

THE MINISTRY OF CULTURE

2937

Pursuant to Article 57 paragraph 4 of the Nature Protection Act (OG 70/05 and 139/08), the Minister of Culture hereby issues the

ORDINANCE

ON AMENDMENTS TO THE ORDINANCE ON KINDS OF HABITAT TYPES,  
HABITATS MAP, THREATENED AND RARE HABITAT TYPES AND ON MEASURES  
FOR CONSERVATION OF HABITAT TYPES

Article 1

In Ordinance on kinds of habitat types, habitats map, threatened and rare habitat types and on measures for conservation of habitat types (Official Gazette 7/06), Article 5 is amended to read:

“Pursuant to Article 123 of the Nature Protection Act, a cartographic presentation of habitat types (habitats map) shall be an integral part of natural resource management plans.

At the client’s written request, the Institute shall issue a certified cartographic presentation of habitat types for the requested site along with an explanation, in line with the information catalogue of the Institute.

At the written request of the authority in charge of plan development, the Institute shall issue, for the purpose of preparing physical planning documents, a habitats map in ESRI.shp format for the requested site.”

Article 2

Article 7 is amended to read:

“Threatened and rare habitat types of national and European importance represented within the territory of the Republic of Croatia are listed in Annex II, which is an integral part of this Ordinance. Sites hosting threatened and rare habitat types are ecologically important sites in terms of Article 58 of the Nature Protection Act, and sites hosting threatened and rare habitat types referred to in Annex II.B are ecologically important sites in terms of Article 60 of the Nature Protection Act.

The Institute shall monitor the state and the threats to habitat types and, in accordance with new information and scientific discoveries, propose amendments to the list set out in Annex II.”

Article 3

In Article 8 paragraph 3 is deleted.

#### Article 4

In Article 11, paragraphs 2 and 3 are amended to read:

“Special measures for conservation of habitat types which are incorporated into specific physical planning documents and management plans concerning natural resources, as well as for projects for which appropriate assessment of their impact on the ecological network is carried out, shall be determined as part of the nature protection requirements and measures issued in line with the provisions of the Nature Protection Act.

In line with the Nature Protection Act, special management and protection measures shall be carried out for habitat type sites designated as protected sites and/or parts of the Ecological Network of the Republic of Croatia, or parts of the NATURA 2000 ecological network.”

#### Article 5

Annexes I, II and III are replaced by the new Annexes I, II.A and II.B and Annex III which form an integral part of this Ordinance.

#### Article 6

This Ordinance shall enter into force on the eighth day after the day of its publication in the Official Gazette.

Class: 612-07/09-49/796

Reg. No: 532-08-01/1-09-01

Zagreb, 22 September 2009

Minister

Božo Biškupić, m.p.

#### ANNEX I

HABITAT TYPES IN THE REPUBLIC OF CROATIA (NATIONAL HABITAT TYPES CLASSIFICATION) (NOT TRANSLATED)

#### ANNEX II

THREATENED AND RARE HABITAT TYPES IN THE REPUBLIC OF CROATIA

#### ANNEX III

GENERAL MEASURES FOR THE PRESERVATION OF THREATENED AND RARE HABITAT TYPES

**Annex II – Threatened and rare habitat types in the Republic of Croatia**

Annex II.A - Threatened and rare habitat types important for the Ecological Network of the Republic of Croatia

Threatened and rare habitats (NHC code and name); each habitat type mentioned below includes all habitat types of a lower classification level			Criteria for list entry			
			NATURA	BERN - Res. No 4	CROATIA	
<b><u>A Surface inland waters and marsh habitats</u></b>	<b><u>A.1. Standing waters</u></b>	A.1.1.1.1. Oligotrophic waters with low lime content		! 22.11		
		A.1.3. Unvegetated and sparsely vegetated banks of standing waters			habitats important as feeding sites for migratory bird species	
	<b><u>A.2. Running waters</u></b>	A.2.1. Springs	A.2.1.1.3. = *7220			
		A.2.5.1.2. Biogenic waterfalls				
		A.2.6. Thermal wells				
	<b><u>A.3. Fresh waters hydrophytic habitats</u></b>	A.2.7. Unvegetated and sparsely vegetated banks of running waters			A.2.7.1.1. = ! 24.2	habitats important as feeding sites for migratory bird species
		A.3.1. Submerged vegetation of <i>Charophytes</i> (Class <i>Charetea fragilis</i> )	3140			
		A.3.2. Free floating and submerged hydrophytes (Class <i>Lemneta</i> )	3150			
		A.3.3. Rooted water plant vegetation (Order <i>Potamogetonalia</i> )	A.3.3.1.5. = 3150; A.3.3.2 = 3260	A.3.3.3.6. = !22.4323		habitats with numerous threatened species
		A.3.4. Hard water springs			!54.12	
		A.3.5. Tufa-forming river communities				
	<b><u>A.4. Vegetated banks of surface inland waters and marsh habitats</u></b>	A.3.6. Tufa-forming vegetation on cascades				
A.4.1. Communities of <i>Phragmites</i> , sedges, high rushes and high reeds (Class <i>Phragmiti-Magnocaricetea</i> )			A.4.1.1.12, A.4.1.2.3. and A.4.1.2.8. = 6450		habitats with numerous threatened species	
A.4.2. Amphibian communities (Order <i>Cyperetalia fusci</i> )		3130 and *3170		A.4.2.1.3. = ! 22.321		
<b><u>B Unvegetated and sparsely vegetated inland surfaces</u></b>	<b><u>B.1. Unvegetated and sparsely vegetated rocks</u></b>	B.1.2. Humid inland rocks, semi-caves and reservoirs			rare and endemic communities are present within the class	
		B.1.3. Lime stone of Alpine-Carpathian-Balkan region (Order <i>Potentilletalia caulescentis</i> )	8210			
	B.1.4. Lime stone of Tyrrhenian-Adriatic region	8210				

