishta. Monitoring of birds along the Overhead Transmission Line corridor of these sections was conducted using "Point Count Method" at points on previously selected locations.

During the Autumn Season Monitoring of birds along the Overhead Transmission Line Corridor within Sections 2, 3 and 4 (Mountainous area) presence of 25 species of birds has been recorded, 16 of which (printed in red) are for the first time recorded within the frames of this project (see Table 2).

Table 2. Birds recorded along the Overhead Transmission Line Corridor that extends across Sections 2, 3 and 4 (Mountainous Area) during the Autumn Season Monitoring (2016).

	Taxonomic Group/Species	English Common Name	Macedonian Common Name
Order Pelecaniformes			
Family Phalacrocoracidae (Cormorants); (Kormorani)			
1.	*Phalacrocorax pygmaeus*	Pygmy Cormorant	Mal Kormoran
Order Ciconiiformes			
Family Ardeidae (Herons, Egrets, Bitterns); (Chapji)			
2.	*Ardea cinerea*	Grey Heron	Siva Chapja
3.	*Egretta garzetta*	Little Egret	Mala Bela Chapja
Order Anseriformes			
Family Anatidae (Swans, Geese, Ducks); (Lebedi, Guski, Shatki)			
4.	*Anas platyrhynchos*	Mallard	Diva Shatka
5.	*Aythya ferina*	Pochard	Kafeavoglava Potopnica
Order Accipitriformes			
Family Accipitridae (Hawks, Eagles, Vultures); (Orli, Eji, Lunji, Jastrebi)			
6.	*Buteo buteo*	Common Buzzard	Obichen Jastreb Gluvchar

7.	*Aquila chrysaetos*	Golden Eagle	Skalest (Zlaten) Orel
Order Falconiformes			
Family Falconidae (Falcons); (Sokoli)			
8.	*Falco tinnunculus*	Kestrel	Obichna Vetrushka
Order Galliformes			
Family Tetraonidae (Grouse); (Tetrebi)			
9.	*Bonasa bonasia*	Hazelhen	Leshtarka
Family Phasianidae (Partridges, Quails, Pheasants); (Erebici, Potpoloshki, Fazani))			
10.	*Alectoris graeca*	Rock Partridge	Erebica Kamenjarka
Order Charadriiformes			
Family Scolopacidae (Typical Waders), (Vistinski Mochvarki)			
11.	*Scolopax rusticola*	Woodcock	Shumska Shljuka
Family Laridae (Gulls); (Galebi)			
12.	*Larus cachinnans*	Yellow-legged Gull	Zholtonog Galeb
Order Columbiformes			
Family Columbidae (Pigeons); (Gulabi, Grlici i Gugutki)			
13.	*Columba livia*	Rock Dove	Div Gulab
14.	*Columba palumbus*	Wood Pigeon	Gulab Grivnesh
Order Strigiformes			
Family Strigidae (Typical Owls); (Utki Vistinski)			
15.	*Asio otus*	Long-eared Owl	Shumska Ushesta Utka
16.	*Strix aluco*	Tawny Owl	Shumska Bezushesta Utka
17.	*Bubo bubo*	Eagle Owl	Buf
Order Piciformes			
Family Picidae (Wrynecks, Woodpeckers); (Vrtivratki, Klukajdrvci)			
18.	*Dryocopus martius*	Black Woodpecker	Crn Klukajdrvec
Order Passeriformes			
Family Turdidae (Thrushes, chats, Wheatears and Robins); (Drozdovi)			
19.	*Turdus philomelos*	Song Thrush	Drozd Pejach
20.	*Monticola solitarius*	Blue Rock Thrush	Sin Skalest Drozd
Family Paridae (Tits); (Sipki Vistinski)			
21.	*Parus cristatus*	Crested Tit	Cuculesta Sipka
22.	*Parus ater*	Coal Tit	Elova sipka
Family Corvidae (Jays, Magpies, Crows); (Cavki, Vrani, Strachki, Gavrani, Galki)			
23.	*Corvus corone cornix*	Carrion/Hooded Crow	Siva Vrana
24.	*Nucifraga caryocatactes*	Spotted Nutcracker	Leshnikarka
Family Sturnidae (Starlings); (Skolovranci)			
25.	*Sturnus vulgaris*	Common Starling	Obichen Skolovranec

*Species printed in Red Letters: Bird Species that have not been recorded during the Summer Season Monitoring.

Like in the Summer Season, during the Autumn Season Monitoring of birds along the Overhead Transmission Line Corridor within Sections 2, 3 and 4 presence of large flocks of birds was not ascertained, except in the case of the Ohrid Solid Waste Dump Site where flocks of more than 30 individuals of the species Yellow-legged Gull (*Larus cachinnans*) and Carrion/Hooded Crow (*Corvus corone cornix*) was recorded.

The Birds of Prey, the three species of Owls, the Woodcock, the Hazelhen, the Black Woodpecker and the Rock Partridge were recorded in the Sections 3 and 4, while the Spotted Nutcracker, the Crested Tit, the Coal Tit and the Song Thrush were recorded in Section 2. The waterfowl species were recorded in Section 4, on the Pool located between the villages of Livoishta and Trebenishta.

Notwithstanding the fact that during the Autumn Season Monitoring of birds along the Overhead Transmission Line Corridor within Sections 2, 3 and 4 presence of relatively large number of bird species has been recorded, presence of any migratory birds was not ascertained. Consequently, this mountainous area is not included in any significant bird flyway.

In fact, the planned 400 kV Above-ground Electricity Transmission Line Corridor across the Sections 2, 3 and 4 follows the current 110 kV Transmission Line Bitola-Resen-Ohrid-Struga, and the local populations of birds are adapted to the presence of power lines.

Section 5: Strushko Pole Plain

The Overhead Transmission Line corridor of this section extends from the village of Trebenishta in the East passing near the villages of Volino, Moroishta, Dolna Belitsa, Vishni and Zagrachani to the locality Kjafa San on the State Border with Albania in the West. Monitoring of birds within the Strushko Pole Plain Section was conducted along two line transects located between the villages of Volino and Moroishta (the first one); and between the villages of Zagrachani and Radolishta (the second one). Each of the line transects is with length of 5,000 m.

During the Autumn Season Monitoring of birds along the Overhead Transmission Line Corridor within Section 5 (Strushko Pole Plain) presence of 22 bird species has been recorded, 13 of which (printed in red) for the first time within the frames of this project (see Table 3).

Table 3. Birds recorded along the Overhead Transmission Line Corridor that extends across Section 5 (Strushko Pole Plain) during Autumn Season Monitoring (2016).

	Taxonomic Group/Species	English Common Name	Macedonian Common Name
Order Podicipediformes			
Family Podicipedidae (Grebes); (Nurkachi)			
1.	*Tachybaptus ruficollis*	Dabchick	Mal Nurkach
2.	*Podiceps nigricollis*	Black-necked Grebe	Crnovrat Nurkach
Order Pelecaniformes			
Family Phalacrocoracidae (Cormorants); (Kormorani)			
3.	*Phalacrocorax carbo*	Great Cormorant	Golem Kormoran
4.	*Phalacrocorax pygmaeus*	Pygmy Cormorant	Mal Kormoran
Order Ciconiiformes			
Family Ardeidae (Herons, Egrets, Bitterns); (Chapji)			
5.	*Ardea cinerea*	Grey Heron	Siva Chapja
6.	*Egretta garzetta*	Little Egret	Mala Bela Chapja
7.	*Casmerodius albus*	Great White Egret	Golema Bela Chapja
Order Anseriformes			
Family Anatidae (Swans, Geese, Ducks); (Lebedi, Guski, Shatki)			
8.	*Anas platyrhynchos*	Mallard	Diva Shatka
9.	*Aythya ferina*	Pochard	Kafeavoglava Potopnica
10.	*Netta rufina*	Red-crested Pochard	Crvenokluna Potopnica; Prevez
Order Accipitriformes			
Family Accipitridae (Hawks, Eagles, Vultures); (Orli, Eji, Lunji, Jastrebi)			
11.	*Buteo buteo*	Common Buzzard	Obichen Jastreb Gluvchar

12.	*Aquila chrysaetos*	Golden Eagle	Skalest (Zlaten) Orel
Order Falconiformes			
Family Falconidae (Falcons); (Sokoli)			
13.	*Falco tinnunculus*	Kestrel	Obichna Vetrushka
Order Galliformes			
Family Phasianidae (Partridges, Quails, Pheasants); (Erebici, Potpoloshki, Fazani))			
14.	*Alectoris graeca*	Rock Partridge	Erebica Kamenjarka
15.	*Perdix perdix*	Common Partridge	Polska Erebica
Order Gruiformes			
Family Rallidae (Rails); (Blatni Kokoshki)			
16.	*Fulica atra*	Common Coot	Liska
Order Charadriiformes			
Family Charadriidae (Plovers); (Dozhdosvirci)			
17.	*Vanellus vanellus*	Lapwing	Kalugjerka
Family Laridae (Gulls); (Galebi)			
18.	*Larus cachinnans*	Yellow-legged Gull	Zholtonog Galeb
19.	*Larus ridibundus*	Black-headed Gull	Ezerski Galeb
Order Columbiformes			
Family Columbidae (Pigeons); (Gulabi, Grlici i Gugutki)			
20.	*Columba livia*	Rock Dove	Div Gulab
21.	*Columba palumbus*	Wood Pigeon	Gulab Grivnesh
Order Passeriformes			
Family Sylvidae (Warblers); (Grmusharki)			
22.	*Acrocephalus arundinaceus*	Great Reed Warbler	Golemo Trskarche

Species printed in Red Letters: Bird Species that have not been recorded during the Summer Season Monitoring.

On first sight the Strushko Pole Plain seems like favorable habitat for birds. However, because of the high population density across the whole Plain as well as intensive agricultural activities, the number of recorded species as well as their frequency and population density is quite low.

During the Autumn Season Monitoring of birds along the Overhead Transmission Line Corridor within Section 5 (Strushko Pole Plain) presence of large flocks of migratory birds were not recorded. Only at two occasions flocks consisted of 40-60 birds of the Great Cormorant (*Phalacrocorax carbo*) were recorded flying at heights of more than 40 m. Both species, the Rock Dove (*Columba livia*) and the Wood Pigeon (*Columba palumbus*) have been recorded with extremely low population density.

