

APPENDIX Y
OTHER ECOLOGICAL SURVEYS

Results of Fauna Surveys

Approach and Methodology

A general walkover was undertaken of the existing road and the design alignment to get a general visual impression of the planned highway and identifying potential problems and adverse impact on the environment. This was followed by the following biodiversity field surveys:

- April 19, 2018: Tskere-Kobi section of alignment (Lot1),
- May 8, 2018: Kvesheti-Tskere section (Lot 2)

During the field surveys information was collated on the vegetation/flora in the project corridor, with a focus on the presence of protected species. Particular attention was paid to birds in the Kobi area given its location close to Kazbegi National Park and within the Special Protection Area for Birds (SPA 9).

Vegetation Surveys

Vegetation diversity was assessed through ground truthing of existing literature on flora of the targeted area. Plants were identified based on the checklists of the flora of Georgia (Ketzkhoveli & Gagnidze, 1971-2011; Czerepanov, 1995; Gagnidze, 2005) with information on local species distribution collated from key literature sources (Ketzkhoveli, 1960; Doluchanov, 2010, Akhalkatsi, Tarkhnishvili, 2012; Nakhutsrishvili, 2013). Plant taxonomies were verified based on one “The Plant List” (Vers. 1, 2010). Threat categories for plants were determined according the categories and criteria of International Union for Conservation of Nature (IUCN) guidelines (IUCN, 2003) and The Red List of Georgia (2006). Field sampling of vegetation of the study corridor(s) was also undertaken to obtain precise empirical data. This used different sampling plots of 1x1m, 5x5m, 10x10m or 25x25m depending on the vegetation type (meadow wetland, shrubs, trees,). Species abundance was recorded based on the Domin scale.

Terrestrial fauna surveys

Both desk top study and field surveys were carried out within the study area to help identify:

- animal species present (particular protected species on the Red list or other conservation status);
- significant habitats for notable species;
- determine possible impact on animal biodiversity on construction and operation phases and
- to develop impact mitigation measures.

The surveys involved walkover surveys along transects with all observed species recorded and identified along with any other evidence of excrements, holes, burrows, feathers, fur, etc. The surveyed corridor width was ranging from 50 to 100m depending on location. Specific details on surveys for particular groups are provided below.

Mammals

The following mammals (excluding bats) have been recorded from the area:

Scientific name	Common name	IUCN	GRL	Lot 1	Lot 2
<i>Erinaceus concolor</i>	Common hedgehog	LC	LC	√	√
<i>Canis lupus</i>	Grey wolf	LC	LC	√	√
<i>Lutra lutra</i>	Eurasian otter	VU	NT		√
<i>Meles meles</i>	European badger	-	LC		√
<i>Dryomys nitedula</i>	Forest dormouse	NE	LC	√	√
<i>Lynx lynx</i>	Eurasian lynx	CR	LC	√	√
<i>Lepus europeus</i>	European hare	-	LC		√
<i>Sciurus anomalus</i>	Caucasian squirrel	VU	LC	√	√
<i>Canis aureus</i>	Golden jackal	-	LC		√
<i>Mustela nivalis</i>	Least weasel	NE	LC	√	√
<i>Felis silvestris</i>	Wild Cat	NE	LC	√	√
<i>Vulpes vulpes</i>	Red fox	LC	LC	√	√
<i>Ursus arctos</i>	Brown bear	EN	LC	√	√
<i>Capreolus capreolus</i>	Roe Deer	LC	LC		√
<i>Sorex raddei</i>	Radde's shrew	NE	LC	√	√
<i>Martes foina</i>	Beech marten	LC	LC	√	√
<i>Martes martes</i>	European pine marten	NE	LC	√	√
<i>Apodemus uralensis</i>	Pygmy field mouse	LC	LC	√	√
<i>Talpa levantis</i>	Levant mole	NE	LC	√	√
<i>Rupicapra rupicapra</i>	Chamois	EN	LC	√	
<i>Rupicapra rupicapra</i>	Chamois	EN	LC		√
<i>Capra cylindricornis</i>	Dahestanian Tur	VU	VU	√	√
<i>Chionomys gud</i>	Gudauri Vole	DD	LC	√	√
<i>Chionomys roberti</i>	Robert's Snow Vole	DD	LC	√	√
<i>Prometheomys schaposchnikovi</i>	Long-clawed mole-vole	VU	NT	√	√

