

Instructions for Field Inventory of Fauna

Listed under Habitats Directive 92/43/EEC Annexes

Introduction

Aim of the following instructions is to provide guidance for field inventory of animal species in Montenegro listed under the annexes of the Habitats Directive 92/43/EEC, especially those of Annex II, which are subject of designation of the Special Areas of Conservation (SACs) ref. Article 3 of the Directive. The list of target animal species for the field inventory in Montenegro is included in Appendix 1 and is based on the national reference list of Habitats Directive species for Montenegro prepared in the framework of the project „Serbia, Montenegro and Natura 2000: Strengthening the Capacity of Governments and Civil Sector to Adapt to EU Nature Protection Acquis“.

The instructions do not provide guidance on the field techniques to be used to determine/record presence of the particular species or taxonomical groups. Selection of appropriate field methods as well as acquisition of necessary permits for field research (eg. when the research is carried out in protected areas) from national or other authorities are solely within the remit of the researcher.

Definition of mapping object

Aim of the field inventory of fauna is to deliver reliable and up-to-date information about the distribution of target species in Montenegro, status of their population and habitats, through mapping of their localities of occurrence. As a species locality, a distinguishable part of the landscape can be considered, usually delimited by natural borders such as a meadow, a forest fragment or section, a river section, a river valley etc. A species locality shall involve the (complete) habitat of the species on one site, i.e. include all natural features/landscape parts which are important for the long-term maintenance (survival) of the species population on one site. Therefore, it is necessary to make distinction between species locality (place where the species lives) and a sampling site (particular place where it was recorded). However, it is important to determine the species locality carefully and as precise as possible.

What you need for field inventory

- Topographical map of Montenegro in the 1:25 000 scale or aerial photos of the mapped site if such are available
- Clip board
- Fauna Inventory Form(s)
- Pencil(s)
- *GPS*
- *Digital camera*

The equipment printed in *italics* is optional.

How to use the field mapping form and the maps

Look into the following step by step guide aimed at assisting you with filling in the different sections of the Fauna Inventory Form. In addition, you will be provided by a copy of the topographical map of Montenegro in the 1:25 000 scale cut to A3 sheets. All information in the following steps is mandatory except for the optional steps 5, 6 and 7.

Follow the steps as below:

1. Record the **Name of mapper**, in case more persons doing field inventory input all names. Person responsible for particular species data be the first.
2. Record the **Date at which** the survey was conducted in the format dd.mm.yyyy; eg. the fourth of April 2015 = 08.04.2015.
3. Record the **Locality** of the mapped species in the hard copy A3 format map or aerial photo by drawing polygon, line or point. Give the drawn locality a number. On one A3 map sheet each locality should have a unique number (refer also to Appendix 2).
4. **Code of the A3 map sheet** and **number of the locality** have to be written down in the inventory form.
5. Optionally record **X, Y coordinates** of the exact position of the species locality in decimal degrees (e.g. 33.2514) according to the map or the GPS.
6. **Area**: Record the area (in m²) of the mapped species locality. This information is mandatory if the locality is drawn into map sheet as a point (see step 3) and/or its precise coordinates are recorded by GPS (see step 4).
7. **Width**: Record the width (in m) of the mapped species' locality. This information is mandatory if the locality is drawn in the map sheet as a line (see step 3).
8. **Note** is a place for any comments.
9. **Taxon**: Fill out the name of taxon from the list of target HD Annex fauna species (Appendix 1). At least one HD Annex fauna species should be recorded per locality. Other (non Annex) species can be recorded here too, but it is not mandatory.
10. **Population**: There are three options how to provide information on size of species population in rank of decreasing accuracy:
 - A. **Number of individuals**: if it is feasible, count the species population number; use suffix (i) for individuals or (p) for pairs,
 - B. **Population range**: Use the ranges 1-5, 6-10, 11-50, 51-100, 101-250, 251-500, 501-1000, 1001-10.000, > 10.000
 - C. **Descriptive abundance**: C - common, R – rare, V – very rare
11. **Character of occurrence**: Indicate the character of occurrence for each species. As many fauna species are migratory, the site may be important for different aspects of the life cycle of a species. These are categorized below:
 - A. Resident – to be found throughout all the year on the site
 - B. Breeding/reproducing – use the site to breed and raise young
 - C. Staging – site used on migration or for moulting outside the breeding grounds