The Common Coot (*Fulica atra*) which is particularly sensitive to power lines with high risk for casualties as a result of collisions, especially because they fly through the night. However, since the local population of Common Coot within the Project Area is mainly consisted of resident birds that are not migrating, the negative impact of the power line will be significantly reduced.

The other recorded waterfowl species were with low population density, without recorded flocks on migration passage. The Birds of Prey listed in Table 3, were mainly recorded on the South-eastern slopes of Jablanitsa Mountain, between the villages of Vishni and Frangovo.

1.1.2. Evaluation of Birds

On the basis of the Summer Season Surveillance and Monitoring of birds along the transmission line corridor, 19 species have been selected (printed in black letters), while during the Autumn Season Monitoring 10 bird species have been added to the list (printed in red letters), as focal species for environmental assessments where they are at risk as they are considered to be particularly sensitive, or potentially so, to power lines (electrocution or/and collision). Trigger species of the Important Bird Areas Pelagonia (MK024), Lake Prespa Lake (MK006) and Ohrid Lake (MK005) were also taken into consideration, as well as their legal protection and conservation status (see Table 4).

Table 4. Birds recorded along Transmission Line Corridor during Summer (printed in black letters) and Autumn Season (printed in red letters) Surveys (2016) that are under Legal Protection, Threatened Species, Trigger Species, Migratory Species and Species at high risk of electrocution and collision.

	Taxonomic Group/Species	English Common Name	Range Status	Directive 2009/147/EC	Bern Convention	Bonn Convention	IUCN Red List
Order Pelecaniformes							
Family Phalacrocoracidae (Cormorants); (Kormorani)							
1.	*Phalacrocorax carbo*	Great Cormorant	R	-	III	-	LC
2.	*Phalacrocorax pygmaeus*	Pygmy Cormorant	B	I	II	II	LC
Family Pelecanidae (Pelicans); (Pelikani)							
3.	*Pelecanus crispus*	Dalmatian Pelican	R	I	II	I	VU
Order Ciconiiformes							
Family Ardeidae (Herons, Egrets, Bitterns); (Chapji)							
4.	*Ardea cinerea*	Grey Heron	B	-	III	-	LC
5.	*Casmerodius albus*	Great White Egret	W	I	II	II	LC
Family Ciconiidae (Storks); (Shtrkovi)							
6.	*Ciconia ciconia*	White Stork	B	I	II	II	LC
7.	*Ciconia nigra*	Black Stork	B	I	II	II	LC
Order Anseriformes							
Family Anatidae (Swans, Geese, Ducks); (Lebedi, Guski, Shatki)							
8.	*Anas platyrhynchos*	Mallard	R	IIA	III	II	LC
9.	*Aythya ferina*	Pochard	P (W)	IIA	III	II	VU
10.	*Netta rufina*	Red-crested Pochard	W	IIB	III	II	LC
Order Accipitriformes							
Family Accipitridae (Hawks, Eagles, Vultures); (Orli, Eji, Lunji, Jastrebi)							
11.	*Pernis apivorus*	Honey Buzzard	W (B)	I	II	-	LC
12.	*Circaetus gallicus*	Short-toed Eagle	B	I	II	-	LC
13.	*Circus aeruginosus*	Marsh Harrier	B	I	II	-	LC
14.	*Circus cyaneus*	Hen Harrier	P	I	II	-	NT
15.	*Buteo buteo*	Common Buzzard	R	-	II	-	LC
16.	*Buteo rufinus*	Long-legged Buzzard	R	I	II	-	LC
17.	*Aquila heliaca*	Imperial Eagle	B	I	II	I	LC
18.	*Aquila chrysaetos*	Golden Eagle	R	I	II	-	LC
Order Falconiformes							
Family Falconidae (Falcons); (Sokoli)							
19.	*Falco naumanni*	Lesser Kestrel	B	I	II	I	LC
20.	*Falco tinnunculus*	Kestrel	R	-	II	-	LC
21.	*Falco vespertinus*	Red-footed Falcon	P	I	II	I	NT

22.	*Falco peregrinus*	Peregrine Falkon	R	I	II	-	LC
Order Galliformes							
Family Phasianidae (Partridges, Quails, Pheasants); (Erebici, Potpoloshki, Fazani)							
23.	*Alectoris graeca*	Rock Partridge	R	I/IIA	III	-	NT
Order Gruiformes							
Family Rallidae (Rails); (Blatni Kokoshki)							
24.	*Fulica atra*	Common Coot	R	II	-	II	NT
Order Charadriiformes							
Family Charadriidae (Plovers); (Dozhdosvirci)							
25.	*Vanellus vanellus*	Lapwing	R (P)	IIB	III	II	VU
Order Columbiformes							
Family Columbidae (Pigeons); (Gulabi, Grlici i Gugutki)							
26.	*Columba livia*	Rock Dove	R	II	-	-	LC
27.	*Columba palumbus*	Wood Pigeon	R	II	-	-	LC
28.	*Streptopelia turtur*	Turtle Dove	B	IIB	III	II	VU
Order Strigiformes							
Family Strigidae (Typical Owls); (Utki Vistinski)							
29.	*Bubo bubo*	Eagle Owl	R	I	II	-	LC

R = Resident Species (species likely to occur all year round); B = Breeding Species (species occurs only during spring-summer season); W = Wintering Species (species normally occurs only in winter season); P = Passage Migrant Species (bird species that occurs on passage between breeding and wintering areas).

Evaluation on composition of the 10 added bird species as a result of the Autumn Season Monitoring shows that five species are resident, two breeding, two wintering and one passage migrant. During the Winter Season, it is expecting the number of passage and wintering species to be increased.

Regarding Birds' Legal Protection, Directive 2009/147/EC on the conservation of wild birds provides Legal Protection for four species of birds in need of special habitat protection as listed on Annex I: Pygmy Cormorant (*Phalacrocorax pygmaeus*), Great White Egret (*Casmerodius albus*), Rock Partridge (*Alectoris graeca*) and Eagle Owl (*Bubo bubo*) (see Table 4).

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) imposes Strict Legal Protection (under Appendix II: Strictly Protected Fauna Species) for three already protected species by the Wild Birds Directive: Pygmy Cormorant (*Phalacrocorax pygmaeus*), Great White Egret (*Casmerodius albus*) and Eagle Owl (*Bubo bubo*) (see Table 4).

None of the newly 10 selected bird species added to the list as a result of the Autumn Season Survey is included in Appendix I (Endangered Migratory Species) of the Convention on the Conservation of Migratory Species of Wild Animals, Bonn Convention (UNEP/CMS). However, six species are included in Appendix II that lists migratory species which have an unfavourable conservation status and which require international agreements for their conservation and management: Pygmy Cormorant (*Phalacrocorax pygmaeus*), Great White Egret (*Casmerodius albus*), Mallard (*Anas platyrhynchos*), Pochard (*Aythya ferina*), Red-crested Pochard (*Netta rufina*) and Lapwing (*Vanellus vanellus*) (see Table 4).

Regarding their Conservation Status the IUCN Red List of Threatened Species on European Level lists two threatened species, both in the Category VU (Vulnerable): Pochard (*Aythya ferina*) and Lapwing (*Vanellus vanellus*) (see Table 4).

During the Autumn Season Monitoring of birds, presence of two additional IBA Trigger Species has been recorded: Pygmy Cormorant (*Phalacrocorax pygmaeus*) a Trigger IBA Species for the IBA Site Lake Prespa MK006; Pygmy Cormorant (*Phalacrocorax pygmaeus*) and Pochard (*Aythya ferina*) a Trigger IBA Species for the IBA Site Lake Ohrid MK005 (see Table 4).

In accordance with Recommendation No. 110 (2004) of the Bern Convention on minimising adverse effect of above-ground electricity transmission facilities (power lines) on birds, all 10 selected species, added to the list of Table 4 (printed in red letters) tend to be focal species for environmental assessments where they are considered to be particularly sensitive, or potentially so, to power lines.

Both species of Cormorants (Phalacrocoracidae): the Great Cormorant (*Phalacrocorax carbo*) and Pygmy Cormorant (*Phalacrocorax pygmaeus*) are sensitive to power lines, with low risk for casualties as a result of electrocution (Category I) and high risk for casualties as a result of collision (Categories II).

The Herons and Egrets (Ardeidae) in general, including the recorded species: Grey Heron (*Ardea cinerea*) and Great White Egret (*Casmerodius albus*) are also with low risk for casualties as a result of electrocution (Category I) and high risk for casualties as a result of collision (Categories II).

The Plovers (Charadriidae) including the recorded species Northern Lapwing (*Vanellus vanellus*) are with low risk for casualties as a result of electrocution (Category I) and high risk for casualties as a result of collision (Categories II).

The Swans, Geese and Ducks (Anatidae) and especially the recorded species: Mallard (*Anas platyrhynchos*), Pochard (*Aythya ferina*) and Red-crested Pochard (*Netta rufina*) have no casualties reported or likely as a result of electrocution (Category 0) but appears to have high risk for casualties as a result of collision (Categories II).

The Partridges, Quails and Pheasants (Phasianidae) including the recorded species Rock Partridge (*Alectoris graeca*) with no casualties reported or likely as a result of electrocution (Category 0), but with high local casualties as a result of collision (Category II) and collisions could be a major mortality factor; threatening a species with extinction (Category III).

The Owls (Strigidae) and especially the recorded species Eagle Owl (*Bubo bubo*) is extremely sensitive to power lines, with high risk of casualties as a result of electrocution (Categories I-II), and

also with high risk of casualties as a result of collision (Categories II-III) with significant impact on the overall population, threatening the species with extinction.