IUCN - International Union for Conservation of Nature; GRL – Red List of Georgia; LC- Least Concern; NE – Not Evaluated ; EN - Endangered; VU - Vulnerable; CR - Critical; DD – Data deficient

The desk studies and consultations with local residents indicated that the most common mammals in the area are Red fox (*Vulpes vulpes*) and Beech marten (*Martes foina*). Chamois (*Rupicapra rupicapra*) is known from the National Park area (Sakhizrebi area) and the right bank of the Tergi river. Locals report that in winter and early spring wolves use to be seen in the area and every year there are several cases of wolves attacking the cattle. Locals also mention that traces of bear are sometimes seen near the cattle barns. Others speak about a cat seen in the middle flow of the Narvani river. This can be Eurasian lynx (*Lynx lynx*), however within the last 5-6 years such cases are seldom reported.

Bats (which are all protected by the EUROBATS agreement) may be found in houses, hollows trees and/or rock fissures along the project alignment. The data search recorded 6 species of bats from along the project corridor (all recorded from both Lot 1 and Lot 2) as follows:

Scientific name	Name in English	IUCN	GRL
<i>Myotis nattereri</i>	Natterer's Bat	LC	-
<i>Myotis mystacinus</i>	Whiskered bat	LC	-
<i>Nyctalus leisleri</i>	Leisler's bat	LC	-
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	LC	-
<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle	LC	-
<i>Plecotus auritus</i>	Brown long-eared bat	LC	-

Birds

Birds have been studied in the region for many years (eg by the Institute of Zoology of Georgian Academy of Sciences). Particular attention was paid to nesting (during construction) and migratory (during operation) birds in the area. The initial data search indicated some 26 species of nesting birds had been recorded from the Lot 1 area (mainly passerines and waterfowl) and 43 from the Lot 2 area as shown in the table below. Whilst none of these are IUCN Red List species, part of the Lot 1 alignment (around 5.5km) is located within the area important for birds (SPA#9), and close to the Kazbegi Protected Areas and more uncommon species may be present here.

Birds commonly found within the Project Study Area

Latin name	Common name	Season	IUCN	GRL	Lot 1	Lot 2
<i>Charadrius dubius</i>	Little Ringed Plover	YR-R, M	LC	-	√	√
<i>Actitis hypoleucos</i>	Common Sandpiper	YR-R, M	LC	-	√	√
<i>Hirundo rustica</i>	Barn Swallow	BB, M	LC	-	√	√
<i>Hirundo rupestris</i>	Eurasian Crag martin	BB, M	LC	-	√	√
<i>Athene noctu</i>	Little Owl	M	LC	-		√
<i>Strix aluco</i>	Tawny Owl	YR-R	LC	-		√
<i>Anthus spinoletta</i>	Water Pipit	BB, M	LC	-	√	√
<i>Passer domesticus</i>	House sparrow	YR-R	LC	-		√
<i>Motacilla alba</i>	White Wagtail	YR-R, M	LC	-	√	√
<i>Motacilla cinerea</i>	Grey Wagtail	YR-R, M	LC	-	√	√
<i>Lanius collurio</i>	Red-backed Shrike	BB, M	LC	-	√	√
<i>Lanius excubitor</i>	Greater Grey Shrike	WV	LC	-		√
<i>Sylvia atricapilla</i>	Blackcap	BB, M	LC	-	√	√
<i>Saxicola rubetra</i>	Whinchat	BB, M	LC	-	√	√
<i>Oenanthe oenanthe</i>	Northern Wheatear	BB, M	LC	-	√	√
<i>Phoenicurus ochruros</i>	Black Redstart	YR-R, M	LC	-	√	√
<i>Phoenicurus phoenicurus</i>	Common Redstart	BB, M	LC	-		√
<i>Emberiza melanocephala</i>	Black-headed Bunting	BB, M	LC	-		√
<i>Phylloscopus collybita</i>	Common Chiffchaff	BB, M	LC	-		√
<i>Sitta europaea</i>	Wood Nuthatch	YR-R	LC	-		√
<i>Turdus merula</i>	Eurasian Blackbird	YR-R	LC	-	√	√
<i>Parus major</i>	Great Tit	YR-R	LC	-	√	√
<i>Parus caeruleus</i>	Blue Tit	YR-R	LC	-	√	√
<i>Aegithalos caudatus</i>	Long-tailed Tit	YR-R, M	LC	-		√
<i>Troglodytes hiemalis</i>	Winter Wren	YR-R	LC	-	√	√

