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CONTRIBUTION TO THE KNOWLEDGE OF THE VERTEBRATE AND INVERTEBRATE FAUNA OF SOVATA AREA

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Abstract. This paper presents a faunistic survey of the „Lacul Ursu și Arboretele de pe Sărături” Scientific Reserve and its surroundings. The invertebrate animal species were inventoried in 2008 and 2009, and data on vertebrates were collected from 1990 to 2009. There were identified in total 301 species of animals (118 invertebrates and 184 vertebrates species). Of these, 68 animal species are protected under law.

Key words: „Lacul Ursu și Arboretele de pe Sărături” Scientific Reserve, invertebrates and vertebrates species

Rezumat. Lucrarea de față prezintă un studiu taxonomic despre fauna Rezervației Științifice „Lacul Ursu și Arboretele de pe Sărături” și împrejurimile sale. Speciile de nevertebrate au fost inventariate în 2008 și 2009, iar datele referitoare la fauna vertebrate au fost colectate între anii 1990 - 2009. Au fost identificate în total 301 de specii de animale (118 nevertebrate și 184 specii de vertebrate). Dintre acestea 68 de specii sunt protejate de lege.

Cuvinte cheie: Rezervația Științifică „Lacul Ursu și Arboretele de pe Sărături”, specii de animale nevertebrate și vertebrate.

Introduction

Nearly 20% of Romania's territory is protected area, as a result of a recently finished process of protected area designation (Ioja *et al.* 2010). Although most of these areas have special protection statuses (Gaston *et al.* 2007), the scientific and conservation importance of these highlight the general biodiversity value of Romania (Cogălniceanu, Cogălniceanu 2010). For conservation and management purposes, knowing the exact or estimated spatial distribution of the study object is one of the key information pieces one requires in order to understand a species' potential: its current status as well as the ecological factors contributing to the species' dynamics and future perspective in case of changing environment (Strange *et al.* 2011; Fischer *et al.* 2011). To do so, one requires information collected at local to regional level (Schmeller *et al.* 2008). As most protected areas in the country are fairly new

most have only base-line surveys performed, lacking proper studies necessary for management planning (Curtean-Bănăduc 2006). Hereby we would like to present a thorough faunistic survey of a small scientific reserve („Lacul Ursu și Arboretele de pe Sărături” Scientific Reserve, Sovata) and its surroundings.

Zoological research targeting Sovata is very poor and most papers report on the biota of its salt lakes. Thus, Trică (1983) studied the biota of some saline lakes from Sovata (Roșu, Verde, Mierlei, Aluniș, Negru lake). Zooplankton is dominated by protozoa, rotiferans, crustaceans, among insects, larvae of *Ephydra riparia* and *Chironomus thummi* are mentioned. All these organisms contribute to the therapeutic mud of the lake bottom. Their dead bodies form, through bacterial decomposition, sapropelic mud with active mineral components, which gives it a remarkable therapeutic value (Alexe *et al.* 2006).

In 1998, Ionescu and collaborators published a review about the biota of salt lakes in Romania, which includes Mierlei, Ursu, and Negrul lakes (Ionescu *et al.* 1998). Compared to Trică's work

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(1983) about the fauna of these lakes, only a few new insect species are mentioned in addition.

Up to our knowledge there is no systematic review of the fauna of the region, while, there are a few notes in zoological papers dealing with specific groups. Paraschivescu (1972) mentioned three ant species from Muntele de Sare, while Szél *et al.* (2007) lists *Carabus hampei hampei* (Coleoptera, Carabidae) from Sovata.

In an ethnozoological book detailing the fauna of Sărăteni area, a nearby village situated in the upper valley of Târnava Mică, Gub (1996) specifies Sovata as a habitat of some animal species, listing annelids (7 species), molluscs (4), arthropods (35), fishes (9), amphibians (5), reptiles (4), birds (27) and mammals (10 species).

