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Biodiversity



Protection of Biodiversity of the Sava River Basin Floodplains

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Agreement on methodology for habitat identification and fieldwork



Step by step methodology for assessing Natura 2000 habitat types

Deskwork:

- List of sites, List of habitat types and cross reference key between Natura 2000 habitat types and national classifications
- Habitat interpretation with list of characteristic species and plant associations
- Maps - analysis of maps for each site (aerial photos, topographic maps, satellite images)
- Existing data for site – databases and other information/data available
- Select areas to map in site (where no data exist, where it is likely that the habitat type exist)
- Decide on method for mapping
- Prepare field forms (prepared so you gather data needed for Natura 2000 standard data form)

Fieldwork - Assessment of a habitat type in site:

- Identification of localities with the habitat type in site
 - based on habitat type description + characteristic species
 - where in site: how many localities/how big area (No./ha/% cover)?
- Evaluation of conservation status of the habitat type
 - Characteristic species present in localities
 - Assessment of structures and functions of the habitat type (vertical and horizontal)
 - Assessment of future prospect of the habitat type (impacts and threats).

Assessment criteria for a habitat type in site:

1. Representativity (how typical habitat type is in site):
 - A: Excellent
 - B: Good
 - C: Significant
 - D: Non-significant presence
2. Relative surface (area of site covered in relation to area covered by habitat type on national territory):
 - A: 15-100%
 - B: 2-15%
 - C: 0-2%
 - How?
 - Area covered by habitat in site (calculate area from existing or field data)
 - Area covered by habitat type on national level (best expert judgement)
3. Conservation status (degree of conservation of structures and functions of habitat type in site):
 - A. Degree of conservation of the structure
 - I: Excellent structure
 - II: Structure well conserved
 - III: Average or partially degraded structure
 - B. Degree of conservation of functions
 - I: Excellent prospect
 - II: Good prospect
 - III: Average or unfavorable prospects
 - C. Restoration possibilities
 - I: Restoration easy
 - II: Restoration possible with an average effort
 - III: Restoration difficult or impossible
 - D. Synthesis of the three sub-criteria



Step by step methodology for assessing focal Natura 2000 species

Deskwork:

- List of sites, list of species and list of focal species
- Maps - analysis of maps for each site (aerial photos, topographic maps, satellite images)
- Existing data for site – databases and other information/data available
- Select areas to map in site (where no data available, where the species is likely to exist)
- Decide on method for mapping
- Prepare field forms (prepared so you gather data needed for Natura 2000 standard data form)

Fieldwork for the focal species:

- Identification of population in site
 - Identification of area with population of species (habitats feasible for the species)
 - Where in site
- Evaluation of conservation status of species (assessment)
 - How big population/how big area (No./% cover)?
 - Assessment of species' habitat/biotope features (structures and functions)
 - Assessment of future prospect (impacts and threats)

Assessment criteria for a given species

1. Population (Size and density of the species population on site in relation to populations present within national territory):
 - A: 15-100%
 - B: 2-15%
 - C: 0-2%How?
 - Population size in site (calculate population size from existing or field data)
 - Population on national level (best expert judgment; existing knowledge)
2. Conservation status (degree of conservation of the features of the species' habitat/biotope in site):
 - A. Degree of conservation of the features of the habitat/biotope important for the species
 - I: Elements in excellent condition
 - II: Elements well conserved
 - III: Elements in average or partially degraded condition
 - B. Restoration possibilities
 - I: Restoration easy
 - II: Restoration possible with an average effort
 - III: Restoration difficult or impossible
 - C. Synthesis of the two sub-criteria
3. Isolation (degree of isolation of the population present in site in relation to the natural range of the species):
 - A: Population (almost) isolated
 - B: Population not-isolated, but on margins of area of distribution
 - C: Population not-isolated within extended distribution range



Example of field form for habitat mapping

Field form - Conservation Status for habitat types on site level:

Natura 2000 habitat type (code): _____

Site name:	Date:
Site coordinates:	Name of expert:
Locality coordinates:	Method of mapping:

2. Area covered within site					
Area of habitat type	ha / m2	Free comments:			
Number of localities in site	No.				
Coverage in site	%				
3. Structures and functions of habitat type (in location with habitat type)					
Vegetation cover	%				
Presence of vertical layers	E0:	E1:	E2:	E3:	E4:
Horizontal pattern	Mosaic:	Patchy:	Homogen:	Other:	
Horizontal naturalness (general cover of characteristic / typical species)	%				
Natural stage versus degraded state	% degradation:		% natural state:		
Cover of bushes and trees	%				
Cover of natural regeneration	%				
Varied tree age structure (No. of age groups/canopy layers)	No				
Spatial structure (No./m3 valuable trees)	Large trees:	Dying trees:	Dead wood:	Hollow trees:	
Characteristic/typical species:	% cover	Non-typical / alien / invasive species:	% cover		
4. Future Prospects					
Level of overgrowing		Current management (grazing / mowing)			
Drainage		Others:			
Degradation					
Mechanical / human disturbance					
Visible effects of pollution					