1.1.3. Discussion and Conclusions

Within the Summer Season presence of 92 bird species has been recorded, while during the Autumn Season Monitoring along the total length of the Overhead Transmission Line Corridor, 25 additional species of birds have been recorded, 19 of which are resident (R), three breeding (B), two passage (P) and one wintering species (W) (see Annex 1, printed in red letters). The passerine birds that belong to order Passeriformes are dominant, represented by six species, followed by the order Charadriiformes (Plovers, Waders, Gulls) represented by four species, the orders Strigiformes (Owls) and Anseriformes (Geese and Ducks) each represented by three species, thence each of the orders: Galliformes (Grouse and Partridges), Ciconiiformes (Storks, Herons, Egrets and Bitterns), Pelecaniformes (Pelicans and Cormorants), Podicipediformes (Grebes) represented by two species and the order Piciformes (Woodpeckers) represented by one species (see Annex 3, printed in red letters).

The preliminary results of summer surveys lead to an initial conclusion that no critical habitats as defined by EBRD ESP PR6 have been ascertained within the Project Corridor. However, it appears that the Project Corridor transects an internationally recognised Important Bird Area (IBA), the Pelagonian IBA, for which the Lesser Kestrel is listed as the key species of interest in this area. This IBA constitutes a Priority Biodiversity Feature, as defined by EBRD ESP PR6, and potentially significant impacts on the Lesser Kestrel. So far, the bird survey shows only a few observations of the Lesser Kestrel. However, following the Bern Convention's Recommendation No. 110 (2004) on minimising adverse effects of above-ground electricity transmission facilities (power lines) on birds; raptors in general, including the Lesser Kestrel are considered to be particularly sensitive, or potentially so, to power lines. Therefore, certain mitigation measures to avoid and minimize adverse effects will be suggested after obtaining additional data during the next seasonal field surveys.

Further surveys are required to establish whether or not it is necessary to make refinements to the transmission line route within the corridor. Moreover, certain sections of the route that are not yet completely defined will cause risk for the birds.After conducting the surveys on the birds in the other two seasons, the line sections with increased collision risk will be precisely defined. Consequently, the one-year monitoring and complete final report (in accordance with the agreement with MEPSO) will give a clear picture of the species diversity, populations state, migratory pathways and impacts of the overhead power transmission line on the birds in order to suggest appropriate mitigation measures.

1.2. Assessment and Evaluation of Bats (Autumn Season Report)

1.2.1. Results

Surveillance of bat populations can generally be carried out in two main ways: by visual counts of roosting bats at hibernation sites, mating and maternity roosts or other seasonal roosts; and by recording foraging bats along linear transects using bat detector, while walking or using moving vehicle.

1.2.1.1. Assessment of bats recorded along line transects and point counts using ultrasound detector

Recordings of foraging bats along line transects were conducted using ultrasound detector Batlogger M, while walking or using moving vehicle, as well as on standpoints for point counts of bats (see Table 5.)

Table 5. Monitoring of bats along Transmission Line Corridor: during Autumn Season (2016) using transects counts and point counts.

No.	Monitoring Site	Type of Monitoring	GPS Coordinates & Altitude		Length (km)
			Start Point	End Point	
1.	Dobromiri–Dolno Aglarci	Line Transect	N 41,064400; E 21,454180 582 m asl	N 41,092300; E 21,473310 584 m asl	3.64
2.	Bitola Road Interchange-Kukurechani	Line Transect	N 41.075828; E 21.341247 597 m asl	N 41.095709; E 21.324489 602 m asl	2,65
3.	Ramna - Bitola-Resen Road Interchange	Line Transect	N 41.087933; E 21.185683 794 m asl	N 41.070965; E 21.224157 911 m asl	4,20
4.	Sopotsko - Bitola-Resen Road Intersection	Line Transect	N 41.085172; E 21.064590 910 m asl	N 41.070389; E 21.037005 880 m asl	2,89
5.	Resen-Ohrid Road Intersection-Leva Reka	Line Transect	N 41.142700;E 21.000366 946 m asl	N 41.159618; E 21.006767 974 m asl	2,12
6.	Resen-Ohrid Road Intersection (Prentov Most) – Rock Quarry	Line Transect	N 41.204761; E 20.903989 858 m asl	N 41.211192; E 20.912892 883 m asl	1,12
7.	Livoishta-Livoishta	Line Transect	N 41.201007; E 20.815989 765 m asl	N 41.201007; E 20.815989 765 m asl	2,30
8.	Livoishta-Trebenishta	Line Transect	N 41.201007; E 20.815989 765 m asl	N 41. 206461; E 20.754872 720 m asl	6,00
9.	Moroishta	Point Count	N 41,198341; E 20,701821; 695 m asl		-
10.	Vishni - Kjafasan State Border Crossing	Line Transect	N 41.196835; E 20.590662 1 084 m asl	N 41.093891; E 20.610357 988 m asl	15,30

Monitoring Site No. 1: Dobromiri – Dolno Aglarci

On October 23, 2016 monitoring of bats on the monitoring site Dobromiri - Dolno Aglarci was conducted. In the period from 05:48 PM until 06:11 PM the presence of foraging bats with ultrasonic Batlogger M along linear transect was recorded, while using moving vehicle.

The weather was cloudy in part with wind velocity "Calm" (<1 km/h). The air temperature at 05:48 PM (recording start time) 17^{o} C and at 06:11 PM (recording end time) it was 15^{o} C. The recording of bats along the transect route with total length of 3.64 km was conducted, while using moving vehicle and travelled in 23 minutes, with an average speed of 9.5 km/h.

The recording of foraging bats with ultrasound detector Batlogger M along line transect while using moving vehicle has resulted in 7 records with 157 calls, of which 1 record with 2 calls was not valid, while the rest 6 records with 155 calls are valuable data, representing 4 bat species (see Table 6).

Table 6. Dobromiri – Dolno Aglarci Monitoring Site (Line Transect): Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls
Order Chiroptera (Bats); (Liljaci)					
Family Vespertilionidae (Vespertilionid Bats); (Glatkonosni liljaci)					
1.	*Pipistrellus kuhlii*	Kuhl's Pipistrelle	Beloraben pipistrel	2	96
2.	*Pipistrellus nathusii*	Nathusius' Pipistrelle	Natusiev pipistrel	2	39
3.	*Myotis bechsteini*	Bechstein's Bat	Behshtainov nokjnik	1	18
4.	*Pipistrellus pipistrellus*	Common Pipistrelle	Obichen pipistrel	1	2
Total number				6	155

Raw data of Batlogger M recordings on foraging bats along Monitoring Site Dobromiri – Dolno Aglarci (Line Transect) in Annex 2.1 of this report are presented.

Monitoring Site No. 2: Bitola Road Interchange – Kukurechani

On October 23, 2016 surveillance and monitoring of bats on the monitoring site Bitola Road Interchange – Kukurechani Village was conducted.

The weather was cloudy in part, with wind velocity "Calm" (<1 km/h), and air temperature at 06:38 PM (recording start time) 18^{o} C; at 06:47 PM (recording time in Kukurechani) 16^{o} C; and at 06:55 (recording end time at start point) 16^{o} C. The recordings of foraging bats have been conducted using method of transect counts. Firstly, recording of bats along the transect route with total length of 2.65 km was conducted, while using moving vehicle and travelled in 9 minutes, with an average

speed of 17.6 km/h. Thence, for a period of 8 minutes, recording continued while driving back to the start point, with an average speed of 19.8 km/h.

The recording of foraging bats with ultrasound detector Batlogger M along the Monitoring Site Bitola Road Interchange – Kukurechani Village (Line Transect) while using moving vehicle has resulted in 26 records with 592 calls, representing 3 bat species (see Table 7).

Table 7. Bitola Road Interchange – Kukurechani Monitoring Site (Line Transect): Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls
Order Chiroptera (Bats); (Liljaci)					
Family Vespertilionidae (Vespertilionid Bats); (Glatkonosni liljaci)					
1.	*Pipistrellus kuhlii*	Kuhl's Pipistrelle	Beloraben pipistrel	14	378
2.	*Pipistrellus nathusii*	Nathusius' Pipistrelle	Natusiev pipistrel	11	206
3.	*Pipistrellus pipistrellus*	Common Pipistrelle	Obichen pipistrel	1	8
Total number				26	592

Raw data of Batlogger M recordings on foraging bats along line transect Bitola Road Interchange - Kukurechani Village in Annex 2.2 of this report are presented.

Monitoring Site No. 3: Ramna - Bitola-Resen Road Interchange

On October 23, 2016 surveillance and monitoring of bats on the Monitoring Site Ramna – Bitola-Resen Road Interchange was conducted. In the period from 07:29 PM until 07:45 PM the presence of foraging bats with ultrasonic Batlogger M along linear transect was recorded, while using moving vehicle.

The weather was cloudy in part with wind velocity “Calm” (<1 km/h). The air temperature at 07:29 PM (recording start time) was 15^{o} C and at 07:45 PM (recording end time) was 14^{o} C. The distance of 4.20 km (total length of the line transect), while using moving vehicle was travelled in 16 minutes, with an average speed of 15.7 km/h.

The recording of foraging bats with ultrasound detector Batlogger M along line transect while using moving vehicle has resulted in 10 records with 141 calls, representing 4 bat species (see Table 8).

Table 8. Ramna-Bitola Resen Road Interchange Monitoring Site (Line Transect): Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls

Order Chiroptera (Bats); (Liljaci)					
Family Vespertilionidae (Vespertilionid Bats); (Glatkonosni liljaci)					
1.	*Pipistrellus pipistrellus*	Common Pipistrelle	Obichen pipistrel	5	53
2.	*Pipistrellus pygmaeus*	Pygmy Pipistrelle	Dzudzest pipistrel	3	34
3.	*Barbastella barbastellus*	Barbastelle	Shirokoushest Liljak	1	29
4.	*Myotis daubentonii*	Daubenton's Bat	Voden Nokjnik	1	25
Total number				10	141

Raw data of Batlogger M recordings on foraging bats along line transect Ramna -Bitola-Resen Road Interchange in Annex 2.3 of this report are presented.

Monitoring Site No. 4: Sopotsko - Bitola-Resen Road Intersection

On September 24, 2016 surveillance and monitoring of bats on the Monitoring Site Sopotsko – Bitola-Resen Road Intersection was conducted. In the period from 05:55 PM until 06:07 PM the presence of foraging bats with ultrasonic Batlogger M along linear transect was recorded, while using moving vehicle.