		(Order <i>Centaureo-campanuletalia</i> )			
	<u>B.2. Screes</u>	B.2.1. Altimontane, subalpine and alpine screes (Alliance <i>Silenion marginatae</i> )	8120		
		B.2.2. Illyrian-Adriatic screes (Alliance <i>Peltarion alliaceae</i> )	8130		
<b><u>C Grasslands, fens and bogs and tall herb communities</u></b>					
	<u>C.1. Fens and bogs</u>	C.1.1. Basophilous flat fens (Alliance <i>Caricion davallianae</i> )	7230 (except C.1.1.1.6.)	!54.2 (except C.1.1.1.6.)	
		C.1.2. Acidophilous raised bogs and transition fens (Alliances <i>Rhynchosporion albae</i> and <i>Sphagnion fuscii</i> )	7130, 7140 and 7150		
	<u>C.2. Hygrophilous and mesophilous grasslands</u>	C.2.2. Central Europe humid grasslands (Order <i>Molinietalia</i> )	C.2.2.1. = 6440; C.2.2.2. = 6410 and 6440	C.2.2.2.1., C.2.2.3. and C.2.2.4. = 37.2 !	rare and threatened communities are present within the class
		C.2.3. Central Europe mesophilous grasslands (Order <i>Arrhenatheretalia</i> )	C.2.3.2.1., C.2.3.2.2., C.2.3.2.3., C.2.3.2.4. and C.2.3.2.7. = 6510; C.2.3.3. = 6520	C.2.3.2.4. = !38.25	rare and threatened communities are present within the class
		C.2.4. Humid and nitrophilous grasslands and pastures (Order <i>Agrostidetalia stoloniferae</i> )		!37.2	
		C.2.5. Humid meadows of Sub-Mediterranean vegetation zone (Order <i>Trifolio-Hordeetalia</i> )	C.2.5.1.1. = 6410		rare and threatened communities are present within the class
	<u>C.3. Dry grasslands</u>	C.3.1. Subcontinental dry grasslands (Order <i>Festucetalia valesiaca</i> )	*6240		
		C.3.2. Inland dunes (Order <i>Festucetalia vaginatae</i> )	*2340 and *6260		
		C.3.3. Sub-Atlantic mesophilous grasslands and mountain meadows on calcareous soils (Order <i>Brometalia erecti</i> )	6210 (*important sites for orchids)		
		C.3.4. European dry heaths and <i>Nardus stricta</i> dominated grasslands (Class <i>Nardo-Callunetea</i> )	4030 and *6230		
		C.3.5. Sub-Mediterranean and Epimediterranean dry grasslands (Order <i>Scorzoneretalia villosae</i> )	62A0		
		C.3.6. Eumediterranean and stenomediterranean rocky ground pastures and dry grasslands (Order <i>Cymbopogo-Brachypodietalia</i> )	*6220		
		C.3.7. Pannonic salt meadows (Alliance <i>Puccinellion limosae</i> )	*1530		
	<u>C.4. Alpine and subalpine grasslands</u>	C.4.1. Alpine and subalpine grasslands (Order <i>Seslerietalia juncifoliae</i> )	6170		

	<u>C.5. Tall herb communities</u>	C.5.1.1.2. Ass. <i>Geranio-Anthriscetum fumarioidis</i>			rare community with critically endangered characteristic species which compromises it
		C.5.1.2.1. Ass. <i>Cirsio pannonicae-Peucedanetum cervariae</i>			rare community
		C.5.1.2.3. Ass. <i>Veronicetum barrelieri-jacquinii</i>			rare community
		C.5.1.2.4. Ass. <i>Cirsio-Clematidetum rectae</i>			rare community
		C.5.3. Subalpine and alpine tall herb communities (Class <i>Betulo-Adenostyletea</i> )			rare communities with threatened species
		C.5.4. Lowland tall herb communities	6430		
<b><u>D Scrubs</u></b>	<u>D.1. Continental scrubs</u>	D.1.1. Willow thickets on dunes (Class <i>Salicetea purpureae</i> )	D.1.1.1.1. = 3230	!44.11	
	<u>D.2. Subalpine scrubs</u>	D.2.1.1.1. Ass. <i>Lonicero borbasianae-Pinetum mugii</i>	*4070		
		D.2.1.1.4. Stands with domination of <i>Arctostaphylos uva-ursi</i>	4060		
		D.2.1.1.5. Stands with domination of <i>Genista radiata</i>	4060		
		D.2.1.1.6. Stands with domination of <i>Juniperus nana</i>	4060		
		D.2.3. Stands with domination of <i>Juniperus sabina</i>	4060		
		D.2.4. Stands with domination of <i>Genista holopetala</i>	4060		
	<u>D.3. Mediterranean scrubs</u>	D.3.2. Thermophilous flooded scrubs	D.3.2.2. = 92D0	!44.81	rare and threatened communities are present within the class
		D.3.4. Garrigues (Class <i>Erico-Cistetea</i> )	D.3.4.2.3. = 5210		
		D.3.5. Summer deciduous scrubs			rare communities
<b><u>E Forests</u></b>	<u>E.1. Riparian alluvial willow and poplar forests</u>	E.1.1. Alluvial willow forests (Alliance <i>Salicion albae</i> )	*91E0		
		E.1.2. Alluvial poplar forests (Alliance <i>Populion albae</i> )	E.1.2.2. = *91E0	!44.1	
		E.1.3. Ash-alder forests (Alliance <i>Alnion incanae</i> )	*91E0		
	<u>E.2. Alluvial forests with <i>Quercus robur</i>, <i>Alnus glutinosa</i> and <i>Fraxinus ornus</i></u>	E.2.1. Alluvial forests of <i>Alnus glutinosa</i> and <i>Fraxinus ornus</i> (Alliances <i>Alno-Ulmion</i> and <i>Alnion glutinosae</i> )	*91E0 and 91F0 (except E.2.1.2.)	E.2.1.2. = !44.311	