The aim of this paper is to inventory the animal species characteristic of the different habitats from Sovata area, and to identify the rare and protected species on the basis of national and international legislation.

Material and methods

This study refers to the surroundings of Ursu, Aluniș, Paraschiva, Roșu, Verde, Șerpilor, Mierlei lakes, Salt Mount, Sărat creek („Lacul Ursu și Arboretele de pe Sărățuri” Scientific Reserve), the upper and middle part of Răchitiș creek, respectively the mixed broadleaves forest of this whole area, which neighbours the protected area of the Lake Ursu Nature Reserve. This area is characterised by different habitats: aquatic, littoral and palustral habitats, hygrophilous tall-herb fringe communities, mesic grasslands, wet meadows, inland saline habitats, mixed broadleaves forest, dominated by beech (*Fagus sylvatica*), and small conifere stands, with both Scotts Pine (*Pinus sylvestris*) and Norway Spruce (*Picea abies*). A detailed characterisation of vegetation from the studied area along with a map detailing study locations are given in Frink *et al.* (2013).

The field surveys were performed in 2008 and 2009 (May, July, September). However, data on vertebrates were collected from 1990 to 2009. All vertebrates and most invertebrate species were identified on the ground, only in cases where this was not possible they were collected and identified in the laboratory. The invertebrate species were collected using tweezers, blow-type aspirator, leaf-litter sieve, sweep net, and butterfly net. The species were identified using the identification

keys of Motzfeld-Müller (2004), Móczár (1984), Heimer and Nentwig (1991), Tolman and Lewington (2001).

Identification larger of mammals (Carnivora, Artiodactyla, Lagomorpha) was implemented primarily by tracks, while visual observations were recorded for a number of different species, with the occasion of bird surveys. Bats and small mammals were incidentally recorded, mainly as roadkills, prey remains of predatory birds and bycatches of ornithological mist netting. Bird records are the results of systematic survey of breeding birds in the region using point count surveys, territory mapping and standardised mist netting (targeting migratory species) (Sándor A. in prep). A number of rarer species were recorded as incidental observations while doing the systematic surveys. All reptile and amphibian records represent incidental observations.

Results and discussion

The study area is characterized by a diverse fauna, due to variability of vegetation, relief, topoclimate, geological substrate and soil.

In the studied area were identified a total of 301 species of animals: 118 invertebrate and 184 vertebrate species. Of these, 68 species are protected under national law (according to OUG27/2007). The complete list of taxa recorded is given in Table 1. From the identified invertebrate species 112 species belong to the phylum Arthropoda, several of these are strictly protected/rare species (*Cerambyx cerdo*, *Lucanus cervus*, *Morimus funereus*, *Rosalia alpina*). Three species belong to the phylum Mollusca, and 3 to the phylum Annelida. We found a number of two fish, 8 reptile, 9 amphibian, 129 bird and 38 mammal species present in the protected area.

Only 9 species of amphibians out of the 19 species occurring nationally were recorded in the area. This is primarily the result of the wide-spread presence of saltwater habitats, unsuitable for amphibians. Most amphibian species are forest specialists, and they use for reproduction the small temporary ponds and the stream sections present in the area. The only freshwater habitat in the region is the Paraschiva Lake, which contains a small population of *Rana ridibunda*. Boreal forests are mostly poor in reptile species, thus most reptiles present in the area are either using man-made habitats (*Podarcis muralis*) or occur preferentially in clearings and small meadows. Both fish species

are common species and were introduced purposefully to Lake Paraschiva by local anglers.

There is a large number of bird species observed, which in part are the result of the long survey period, using of several different methods and partly a result of the diverse mosaics of habitats in the study area. Moreover, bird surveys were performed in all seasons, thus cover not only the breeding, but postbreeding, migratory and wintering periods. Among birds, the most diverse group is represented by Passeriformes, typical for forested areas, but the group of woodpeckers (Piciformes) has also high species numbers. The regular observation of large predatory birds (*Aquila pomarina*, *Bubo bubo*, *Pernis apivorus*) typically reflects the presence of nearby undisturbed forests.