<i>Carduelis carduelis</i>	European Goldfinch	YR-R, M	LC	-	√	√
<i>Carduelis chloris</i>	European Greenfinch	YR-R, M	LC	-		√
<i>Carduelis flavirostris</i>	Twite	YR-R	LC	-		√
<i>Pyrrhonorax pyrrhonorax</i>	Red-billed Chough	YR-R	LC	-		√
<i>Pyrrhonorax graculus</i>	Yellow-billed Chough	YR-R	LC	-		√
<i>Corvus corax</i>	Common Raven	YR-R	LC	-		√
<i>Cuculus canorus</i>	Common Cuckoo	BB, M	LC	-		√
<i>Corvus frugilegus</i>	Rook	YR-R, M	LC	-		√
<i>Eremophila alpestris</i>	Horned Lark	YR-R, M	LC	-		√
<i>Delichon urbicum</i>	Northern House Martin	BB, M	LC	-		√
<i>Turdus viscivorus</i>	Mistle Thrush	YR-R, M	LC	-		√
Neophron percnopterus	Egyptian Vulture	BB, M	EN	VU		√
<i>Pernis apivorus</i>	European Honey-Buzzard	BB, M	LC	-		√
<i>Erithacus rubecula</i>	European Robin	M	LC	-		√
<i>Carpodacus erythrinus</i>	Common Rosefinch	BB, M	LC	-		√
<i>Buteo buteo</i>	Common Buzzard	YR-R, M	LC	-		√
<i>Emberiza sp.</i>	Bunting	BB, M	LC	-		√
<i>Sylvia curruca</i>	Lesser Whitethroat	BB, M	LC	-		√

The number and species composition of birds in the area increases during **autumn and spring migrations**, whilst significant numbers of birds can be registered in lowland areas in **winter** as well. The main migration route crossing the project region starts in the Russian Federation, goes along the Tergi river, over Jvari pass and Gudauri before following the Tetri and Black Aragvi rivers towards the Mtkvari river before eventually heading towards Iran. Area adjacent to the project may be used by raptors and passerines as a resting place during migration. This includes the Tergi gorge (for waterfowl), as well as forest and areas not used for agricultural purposes. The Khadistskali gorge is not considered as migration corridor. Data reviewed indicated that numbers of nesting birds within the study area is rather low, and most species are common.

The **Lot 1** project area is partly located within the Special Protection Area for Birds (SPA#9) – Khevi (Category: B2, C2, C5) and IBA (GEO21). Species of concern: include Caucasian Grouse (*Lyrurus mlokosiewiczii*), Bearded vulture (*Gypaetus barbatus*), Griffon Vulture (*Gyps fulvus*), Black Vulture (*Aegypius monachus*), Guldenstadt's Redstart (*Phoenicurus erythrogastrus*), Great Rosefinch (*Carpodacus rubicilla*), and soaring birds. There are large breeding populations of Caucasian grouse (Gavashelishvili et al. 2010), Guldenstadt's Redstart and Great Rosefinch in the Khevi SPA. 2-3 pairs of Bearded vulture and 15-20 pairs Griffon Vulture breed in Khevi. Black Vulture is Year-round visitor (Galvez et al. 2005). An area is used by over 30 000 raptors for migration in autumn and spring. All of species (except Black Vulture) are included on the red list of Georgia as Vulnerable (VU) and Black Vulture as Endangered (EN). Caucasian Grouse and Black Vulture are also classified on the IUCN red list as Near Threatened (NT).

A number of less common species are also found in the wider areas with many nesting at higher elevation (2500masl) as shown in the table below. All of the listed species, except for Caucasian Snowcock and Peregrine Falcon are on the Red List of Georgia as vulnerable.