	E.2.2. Alluvial forests of <i>Quercus robur</i> (Alliance <i>Alno-Quercion roboris</i> )	91F0		
<u>E.3. Deciduous oaks forests above flood line</u>	E.3.1. Mixed oak-hornbeam forests and hornbeam forests (Alliance <i>Erythronio-Carpinion</i> )	9160 and 91L0 (except E.3.1.7.)	E.3.1.7. = I41.2A12	
	E.3.2. Central European acidophilous forests of <i>Quercus robur</i> , and <i>Betula pendula</i> (Alliances <i>Quercion robori-petraeae</i> and <i>Castaneo-Quercion petraeae</i> )	E.3.2.1. = 9260	I41.5	class encompasses rare community with critically threatened characteristic species which comprises it
	E.3.3. Mezian forests of <i>Quercus frainetto</i> (Alliance <i>Quercion frainetto</i> )	91M0		
	E.3.4. Central European termophilous oak woods (Alliance <i>Quercion pubescent-petraeae</i> )	E.3.4.1. = 91M0; E.3.4.7. = *91H0	I41.7	
	E.3.5. Submediterranean, termophilous forests and scrubs of <i>Quercus pubescens</i> (Alliance <i>Ostryo-Carpinion orientalis</i> )	E.3.5.9. = *9530	I41.7	
<u>E.4. Mountain beech forests</u>	E.4.1. Central European neutrophilous to acidophilous, mezophilous beech forests (Alliance <i>Fagion sylvaticae</i> )	9130		
	E.4.2. Central European acidophilous beech forests (Alliance <i>Luzulo-Fagion</i> )	9110		
	E.4.3. Mezophilous subalpine beech forests (Suballiance <i>Epimedio-Fagenion</i> )	91K0		
	E.4.4. Forests of Alliance <i>Acerion pseudoplatani</i>	*9180 (except E.4.4.1.)	E.4.4.1. = I41.1C4	
	E.4.5. Mezophilous and neutrophilous pure beech forests (Suballiance <i>Lamio orvalae-Fagenion</i> )	91K0		
	E.4.6. Southeast-Alpine-Illyrian termophilous beech forests (Suballiance <i>Ostryo-Fagenion</i> )	91K0		
<u>E.5. Beech-fir forests</u>	E.5.1. Ass. <i>Abieti-Fagetum "pannonicum"</i>	91K0		
	E.5.2. Ass. <i>Omphalodo-Fagetum</i>	91K0		
	E.5.3. Ass. <i>Ostryo-Abietetum</i>	91K0		
<u>E.6. Subalpine beech forests (Suballiance <i>Saxifrago rotundifolii-Fagenion</i>)</u>	E.6.1. Subalpine beech forests (Suballiance <i>Saxifrago rotundifolii-Fagenion</i> )	91K0		

	<u>E.7. Continental coniferous forests</u>	E.7.1.1. Ass. <i>Calamagrosti-Abietetum</i>	9410	
		E.7.2. Acidophilous fir forests (Alliance <i>Abieti-Piceion</i> )	9410	
		E.7.3. Spruce forests (Alliance <i>Piceion</i> )	9410 (except E.7.3.1.)	
		E.7.4. Forests of <i>Pinus sylestris</i> and <i>P. nigra</i> on dolomites (Alliance <i>Fraxino-orni-Ericion</i> )	E.7.4.1. = 91R0 E.7.4.4., E.7.4.5. and E.7.4.6. =*9530	E.7.4.2. and E.7.4.3. = !41.8
	<u>E.8. Eumediterranean evergreen forests and macchia</u>	E.8.1. Mixed, rarely pure evergreen forests and macchia of <i>Quercus ilex</i> and <i>Q. coccifera</i> (Alliance <i>Quercion ilicis</i> )	9340 (except E.8.1.4. and E.8.1.5.)	E.8.1.4. and E.8.1.5. = !45
		E.8.2.1. Ass. <i>Oleo-Pistacietum lentisci</i>	9320	
		E.8.2.2. Ass. <i>Oleo-Euphorbietum dendroidis</i>	5330 i 9320	
		E.8.2.3. Ass. <i>Pistacio-Juniperetum phoeniceae</i>	5210	
		E.8.2.5. Ass. <i>Erico-Arbutetum</i>	9320	
		E.8.2.6. Ass. <i>Erico-Calycotometum infestae</i>	9320	
		E.8.2.7. Ass. <i>Quercu ilicis-Pinetum halepensis</i>	9540	
		E.8.2.8. Ass. <i>Junipero phoeniceae-Pinetum halepensis</i>	9540	
		E.8.2.9. Ass. <i>Pistacio-Pinetum halepensis</i>	9540	
<u>F Sea coast</u>	<u>F.1. Muddy sea coast</u>	F.1.1. Areas of salt, shallow and muddy marshes with halophytic vegetation	1310, 1410, 1420	
		F.1.2. Supralittoral muds	1140 (1130, 1160)	!11.27, !14
	<u>F.2. Sand sea coast</u>	F.2.1. Areas of sandy beaches covered with halophytic vegetation (Alliance <i>Ammophilion australis</i> )	2110	
		F.2.2. Supralittoral sands	1140 (1130)	!11.27, !14
	<u>F.3. Gravel sea coast</u>	F.3.1. Areas of gravel beaches covered with halophytic vegetation (Alliance <i>Euphorbion peplis</i> )	1210	
		F.3.2. Supralittoral gravels and stones	1140	
	<u>F.4. Stony sea coast</u>	F.4.1. Areas of stony coast covered with halophytic vegetation (Alliance <i>Crithmo-Limonion</i> )	1240	
		F.4.2. Supralittoral rocks	1170	
<u>G Sea</u>	<u>G.1. Pelagial</u>	G.1.1.2. Pelagial of estuaries	1130	!13.2