Mammals observed in the region are common inhabitants of the boreal ecoregion and mainly species living in forested habitats. The composition of mammal fauna is rich and is dominated by small mammals (bats, rodents), with the regular presence of large carnivores and herbivores. As forest cover is continuous along the northern and western part of the reserve, the populations of mammals are not fragmented by the reserve border.

Detailed faunistical surveys with the data provided followed by rigorous monitoring are the basic needs for any protected area management decision.

This is especially important for small and faunistically rich areas, where anthropic pressure is high. The „Lacul Ursu și Arboretele de pe Sărături” Scientific Reserve is a small area, in close vicinity and with organic links to one of the largest Site of Community Interest of Romania, laying in the alpine bioregion, the ROSCI0019 Călimani-Gurghiu. This particular situation favours the exchange of faunal elements and enables the area to be visited by large carnivores (wolf, bear) or other species which require more extensive forest cover, like predatory birds.

However, for the maintenance of such a rich fauna, any management decision in the reserve has to be carefully planned and should be based on sound scientific arguments. We consider that our survey created the foundation for such an approach and this baseline survey managed to identify most species present in the reserve, providing all the necessary tools for a good start of this process.

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LIST OF ILLUSTRATIONS

Table 1. List of animals species recorded in Sovata area. *Abbreviation:* IUCN Categories: LR - Lower Risk, LC - Least Concern, Vu – Vulnerable, CD - Conservation Dependent, NT - Near Threatened, En – Endangered, NE - Non Evaluated, CR- Critically Endangered; BD – Birds Directive, HD – Habitats Directive; An3 – Annex nr. 3, An4A – Annex nr. 4A, An4B – Annex nr. 4B, An5 – Annex nr. 5 of the OUG 57/2007

LISTA ILUSTRAȚIILOR

Tabel 1. Lista speciilor de animale identificate în zona Sovata. *Prescurtări:* Categoriile IUCN: LR/ LC - Cu risc scăzut, Vu – Vulnerabile, CD – Depind de acțiuni de conservare, NT - Amenințate moderat, En – Amenințate, NE - Neevaluate, CR- Amenințate critic; BD – Directiva Păsări, HD – Directiva Habitate; An3 – Anexa nr. 3, An4A – Anexa nr. 4A, An4B – Anexa nr. 4B, An5 – Anexa nr. 5 a OUG 57/2007

Tab. 1. List of animals species recorded in Sovata area. *Abbreviation:* IUCN Categories: LR - Lower Risk, LC - Least Concern, Vu – Vulnerable, CD - Conservation Dependent, NT - Near Threatened, En – Endangered, NE - Non Evaluated, CR- Critically Endangered; BD – Birds Directive, HD – Habitats Directive; An3 – Annex nr. 3, An4A – Annex nr. 4A, An4B – Annex nr. 4B, An5 – Annex nr. 5 of the OUG 57/2007 /

	<i>IUCN category</i>	<i>Legislation</i>	<i>Aquatic habitats</i>	<i>Littoral and palustral habitats</i>	<i>Hygrophilous tall-herb fringe communities</i>	<i>Wet meadows</i>	<i>Mesic grasslands</i>	<i>Inland saline habitats</i>	<i>Mixed broadleaves forest</i>
REGNUM ANIMALIA									
1.1. Phylum: Mollusca									
<i>Bielzia coerulans</i>									X
<i>Clausilia</i> sp.					X				X
<i>Helix pomatia</i>				X	X	X	X	X	X
1.2. Phylum: Annelida									
<i>Eisenia andrei</i>									X
<i>Lumbricus terrestris</i>					X				X
<i>Haemopsis sanguisuga</i>			X _F	X					
1.3. Phylum: Arthropoda									
1.3.1. Subphylum: Myriapoda									
1.3.1.1. Clasa: Chilopoda									
<i>Geophilus</i> sp.					X				X
<i>Lithobius forficatus</i>					X	X			X
<i>Lithobius muticus</i>					X	X			X
1.3.1.2. Clasa: Diplopoda									
<i>Cilindroiulus</i> sp.					X				X
<i>Julus terrestris</i>									X
1.3.2. Subphylum: Chelicerata									
1.3.2.1. Clasa: Arachnida									
<i>Araneus diadematus</i>					X				X
<i>Araniella cucurbitina</i>					X				X
<i>Argiope bruennichi</i>					X	X	X		X
<i>Phalangium opilio</i>						X	X		X