The weather was cloudy in part with wind velocity "Calm" (<1 km/h). The air temperature at 05:55 PM (recording start time) was 15^{o} C and at 06:07 PM (recording end time) was 13^{o} C. The distance of 2.89 km (total length of the line transect), while using moving vehicle was travelled in 12 minutes, with an average speed of 14.4 km/h.

The recording of foraging bats with ultrasound detector Batlogger M along line transect while using moving vehicle has not resulted in any bat records or calls (see Table 9).

Table 9. Sopotsko-Bitola Resen Road Intersection Monitoring Site (Line Transect): Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls
Order Chiroptera (Bats); (Liljaci)					
Family Vespertilionidae (Vespertilionid Bats); (Glatkonosni liljaci)					
1.	*	*	*	-	-
2.	*	*	*	-	-
3.	*	*	*	-	-
Total number					

* No presence of foraging bats was recorded along the Sopotsko - Bitola-Resen Road Intersection Monitoring Site during the Autumn Season Survey, 2016.

Raw data of Batlogger M recordings on foraging bats along line transect Sopotsko-Bitola-Resen Road Intersection in Annex 2.4 of this report are presented.

Monitoring Site No. 5: Resen-Ohrid Road Intersection - Leva Reka

On October 24, 2016 surveillance and monitoring of bats on the Monitoring Site Resen–Ohrid Road Intersection - Leva Reka Village was conducted. In the period from 06:35 PM until 06:55 PM

the presence of foraging bats with ultrasonic Batlogger M along linear transect was recorded, while using moving vehicle.

The weather was almost clear sky with no clouds with wind velocity "Calm" (<1 km/h). The air temperature at 06:35 PM (recording start time) was 12^{o} C, at 06:45 PM (end point) was 12^{o} C; thence at 06:55 (start point) was 12^{o} C. The distance of 2.12 km (total length of the line transect), while using moving vehicle was travelled in 10 minutes, with an average speed of 12.7 km/h. Thence, recording continued while driving back to the start point, with the same average speed.

The recording of foraging bats with ultrasound detector Batlogger M along line transect while using moving vehicle has resulted in 11 records with 200 calls, of which 1 record with 3 calls were not valid, while the rest 10 records with 197 calls are valuable data, representing 4 bat species (see Table 10).

Table 10. Resen-Ohrid Road Intersection – Leva Reka Village Monitoring Site (Line Transect): Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls
Order Chiroptera (Bats); (Liljaci)					
Family Vespertilionidae (Vespertilionid Bats); (Glatkonosni liljaci)					
1.	*Pipistrellus kuhlii*	Kuhl's Pipistrelle	Beloraben pipistrel	4	88
2.	*Pipistrellus pipistrellus*	Common Pipistrelle	Obichen pipistrel	2	53
3.	Miniopterus schreibersii	Schreibers' Bat	Dolgokrilest Liljak	2	31
4.	*Pipistrellus pygmaeus*	Pygmy Pipistrelle	Dzudzest pipistrel	2	25
Total number				10	197

Raw data of Batlogger M recordings on foraging bats along line transect Resen–Ohrid Road Intersection - Leva Reka Village in Annex 2.5 of this report are presented.

Monitoring Site No. 6: Resen-Ohrid Road Intersection (Prentov Most) – Rock Quarry

On October 24, 2016 surveillance and monitoring of bats on the Monitoring Site Resen–Ohrid Road Intersection (Prentov Most) – Rock Quarry was conducted. In the period from 07:16 PM until 07:26 PM the presence of foraging bats with ultrasonic Batlogger M along linear transect was recorded, while using moving vehicle.

The weather was clear sky with no clouds and no wind, with air temperature at 07:16 PM (recording start time) was 12^{o} C and at 07:26 PM (recording end time) was 11^{o} C. The recordings of foraging bats have been conducted using the method of transect counts. Firstly, the distance of 1.12 km (total length of the line transect), while using moving vehicle was travelled in 5 minutes, with an

average speed of 13.4 km/h. Thence, recording continued while driving back to the start point with the same average speed.

The recording of foraging bats with ultrasound detector Batlogger M along line transect while using moving vehicle, has resulted in 5 records with 109 calls, representing 3 bat species (see Table 11).

Table 11. Resen-Ohrid Road Intersection (Prentov Most) – Rock Quarry Monitoring Site (Line Transect): Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls
Order Chiroptera (Bats); (Liljaci)					
Family Vespertilionidae (Vespertilionid Bats); (Glatkonosni liljaci)					
1.	*Pipistrellus nathusii*	Nathusius' Pipistrelle	Natusiev pipistrel	3	36
2.	*Pipistrellus pipistrellus*	Common Pipistrelle	Obichen pipistrel	1	66
3.	Miniopterus schreibersii	Schreibers' Bat	Dolgokrilest Liljak	1	7
Total number				5	109

Raw data of Batlogger M recordings on foraging bats along line transect Resen–Ohrid Road Intersection (Prentov Most) - Rock Quarry in Annex2.6 of this report are presented.

Monitoring Site No. 7: Livoishta - Livoishta

Surveillance of foraging bats on Monitoring Site No. 7: Livoishta-Livoishta was conducted on December 01, 2016 in the period from 06:00 PM until 06:34 PM.

The weather was clear sky with no clouds and no wind, with air temperature at 06:00 PM (recording start time) was 6°C and at 06:34 PM (recording end time) was 5°C. The distance of 2.3 km while walking and recording was travelled in 34 minutes, with an average speed of 4.0 km/h. The recording has not resulted in any bat records and calls (see Table 12).

Table 12. Livoishta-Livoishta Line Transect: Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls
Order Chiroptera (Bats); (Лилјаци)					
Family Vespertilionidae (Vespertilionid Bats); (Глатконосни лилјаци)					
1.	*	*	*	-	-
2.	*	*	*	-	-
3.	*	*	*	-	-
Total number					

* No presence of foraging bats was recorded along the Livoishta-Livoishta Monitoring Site during the Autumn Season Survey, 2016.

Raw data of Batlogger M recordings on foraging bats along line transect Livoishta-Livoishta are presented in Annex 2.7 of this report.

Monitoring Site No. 8: Livoishta - Trebenishta

On November 01, 2016 surveillance and monitoring of bats on the monitoring site Livoishta-Trebenishta was conducted. In the period from 06:39 PM until 07:10 PM the presence of foraging bats with ultrasonic Batlogger M along linear transect was recorded, while using moving vehicle.

The weather was clear sky with no clouds and no wind, with air temperature at 06:39 PM (recording start time) was 5^{o}C and at 07:10 PM (recording end time) was 5^{o}C. The distance of 6.0 km (total length of the line transect), while using moving vehicle was travelled in 31 minutes, with an average speed of 11.6 km/h.

The recording of foraging bats along line transect with ultrasound detector Batlogger M while using moving vehicle has not resulted in any bat records and calls (see Table 13).

Table 13. Livoishta-Trebenishta Line Transect: Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls
Order Chiroptera (Bats); (Лилјаци)					
Family Vespertilionidae (Vespertilionid Bats); (Глатконосни лилјаци)					
1.	*	*	*	-	-
2.	*	*	*	-	-
3.	*	*	*	-	-
Total number					

* No presence of foraging bats was recorded along the Livoishta-Trebenishta Monitoring Site during the Autumn Season Survey, 2016.

Raw data of Batlogger M recordings on foraging bats along line transect Livoishta-Trebenishta are presented in Annex 2.8 of this report.

Monitoring Site No. 9: Moroishta

On October 26, 2016 surveillance and monitoring of bats on the Monitoring Site Moroishta was conducted. In the period from 07:35 PM until 07:45 the presence of foraging bats with ultrasonic Batlogger M at a standpoint Monitoring Site was recorded, while using point counts.

The weather was cloudy in part with wind velocity between 1 and 5 km/h (light air). The air temperature at 07:35 PM (recording start time) was 13^{o}C and at 07:45 PM (recording end time) was again 13^{o}C.

The recording of foraging bats using ultrasound detector Batlogger M from a standpoint has not resulted in any bat records and calls (see Table 14).

Table 14. Moroishta Monitoring Site (Point Count): Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls
Order Chiroptera (Bats); (Лилјаци)					
Family Vespertilionidae (Vespertilionid Bats); (Глатконосни лилјаци)					
1.	*	*	*	-	-
2.	*	*	*	-	-
3.	*	*	*	-	-
Total number				-	-

* No presence of foraging bats along the Moroishta Monitoring Site during the Autumn Season Survey, 2016 was recorded.

Raw data of Batlogger M recordings on foraging bats at the Monitoring Site No. 9: Moroishta in Annex 2.9 of this report are presented.

On October 26, 2016 surveillance and monitoring of bats on the Monitoring Site Vishni - Kjafasan State Border Crossing was conducted. In the period from 05:55 PM until 06:47 PM the presence of foraging bats with ultrasonic Batlogger M along linear transect with total length of 15.30 km was recorded, while using moving vehicle.

The weather was cloudy in part with wind velocity between 1 and 5 km/h (light air). The air temperature at 05:55 PM (recording start time) was 14^{o} C and at 06:47 PM (recording end time) was 13^{o} C. The distance of 15.30 km (total length of the line transect), while using moving vehicle was travelled in 52 minutes, with an average speed of 17.30 km/h.

The recording of foraging bats with ultrasound detector Batlogger M along line transect while using moving vehicle has resulted in 10 records with 276 calls, representing 2 bat species (see Table 15).

Monitoring Site No. 10: Vishni - Kjafasan State Border Crossing

On October 26, 2016 surveillance and monitoring of bats on the Monitoring Site Vishni - Kjafasan State Border Crossing was conducted. In the period from 05:55 PM until 06:47 PM the presence of foraging bats with ultrasonic Batlogger M along linear transect with total length of 15.30 km was recorded, while using moving vehicle.

The weather was cloudy in part with wind velocity between 1 and 5 km/h (light air). The air temperature at 05:55 PM (recording start time) was 14^{o} C and at 06:47 PM (recording end time) was

13^{o} C. The distance of 15.30 km (total length of the line transect), while using moving vehicle was travelled in 52 minutes, with an average speed of 17.30 km/h. The recording of foraging bats with ultrasound detector Batlogger M along line transect while using moving vehicle has resulted in 10 records with 276 calls, representing 2 bat species (see Table 15).