<u>G.2. Mediollittoral</u>	G.2.1. Mediollittoral muddy sands and muds	1140	!11.27, !14
	G.2.2. Mediollittoral sands	1140	!11.27, !14
	G.2.4. Mediollittoral hard seabeds and rocks	*1150, 1160, 1170 and 8330	G.2.4.2. = !11.252; G.2.4.3. = ! 2.7 G.2.4.4. = ! 21
<u>G.3. Infralittoral</u>	G.3.1. Infralittoral sandy muds, sands, gravels and stones in euryhaline and eurithermal environment	*1150	!21
	G.3.2. Infralittoral fine sands with more or less mud	1110 and 1160	!11.22
	G.3.3. Infralittoral large sands with more or less mud	1110	
	G.3.4. Infralittoral stones and gravels	1110	
	G.3.5. <i>Posidonia</i> Beds	*1120	!11.3
	G.3.6. Infralittoral hard seabeds and rocks	1170	!11.24
	G.3.7. Infralittoral of sea karst lakes	*1150 or 1160	!21
<u>G.4. Circalittoral</u>	G.4.1. Circalittoral muds		!11.22
	G.4.2. Circalittoral sands	G.4.2.2. = 1110	!11.22
	G.4.3. Circalittoral hard seabeds and rocks	1170 or 8330	!11.24, !11.25, !11.26 and !12.7
	G.4.4. Circalittoral of sea karst lakes	*1150 or 1160	!21
	G.5.3. Bathyal hard seabeds and rocks	1170 or 8330	!11.26 and !12.7
<u>H Underground</u>	<u>H.1. Karst caves and pits</u>	H.1.1. Inland karst cave habitats	8310
		H.1.2. Amphibian karst cave habitats	8310
		H.1.3. (Fresh) water karst cave habitats	8310
		H.1.4. Anchihaline karst caves	8310
		H.1.5. Sulphurous karst caves	8310
	<u>H.2. Non-karst caves and pits</u>	H.2.1. Non-karst caves and pits	
<u>I Cultivated non-forest areas and habitats with weed and ruderal vegetation</u>	<u>I.1. Areas covered with weed and ruderal vegetation</u>	I.1.1. Old wall cracks	8210

	I.1.2.1.3. Ass. <i>Fumario-Cyperetum rotundi</i>			community with threatened characteristic species which comprises it
	I.1.2.1.5. Ass. <i>Urticetum caudatae-piluliferae</i>			rare community with threatened characteristic species which comprises it
	I.1.5.4.5. Ass. <i>Glycyrrhizetum echinatae</i>	6430		
	I.1.5.5. Alliance <i>Petasition officinalis</i>	6430		
	I.1.7.1.3. Ass. <i>Rumici-Alopecuretum aequalis</i>			threatened community with rare characteristic species which comprises it
	<u>I.5. Orchards, vineyards and olive orchards</u>		I.5.2.1. Traditional olive orchards	
<b><u>J Built and industrial habitats</u></b>	<u>J.5. Artificial water habitats without semi-natural plant and animal communities</u>		J.5.1.1.2. Salt plants	important habitat for birds and halophytic vegetation
<b><u>K Habitat complexes</u></b>	<u>K.1. Estuaries</u>	1130	!13.2	
	<u>K.2. Coastal lagoons</u>	*1150	!21	
	<u>K.3. Large shallow inlets and bays</u>	1160		

**NOTES:**

\* priority habitat types

NATURA - habitat types protected by the Directive on the conservation of natural habitats and of wild fauna and flora with corresponding marks from CORINE classification;

BERN - Res. No. 4 – habitat types listed in Resolution No. 4 of Bern Convention as habitat types requiring specific conservation measures, with corresponding marks from PHYSIS classification;

CROATIA - habitat types which are endangered or rare at the level of Croatia, and habitat types whose characteristic biological species are rare or threatened at the level of Croatia.

**Annex II.B - Threatened and rare habitat types important for the EU NATURA 2000 ecological network present in the Republic of Croatia**

NATURA 2000 code	NATURA 2000 habitat type	NHC National Habitat Types Classification
1110	Sandbanks which are slightly covered by sea water all the time	G.3.2.1. Biocenosis of fine surface sands G.3.2.2. Biocenosis of fine monotonous sands G.3.3. Infralittoral large sands with more or less mud G.3.4. Infralittoral rocks and gravels G.4.2.2. Biocenosis of coastal detritus seabeds
*1120	Posidonia beds ( <i>Posidonia oceanica</i> )	G.3.5. Posidonia beds
1130	Estuaries	F.1.2. Supralittoral muds F.2.2. Supralittoral sands G.1.1.1.2. Pelagial of estuaries K.1. Estuaries
1140	Mudflats and sandflats not covered by seawater at low tide	F.1.2. Supralittoral muds F.2.2. Supralittoral sands F.3.2. Supralittoral gravels and rocks G.2.1. Mediolittoral muddy muds and sands G.2.2. Mediolittoral sands
*1150	Coastal lagoons	G.2.4.4. Communities of mediolittoral karst sea lakes G.3.1. Infralittoral sandy muds, sands grovels and rocks in euryhaline and eurithermal environment G.3.7. Infralittoral of karst sea lakes G.4.4. Circalittoral of karst sea lakes K.2. Coastal lagoons
1160	Large shallow inlets and bays	F.1.2. Supralittoral muds G.2.4.4. Communities of mediolittoral karst sea lakes G.3.2.3. Biocenosis of muddy sands of sheltered coasts G.3.7. Infralittoral of karst sea lakes G.4.4. Circalittoral of karst sea lakes K.3. Large shallow inlets and bays
1170	Reefs	F.4.2. Supralittoral rocks G.2.4.1. Biocenosis of mediolittoral upper rocks G.2.4.2. Biocenosis of mediolittoral lower rocks G.3.6. Infralittoral hard seabeds and rocks G.4.3.1. Coralligenous biocenosis G.4.3.3. Biocenosis of deep sea rocks (rocks at the edge of continental shelf) G.4.3.4. Biocenosis of springs of underground type G.5.3.1. Biocenosis of deep corals
1210	Annual vegetation of drift lines	F.3.1. Areas of gravel beaches covered with halophytic vegetation ( <i>Alliance Euphorbion peplis</i> )