<i>Tetragnatha extensa</i>				X		X			X
1.3.2.2. Clasa: Acarina									
<i>Ixodes ricinus</i>									X
1.3.3. Subphylum: Crustacea									
<i>Artemia salina</i>			X _S						
<i>Armadillidium vulgare</i>									X
<i>Porcellio scaber</i>					X	X			X
1.3.4. Subphylum: Hexapoda									
1.3.4.1. Clasa: Insecta									
1.3.4.1.1. Ordo: Odonata									
<i>Aeshna cyanea</i>			X _F	X					
<i>Calopteryx virgo</i>			X _F						
<i>Coenagrion puella</i>			X _F						
<i>Ischnura elegans</i>			X _F						
<i>Libellula depressa</i>			X _F						
<i>Platycnemis pennipes</i>			X _F						
<i>Sympetrum vulgatum</i>			X _F						
1.3.4.1.2. Ordo: Dermaptera									
<i>Forficula auricularia</i>					X	X	X		X
1.3.4.1.3. Ordo: Orthoptera									
<i>Chorthippus parallelus</i>						X	X		
<i>Gryllus campestris</i>						X	X	X	
<i>Leptophyes punctatissima</i>					X	X	X		
<i>Pholidoptera griseoaptera</i>					X				X
<i>Stenobothrus lineatus</i>					X	X	X		
1.3.4.1.4. Ordo: Heteroptera									
<i>Gerris paludum</i>			X _F						
<i>Notonecta glauca</i>			X _F						
<i>Palomena prasina</i>					X	X	X		X
<i>Pentatoma rufipes</i>					X				X
<i>Pyrrhocoris apterus</i>					X				X
1.3.4.1.5. Ordo: Homoptera									
<i>Cicadella viridis</i>					X	X			
<i>Cercopis vulnerata</i>					X	X	X		
1.3.4.1.6. Ordo: Coleoptera									
<i>Abax parallelepipedus</i>					X	X			X
<i>Abax parallelus</i>					X	X			X

<i>Abax schueppeli</i>									X
<i>Adalia bipunctata</i>				X	X	X	X		X
<i>Agriotes sputator</i>					X	X	X		
<i>Amara montivaga</i>					X	X	X		
<i>Bembidion lampros</i>									X
<i>Calathus fuscipes</i>					X	X	X		
<i>Calathus melanocephalus</i>					X	X	X		
<i>Calosoma sycophanta</i>									X
<i>Cantharis rustica</i>					X	X	X		X
<i>Carabus cancellatus</i>							X		X
<i>Carabus coriaceus</i>					X				X
<i>Carabus ullrichi</i>									
<i>Carabus violaceus</i>					X	X	X		X
<i>Cerambyx cerdo</i>	Vu	An3, An4A							X
<i>Cerambyx scopolii</i>									X
<i>Cetonia aurata</i>					X	X	X		
<i>Cicindela sp.</i>								X	
<i>Coccinella septempunctata</i>				X	X	X	X		X
<i>Cychrus caraboides</i>									X
<i>Dorcus parallelipedus</i>									X
<i>Dytiscus marginalis</i>			X _F						
<i>Gastrophysa viridula</i>				X					
<i>Geotrupes stercorosus</i>					X	X	X		X
<i>Harpalus latus</i>					X	X	X		
<i>Harpalus rufipes</i>					X	X	X		X
<i>Hydrophilus sp.</i>			X _F						
<i>Liparus glabrirostris</i>					X	X	X		X
<i>Lucanus cervus</i>	LR	An3, An4A							X
<i>Lytta vesicatoria</i>									X
<i>Molops piceus</i>					X				X
<i>Morimus funereus</i>	Vu	An3, An4A							X
<i>Plateumaris sericea</i>				X					
<i>Poecilus lepidus</i>					X	X	X		X
<i>Pterostichus niger</i>					X	X	X		X
<i>Pterostichus oblongopunctatus</i>					X				X
<i>Rosalia alpina</i>	Vu	An3, An4A							X
<i>Rutpela maculata</i>					X	X	X		
<i>Stenurella bifasciata</i>					X	X	X		
<i>Trichodes apiarius</i>						X	X		
<i>Vadonia livida</i>					X	X	X		
1.3.4.1.7. Ordo: Neuroptera									
<i>Chrysoperla carnea</i>				X	X				X