Scientific name	Common name	Season	IUCN	GRL
<i>Phoenicurus erythrogastrus</i>	Guldenstädt's Redstart	YR-R	LC	VU
<i>Carpodacus rubicilla</i>	Great Rosefinch	YR-R	LC	VU

<i>Tetraogallus caucasicus</i>	Caucasian Snowcock	YR-R	LC	-
<i>Lyrurus mlokosiewiczi</i>	Caucasian Grouse	YR-R	NT	VU
<i>Gyps fulvus</i>	Eurasian Griffon Vulture	YR-R	LC	VU
<i>Gypaetus barbatus</i>	Bearded Vulture	YR-R	NT	VU
<i>Falco peregrinus</i>	Peregrine Falcon	YR-R, M	LC	-

The **Lot 2** Kvesheti –Tskere corridor is considered generally less sensitive as it is not located in migration corridor neither in/close to the boundaries of SPA. During the site visits most bird species seen (or identified by song) were common species met everywhere in Georgia. Among migratory and wintering species passerines dominate. Protected species such as Egyptian vulture were rarely seen, but they, and other raptors, can be found in the area while moving around.

Reptiles

Specific searches were made of reptiles and amphibians in wet areas and under refuges. Some 9 reptile species are recorded in the **Lot 1 Project Area** including the Artwin lizard (*Darevskia derjugini*) (according to Tarkhnishvili et al 2012-2013). One regional endemic lizard - Georgian lizard (*Darevskia rudis*) and two Caucasus endemic species - Daghestanian Lizard (*Darevskia daghestanica*) and Caucasian Lizard (*Darevskia caucasica*) are also recorded along with three snake species.

The **Lot 2 study area** is not considered notable for diversity and endemism of reptile species and no endangered species have been recorded. During the site visit 2 species of snake and two species of lizards were recorded. Habitat suitable for reptiles within the study area can be split into two parts: 1) riverine areas where Grass Snake (*Natrix natrix*) and Tessellated Water Snake (*Natrix tessellata*), Caucasian Lizard (*Darevskia caucasica*) and other lizards, 2) Artwin Lizard (*Darevskia derjugini*) and Smooth Snake (*Coronella austriaca*).

Reptiles in the project region (Lot1)

Scientific name	Common name	IUCN	GRL	Lot 1	Lot 2
<i>Coronella austriaca</i>	Smooth Snake	LC	LC	√	√
<i>Natrix natrix</i>	Grass Snake	LC	LC	√	√
<i>Natrix tessellata</i>	Tessellated Water Snake	LC	LC	√	√
<i>Vipera dinniki</i>	Caucasus Subalpine Viper	VU	VU	√	
<i>Darevskia caucasica</i>	Caucasian Lizard	LC	DD	√	√
<i>Darevskia derjugini</i>	Artwin Lizard	NT	LC	√	√
<i>Lacerta strigata</i>	Striped Lizard	LC	LC	√	√
<i>Darevskia daghestanica</i>	Daghestanian Lizard	LC	NT	√	
<i>Darevskia rudis</i>	Georgian lizard	LC	LC	√	√
<i>Anguis colchica</i>	Slow worm	NT	LC		√
<i>Lacerta agilis</i>	Sand Lizard	LC	DD		√

IUCN - International Union for Conservation of Nature; GRL – Red List of Georgia LC- Least Concern; VU-Vulnerable; NT- Near threatened; DD - Data deficient

Amphibians

Five amphibian species are recorded from the **Lot 1** region (based on site observation and Tarkhnoshvili 1985, 1996 data). None of these are protected. No amphibian eggs or adults were recorded in surveys. The Lot 2 area was not notable for diversity of the species or the level of endemism. Several dozen individuals of Lake frogs and one Brown frog were recorded during the site visit in May. Common Treefrog was identified by call.