1240	Vegetated sea cliffs of the Mediterranean with endemic <i>Limonium</i> spp.	F.4.1. Areas of stony coast covered with halophytic vegetation (Alliance <i>Crithmo-Limonion</i> )
1310	<i>Salicornia</i> and other annuals colonizing mud and sand	F.1.1.1. Order <i>Thero-Salicornietalia</i>
1410	Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	F.1.1.2. Order <i>Juncetalia maritimi</i>
1420	Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )	F.1.1.3. Order <i>Sarcocornietalia fruticosae</i>
*1530	Pannonic salt steppes and salt marshes	C.3.7. Pannonic salt meadows (Alliance <i>Puccinellion limosae</i> )
2110	Embryonic shifting dunes – first stage of dune construction	F.2.1. Areas of sandy beaches covered with halophytic vegetation (Alliance <i>Ammophilion australis</i> )
*2340	Pannonic inland dunes	C.3.2. Inland dunes
3130	Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i>	A.4.2.1.1. Ass. <i>Cyperetum flavescens</i> A.4.2.1.3. Ass. <i>Eleocharidi-Lindernietum</i> A.4.2.2. Mediterranean amphibian communities (Alliance <i>Fimbrostylion dichotomae</i> )
3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	A.3.1. Submerged vegetation of <i>Charophytes</i> (Class <i>Charetea fragilis</i> )
3150	Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	A.3.2. Free floating and submerged hydrophytes (Class <i>Lemnetea</i> ) A.3.3.1.5. Stands of large pondweeds ( <i>Magnopotamion</i> )
*3170	Mediterranean temporary ponds	A.4.2.1.2. Ass. <i>Plantagini-Crypsidetum schoenoidis</i> A.4.2.1.4. Stands of <i>Crypsis aculeata</i>
*3180	Turloughs	N.a.
3230	Alpine rivers and their ligneous vegetation with <i>Myricaria germanica</i>	D.1.1.1.1. Ass. <i>Salici-Myricarietum</i>
3260	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	A.3.3.2. Rooted submerged communities of running waters (Alliance <i>Ranunculion fluitantis</i> )

3270	Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidention</i> p.p. vegetation	N.a.
4030	European dry heaths	C.3.4.1. Western European heaths (Alliance <i>Genistion</i> )
4060	Alpine and Boreal heaths	D.2.1.1.4. Stands with domination of <i>Arctostaphylos uva-ursi</i> D.2.1.1.5. Stands with domination of <i>Genista radiata</i> D.2.1.1.6. Stands with domination of <i>Juniperus nana</i> D.2.3. Stands with domination of <i>Juniperus sabina</i> D.2.4. Stands with domination of <i>Genista holopetala</i>
*4070	Bushes with <i>Pinus mugo</i> and <i>Rhododendron hirsutum</i> ( <i>Mugo-Rhododendretum hirsuti</i> )	D.2.1.1.1. Ass. <i>Lonicero borbasianae-Pinetum mugii</i>
5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	N.a.
5210	Arborescent matorral with <i>Juniperus</i> spp.	D.3.4.2.3. Stands of <i>Juniperus oxycedrus</i>  E.8.2.3. Ass. <i>Pistacio-Juniperetum phoeniceae</i>
5330	Thermo-Mediterranean and pre-desert scrub ( <i>Euphorbia dendroides</i> )	E.8.2.2. Ass. <i>Oleo-Euphorbietum dendroidis</i>
*6110	Rupicolous calcareous or basophilic grasslands of the <i>Alyso-Sedion albi</i>	N.a.
6170	Alpine and subalpine calcareous grasslands	C.4. Alpine and subalpine grasslands
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco-Brometalia</i> ) (* important orchid sites)	C.3.3. Sub-Atlantic mesophilous grasslands and mountain meadows on calcareous soils (Order <i>Brometalia erecti</i> )
*6220	Pseudo-steppe with grasses and annuals of the <i>Thero-Brachypodietea</i>	C.3.6. Eumediterranean and stenomediterranean rocky ground pastures and dry grasslands (Order <i>Cymbopogo-Brachypodietalia</i> )
*6230	Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)	C.3.4.2. <i>Nardus stricta</i> dominated grasslands (Alliance <i>Nardion</i> )  C.3.4.3. <i>Festuca tenuifolia</i> dominated grasslands (Alliance <i>Calluno-Festucion capillatae</i> )
*6240	Sub-Pannonic steppic grasslands ( <i>Festucion vallesiacaе</i> )	C.3.1. Subcontinental dry grasslands (Order <i>Festucetalia vallesiacaе</i> )
*6250	Pannonic loess steppic grasslands	N.a.

*6260	Pannonic sand steppes	C.3.2. Inland dunes
62A0	Eastern sub-mediterranean dry grasslands ( <i>Scorzoneratalia villosae</i> )	C.3.5. Sub-Mediterranean and Epimediterranean dry grasslands (Order <i>Scorzoneretalia villosae</i> )
6410	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )	C.2.2.2.1. Ass. <i>Molinietum caeruleae</i>  C.2.2.2.3. Ass. <i>Gentiano pneumonanthe-Molinietum litoralis</i> C.2.5.1.1. Ass. <i>Molinio-Lathyretum pannonicum</i>
6420	Mediterranean tall humid grasslands of the <i>Molinio-Holoschoenion</i>	N.a.
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels ( <i>Convolvulion sepium</i> , <i>Filipendulion</i> , <i>Senecion fluviatilis</i> )	C.5.4. Lowland tall herb communities  I.1.5.4.5. Ass. <i>Glycyrrhizetum echinatae</i> I.1.5.5.1. Alliance <i>Petasition officinalis</i>
6440	Alluvial meadows of river valleys of the <i>Cnidion dubium</i>	C.2.2.1. Alliance <i>Cnidion venosum</i> C.2.2.2.2. Ass. <i>Ventenanto-Trifolietum pallidum</i>
6450	Northern boreal alluvial meadows	A.4.1.1.12. Stands of <i>Equisetum fluviatile</i> A.4.1.2.3. Ass. <i>Caricetum gracile</i> A.4.1.2.8. Ass. <i>Phalaridetum arundinaceae</i>
6510	Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	C.2.3.2.1. Ass. <i>Arrhenatheretum elatioris</i>  C.2.3.2.2. Ass. <i>Ononido-Arrhenatheretum</i> C.2.3.2.3. Ass. <i>Centaureo fritschii-Arrhenatheretum</i> C.2.3.2.4. Ass. <i>Filipendulo vulgaris-Arrhenatheretum</i> C.2.3.2.7. Lowland hay meadows with <i>Sanguisorba officinalis</i>
6520	Mountain hay meadows	C.2.3.3. Central European mountain hay meadows (Alliance <i>Trisetum-Arrhenatherion</i> )
7130	Blanket bogs	C.1.2.2. Raised boreal <i>Sphagnum</i> bogs (Order <i>Ledetalia palustris</i> )
7140	Transition mires and quaking bogs	C.1.2.1.2. Ass. <i>Drosero-Caricetum stellulatae</i> C.1.2.1.3. Ass. <i>Caricetum lasiocarpae</i>
7150	Depressions on peat substrates of the <i>Rhynchosporion</i>	C.1.2.1.1. Ass. <i>Rhynchosporietum albae</i>