1.3.4.1.8. Ordo: Hymenoptera									
<i>Bombus terrestris</i>					X	X	X		X
<i>Cynips quercusfolii</i>									X
<i>Formica rufa</i>									X
<i>Lasioglossum malachurum</i>								X	
1.3.4.1.9. Ordo: Lepidoptera									
<i>Acherontia atropos</i>									X
<i>Aglais urticae</i>					X	X	X		
<i>Apatura iris</i>									X
<i>Argynnis paphia</i>						X	X		X
<i>Cupido minimus</i>									X
<i>Erebia aethiops</i>					X	X	X		X
<i>Gonepteryx rhamni</i>					X	X	X		X
<i>Aglais (Inachis) io</i>					X	X	X		X
<i>Limenitis populi</i>									X
<i>Lycaena virgaureae</i>					X	X	X		X
<i>Maniola jurtina</i>					X	X	X		
<i>Melanargia galathea</i>					X	X	X		X
<i>Minois dryas</i>									X
<i>Nymphalis antiopa</i>									X
<i>Nymphalis polychloros</i>					X				X
<i>Ochlodes</i> sp.					X	X	X		
<i>Papilio machaon</i>					X	X	X		
<i>Polyommatus</i> sp.					X	X	X		X
<i>Saturnia pyri</i>									X
<i>Vanessa atalanta</i>					X	X	X		
<i>Zygaena filipendulae</i>					X	X	X		
1.3.4.1.10. Ordo: Mecoptera									
<i>Panorpa communis</i>				X	X	X			X
1.3.4.1.11. Ordo: Diptera									
<i>Aedes vexans</i>			X _F	X	X				X
<i>Chrysotoxum festivum</i>				X	X				X
<i>Culex pipiens</i>			X _F	X	X	X			
<i>Ephydra riparia</i>			X _S						
<i>Episyrphus balteatus</i>				X	X	X	X		X
<i>Eristalis tenax</i>					X	X	X		
<i>Mikiola fagi</i>									X
<i>Syrphus ribesii</i>					X	X	X		
<i>Tipula oleracea</i>				X	X	X			
1.4. Phylum: Vertebrata									
1.4.1. Actinopterygii									
<i>Carassius carassius</i>			X _F						
<i>Cyprinus carpio</i>			X _F						