Scientific name	Common name	IUCN	GRL	Lot 1	Lot 2
<i>Bufo verrucosissimus</i>	Caucasian Toad	NT	NT		√
<i>Bufo viridis</i>	Green toad	LC	LC	√	√
<i>Ommatotriton ophryticus</i>	Banded newt	NT	LC	√	
<i>Triturus karelinii</i>	Eastern crested newt	LC	NT	√	
<i>Pelophylax ridibundus</i>	Lake frog	LC	LC	√	√
<i>Rana macrocnemis</i>	Brown frog	LC	LC	√	√
<i>Hyla orientalis</i>	Common Treefrog	LC	LC		√

Invertebrates

Large invertebrates were recorded when observed. Along with catching of insects on the wing; approaches included, turning over the stones and soil; checking of plants; photographing; beating of insects onto an awning; and checking pond bottoms by sieving. The following invertebrates were recorded (all Lot 2 area):

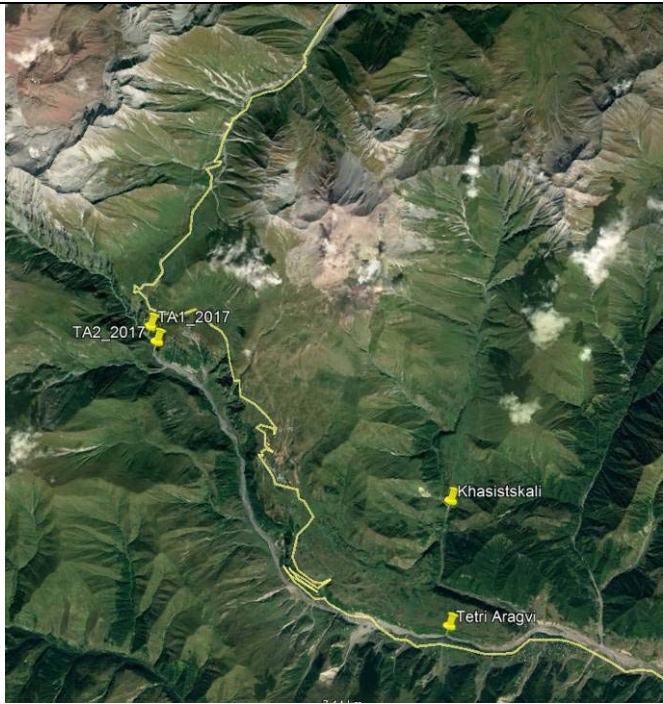
Latin Name	Common name	GRL	IUCN
<i>Nymphalis antiopa</i>	Mourning-cloak butterfly	NE	NE
<i>Lampyris noctiluca</i>	Glow-worm	NE	NE
<i>Geotrupes spiniger</i>	Dumbedor beetle	NE	NE
<i>Purpuricenus budensis</i>	Red long-horned Beetle	NE	NE
<i>Lucanus ibericus</i>	Stag beetle		
<i>Polyommatus amandus</i>	Amanda's blue butterfly	NE	NE
<i>Polyommatus corydonius</i>	False chalkhill blue butterfly	NE	NE
<i>Polyommatus thersites</i>	Chapman's blue butterfly	NE	NE
<i>Cercopis intermedia</i>	Froghopper	NE	NE
<i>Vanessa atalanta</i>	Red admiral butterfly	NE	NE
<i>Mylabris quadripunctata</i>	Four-spotted blister beetle	NE	NE
<i>Dorcus parallelipipedus</i>	Lesser stag beetle	NE	NE
<i>Libellula depressa</i>	Broad-bodied chaser	NE	LC
<i>Pieris rapae</i>	European cabbage butterfly	NE	NE
<i>Plebeius argus</i>	Silver-studded blue butterfly	NE	NE
<i>Aphis urticae</i>	Dark green nettle aphid	NE	NE
<i>Pieris brassicae</i>	Cabbage butterfly	NE	NE
<i>Pyrrhocoris apterus</i>	Firebug	NE	NE
<i>Lymantria dispar</i>	Gypsy moth	NE	NE
<i>Gryllus campestris</i>	Field cricket	NE	NE
<i>Decticus verrucivorus</i>	Wart-biter	NE	NE
<i>Tettigonia viridissima</i>	Great green bush-cricket	NE	NE

Aquatic Ecology - Fish

The fish study included a combination of desk study, field surveys and interviews with local fishermen. The field study included a review of habitat suitability for fish based on river bed geomorphology and general hydrological characteristics, as well as:

1. biological analysis of fish (length; weight; gender, maturity stage; collection, fattening coefficient, meristic and plastic characteristics, the digestive tract content);
2. collection, labeling and preservation of scales for subsequent lab analysis;
3. study of food base - hydroflora and hydrofauna; identification of macroinvertebrates and insects used for feeding;
4. study of the status of living environment of both fish and invertebrates;
5. determination of suspended solids; dissolved oxygen (using filed tester Oxi 330i); water and air temperature; pH measurements - on-site;
6. sampling of water for lab analysis;
7. assessment of species composition of zoobenthos/protozoa.