Table 15. Vishni - Kjafasan State Border Crossing Monitoring Site (Line Transect): Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Macedonian Common Name	Number of Records	Number of Calls
Order Chiroptera (Bats); (Лилјаци)					
Family Vespertilionidae (Vespertilionid Bats); (Глатконосни лилјаци)					
1.	*Pipistrellus pipistrellus*	Common Pipistrelle	Obichen pipistrel	6	60
2.	*Pipistrellus kuhlii*	Kuhl's Pipistrelle	Beloraben pipistrel	4	216
Total number				10	276

Raw data of Batlogger M recordings on foraging bats along line transect Vishni-Kjafasan State Border Crossing in Annex 2.10 of this report are presented.

Summary of results on bats recorded along line transects and point counts using ultrasound detector

The Autumn Season Monitoring of bats at 10 monitoring sites using ultrasound detector surveys based on line transects and point counts, while walking or using moving vehicle has resulted in 67 records with 1,470 calls, representing 8 bat species (see Table 16).

Table 16. Monitoring Site (Line Transect): Computer-aided identification of species, and processed data of records and calls (Autumn Season Survey, 2016).

Nr.	Scientific Name	English Common Name	Number of Monitoring Sites	Number of Records	Number of Calls
Order Chiroptera (Bats); (Лилјаци)					
Family Vespertilionidae (Vespertilionid Bats); (Глатконосни лилјаци)					
1.	*Pipistrellus kuhlii*	Kuhl's Pipistrelle	4	24	778
2.	*Pipistrellus nathusii*	Nathusius' Pipistrelle	3	16	281
3.	*Pipistrellus pipistrellus*	Common Pipistrelle	6	16	242
4.	*Pipistrellus pygmaeus*	Pygmy Pipistrelle	2	5	59
5.	Miniopterus schreibersii	Schreibers' Bat	2	3	38
6.	*Barbastella barbastellus*	Barbastelle	1	1	29
7.	*Myotis daubentonii*	Daubenton's Bat	1	1	25
8.	*Myotis bechsteini*	Bechstein's Bat	1	1	18
Total number				67	1,470

The frequency and abundance of bats during the Autumn Season are conspicuously reduced compared to bat's activity during the Summer Season. Both, the frequency represented by the number of records and abundance by the number of calls are tenfold lesser compared to those in Summer Season, while the number of recorded species has been reduced from 16 to eight species.

The Kuhl's Pipistrelle (*Pipistrellus kuhlii*) with presence at 4 monitoring sites was the second most frequent species along the transmission line corridor, during the Autumn Season Survey. With 24 records and 778 calls the Kuhl's Pipistrelle was the most abundant species.

Nathusius' Pipistrelle (*Pipistrellus nathusii*) was recorded at 3 monitoring sites, which ranks the species as third most frequent bat species during the Autumn Season Survey, while with 16 records and 281 calls it was the second most abundant species.

The Common Pipistrelle (*Pipistrellus pipistrellus*) was recorded at 6 monitoring sites, which ranks the species as most frequent. However, with 16 records and 242 calls it was evaluated as the third most abundant species.

The Pygmy Pipistrelle (*Pipistrellus pygmaeus*) was recorded at 2 monitoring sites. With 5 records and 59 calls it was conspicuously less abundant compared to the three above mentioned species. The Pygmy Pipistrelle generally appears to be less abundant than Common Pipistrelle.

Schreibers' Bat (*Miniopterus schreibersii*) was recorded at two Monitoring Sites. With 3 records and 38 calls it appeared to be significantly less abundant than the previous mentioned species.

The Bechstein's Bat (*Myotis bechsteini*) was recorded at only one Monitoring Site. With only one record and 18 calls it was the less frequent and abundant than any other recorded bat species during the Autumn Season Survey.

The presence of Barbastelle Bat (*Barbastella barbastellus*) was firstly ascertained during the Autumn Season Survey at only one Monitoring Site, with one record and 29 calls. The Barbastelle is a medium sized bat characterised by small triangular ears joined on the top of the head, making identification unmistakable. It is largely restricted to central and southern Europe, although its range extends into the Caucasus, Anatolia, and parts of North Africa. However, its range is heavily fragmented and the species is considered rare almost everywhere, occurring in low density and numbers. It is typically found in beech or oak forests, mostly roosting beneath loose bark or in splits found in dead trees, so standing dead trees represent a crucial component of forests for this bat. Consequently, high numbers of dead trees should be retained to ensure the survival of this fragile bat species. Summer colonies number usually *up to* 30 individuals, while winter clusters are usually small, since individuals tend to be solitary. The hibernation may start in trees, but later

underground sites are preferred, but usually consist of very cold sites. The Barbastelle Bat forages in mature woodland and woodland edges, feeding mostly on large moths. It forages and commutes above canopy, ca 2-4 m above tree crowns, but may also forage below it, along forest trails and roads, as well as in forest gaps. Usually it avoids open woodland on stony outcrops and rocky slopes, human settlements and open habitats such as meadowland. A fast flying species, it may cover long distances in short times. It is possible to identify *Barbastella barbastellus* from echolocation calls with reasonable confidence and this opens possibilities for carrying out field surveys. In Macedonia the species is very rare, so far recorded only for the area of Central Macedonia.

Like the previous species the Daubenton's Bat (*Myotis daubentonii*) was also firstly ascertained during the Autumn Season Survey at only one Monitoring Site, with one record and 25 calls. The species is distributed throughout the entire temperate zone of Euro-Asia, from Portugal in the west to Japan in the east. In some parts of its range it is patchily distributed including Balkans. One of the most abundant bats, and the only European bat species for which continuing population increase has been recorded. Daubenton's bats usually feed within about 6 km of the roost, but have been recorded following rivers for up to 10 km, at speeds of up to 25 km/h. Due to the distinct foraging niche this species occupies, it is reliant on water sources. It is highly dependant on aquatic insects for food, hunting over water bodies; usually taking insects from close to the water and have even been seen taking prey directly from the water surface. During summer season a variety of temporary roosts are used, often in trees or tunnels close to the feeding sites. Bats enter winter sites in October/November, but only small numbers are present in the early part of winter. Numbers can increase dramatically towards the end of January, and individuals often remain at these sites until the end of March. Although usually solitary, small groups of three or four are not uncommon. Individuals are often lodged in tight crevices; many are barely visible in such conditions and it is likely that others are not visible at all. Maternity roosts are occupied from spring until Summer. The average colony size is between 20 to 50 bats. Daubenton's bats can live for up to 22 years. Daubenton's bat calls range from 35 to 85kHz and are loudest at 45 to 50kHz. On a bat detector the calls are heard as a machinegun like series of regular clicks for bursts of 5 to 10 seconds. Monitoring of Daubenton's bat with bat detector using point count method around water bodies using a torch to confirm identity from flight style gives best results, where *Myotis capaccinii* does not occur. In Macedonia the species is with fragmentary distribution, so far recorded only for the Ohrid Lake (Trpeyca) and Prespa Lake (Surlentsi).

1.2.1.2. Assessment of bats recorded by visual counts of roosting bats at hibernation/maternity colonies and summer roosts

Visual counts of roosting bats during the Autumn Season Surveys have been conducted at the Jaorets Cave and at the abandoned collective farm building in the village of Ramna.

Monitoring Site No. 11: Ramna (Collective Farm Building)

Monitoring of bats by visual counts was conducted in the village of Rhamna, while inspecting old abandoned houses and other urban infrastructures for the presence of roosting bats. The site was visited on December 02, 2016. The small colony of 12 roosting bats of the species Mediterranean Horseshoe Bat (*Rhinolophus euryale*) that has been recorded during the summer surveys was no more present in the abandoned Collective Farm Building (Zadruzhen Dom Ramna) located in the central area of the village (see Figure 1).

Figure 1. Abandoned Collective Farm Building in the village of Ramna (Autumn Season Survey); Ceiling used as a summer roost by a colony of Mediterranean Horseshoe Bat (*Rhinolophus euryale*) (Autumn Season Survey).

Monitoring Site No. 12: Jaorets Cave

Surveillance and monitoring of bats on the Monitoring Site No. 12: Jaorets Cave by visual count of bats was conducted on December 01, 2016.