D. Wintering – uses the site during the winter

12. **TOP locality:** Mark whether the mapped locality is a TOP locality for the respective species in Montenegro according to your subjective view. Use YES/NO options. You can assign the TOP locality status to max. 10 sites per biogeographical region for each species. As a TOP locality, that with largest or most vital population of the given species or with the best (habitat) conditions for the long-term survival of species population on the site can be considered.
13. **Degree of conservation:** Degree of conservation of the features of the habitat which are important for the species concerned and its possibilities for restoration. Assign the degree of conservation to the species population on the site based on 'best expert judgement' with the following options:
- A. Conservation excellent = elements in excellent conditions, independent of grading of the possibility of restoration
 - B. Good conservation = elements well conserved independent of grading of the possibility of restoration; or elements in average or partially degraded conditions but easy to restore
 - C. Average or reduced conservation = all other combinations

Appendix 1

Species	Group	HD Annex		
		II	IV	V
<i>Rhinolophus blasii</i>	mammal	X	X	
<i>Rhinolophus euryale</i>	mammal	X	X	
<i>Rhinolophus ferrumequinum</i>	mammal	X	X	
<i>Rhinolophus hipposideros</i>	mammal	X	X	
<i>Miniopterus schreibersi</i>	mammal	X	X	
<i>Myotis oxignathus</i>	mammal		X	
<i>Myotis aurascens</i>	mammal		X	
<i>Myotis mystacinus</i>	mammal		X	
<i>Myotis nattereri</i>	mammal		X	
<i>Myotis bechsteini</i>	mammal	X	X	
<i>Myotis blythii</i>	mammal	X	X	
<i>Myotis brandtii</i>	mammal		X	
<i>Myotis dasycneme</i>	mammal	SR	SR	
<i>Myotis daubentonii</i>	mammal		X	
<i>Myotis capaccinii</i>	mammal	X	X	
<i>Myotis emarginatus</i>	mammal	X	X	
<i>Myotis myotis</i>	mammal	X	X	
<i>Nyctalus leisleri</i>	mammal		X	
<i>Nyctalus noctula</i>	mammal		X	

<i>Pipistrellus nathusii</i>	mammal		X	
<i>Pipistrellus kuhlii</i>	mammal		X	
<i>Pipistrellus pipistrellus</i>	mammal		X	
<i>Pipistrellus pygmaeus</i>	mammal		X	
<i>Hypsugo savii</i>	mammal		X	
<i>Eptesicus serotinus</i>	mammal		X	
<i>Vespertilio murinus</i>	mammal		X	
<i>Plecotus auritus</i>	mammal		X	
<i>Plecotus austriacus</i>	mammal		X	
<i>Tadarida teniotis</i>	mammal		X	
<i>Canis aureus</i>	mammal			X
* <i>Canis lupus</i>	mammal	X	X	X
* <i>Ursus arctos</i>	mammal	X	X	X
<i>Lutra lutra</i>	mammal	X	X	
<i>Martes martes</i>	mammal			X
<i>Mustela putorius</i>	mammal			X
<i>Felis silvestris</i>	mammal		X	
<i>Lynx lynx</i>	mammal	X	X	
<i>Muscardinus avellanarius</i>	mammal		X	
<i>Dryomys nitedula</i>	mammal		X	
* <i>Monachus monachus</i>	mammal	SR	SR	
<i>Rupicapra rupicapra balcanica</i>	mammal	X	X	X
<i>Delphinus delphinus</i>	mammal		X	
<i>Stenella coeruleoalba</i>	mammal		X	
<i>Tursiops truncatus</i>	mammal	X	X	
<i>Testudo graeca</i>	amph/rept	X	X	
<i>Testudo hermanni</i>	amph/rept	X	X	
<i>Emys orbicularis</i>	amph/rept	X	X	
<i>Mauremys caspica</i>	amph/rept	X	X	
* <i>Chelonia mydas</i>	amph/rept	X	X	
* <i>Caretta caretta</i>	amph/rept	X	X	
<i>Algyroides nigropunctatus</i>	amph/rept		X	
<i>Lacerta agilis</i>	amph/rept		X	
<i>Lacerta schreiberi</i>	amph/rept	SR	SR	
<i>Lacerta trilineata</i>	amph/rept		X	
<i>Lacerta viridis</i>	amph/rept		X	
<i>Podarcis melisellensis</i>	amph/rept		X	
<i>Podarcis muralis</i>	amph/rept		X	
<i>Ophisaurus apodus</i>	amph/rept		X	
<i>Coluber laurenti</i>	amph/rept		X	
<i>Coluber najadum</i>	amph/rept		X	
<i>Coluber viridiflavus</i>	amph/rept		X	