*7220	* Petrifying springs with tufa formation ( <i>Cratoneurion</i> ) dominated by vegetation of Alliance <i>Cratoneurion commutati</i>	A.2.1.1.3. Helocrenous springs
7230	Alkaline fens	C.1.1.1.1. Ass. <i>Orchidi-Schoenetum nigricantis</i> C.1.1.1.2. Ass. <i>Eriophoro-Caricetum paniceae</i> C.1.1.1.3. Ass. <i>Carici-Blysmetum compressi</i> C.1.1.1.4. Ass. <i>Molinio caeruleae-Caricetum hostianae</i> C.1.1.1.5. Ass. <i>Caricetum davallianae</i>
8120	Calcareous and calcshist screes of the montane to alpine levels ( <i>Thlaspietea rotundifolii</i> )	B.2.1. Altimontane, subalpine and alpine screes (Alliance <i>Silenion marginatae</i> )
8130	Western Mediterranean and thermophilous scree	B.2.2. Illyrian-Adriatic screes (Alliance <i>Peltarion alliaceae</i> )
8210	Calcareous rocky slopes with chasmophytic vegetation	B.1.3. Lime stone of Alpine-Carpathian-Balkan region (Order <i>Potentilletalia caulescentis</i> ) B.1.4. Lime stone of Tyrrhenian-Adriatic region (Order <i>Centaureo-campanuletalia</i> ) I.1.1. Old wall cracks
8310	Caves and pits not open to the public	H.1. Karst caves and pits
8330	Submerged or partially submerged sea caves	G.2.4.3. Biocenosis of mediolittoral caves  G.4.3.2. Biocenosis of semi-dark caves (it also appears as an enclave in infralittoral)  G.5.3.2. Biocenosis of caves and passages in complete darkness (it also appears as an enclave in upper stages)
9110	<i>Luzulo-Fagetum</i> beech forests	E.4.2. Central European acidophilous beech forests (Alliance <i>Luzulo-Fagion</i> )
9130	<i>Asperulo-Fagetum</i> beech forests	E.4.1. Central European neutrophilous to acidophilous, mezophilous beech forests (Alliance <i>Fagion sylvaticae</i> )
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the <i>Carpinion betuli</i>	E.3.1.1. Pedunculata oak and common hornbeam forest (Ass. <i>Carpino betuli-Quercetum roboris "typicum"</i> )  E.3.1.2. Ass. <i>Carpino betuli-Quercetum roboris fagetosum</i>  E.3.1.3. Ass. <i>Carpino betuli-Quercetum roboris quercetosum cerris</i>  E.3.1.4. Ass. <i>Carpino betuli- Quercetum roboris tilietosum tomentosae</i>
*9180	<i>Tilio-Acerion</i> forests of slopes, screes and ravines	E.4.4.2. Ass. <i>Lunario redivivae-Aceretum pseudoplatani</i>  E.4.4.3. Ass. <i>Tilio-Taxetum</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> )	E.1.1. Alluvial willow forests (Alliance <i>Salicion albae</i> )  E.1.2.2. Ass. <i>Populetum nigrae-albae</i>

		E.1.3.1. Ass. <i>Equiseto hyemali-Alnetum incanae</i>
		E.1.3.2. Ass. <i>Alnetum glutinoso-incanae</i>
		E.2.1.3. Ass. <i>Carici brizoidis-Alnetum glutinosae</i>
		E.2.1.4. Ass. <i>Frangulo-Alnetum glutinosae</i>
		E.2.1.5. Ass. <i>Pruno-Fraxinetum angustifoliae</i>
		E.2.1.6. Ass. <i>Carici elongatae-Alnetum glutinosae</i>
91F0	Riparian mixed forests of <i>Quercus robur</i> , <i>Ulmus laevis</i> and <i>Ulmus minor</i> , <i>Fraxinus excelsior</i> or <i>Fraxinus angustifolia</i> , along the great rivers ( <i>Ulmenion minoris</i> )	E.2.1.1. Ass. <i>Fraxino angustifoliae-Ulmetum laevis</i>
		E.2.1.7. Ass. <i>Leucoio-Fraxinetum angustifoliae</i>
		E.2.2. Alluvial forests of <i>Quercus robur</i> (Alliance <i>Alno-Quercion roboris</i> )
*91H0	Pannonian woods with <i>Quercus pubescens</i>	E.3.4.7. Ass. <i>Orno-Quercetum pubescentis</i>
91K0	Illyrian <i>Fagus sylvatica</i> forests ( <i>Aremonio-Fagion</i> )	E.4.3. Subalpine beech forests of suballiance <i>Epimedio-Fagenion</i>
		E.4.5. Forests of suballiance <i>Lamio orvalae-Fagenion</i>
		E.4.6. Southeast-Alpine-Illyrian forests of suballiance <i>Ostryo-Fagenion</i>
		E.5. Beech–fir forests ( <i>Abieti-Fagetum</i> s.l.)
		E.6. Subalpine beech forests (suballiance <i>Saxifrago rotundifolii-Fagenion</i> )
91L0	Illyrian oak-hornbeam forests ( <i>Erythronio-Carpinion</i> )	E.3.1.5. Sessile oak and hornbeam forest (Ass. <i>Epimedio-Carpinetum betuli</i> )
		E.3.1.6. Ass. <i>Festuco drymeiae-Carpinetum</i>
		E.3.1.8. Ass. <i>Anemone nemorosae-Carpinetum</i>
91M0	Pannonian-Balkan turkey oak- sessile oak forests	E.3.3. Mezian forests of <i>Quercus frainetto</i> (Alliance <i>Quercion frainetto</i> )
		E.3.4.1. Ass. <i>Lathyro-Quercetum petraeae</i>
91R0	Dinaric dolomite Scots pine forests ( <i>Genisto januensis-Pinetum</i> )	E.7.4.1. Ass. <i>Helleboro nigri-Pinetum sylvestris</i>
9260	<i>Castanea sativa</i> woods	E.3.2.1. Sessile oak and sweet chestnut forest (Ass. <i>Quercocastanetum sativae</i> )
92D0	Southern riparian galleries and thickets ( <i>Nerio-Tamaricetea</i> and <i>Securinegion tinctoriae</i> )	D.3.2.2. Oleander galleries
9320	<i>Olea</i> and <i>Ceratonia</i> forests	E.8.2.1. Ass. <i>Oleo-Pistacietum lentisci</i>
		E.8.2.2. Ass. <i>Oleo-Euphorbietum dendroidis</i>
		E.8.2.4. Ass. <i>Oleo-Juniperetum phoeniceae</i>
		E.8.2.5. Ass. <i>Erico-Arbutetum</i>
		E.8.2.6. Ass. <i>Erico-Calycotometum infestae</i>
9340	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests	E.8.1.1. Ass. <i>Fraxino orni-Quercetum ilicis</i>
		E.8.1.2. Ass. <i>Quercetum ilicis-virgiliana</i>
		E.8.1.3. Ass. <i>Myrto-Quercetum ilicis</i>
		E.8.1.6. Ass. <i>Ostryo-Quercetum ilicis</i>
		E.8.1.7. Ass. <i>Quercoc ilicis-Pinetum dalmatica</i>