**Attach map of the site with indication of location/polygon of the habitat type.



Example of field form for mapping focal species

Field form to test Conservation Status for species on site level:

Natura 2000 species (Latin name): _____

Site name:	Date:
Site coordinates:	Name of expert:
Locality of population coordinates**:	Method of mapping:

2. Population size in site				
Area covered with (plant) species (ha)	Ha.			
Current distribution of population	No. of individuals:			
	No. of localities:			
3. Habitat for the species (quality, structures and functions)*				
	Presence/ Absence (-/+)	Size of feature (m2, -/+)	Quality of feature (excellent/good/bad)	Others:
Breeding places				
Places for hibernation/wintering				
Feeding grounds				
Habitat suitable for adults and juveniles				
Summer refuges				
Natural vertical structures	% cover of relevant:			
Natural horizontal structure	% cover of relevant:			
Natural structural pattern	Mosaic (-/+):	Patchiness (-/+):	Homogen structure (-/+)	Others:
Natural hydrology				
	Juveniles (-/+)	Adults (-/+)	Females with young (-/+)	
Population structure (share of juveniles, young, adults, females with young)				
4. Future Prospects*				
Drainage		Current management (grazing / mowing)		
Degradation		Others:		
Mechanical / human disturbance				
Visible effects of pollution				
Health of species habitat/spatial impact/change in species habitat				

**Attach a map of the site with indication of location/polygon of the habitat type.



List of Natura 2000 habitat types along the Sava River

Code	Natura 2000 Habitat types
1530	*Pannonic salt steppes and salt marshes
3130	Oligotrophic to mesotrophic standing waters with vegetation of <i>Littorelletea uniflora</i> and/or <i>Isoëto-Nanojuncete</i>
3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara sp.</i>
3150	Natural eutrophic lakes with <i>Magnopotamnion</i> - or <i>Hydrocharition</i> - type vegetation
3260	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachian</i> vegetation
3270	Muddy river banks with <i>Chenopodium rubri p.p.</i> and <i>Bidention p.p.</i> vegetation
6430	Hydrophilous tall-herb fringe communities of plains and of the montane to alpine levels
6440	Alluvial meadows of river valleys of the <i>Cnidion dubii</i>
6450	Northern boreal meadows of river valleys, Incl. <i>Deschampsietum cespitosae</i>
6510	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)
7140	Transition mires and quaking bogs
7230	Alkaline fens
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the <i>Carpinion betuli</i>
91E0	*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)
91F0	Riparian mixed forests of <i>Quercus robur</i> , <i>Ulmus laevis</i> and <i>U. minor</i> , <i>Fraxinus excelsior</i> or <i>F. angustifolia</i> , along great rivers (<i>Ulmenion minoris</i>)
91G0	*Pannonic woods with <i>Quercus petraea</i> and <i>Carpinus betulus</i>
91L0	Ilirian oak-hornbeam forests (<i>Erythronio-carpinion</i>)



List of focal species along the Sava River

	HD / BD Annex:	Present/not-present	Focal species assessment
Plants:			
Marsilea quadrifolia	HD II	X	X (water)
Aldrovanda vesiculosa	HD II	X	X
Lindernia procumbens	HD IV	X	
Birds:			
Alcedo atthis	BD	X	X (water)
Dendrocopos medius		X	X (forest)
Lanius collurio	BD I	X	
Lanius minor	BD I	X	X (rural areas)
Ciconia nigra	BD I	X	
Haliaeetus albicilla	BD I	X	X (forest)
Aquila pomarina	BD I	X	X (forest)
Crex crex	BD I	X	X (grassland)
Saxicola rubetra			X (grassland)
Ciconia ciconia	BD I	X	X (forest)
Aythya nyroca	BD I	X	
Phalacrocorax pygmeus	BD I	X	
Nycticorax nycticorax	BD I	X (colonies)	
Ardea cinerea		X (colonies)	
Ardeola ralloides	BD I	X (colonies)	
Egretta alba	BD I	X (colonies)	
Platalea leucorodia	BD I	X	X (oxbows/fish ponds)
Chlidonias hybridus	BD I	X	
Sterna hirundo	BD I	X	X (water)
Sterna albifrons	BD I	X	X (water)
Ficedula albicollis	BD I	X	X (forest)
Reptiles:			
Vipera berus		X	
Emys orbicularis	HD II + IV	X	X
Amphibians:			
Bombina bombina	HD II + IV	X	X
Bombina variegata	HD II + IV	X	X
Triturus dobrogicus	HD II	X	X
Pelobates fuscus	HD IV		
Fish:			
Hucho hucho	HD II + V	X (spawning areas)	
Umbra krameri	HD II	X (spawning areas)	X (water)
Leuciscus souffia	HD II	X (spawning areas)	
Eudontomyzon spp.	HD II	X (spawning areas)	
Mammals:			
Cervus elaphus		X	
Felis silvestris		X	
Lutra lutra	HD II + IV	X	X (water)
Castor fiber	HD II + IV+V	X	
Barbastella barbastella	HD II	X	
Myotis bechsteini	HD II	X	
Myotis blythi	HD II	X	
Myotis dasycneme	HD II	X	X (water)
Myotis myotis	HD II	X	
Miniopterus schreibersi	HD II	X	
Rhinolophus ferrumequinum	HD II	X	
Rhinolophus hipposideros	HD II	X	