1.4.2. Clasa: Amphibia									
<i>Bombina variegata</i>	LC	An3, An4A	X _F	X	X	X	X		X
<i>Bufo bufo</i>	LC	An4A , An4B	X _F		X	X			X
<i>Rana dalmatina</i>	LC	An4A	X _F	X	X	X	X		X
<i>Rana temporaria</i>			X _F	X	X	X	X		X
<i>Rana ridibunda</i>	LC		X _F						
<i>Salamandra salamandra</i>							X		X
<i>Triturus alpestris</i>			X _F	X	X	X	X		X
<i>Triturus cristatus</i>	LC	An4A	X _F	X	X		X		X
<i>Triturus vulgaris</i>			X _F	X	X		X		X
1.4.3. Clasa: Reptilia									
<i>Natrix natrix</i>			X _F	X	X	X	X	X	X
<i>Coronella austriaca</i>	–	An4A		X	X	X	X		
<i>Elaphe longissima</i>	–	An4A				X	X		X
<i>Vipera berus</i>							X		
<i>Anguis fragilis</i>				X	X	X	X		
<i>Lacerta agilis</i>	–	An4A		X			X	X	
<i>Lacerta vivipara</i>	LR/L C	An4A		X		X	X		
<i>Podarcis muralis</i>	LC	An4A		X				X	
1.4.4. Clasa: Aves									
<i>Accipiter gentilis</i>									X
<i>Accipiter nisus</i>									X
<i>Acrocephalus arundinaceus</i>				X		X			
<i>Acrocephalus palustris</i>						X	X		
<i>Acrocephalus schoenobaenus</i>				X		X	X		
<i>Acrocephalus scirpaceus</i>				X		X			
<i>Actitis hypoleucos</i>				X					
<i>Aegithalos caudatus</i>					X	X	X		X
<i>Alauda arvensis</i>							X		
<i>Alcedo atthis</i>									
<i>Anas platyrhynchos</i>			X _F , X _S						
<i>Anthus pratensis</i>	LC	An5				X	X		
<i>Anthus spinoletta</i>				X	X			X	
<i>Anthus trivialis</i>					X	X	X		X
<i>Aquila pomarina</i>	LC	An3, BD				X	X		
<i>Asio otus</i>						X	X		X
<i>Athene noctua</i>									X
<i>Aythya ferina</i>			X _S						
<i>Bombycilla garrulus</i>									X
<i>Bubo bubo</i>	LC	An3, BD							X
<i>Buteo buteo</i>						X	X		

<i>Buteo lagopus</i>							X		
<i>Caprimulgus europaeus</i>				X					
<i>Carduelis cannabina</i>	LC	An4B				X	X	X	
<i>Carduelis carduelis</i>	LC	An4B		X	X	X	X	X	X
<i>Carduelis chloris</i>	LC	An4B			X	X	X	X	X
<i>Carduelis flammea</i>	LC	An4B				X	X		
<i>Carduelis spinus</i>	LC	An4B			X	X	X		X
<i>Carpodacus erythrinus</i>	LC	An4B				X			
<i>Certhia brachydactyla</i>									X
<i>Certhia familiaris</i>									X
<i>Ciconia ciconia</i>	LC	An3, BD				X			
<i>Circus aeruginosus</i>						X	X		
<i>Circus cyaneus</i>						X	X		
<i>Coccothraustes coccothraustes</i>	LC	An4B			X	X			X
<i>Columba livia domestica</i>									X
<i>Columba oenas</i>									X
<i>Columba palumbus</i>									X
<i>Corvus corax</i>						X	X	X	X
<i>Corvus cornix</i>						X	X	X	X
<i>Corvus frugilegus</i>						X	X		
<i>Corvus monedula</i>						X	X		
<i>Coturnix coturnix</i>						X			
<i>Crex crex</i>	LC	An3, BD				X			
<i>Cuculus canorus</i>						X	X		X
<i>Delichon urbica</i>			X _S	X		X	X	X	X
<i>Dendrocopos leucotos</i>	LC	An3, BD							X
<i>Dendrocopos major</i>									X
<i>Dendrocopos medius</i>	LC	An3, BD							X
<i>Dendrocopos minor</i>									X
<i>Dendrocopos syriacus</i>	LC	An3, BD				X			X
<i>Dryocopus martius</i>	LC	An3, BD							X
<i>Emberiza calandra</i>							X		
<i>Emberiza citrinella</i>					X	X	X	X	X
<i>Emberiza schoeniclus</i>						X	X		
<i>Erithacus rubecula</i>	LC	An4B		X	X	X	X	X	X
<i>Falco columbarius</i>	LC	BD				X	X		
<i>Falco subbuteo</i>	LC	An4B				X	X		X
<i>Falco tinnunculus</i>	LC	An4B				X	X		
<i>Ficedula albicollis</i>	LC	An3, BD							X
<i>Ficedula hypoleuca</i>									X
<i>Ficedula parva</i>	LC	An3							X