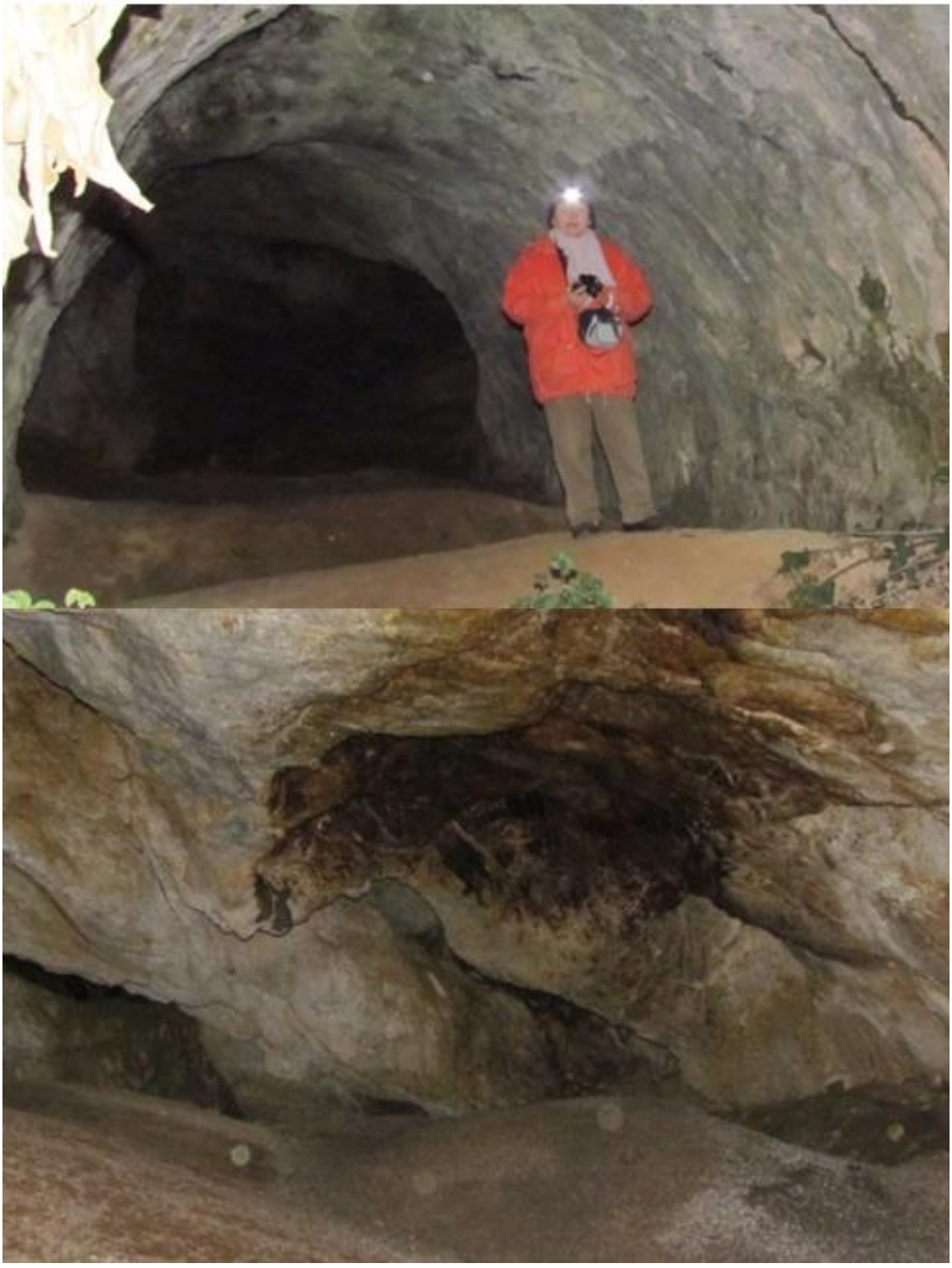

Figure 2. Entrance of Jaorets Cave; Black roof stains and dark spots on the cave walls indicate presence of bats colony (Autumn Season Survey).

Our Autumn Season Survey of the Jaorets Cave has confirmed our assumption that the cave was not used as a swarming site, and probably it is not using as a hibernation site too.

1.2.2. Evaluation of Bats

Habitats Directive (Directive 92/43/EEC) provides Strict Legal Protection (under Annex IV) for all eight recorded bat species of the Project Area. In addition, three of the recorded species are listed in Annex II, which is list of species with higher level of Legal Protection i.e. includes species of community interest whose conservation requires designation of special areas of conservation (see Table 17).

Table 17. Legal Protection and Conservation Status of identified Bat Species during the Autumn Season Survey

No.	Scientific Name	English Common Name	Directive 92/43/EEC	Bern Convention	Bonn Convention	IUCN Europe	IUCN Global
Order Chiroptera (Bats); (Liljaci)							
Family Vespertilionidae (Vespertilionid Bats); (Glatkonosni Liljaci)							
1.	*Pipistrellus kuhlii*	Kuhl's Pipistrelle	IV	II	II	LC	LC
2.	*Pipistrellus nathusii*	Nathusius' Pipistrelle	IV	II	II	LC	LC
3.	*Pipistrellus pipistrellus*	Common Pipistrelle	IV	III	II	LC	LC
4.	*Pipistrellus pygmaeus*	Pygmy Pipistrelle	IV	II	II	LC	LC
5.	*Miniopterus schreibersii*	Schreibers' Bat	II/IV	II	II	NT	NT
6.	*Barbastella barbastellus*	Barbastelle	II/IV	II	II	VU	NT
7.	*Myotis daubentonii*	Daubenton's Bat	IV	II	II	LC	LC
8.	*Myotis bechsteini*	Bechstein's Bat	II/IV	II	II	VU	NT

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) imposes a legal obligation on Parties to protect all breeding and resting sites of the Strictly Protected Species on Appendix II, including all European Bat Species apart from the Common Pipistrelle (*Pipistrellus pipistrellus*), which is listed on Appendix III (see Table 17).

None of the recorded eight species is listed in Appendix I (Endangered Migratory Species) under the Convention on the Conservation of Migratory Species of Wild Animals, Bonn Convention (UNEP/CMS). On the contrary, all European bat species, including the recorded species of the Project Area are listed on Appendix II (Migratory Species to be the Subject of Agreements).

Regarding the Conservation Status, under the IUCN Red List of Globally Threatened Species (2016) as well as the European Red List of Threatened Species (2016) only the Barbastelle Bat (*Barbastella barbastellus*) and the Bechstein's Bat (*Myotis bechsteini*) are qualified as threatened species on European Level, evaluated as Vulnerable (VU), while on Global Level they are both ranked in the Category Near Threatened (NT) which is not qualified as category of threatened species.

1.2.3. Discussion and Conclusions

The Autumn Season surveillance and monitoring of bats along the transmission line corridor has been conducted at 12 monitoring sites using combined methodology. The monitoring of bats at 10 monitoring sites using ultrasound detector for recording foraging bats along line transects/point counts has resulted in 67 records with 1,470 calls, representing eight bat species.

At another two monitoring sites, the monitoring of bats has been conducted by visual counts at one summer shelter (Abandoned Collective Farm Building in the village of Ramna) and one underground roosting site (Jaorets Cave). However, during the Autumn Season Survey any presence of bats on both sites was not recorded.

Altogether, the Autumn Season monitoring of the Project Area has ascertained presence of 8 bat species with low level of species frequency and population density.

The Autumn Season survey gives irreplaceable data that the Jaorets Cave is not used by bats as a Swarming Site. Mating season usually begins by the end of October. Males of most species use special calls to attract females. During this period, large numbers of bats can be encountered, swarming inside and outside the site. The Winter Season survey (January-February) will obtain data if the Jaorets Cave is regularly used by bats as a Hibernation Roost.

The mist-netting across/nearby aquatic habitats will be conducted during the spring season to confirm presence/absence of bat species that are closely related to freshwater bodies: Daubenton's Bat (*Myotis daubentonii*), and Long-fingered Bat (*Myotis cappacinii*). So far, both of these species have been recorded within the boundaries of the Project Area, but in different season surveys.

The preliminary results of summer and autumn surveys lead to an initial conclusion that no critical habitats as defined by EBRD ESP PR6 have been ascertained within the Project Corridor. Therefore, refinements to the transmission line route within the corridor are not necessary to be made. After conducting the surveys on the bats in the other two seasons, the line sections with increased collision risk will be precisely defined. Consequently, the one-year monitoring and complete final report (in accordance with the agreement with MEPSO) will give a clear picture of the species diversity, populations state, migratory pathways and impacts of the over head power transmission line on the bats in order to suggest appropriate mitigation measures.

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3. ANNEXES

Annex 1: Birds (Summer and Autumn Season Surveys)-2016

Annex 1.1 Bird Species recorded along Transmission Line Corridor during the Summer (printed in black letters) and Autumn Season (printed in red letters) Surveys (2016) with their Range Status.

Taxonomic Group/Species		English Common Name	Macedonian Common Name	Range Status
Order Gaviiformes				
Family Gaviidae (Divers); (Morski Nurkachi)				
Order Podicipediformes				
Family Podicipedidae (Grebes); (Nurkachi)				
1.	*Tachybaptus ruficollis*	Dabchick	Mal Nurkach	B
2.	*Podiceps nigricollis*	Black-necked Grebe	Crnovrat Nurkach	R (W)
Order Pelecaniformes				
Family Phalacrocoracidae (Cormorants); (Kormorani)				
3.	*Phalacrocorax carbo*	Great Cormorant	Golem Kormoran	R
4.	*Phalacrocorax pygmaeus*	Pygmy Cormorant	Mal Kormoran	B
Family Pelecanidae (Pelicans); (Pelikani)				
5.	*Pelecanus crispus*	Dalmatian Pelican	Dalmatinski (Kadroglav) Pelikan	R
Order Ciconiiformes				
Family Ardeidae (Herons, Egrets, Bitterns); (Chapji)				
6.	*Botaurus stellaris*	Eurasian Bittern	Voden Bik; Bukavec	R
7.	*Ardea cinerea*	Grey Heron	Siva Chapja	B (R)
8.	*Egretta garzetta*	Little Egret	Mala Bela Chapja	B
9.	*Casmerodius albus*	Great White Egret	Golema Bela Chapja	P (W)
Family Ciconiidae (Storks); (Shtrkovi)				
10.	*Ciconia ciconia*	White Stork	Bel Shtrk	B
11.	*Ciconia nigra*	Black Stork	Crn Shtrk	B
Family Threskiornithidae (Ibises, Spoonbills); (Ibisi, Chapji Lazhicharki)				
Order Phoenicopteriformes				
Family Phoenicopteridae (Flamingos); (Flaminga)				
Order Anseriformes				
Family Anatidae (Swans, Geese, Ducks); (Lebedi, Guski, Shatki)				
12.	*Anas platyrhynchos*	Mallard	Diva Shatka	R
13.	*Aythya ferina*	Pochard	Kafeavoglava Potopnica	P (W)
14.	*Netta rufina*	Red-crested Pochard	Crvenokluna Potopnica; Prevez	W
Order Accipitriformes				
Family Accipitridae (Hawks, Eagles, Vultures); (Orli, Eji, Lunji, Jastrebi)				
15.	*Pernis apivorus*	Honey Buzzard	Jastreb Osojad	W (B)
16.	*Circaetus gallicus*	Short-toed Eagle	Orel Zmijar	B
17.	*Circus aeruginosus*	Marsh Harrier	Blatna Eja	B
18.	*Circus cyaneus*	Hen Harrier	Polska Eja	P
19.	*Accipiter gentilis*	Goshawk	Jastreb Kokoshkar	R
20.	*Accipiter nisus*	Eurasian Sparrowhawk	Jastreb Vrapchar	R
21.	*Buteo buteo*	Common Buzzard	Obichen Jastreb Gluvchar	R
22.	*Buteo rufinus*	Long-legged Buzzard	Lisest Jastreb Gluvchar	R
23.	*Aquila heliaca*	Imperial Eagle	Carski (Krstat) Orel	B