9410	Acidophilous <i>Picea</i> forests of the montane to alpine levels ( <i>Vaccinio-Piceetea</i> )	E.7.1.1. Ass. <i>Calamagrosti-Abietetum</i>  E.7.2. Acidophilous fir forests (Alliance <i>Abieti-Piceion</i> ) E.7.3.2. Ass. <i>Listero-Piceetum abietis</i> E.7.3.3. Ass. <i>Adenostylo alliariae-Piceetum</i> E.7.3.4. Ass. <i>Clematido alpinae-Piceetum</i> E.7.3.5. Ass. <i>Carici albae-Piceetum</i>
*9530	(Sub-) Mediterranean pine forests with endemic black pines	E.3.5.9. Ass. <i>Ostryo-Pinetum nigrae</i>  E.7.4.4. Ass. <i>Cotoneastro-Pinetum nigrae</i> E.7.4.5. Ass. <i>Euphorbio triflorae-Pinetum nigrae</i> E.7.4.6. Ass. <i>Erico manipuliflorae-Pinetum dalmaticae</i>
9540	Mediterranean pine forests with endemic Mesogean pines	E.8.2.7. Ass. <i>Quercu ilicis-Pinetum halepensis</i> E.8.2.8. Ass. <i>Junipero phoeniceae-Pinetum halepensis</i> E.8.2.9. Ass. <i>Pistacio-Pinetum halepensis</i>
	Sub-Mediterranean grasslands of the order <i>Trifolio-Hordeetalia</i>	C.2.5.1.2. Ass. <i>Hordeo-Poëtum silvicolae</i>  C.2.5.1.3. Ass. <i>Oenantho-Alopecuretum bulbosi</i> C.2.5.1.4. Ass. <i>Peucedano-Molinietum litoralis</i> C.2.5.1.5. Ass. <i>Trifolio-Hordeetum secalini</i> C.2.5.1.6. Ass. <i>Scillo litardierei-Deschampsietum mediae</i>
	Tufa cascades of karstic rivers	A.3.5. Tufa-forming river communities A.3.6. Tufa-forming vegetation on cascades

**NOTE:**

\* priority habitat type

ANNEX III

**GENERAL MEASURES FOR THE CONSERVATION OF THREATENED AND RARE HABITAT TYPES**

General measures for conservation of threatened and rare habitat types (hereinafter referred to as: habitats) referred to in Article 11, paragraph 2 of this Ordinance are measures used to accomplish the following objectives:

***A – Surface inland waters and marsh habitats***

- to preserve water and marsh habitats in as natural state as possible, and perform revitalisation as required; in areas drained for the purpose of regulating the watercourse, establish places for canals which would ensure occasional flooding of the surrounding areas;

- to ensure a favourable, ecologically acceptable, quantity of water in water and marsh habitats necessary for the conservation of the habitats and their important biological species;
- to preserve favourable physical and chemical properties of water or to improve them, if they are unfavourable for the conservation of habitats and their important biological species;
- to preserve a favourable water regime for conservation of marsh habitats;
- to preserve a favourable composition of mineral substances and nutrients in water and soil of marsh habitats;
- to preserve a diversity of habitats in watercourses (unfortified banks, dunes, torrents, waterfalls, etc.) and a favourable water dynamics (meandering, carrying and depositing of alluvia, occasional natural flooding of backwaters, etc.);
- to preserve the connectivity of a watercourse;
- to preserve the biological species important for a certain habitat; alien (allochthonous) species and genetically modified organisms shall not be introduced;
- to prevent overgrowing of the remaining small marsh habitats in the coastal area;
- to avoid fortification of river banks, watercourse regulation, canalisation and changes to the water regime of water and marsh habitats unless it is necessary for the protection of people's lives and settlements;
- in protection against the harmful impact of waters, preference shall be given to the use of natural retentions and watercourses as spaces for retaining flood waters and their drainage;
- gravel extraction shall be carried out on elevated terraces or in inactive flood areas, whereas gravel extraction in active river beds and occasional flooded plains shall be avoided;
- sediments from river dunes shall not be used.
- to preserve a favourable, ecologically acceptable status of naturally unvegetated, gravel, sand and muddy, steep and flat banks which are nesting and feeding sites for birds, and to prevent exploitation of material and succession with wood species;
- to ensure open surface of shallow water ponds, prevent succession, and ensure permanent connectivity with the main watercourse;
- to prevent capturing and burying of springs;
- to prevent overgrowth of tufa cascades and waterfalls, ensure sufficient flow rates and prevent water eutrophication;
- to remove invasive alien species from all water, coastal and marsh areas;
- to ensure adequate care for the conservation of threatened and rare wild taxa and systematic monitoring of their status within the water management system;

***B – Unvegetated and scarcely vegetated inland surfaces***

- to preserve a favourable structure and configuration as well as to allow natural processes, including erosion;
- to preserve biological species important for a certain habitat; alien (allochthonous) species and genetically modified organisms shall not be introduced;
- to prevent vegetation succession and eliminate species, especially wood ones, which overgrow screes and do not belong to characteristic scree vegetation;
- to encourage extensive cattle breeding in mountainous, insular and coastal screes for the purpose of conserving bare soil and preventing succession;
- to set new, and move existing mountaineering and climbing trails in a manner that it does not threaten rare and endangered plant and animal species.