Control fish catches have been performed in 4 locations in the rivers of interest (see below) using a combination of one cast and three wall nets. Control fish catches Surveys were based on catch and release principles and every fish caught was logged. Studies of age, growth and growth rate were made through laboratory analysis of fish scales collected during the field survey.

	River	Coordinates
	<i>Khadistskali</i>	461245 m E 4700270 m N
	<i>Tetri Aragvi</i>	461161.00 m E 4697401.00 m N
	<i>Narvani</i>	461166.00 m E 4711527.00 m N
	<i>Baidara</i>	459146.00 m E 4711636.00 m N
	<i>Tetri Aragvi</i>	(2016 survey data)
	TA1-2017	454573.00 m E 4704256.00 m N
	TA2_2017	454692.00 m E 4703914.00 m N

Control catches sites

Interviews were also with amateur fishermen with at least 5-10 years of fishing experience have been selected. The questionnaire was drawn up so to reduce the risk of false information (overestimation/bragging). Information confirmed by three or more respondents was assumed as reliable.

Based on this work the following fish are expected to be present in the rivers of the project area:

Common name	Scientific name	IUCN	GRL	Tergi	Narvani	Baidara	Tetri Aragvi	Khadistskali
Trout	<i>Salmo trutta morfa fario</i>	LC	VU	√	√	√	√	√
Gudgeon	<i>Gobio gobio</i>	LC	-	√				
Roach	<i>Rutilus rutilus</i>	LC	-	√				
Chub	<i>Squalius cephalus</i>	LC	-	√				
Khramulya	<i>Capoeta capoeta</i>	NE					√	
Kura nase (undermouth)	<i>Chondrostoma cyri</i>	NE					√	
Caucasian river goby	<i>Neogobius constructor</i>	LC					√	
Chub Skelly	<i>Squalius cephalus</i>	LC					√	√
Kura barbel	<i>Barbus lacerta</i>	NE					√	
Kura roach	<i>Rutilus rutilus kurensis</i>						√	
Murtsa	<i>Luciobarbus mursa</i>	NE						√

During the control trout were recorded in Tetri Aragvi, Khadistskali and Narvani rivers and the presence of the trout has been confirmed by local residents/fishermen and surveys carried out by the team for other assignment in the same area in 2017. During the site survey pH 6.5, high oxygen content in the Baidara river as well as presence of invertebrates (food base for fish) enables to conclude that conditions for fish are suitable. However, during the site survey control catches did not prove to be successful. Site survey results and the 2017 survey data are given below:

1.4.1..1.1 Control catches data

River	Species	Qty	Length, m	Weight, g	Gender and maturity stage	Age
Khadistskali	Trout	1	20.5	92	♂ III	3+
Tetri Aragvi	Common roach	2	11.5	18	♀ III	3
			11.0	15	♂ III	3
Tetri Aragvi (2017 data)	Trout	5	17.5	65	♀ V	3+
			18.5	67	♀ V	3+
			19.0	71	♀ V	3+
			13.5	53	♂ V	2+
			15.0	57	♂ V	2+
Tetri Aragvi (2017 data)	Trout	5	15.5	55	♂ VI-II	2+
			17.0	58	♂ VI-II	3+
			25	82	♀ VI-II	3+
			23.5	78	♀ VI-II	3+
			24.0	80	♀ VI-II	3+

In addition to site surveys interviews with local fishermen were carried out. In total 10 individuals were interviewed. Additional information is included in Annex to this report.



Trout species obtained during the control catches in the area

Aquatic Ecology – Macro Invertebrates

A range of macro-invertebrates were recorded as shown in Appendix 3. These included the following:

- DAPHNIA: *Daphnia pulex*, *D. longispina*, *D. Magna*, *D. Lumholtzi*.
- ENTOMOSTRACA - Ostracoda; Ostracoda, *Eucypris inflata*;
- MALACOSTRACA – Amphipoda.

The following aquatic plants were also recorded, including *Ulotrix zonata*, *Enteromorpha prolifera*, and *Cladophora* sp.