List of threats and Impacts

100	Cultivation
101	modification of cultivation practices
102	mowing / cutting
110	Use of pesticides
120	Fertilisation
130	Irrigation
140	Grazing
141	abandonment of pastoral systems
150	Restructuring agricultural land holding
151	removal of hedges and copses
160	General Forestry management
161	forest planting
162	artificial planting
163	forest replanting
164	forestry clearance
165	removal of forest undergrowth
166	removal of dead and dying trees
167	forest exploitation without replanting
170	Animal breeding
171	stock feeding
180	Burning
190	Agriculture and forestry activities not referred to above
200	Fish and Shellfish Aquaculture
210	Professional fishing
211	fixed location fishing
212	trawling
213	drift-net fishing
220	Leisure fishing
221	bait digging
230	Hunting
240	Taking / Removal of fauna, general
241	collection (insects, reptiles, amphibians.....)
242	taking from nest (falcons)
243	trapping, poisoning, poaching
244	other forms of taking fauna
250	Taking / Removal of flora, general
251	pillaging of floristic stations
290	Hunting, fishing or collecting activities not ref to above
300	Sand and gravel extraction
301	quarries
302	removal of beach materials
310	Peat extraction
311	hand cutting of peat
312	mechanical removal of peat
320	Exploration and extraction of oil or gas
330	Mines
331	open cast mining
340	Salt works
390	Mining and extraction activities not referred to above
400	Urbanised areas, human habitation
401	continuous urbanisation
402	discontinuous urbanisation
403	dispersed habitation
409	other patterns of habitation
410	Industrial or commercial areas
411	factory
412	industrial stockage
419	other industrial / commercial areas
420	Discharges
421	disposal of household waste
422	disposal of industrial waste
424	Other discharges
430	Agricultural structures
440	Storage of materials
490	Other urbanisation, industrial and similar activities
500	Communication networks
501	paths, tracks, cycling tracks
502	roads, motorways
503	railway lines, TGV
504	port areas
505	airport
506	aerodrome, heliport
507	bridge, viaduct

508	tunnel
509	other communication networks
510	Energy transport
511	electricity lines
512	pipe lines
513	other forms of energy transport
520	Shipping
530	Improved access to site
590	Other forms of transportation and communication
600	Sport and leisure structures
601	golf course
602	skiing complex
603	stadium
604	circuit, track
605	hippodrome
606	attraction park
607	sports pitch
608	camping and caravans
609	other sport / leisure complexes
610	Interpretative centres
620	Outdoor sports and leisure activities
621	nautical sports
622	walking, horseriding and non-motorised vehicles
623	motorised vehicles
624	mountaineering, rock climbing, speleology
625	gliding, delta plane, paragliding, ballooning
626	skiing, off-piste
629	other outdoor sports and leisure activities
690	Other leisure and tourism impacts not referred to above
700	Pollution
701	water pollution
702	air pollution
703	soil pollution
709	other forms or mixed forms of pollution
710	Noise nuisance
720	Trampling, overuse
730	Military manouvres
790	Other pollution or human impacts/activities
800	Landfill, land reclamation and drying out, general
801	polderisation
802	reclamation of land from sea, estuary or marsh
803	infilling of ditches, dykes, ponds, pools, marshes or pits
810	Drainage
811	management of aquatic and bank veg. for drainage
820	Removal of sediments (mud...)
830	Canalisation
840	Flooding
850	Modification of hydrographic functioning, general
851	modification of marine currents
852	modifying structures of inland water courses
853	management of water levels
860	Dumping, depositing of dredged deposits
870	Dykes, embankments, artificial beaches, general
871	sea defense or coast protection works
890	Other human induced changes in hydraulic conditions
900	Erosion
910	Silting up
920	Drying out
930	Submersion
940	Natural catastrophes
941	inundation
942	avalanche
943	collapse of terrain, landslide
944	storm, cyclone
948	fire (natural)
950	Biocenotic evolution
951	drying out / accumulation of organic material
952	eutrophication
953	acidification
954	invasion by a species
960	Interspecific faunal relations
961	competition (example: gull/tern)
962	parasitism



963	introduction of disease
964	genetic pollution
965	predation
966	antagonism arising from introduction of species

975	lack of pollinating agents
976	damage by game species

List of BWG Participants in the field testing weekend

Lonjsko Polje Nature Park and Bardaca Wetlands, 12-14 April 2008

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