24.	*Aquila chrysaetos*	Golden Eagle	Skalest (Zlaten) Orel	R
Family Pandionidae (Osprey); (Orli Ribari)				
Order Falconiformes				
Family Falconidae (Falcons); (Sokoli)				
25.	*Falco naumanni*	Lesser Kestrel	Stepska Vetrushka (Mala Vetrushka)	B
26.	*Falco tinnunculus*	Kestrel	Obichna Vetrushka	R
27.	*Falco vespertinus*	Red-footed Falcon	Vecherna (Crvenonoga) Vetrushka	P
28.	*Falco subbuteo*	Hobby	Sokol Lastovichar	B
29.	*Falco peregrinus*	Peregrine Falkon	Siv Sokol	R
Order Galliformes				
Family Tetraonidae (Grouse); (Tetrebi)				
30.	*Bonasa bonasia*	Hazelhen	Leshtarka	R
Family Phasianidae (Partridges, Quails, Pheasants); (Erebici, Potpoloshki, Fazani))				
31.	*Alectoris graeca*	Rock Partridge	Erebica Kamenjarka	R
32.	*Perdix perdix*	Common Partridge	Polska Erebica	R
Order Gruiformes				
Family Rallidae (Rails); (Blatni Kokoshki)				
33.	*Gallinula chloropus*	Moorhen	Zelenonoga Blatna Kokoshka	B
34.	*Fulica atra*	Common Coot	Liska	R
Family Gruidae (Cranes); (Zheravi)				
Family Otididae (Bustards); (Droplji)				
Order Charadriiformes				
Family Haematopodidae (Oystercatchers); (Shkolkojadi Mochvarki)				
Family Recurvirostridae (Avocets and Stilts); (Sabjarki)				
Family Burhinidae (Stone Curlews); (Churulinci)				
Family Glareolidae (Pratincoles and Coursers); (Blatni Lastovici)				
Family Charadriidae (Plovers); (Dozhdosvirci)				
35.	*Vanellus vanellus*	Lapwing	Kalugjerka	R (P)
Family Scolopacidae (Typical Waders), (Vistinski Mochvarki)				
36.	*Scolopax rusticola*	Woodcock	Shumska Shljuka	R
Family Stercorariidae (Skuas); (Moreletnici)				
Family Laridae (Gulls); (Galebi)				
37.	*Larus cachinnans*	Yellow-legged Gull	Zholtonog Galeb	R
38.	*Larus ridibundus*	Black-headed Gull	Ezerski Galeb	R
Family Sternidae (Terns); (Vrtimushki)				
Order Columbiformes				
Family Columbidae (Pigeons); (Gulabi, Grlici i Gugutki)				
39.	*Columba livia*	Rock Dove	Div Gulab	R
40.	*Columba palumbus*	Wood Pigeon	Gulab Grivnesh	R
41.	*Streptopelia decaocto*	Collared Dove	Gugutka	R
42.	*Streptopelia turtur*	Turtle Dove	Grlica	B
Order Cuculiformes				
Family Cuculidae (Cuckoos); (Kukavici)				
43.	*Cuculus canorus*	Eurasian Cuckoo	Obicna Kukavica	B
Order Strigiformes				
Family Tytonidae (Barn Owls); (Zabuleni Utki)				
Family Strigidae (Typical Owls); (Utki Vistinski)				
44.	*Otus scops*	Scops Owl	Kjuk	R (B)
45.	*Athene noctua*	Little Owl	Domashna Kukumjavka	R
46.	*Asio otus*	Long-eared Owl	Shumska Ushesta Utka	R

47.	*Strix aluco*	Tawny Owl	Shumska Bezushesta Utka	R
48.	*Bubo bubo*	Eagle Owl	Buf	R
Order Caprimulgiformes				
Family Caprimulgidae (Nightjars); (Nokjni Lastovici)				
Order Apodiformes				
Family Apodidae (Swifts); (Pishtarki)				
49.	*Apus apus*	Common Swift	Obichna Pishtarka	B
Order Coraciiformes				
Family Alcedinidae (Kingfishers); (Ribarchinja)				
Family Meropidae (Bee-eaters); (Pchelarki)				
50.	*Merops apiaster*	European Bee-eater	Pcelarka	B
Family Coraciidae (Rollers); (Smrdivrani)				
Family Upupidae (Hoopoes); (Pupunci)				
51.	*Upupa epops*	Hoopoe	Pupunec	B
Order Piciformes				
Family Picidae (Wrynecks, Woodpeckers); (Vrtivratki, Klukajdrvci)				
52.	*Picus viridis*	Green Woodpecker	Zelen Klukajdrvec	R
53.	*Dendrocopos major*	Great Spotted Woodpecker	Golem Sharen Klukajdrvec	R
54.	*Dendrocopos syriacus*	Syrian Woodpecker	Sirijski Sharen Klukajdrvec	R
55.	*Dryocopus martius*	Black Woodpecker	Crn Klukajdrvec	R
Order Passeriformes				
Family Alaudidae (Larks); (Chuchuligi)				
56.	Calandrella brachydactyla	Hume's Short-toed Lark	Mala Chuchuliga	B
57.	*Lullula arborea*	Woodlark	Shumska Chuchuliga	R
58.	*Alauda arvensis*	Skylark	Polska Chuchuliga	R
Family Hirundinidae (Swallows and Martins); (Lastovici)				
59.	*Hirundo rustica*	Swallow	Selska Lastovica	B
60.	*Hirundo daurica*	Red-rumped Swallow	Crvenokrsta Lastovica	B
61.	*Delichon urbica*	House Martin	Gradska Lastovica	B
Family Motacillidae (Pipits, Wagtails); (Tresiopashki, Trepetlivki)				
62.	*Anthus campestris*	Tawny Pipit	Polska Trepetlivka	B
63.	*Motacilla alba*	Pied/White Wagtail	Mala (Bela) Tresiopashka	R
64.	*Motacilla flava*	Yellow/Blue-headed Wagtail	Zholta Tresiopashka	B
Family Bombycillidae (Waxwings and Hypocolius); (Svilarki)				
Family Cinclidae (Dippers); (Vodni Kosovi)				
65.	*Cinclus cinclus*	Common Dipper	Voden Kos	R
Family Troglodytidae (Wrens); (Palchinja)				
Family Prunellidae (Dunnocks); (Zavirachki)				
66.	*Prunella modularis*	European Dunnock	Sivogushesta Zavirachka	R
Family Turdidae (Thrushes, chats, Wheatears and Robins); (Drozdovi)				
67.	*Erithacus rubecula*	Robin	Crvenogushka	R
68.	*Luscinia megarhynchos*	Nightingale	Slavej	B
69.	*Phoenicurus ochruros*	Black Redstart	Planinska Crvenoopashka	R
70.	*Saxicola torquata*	Common Stonechat	Crnogushesto Livadarche	R (B)
71.	*Oenanthe oenanthe*	Eurasian Wheatear	Sivo Kamenjarche	B
72.	*Turdus merula*	Blackbird	Kos	R
73.	*Turdus philomelos*	Song Thrush	Drozd Pejach	R
74.	*Monticola solitarius*	Blue Rock Thrush	Sin Skalest Drozd	R
Family Sylvidae (Warblers); (Grmusharki)				
75.	*Cettia cetti*	Cetti's Warbler	Svilarche	R
76.	*Acrocephalus scirpaceus*	Red Warbler	Obichno Trskarche	B
77.	*Acrocephalus arundinaceus*	Great Reed Warbler	Golemo Trskarche	B
78.	*Sylvia cantillans*	Supalpine Warbler	Crvenogushesto Koprivarche	B
79.	*Sylvia atricapilla*	Blackcap	Crnoglavo Koprivarche	R (B)
80.	*Phylloscopus collybita*	Chiffchiff	Elov Pevec	R

81.	*Phylloscopus trochilus*	Willow Warbler	Brezov Pevec	P
Family Muscicapidae (Flycatchers); (Muvarchinja)				
82.	*Muscicapa striata*	Spotted Flycatcher	Pegavo Muvarche	B
83.	*Ficedula albicollis*	Collared Flycatcher	Beloshijesto Muvarche	B
Family Timaliidae (Babblers); (Mustakjesti Sipki)				
Family Aegithalidae (Long-tailed Tits); (Dolgoopashesti Sipki)				
Family Paridae (Tits); (Sipki Vistinski)				
84.	*Parus cristatus*	Crested Tit	Cuculesta Sipka	R
85.	*Parus caeruleus*	Blue Tit	Sina Sipka	R
86.	*Parus major*	Great Tit	Golema Sipka	R
87.	*Parus ater*	Coal Tit	Elova sipka	R
Family Sittidae (Nuthatches); (Lazachki)				
88.	*Sitta europaea*	Common Nuthatch	Shumska Lazachka	R
89.	*Sitta neumayer*	Rock Nuthatch	Lazachka Kamenjarka	R
Family Tichodromadidae (Wallcreepers); (Karpolazachki)				
Family Certhiidae (Treecreepers); (Drvolazachki)				
90.	*Certhia familiaris*	Eurasian Treecreeper	Gorska Drvolazachka	R
Family Remizidae (Penduline Tits); (Sipki Torbarki)				
Family Oriolidae (Orioles); (Zholni)				
91.	*Oriolus oriolus*	Golden Oriole	Zholna (Vuga)	B
Family Laniidae (Shrikes); (Svrachinja)				
92.	*Lanius collurio*	Red-backed Shrike	Crvenogrbo Svrache	B
93.	*Lanius minor*	Lesser Grey Shrike	Malo Sivo Svrache	B
94.	*Lanius excubitor*	Great Grey Shrike	Golemo Sivo Svrache	W
95.	*Lanius senator*	Woodchat Shrike	Crvenoglavo Svrache	B
Family Corvidae (Jays, Magpies, Crows); (Cavki, Vrani, Strachki, Gavrani, Galki)				
96.	*Garrulus glandarius*	Eurasian Jay	Sojka	R
97.	*Pica pica*	Magpie	Strachka	R
98.	*Corvus monedula*	Jackdaw	Chavka	R
99.	*Corvus corone cornix*	Carrion/Hooded Crow	Siva Vrana	R
100.	*Corvus corax*	Raven	Gavran	R
101.	*Nucifraga caryocatactes*	Spotted Nutcracker	Leshnikarka	R
Family Sturnidae (Starlings); (Skolovranci)				
102.	*Sturnus vulgaris*	Common Starling	Obichen Skolovranec	R
Family Passeridae (Sparrows, Rock Sparrows, Snow Finches); (Vrapci, Vrapci Kamenjari, Snezhni Vrapchinja)				
103.	*Passer domesticus*	House Sparrow	Domashno Vrapche	R
104.	*Passer hispaniolensis*	Spanish Sparrow	Shpansko Vrapche	R
105.	*Passer montanus*	Tree Sparrow	Polsko Vrapche	R
Family Fringillidae (Finches); (Chinki)				
106.	*Fringilla coelebs*	Chaffinch	Bukova Chinka	R
107.	*Serinus serinus*	Serin	Zholtarche (Div Kanarinec)	R (B)
108.	*Carduelis chloris*	Greenfinch	Zelenushka	R (W)
109.	*Carduelis carduelis*	Goldfinch	Bilbilche; Kadnka (Shtiglic)	R
110.	*Carduelis cannabina*	Linnet	Konopljarche	R
111.	*Carduelis flammea*	Common Redpoll	Ogneno Konopljarche	W
112.	*Pyrrhula pyrrhula*	Bullfinch	Crvenushka (Zimovka)	R
113.	*Coccothraustes coccothraustes*	Hawfinch	Creshnarka (Debelokluna Chinka)	R
Family Emberizidae (Buntings); (Ovesarki)				
114.	*Emberiza citrinella*	Yellowhammer	Zholta Ovesarka	R
115.	*Emberiza cirlus*	Cirl Bunting	Zelenogushesta Ovesarka	R
116.	*Emberiza hortulana*	Ortolan Bunting	Gradinarska Ovesarka	B
117.	*Emberiza melanocephala*	Black-headed Bunting	Crnoglava Ovesarka	B
118.	*Miliaria calandra*	Corn Bunting	Siva (Golema) Ovesarka	R