***C-D – Grasslands, fens and bogs, tall herbs and thickets***

- to manage grasslands within the grazing and mowing regime adapted to a certain habitat type, with acceptable use of plant protection agents and mineral fertilisers;
- to preserve biological species important for a certain habitat; alien (allochthonous) species and genetically modified organisms shall not be introduced;
- to preserve a favourable ratio of grasslands and thickets, including the prevention of succession process (overgrowing of grasslands and fens and bogs, etc) and in that way ensure habitat mosaic;
- to preserve a favourable low level of mineral substances in soils of dry and humid grasslands;
- to preserve a favourable water regime, including high water table in the area of fens and bogs, humid grasslands and tall herb communities, ensure their constant wetting and regular grazing, that is mowing;
- to preserve a favourable water regime, including high level of underground water in the area of thermophilous thickets, prevent succession and eliminate trees which shadow the habitat;
- to stimulate revitalisation of extensive cattle breeding in lowland, hilly, mountainous, insular and coastal grassland areas;
- to stimulate maintenance of grasslands by mowing adopted to habitat type;
- to implement revitalisation of degraded grassland areas, especially fens and bogs and humid grasslands, as well as grasslands in advanced stages of succession;
- it is necessary to perform limited burning and stimulate cattle breeding on extremely degraded, deserted and overgrown grassland areas for the purpose of grazing;
- to remove invasive alien species from all grassland surfaces and thickets;

- to preserve garrigues, and prevent succession by periodic elimination of certain wood species and controlled burning;
- to preserve thickets vegetating dunes and coastal zone of major rivers;
- to preserve vegetation of tall herbs in contact zones between forests and open areas, and prevent their destruction during construction and maintenance of forest roads and trails;

### ***E – Forests***

- forest management shall be conducted in line with forest certification principles;
- during the final clearing of major forest surfaces, minor surfaces shall be left uncleared, wherever possible and appropriate;
- in forest management, to preserve forest clearings (meadows, pastures, etc.) and forest edges to the maximum extent;
- in forest management, to ensure prolongation of harvest maturity for indigenous species of trees, taking into consideration the physiological life-span of individual species and health condition of a forest community;
- in forest management, use of chemical plant protection agents and biological control agents shall be avoided and use of genetically modified organisms shall be prohibited;
- to preserve biological species important for a certain habitat; alien (allochthonous) species and genetically modified organisms shall not be introduced;
- to provide a constant proportion of mature, old and dead (standing and felled) trees, particularly trees with nest holes, in all forests;
- in forest management, to ensure appropriate care for conservation of threatened and rare wild taxa and systematic monitoring of their status;
- afforestation, where habitat conditions so permit, shall be carried out by native species of trees in a composition reflecting the natural composition, using nature-friendly methods; afforestation of non-forest areas shall be carried out only if justified, under the condition that endangered and rare non-forest habitat types are not further endangered thereby.
- to remove invasive alien species from all forest areas;
- to preserve a favourable water regime in alluvial forests;

### ***F, G and K – Sea and sea-shore and habitat complexes (estuaries, lagoons and large shallow inlets and bays)***

- to preserve favourable physical and chemical properties of sea water or to improve them where deteriorated;
- to provide at least secondary purification of urban and industrial water flowing into the sea;

- to preserve favourable configuration and structure of sea bottom, shore, coastal areas and river mouths;
- to preserve biological species important for a certain habitat; alien (allochthonous) species and genetically modified organisms shall not be introduced;
- to conduct an appropriate system of management and surveillance of ship ballast waters, so as to prevent spreading of invasive alien species through ballast waters;
- to prevent unlawful construction of buildings on sea-shore and to improve an unfavourable state wherever possible;
- sediments from coastal dunes shall not be exploited;
- to remove invasive alien species;
- to ensure constant mixing of salt and fresh water in estuaries, and preserve favourable physical and chemical properties of water in estuaries, lagoons and large shallow inlets and bays or to improve them when they are unfavourable for conservation of habitats and their important biological species;
- to maintain a connection between a lagoon and the sea and enable constant contact, and in case of natural or artificial closing of the passage it is necessary to re-dig it and if required deepen the seabed of the lagoon due to raising of the soil caused by depositing of organic material;
- to preserve muddy, sandy, gravel and rocky coasts in their natural form with natural vegetation and restore devastated areas wherever possible;

### ***H – Underground***

- to preserve biological species important for a certain habitat; alien (allochthonous) species and genetically modified organisms shall not be introduced;
- to preserve speleothems, living organisms from speleological sites, fossil, archaeological and other discoveries;
- habitat conditions within speleological sites, their above-ground area and the immediate proximity shall not be altered;
- to implement rehabilitation of pollution sources which endanger surface and subterranean karst waters;
- to implement rehabilitation of waste dumps in basins of speleological sites;
- to preserve favourable conditions (darkness, humidity, airiness) and peace and quiet (without visits and other human impacts) within speleological sites;
- to preserve favourable physical and chemical conditions, quantity of water and water regime or to improve them if unfavourable.

### ***I Cultivated non-forest areas and habitats with weed and ruderal vegetation***

- to preserve vegetation in cracks of old walls, prevent removal of vegetation and filling of those cracks with construction material;
- to preserve open areas with humid soil with high nitrogen content along watercourses and alluvial forests;
- to remove invasive species;
- to ensure flooding of habitats and favourable water regime;
- to preserve weed communities whose characteristic plant species are endangered on the national level;
- to prevent vegetation succession and remove forest species;

### ***J Built and industrial habitats***

- to preserve deserted basins of salt plants, and stimulate their re-activation;
- to prevent vegetation succession and maintain endemic taxa;
- to remove invasive species;

PROVISIONAL TRANSLATION