Annex 1: Bird Photo Log

	
Northern House Martin (<i>Delichon urbicum</i>)	European Honey-Buzzard (<i>Pernis apivorus</i>)

	
Red-backed Shrike (<i>Lanius collurio</i>)	Common Redstart (<i>Phoenicurus phoenicurus</i>)



Egyptian Vulture (*Neophron percnopterus*)



Yellow-billed chough (*Pyrrhocorax graculus*)



Common cuckoo (*Cuculus canorus*)



Common rosefinch (*Carpodacus erythrinus*)



European goldfinch (*Carduelis carduelis*)



White wagtail (*Motacilla alba*)



Blue tit (*Parus caeruleus*)



Black-headed bunting (*Emberiza melanocephala*)



Wood nuthatch (*Sitta europaea*)



Long-tailed tit (*Aegithalos caudatus*)



Eurasian blackbird (*Turdus merula*)



Greater grey shrike (*Lanius excubitor*)



Great tit (*Parus major*)

Appendix 2 Reptile, Amphibian and Invertebrate Photo Log



Smooth Snake (*Coronella austriaca*)



Caucasian Lizard (*Darevskia caucasica*)



Brown frog (*Rana macrocnemis*)



Waterlogged area suitable for frogs



Stag beetle *Lucanus ibericus*



Lampyridae

Appendix 3 Invertebrates Recorded During Aquatic Surveys



Rhyacophila (X=461191.00; Y=4697380.00; H= 1415 m)



Trichoptera with case (X= 461264; Y= 4700323; H=1552 m)



Charophyceae (X= 461273; Y= 4700311; H=1550 m)

Charophyceae (X= 461266; Y= 4700320; H=1551 m)



Rhyacophila (X= 459228; Y= 4711885; H=1973 m)



Epeorus (X= 461277; Y= 4700306; H=1550 m)



Plecoptera (X= 459213; Y= 4711929; H=1972 m)

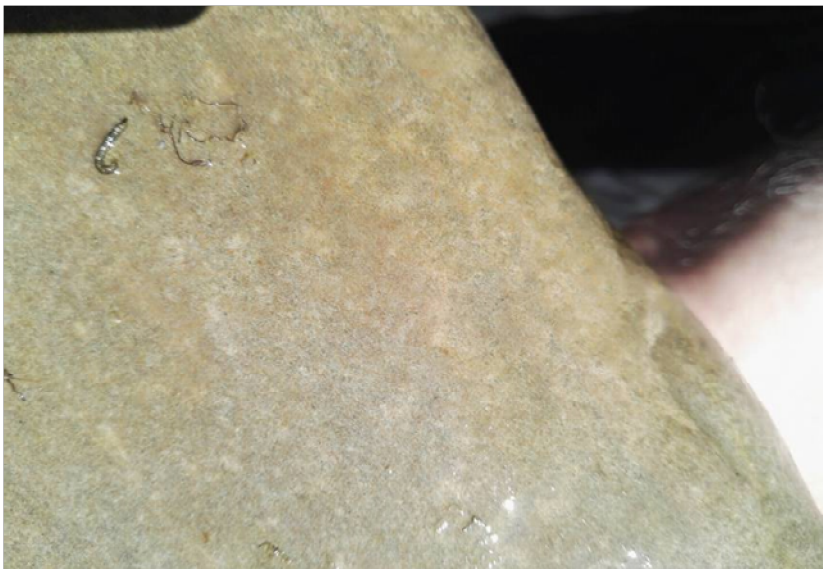


Rhyacophila (X= 459227; Y= 4711905; H=1972 m)



Trichoptera with case (X= 460233; Y= 4711585; H=2031 m)

Rhyacophila (X= 459220; Y= 4711941; H=1971 m)



Rhyacophila (X= 460264; Y= 4711548; H=2030 m)



Musci (X= 460876; Y= 4711548; H=2074 m)



Plecoptera; Trichoptera with case; Epeorus (X= 460260; Y= 4711557; H=2028 m)	Epeorus (X= 460268; Y= 4711538; H=2031 m)
	
Trichoptera with case (X= 460247; Y= 4711576; H=2028 m X= 460247; Y= 4711575; H=2028 m)	Plecoptera (X= 460251; Y= 4711574; H=2028 m)