<i>Fringilla coelebs</i>				X	X	X	X	X	X
<i>Fringilla montifringilla</i>							X		X
<i>Gallinago gallinago</i>				X					
<i>Gallinula chloropus</i>			X _F , X _S	X					
<i>Garrulus glandarius</i>				X	X	X	X	X	X
<i>Hippolais icterina</i>						X	X		X
<i>Hirundo rustica</i>				X		X	X	X	X
<i>Jynx torquilla</i>	LC	An4B							X
<i>Lanius collurio</i>	LC	An3			X	X	X		
<i>Lanius excubitor</i>							X		
<i>Locustella fluviatilis</i>	LC	An4B				X	X		
<i>Loxia curvirostra</i>									X
<i>Lullula arborea</i>					X	X	X		X
<i>Luscinia luscinia</i>						X	X		
<i>Merops apiaster</i>	LC	An4B					X		
<i>Motacilla alba</i>	LC	An4B		X	X	X		X	
<i>Motacilla cinerea</i>	LC	An4B		X	X			X	
<i>Motacilla flava</i>	LC	An4B				X	X		
<i>Muscicapa striata</i>	LC	An4B		X				X	X
<i>Nucifraga caryocatactes</i>	LC	An4B				X	X		X
<i>Oenanthe oenanthe</i>						X	X		
<i>Oriolus oriolus</i>	LC	An4B				X	X		X
<i>Parus ater</i>									X
<i>Parus caeruleus</i>					X	X	X		X
<i>Parus major</i>				X	X	X	X		X
<i>Parus montana</i>									X
<i>Parus palustris</i>					X	X	X		X
<i>Passer domesticus</i>				X	X			X	
<i>Passer montanus</i>				X	X	X	X	X	X
<i>Perdix perdix</i>						X			
<i>Pernis apivorus</i>						X	X		
<i>Phasianus colchicus</i>						X	X		
<i>Phoenicurus ochruros</i>	LC	An4B		X				X	
<i>Phoenicurus phoenicurus</i>	LC	An4B			X				X
<i>Phylloscopus collybita</i>	LC	An4B			X	X	X		X
<i>Phylloscopus sibilatrix</i>	LC	An4B			X	X	X		X
<i>Phylloscopus trochilus</i>	LC	An4B			X	X	X		X
<i>Pica pica</i>				X	X	X	X	X	
<i>Picus canus</i>	LC	An3, BD							X
<i>Picus viridis</i>	LC	An4B							X
<i>Prunella modularis</i>	LC	An4B		X	X				X
<i>Pyrrhula pyrrhula</i>				X	X	X	X	X	X
<i>Rallus aquaticus</i>			X _F	X					
<i>Regulus ignicapilla</i>	LC	An4B			X				X
<i>Regulus regulus</i>	LC	An4B							X
<i>Saxicola rubetra</i>						X	X		