<i>Coronella austriaca</i>	amph/rept		X	
<i>Elaphe longissima</i>	amph/rept		X	
<i>Elaphe quatuorlineata</i>	amph/rept	X	X	
<i>Elaphe situla</i>	amph/rept	X	X	
<i>Natrix tessellata</i>	amph/rept		X	
<i>Telescopus falax</i>	amph/rept		X	
<i>Vipera ammodytes</i>	amph/rept		X	
<i>Vipera ursinii</i>	amph/rept	X	X	
<i>Salamandra atra</i>	amph/rept		X	
<i>Triturus carnifex</i>	amph/rept	X	X	
<i>Triturus cristatus</i>	amph/rept	X	X	
* <i>Proteus anguinus</i>	amph/rept	SR	SR	
<i>Bombina variegata</i>	amph/rept	X	X	
<i>Rana arvalis</i>	amph/rept		X	
<i>Rana dalmatina</i>	amph/rept		X	
<i>Rana graeca</i>	amph/rept		X	
<i>Rana lessonae</i>	amph/rept		X	
<i>Pelobates fuscus</i>	amph/rept		X	
<i>Bufo viridis</i>	amph/rept		X	
<i>Hyla arborea</i>	amph/rept		X	
<i>Eudontomyzon mariae</i>	fish	X		
<i>Eudontomyzon vladykovi stankokaramani</i>	fish	X		
<i>Lampetra fluviatilis</i>	fish	SR		
<i>Lampetra planeri</i>	fish	X		
<i>Petromyzon marinus</i>	fish	X		
* <i>Acipenser naccarii</i>	fish	X		
* <i>Acipenser sturio</i>	fish	X		
<i>Alburnus albidus</i>	fish	X		
<i>Alosa fallax</i>	fish	X		
<i>Barbus meridionalis</i>	fish	X		
<i>Cobitis elongata</i>	fish	X		
<i>Cobitis taenia</i>	fish	X		
<i>Cottus gobio</i>	fish	X		
<i>Hucho hucho</i>	fish	X		
<i>Leuciscus souffia</i>	fish	X		
<i>Misgurnus fossilis</i>	fish	X		
<i>Padogobius panizzae</i>	fish	X		
<i>Pomatoschistus montenegrensis</i>	fish	proposed		
<i>Phoxinellus spp.</i>	fish	X		
<i>Rhodeus sericeus amarus</i>	fish	X		
<i>Rutilus alburnoides</i>	fish	X		
<i>Rutilus rubilio</i>	fish	X		

<i>Sabanejewia aurata</i>	fish	X		
<i>Salmo marmoratus</i>	fish	X		
<i>Buprestis splendens</i>	invert.	X	X	
<i>Carabus variolosus</i>	invert.	SR	SR	
<i>Cerambyx cerdo</i>	invert.	X	X	
<i>Lucanus cervus</i>	invert.	X		
<i>Rosalia alpina</i>	invert.	X	X	
* <i>Osmoderma eremita</i>	invert.	X	X	
<i>Stephanopachys substriatus</i>	invert.	X		
<i>Callimorpha quadripunctaria</i>	invert.	X		
<i>Eriogaster catax</i>	invert.	X	X	
<i>Euphydrias (Eurodryas, Hypodryas) aurinia</i>	invert.	X		
<i>Hypodryas maturna</i>	invert.	X	X	
* <i>Nymphalis vaualbum</i>	invert.	X		
<i>Maculinea arion</i>	invert.		X	
<i>Papilio alexanor</i>	invert.		X	
<i>Parnassius apollo</i>	invert.		X	
<i>Parnassius mnemosyne</i>	invert.		X	
<i>Proserpinus proserpina</i>	invert.		X	
<i>Coenagrion ornatum</i>	invert.	X		
<i>Cordulegaster heros</i>	invert.	X	X	
<i>Lindenia tetraphylla</i>	invert.	X	X	
<i>Gomphus flavipes (Stylurus flavipes)</i>	invert.		X	
<i>Aeshna viridis</i>	invert.		SR	
<i>Leucorrhinia pectoralis</i>	invert.	SR	SR	
<i>Leucorrhinia caudalis</i>	invert.		SR	
<i>Ophiogomphus cecilia</i>	invert.	SR	SR	
<i>Paracaloptenus caloptenoides</i>	invert.	SR		
<i>Saga pedo</i>	invert.		X	
* <i>Austropotamobius torrentium</i>	invert.	X		X
<i>Astacus astacus</i>	invert.			X
<i>Austropotamobius pallipes</i>	invert.	X		X
<i>Litophaga litophaga</i>	invert.		X	
<i>Pinna nobilis</i>	invert.		X	
<i>Unio crassus</i>	invert.	X	X	
<i>Congerius kuscerei</i>	invert.	SR	SR	
<i>Graphoderus bilineatus</i>	invert.	SR	SR	

Appendix 2