R = Resident Species (species likely to occur all year round); B = Breeding Species (species occurs only during spring-summer season); W = Wintering Species (species normally occurs only in winter season); P = Passage Migrant Species (bird species that occurs on passage between breeding and wintering areas).

Annex 2: Bats (Autumn Season Surveys)-2016

Annex 2.1. Dobromiri – Dolno Aglarci Monitoring Site (Line Transect): Raw data of Batlogger M recordings on foraging bats along line transect using moving vehicle (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	15050960	7	38.5	*Pipistrellus nathusii*	60%
2.	15050962	32	40.9	*Pipistrellus nathusii*	66%
3.	15050963	40	38.7	*Pipistrellus kuhlii*	66%
4.	15050968	18	38.4	*Myotis bechsteinii*	58%
5.	15050969	2	45.0	*Pipistrellus pipistrellus*	25%
6.	15050970	2	41.7	No suggestion	
7.	15050977	56	38.3	*Pipistrellus kuhlii*	59%

Annex 2.2. Bitola Road Interchange – Kukurechani Monitoring Site (Line Transect): Raw data of Batlogger M recordings on foraging bats along line transect using moving vehicle (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	15050979	7	39.1	*Pipistrellus kuhlii*	71%
2.	15050982	10	35.7	*Pipistrellus nathusii*	67%
3.	15050995	8	44.7	*Pipistrellus pipistrellus*	53%
4.	15050996	24	39.0	*Pipistrellus kuhlii*	75%
5.	15050997	14	38.6	*Pipistrellus nathusii*	66%
6.	15050998	89	39.2	*Pipistrellus kuhlii*	48%
7.	15050999	8	39.6	*Pipistrellus kuhlii*	60%
8.	15051000	14	36.8	*Pipistrellus kuhlii*	66%
9.	15051001	10	37.7	*Pipistrellus nathusii*	72%
10.	15051002	13	36.8	*Pipistrellus nathusii*	79%
11.	15051003	23	37.2	*Pipistrellus kuhlii*	76%
12.	15051004	52	38.9	*Pipistrellus kuhlii*	62%
13.	15051005	42	37.8	*Pipistrellus nathusii*	56%
14.	15051006	1	39.1	*Pipistrellus kuhlii*	27%
15.	15051007	6	39.2	*Pipistrellus kuhlii*	55%
16.	15051008	21	37.5	*Pipistrellus nathusii*	68%
17.	15051009	28	36.4	*Pipistrellus nathusii*	70%
18.	15051010	25	37.8	*Pipistrellus nathusii*	68%
19.	15051011	11	38.1	*Pipistrellus kuhlii*	72%
20.	15051012	10	37.3	*Pipistrellus kuhlii*	62%
21.	15051013	49	38.8	*Pipistrellus kuhlii*	53%
22.	15051014	12	37.6	*Pipistrellus nathusii*	68%
23.	15051015	33	39.5	*Pipistrellus kuhlii*	68%
24.	15051016	20	37.6	*Pipistrellus nathusii*	76%
25.	15051017	51	38.6	*Pipistrellus kuhlii*	59%
26.	15051019	11	38.2	*Pipistrellus nathusii*	71%

Annex 2.3. Ramna – Bitola-Resen Road Interchange Monitoring Site (Line Transect): Raw data of Batlogger M recordings on foraging bats along line transect using moving vehicle (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	15051045	6	50.7	*Pipistrellus pipistrellus*	67%
2.	15051046	6	49.0	*Pipistrellus pipistrellus*	59%
3.	15051052	8	50.4	*Pipistrellus pygmaeus*	53%

4.	15051058	15	50.3	*Pipistrellus pipistrellus*	54%
5.	15051071	29	42.4	*Barbastella barbastellus*	53%
6.	15051072	21	50.6	*Pipistrellus pygmaeus*	65%
7.	15051076	9	49.7	*Pipistrellus pipistrellus*	56%
8.	15051077	25	43.2	*Myotis daubentonii*	58%
9.	15051078	17	50.0	*Pipistrellus pipistrellus*	59%
10.	15051079	5	54.6	*Pipistrellus pygmaeus*	57%

Annex 2.4. Sopotsko – Bitola-Resen Road Intersection Monitoring Site (Line Transect): Raw data of Batlogger M recordings on foraging bats along line transect using moving vehicle (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	*	-	-	-	-
2.	*	-	-	-	-
3.	*	-	-	-	-

* No presence of foraging bats was recorded along the Sopotsko - Bitola-Resen Road Intersection Monitoring Site during the Autumn Season Survey, 2016.

Annex 2.5. Bitola-Resen Road Intersection – Leva Reka Village Monitoring Site (Line Transect): Raw data of Batlogger M recordings on foraging bats along line transect using moving vehicle (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	15051087	42	36.0	*Pipistrellus kuhlii*	54%
2.	15051088	11	51.6	*Pipistrellus pygmaeus*	51%
3.	15051091	14	51.5	*Pipistrellus pygmaeus*	61%
4.	15051092	17	38.7	*Pipistrellus kuhlii*	62%
5.	15051093	9	36.4	*Pipistrellus kuhlii*	55%
6.	15051094	20	34.7	*Pipistrellus kuhlii*	59%
7.	15051095	23	45.7	*Pipistrellus pipistrellus*	71%
8.	15051096	26	51.2	*Miniopterus schreibersii*	66%
9.	15051097	3	51.3	No suggestion	-
10.	15051098	30	50.6	*Pipistrellus pipistrellus*	64%
11.	15051099	5	51.1	*Miniopterus schreibersii*	58%

Annex 2.6. Prentov Most Road Intersection – Rock Quarry Monitoring Site (Line Transect): Raw data of Batlogger M recordings on foraging bats along line transect using moving vehicle (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	15051119	14	40.0	*Pipistrellus nathusii*	78%
2.	15051120	10	40.7	*Pipistrellus nathusii*	67%
3.	15051121	12	39.9	*Pipistrellus nathusii*	79%
4.	15051123	7	52.2	*Miniopterus schreibersii*	62%
5.	15051124	66	50.8	*Pipistrellus pipistrellus*	51%

Annex 2.7. Livoishta-Livoishta Monitoring Site (Line Transect): Raw data of Batlogger M recordings on foraging bats along line transect (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	*	-	-	-	-
2.	*	-	-	-	-
3.	*	-	-	-	-

* No presence of foraging bats was recorded along the Livoishta-Livoishta Monitoring Site during the Autumn Season Survey, 2016.

Annex 2.8. Livoishta-Trebenishta Monitoring Site (Line Transect): Raw data of Batlogger M recordings on foraging bats along line transect (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	*	-	-	-	-
2.	*	-	-	-	-
3.	*	-	-	-	-

* No presence of foraging bats was recorded along the Livoishta-Trebenishta Monitoring Site during the Autumn Season Survey, 2016.

Annex 2.9. Moroishta Monitoring Site (Point Count): Raw data of Batlogger M recordings on foraging bats (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	*	-	-	-	-
2.	*	-	-	-	-
3.	*	-	-	-	-

* No presence of foraging bats along the Moroishta Monitoring Site during the Autumn Season Survey, 2016 was recorded.

Annex 2.10. Vishni - Kjafasan State Border Crossing Monitoring Site (Line Transect): Raw data of Batlogger M recordings on foraging bats along line transect using moving vehicle (Autumn Season Survey, 2016).

Nr.	Recording Code	Number of Calls	Peak Freq. (kHz)	Suggested species	% of certainty
1.	15051130	100	40.2	*Pipistrellus kuhlii*	48%
2.	15051132	4	37.5	*Pipistrellus kuhlii*	64%
3.	15051174	4	51.1	*Pipistrellus pipistrellus*	63%
4.	15051183	12	49.9	*Pipistrellus pipistrellus*	70%
5.	15051196	8	49.5	*Pipistrellus pipistrellus*	58%
6.	15051215	15	50.1	*Pipistrellus pipistrellus*	75%
7.	15051216	12	50.2	*Pipistrellus pipistrellus*	65%
8.	15051223	9	49.5	*Pipistrellus pipistrellus*	63%
9.	15051264	70	38.3	*Pipistrellus kuhlii*	58%
10.	15051265	42	38.4	*Pipistrellus kuhlii*	63%