<i>Saxicola torquata</i>						X	X		
<i>Serinus serinus</i>	LC	An4B			X	X			X
<i>Sitta europaea</i>									X
<i>Streptopelia decaocto</i>				X					X
<i>Streptopelia turtur</i>						X			
<i>Strix aluco</i>									X
<i>Strix uralensis</i>	LC	BD							X
<i>Sturnus vulgaris</i>				X		X	X		X
<i>Sylvia atricapilla</i>				X	X	X	X		X
<i>Sylvia borin</i>						X	X		
<i>Sylvia communis</i>							X		X
<i>Sylvia curruca</i>					X	X	X		X
<i>Sylvia nisoria</i>						X			
<i>Troglodytes troglodytes</i>				X	X				X
<i>Turdus iliacus</i>							X		X
<i>Turdus merula</i>					X	X	X		X
<i>Turdus philomelos</i>				X	X	X	X		X
<i>Turdus pilaris</i>						X	X		
<i>Turdus viscivorus</i>				X					X
<i>Upupa epops</i>	LC	An4B				X			X
<i>Vanellus vanellus</i>						X	X		

1.4.5. Clasa: Mammalia**1.4.5.1. Ordo: Insectivora**

<i>Crocidura leucodon</i>	LC				X	X	X	X	X
<i>Crocidura suaveolens</i>	LC				X	X	X		
<i>Erinaceus roumanicus</i>	LC			X	X	X	X	X	X
<i>Neomys fodiens</i>	LC		X _F			X	X		X
<i>Sorex araneus</i>	LC			X	X	X	X	X	X
<i>Sorex minutus</i>	LC			X		X		X	X
<i>Talpa europaea</i>	LC			X	X	X	X	X	X

1.4.5.2. Ordo: Chiroptera

<i>Myotis daubentonii</i>	LR/L C	HD	X _F , X _S	X	X	X	X	X	X
<i>Myotis myotis</i>	LR/N T		X _F , X _S	X		X			X
<i>Myotis mystacinus</i>		HD	X _F , X _S	X	X	X	X	X	X
<i>Nyctalus noctula</i>	LR/L C	HD		X	X	X	X	X	X
<i>Pipistrellus pipistrellus</i>	LR/L C	HD	X _F , X _S	X					X
<i>Pipistrellus pygmaeus</i>	LC	HD	X _F , X _S	X					X
<i>Rhinolophus ferrumequinum</i>	LR/N T	An3, HD		X		X	X	X	
<i>Rhinolophus hipposideros</i>	LC	An3, HD		X		X	X	X	X

1.4.5.3. Ordo: Carnivora									
<i>Canis lupus</i>	LC	An3, HD				x	x		x
<i>Vulpes vulpes</i>	LC				x	x	x	x	x
<i>Felis silvestris</i>	LC	HD					x		x
<i>Martes foina</i>	LC			x	x	x			x
<i>Martes martes</i>	LC					x	x		x
<i>Mustela erminea</i>	LR/L C			x	x	x			
<i>Mustela nivalis</i>	LC			x	x	x	x	x	x
<i>Ursus arctos</i>	LR/L C	An3, HD				x	x		x
1.4.5.4. Ordo: Artiodactyla									
<i>Sus scrofa</i>	LC			x	x	x	x	x	x
<i>Cervus elaphus</i>	LR/L C				x	x	x		x
<i>Capreolus capreolus</i>	LR/L C				x	x	x		x
1.4.5.5. Ordo: Rodentia									
<i>Apodemus agrarius</i>	LC				x	x	x		x
<i>Apodemus flavicollis</i>	LC					x			x
<i>Apodemus sylvaticus</i>	LC				x	x	x		x
<i>Clethrionomys glareolus</i>	LC								x
<i>Microtus arvalis</i>	LC						x		x
<i>Mus musculus</i>	LC			x	x				
<i>Muscardinus avellanarius</i>	LC				x		x		x
<i>Myoxus glis</i>	LC								x
<i>Pitymys subterraneus</i>	LC				x	x	x		x
<i>Rattus norvegicus</i>	LC			x	x	x	x	x	x
<i>Sciurus vulgaris</i>	LC								x
1.4.5.6. Ordo: Lagomorpha									
<i>Lepus europaeus</i>	LC				x	x	x		

x_F – fresh water; x_S – saline water