World Wide Fund for Nature

Danube – Carpathian Programme (WWF DCP)

Report

Proposals for Habitat Types to be Included in Annex I to Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora, and in the Interpretation Manual of European Union Habitats EUR 15/2

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SUMMARY

At present Bulgaria prepares the establishment of the European ecological network Natura 2000. The Bulgarian country office of the World Wide Fund for Nature Danube – Carpathian Programme (WWF DCP) aims to actively support this process through a programme of scientific research, educational, informational and capacity – building activities, and fostering of partnerships. During last couple of years a scientific team of WWF DCP accomplished surveys to formulate proposals for amendments of Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora and the Interpretation Manual of European Union Habitats 15/2. The reason is that these documents are composed on the 'EU 15' principle and do not include a number of valuable and threatened habitats and species of European importance, which will thus remain outside the European ecological network Natura 2000. In result of this activity prepared and scientifically justified were proposals for several habitat types from the Black Sea Biogeographical Region and one forest habitat type – Silver lime woods.

With its' accession Bulgaria will bring to the European Union a new biogeographical region – the Black Sea. In the period April 2003 – June 2004 a scientific team of the WWF DCP accomplished analytical, field and office work on the Black Sea coast dunes and grass communities, as well as analyses of the collected information and preparation of the present final report. The activity aimed at formulation of proposals for additions to Council Directive 92/43/EEC and to the Interpretation Manual of European Union Habitats EUR 15/2, which do not include habitats species from the Black Sea Biogeographical Region.

As the first phase of the investigations in 2003, 165 phytocenotic descriptions were made along the Black Sea coast. The syntaxonomic analysis is attached as Appendix I. In result, 4 habitat types were determined which are included in the Interpretation Manual of Habitats in the European Union 15/2 and with small expansion and amendments could cover the Black Sea Biogeographical Region as well. With the present proposal we give concrete texts for amendment and expansion of the existing codes 2110, 2120, 2130 and

2180. The proposed by us habitat types are priority types and important for Bulgaria and part of them are unique for Europe because of the presence of endemic syntaxa.

In the research carried out in 2004 were made 82 phytocenotic descriptions of grass communities of steppe type in the region of Balchik and Kavarna. In the course of statistic processing and cluster analysis 19 of these were excluded. The syntaxonomic analysis, attached as Appendix II, proved the existence of two community types characteristic for the Black Sea Biogeographic Region and pertaining to habitats which are not included in Annex I to the Habitats Directive, thus remain outside the scope of the NATURA 2000 Network. In these phytocenoses occur significant number of rare, threatened and endemic plant species.

The conservation importance of these habitats, the interlace of their distribution with the Black Sea Biogeographic Region and the current processes of their spatial reduction resulting from construction and agricultural practices reason us to believe that they should be considered for inclusion in the European Ecological Network NATURA 2000.

Silver lime woods are a very specific and endemic habitat exceptionally distributed in Southeastern Europe. The focal distribution area of Silver lime is in North Bulgaria, Serbia, and Romania. These woods are featured by high biological diversity. Still, they are impacted by intense anthropogenic pressure related to gathering of blossoms for medicinal purposes and logging of lime-trees for timber provision. The anthropogenic intervention results in modification of the botanical composition and in habitat degradation, which make these woods vulnerable and necessitate their designation as a habitat of community importance and its inclusion in the European Ecological Network. The proposal for this habitat type is based on references and on 29 phytocenotic descriptions. The syntaxonomic analysis is presented in Appendix III.

CHARACTERISTIC OF THE PROPOSED NEW HABITAT TYPES

West Pontic Wormwood Steppes (Pal. Class. 34.9212)

These habitats include phytocenoses on limestone slopes of considerable steepness located along the Bulgarian Black Sea coast near Balchik and Kavarna. The plant communities described are differentiated in a new petrophyllic association with two subassociations: *Alysso caliacrae-Artemisietum lerchianae typicum* and *camphoresmetosum monspeliacae.* The second subassociation is a human-modified version of the typical one. Main plant species are *Artemisia lercheniana, Agropyron brandzae, Alyssum caliacrae, Aster oleifolius, Astragalus glaucus, Astragalus spruneri, Jurinea stoechadifolia, Kochia prostrata, Linum austriacum,* and *Thymus zygioides*.
The association described in Bulgaria is vicariant to documented pertophyllic associations occurring in Romania: *Agropyro-Thymetum zygioidis, Koelerio-Artemisietum lerchianae,* and *Thymo pannonici-Chrysopogonetum grylli*. The variety of species and the geographic interlace of reviewed plant communities reason us to identify them with the habitat West Pontic Wormwood Steppes (index 34.9212 under the Palearctic Habitats Classification.)

West Pontic Feather Grass Steppes (Pal. Class. 34.9211, 34.9213)

This habitat envelops plane areas in the region adjacent to the Bulgarian Black Sea coast – the town of Kavarna, cape Kaliakra, the village of Tyulenovo, and the inland of Dobrudzha enclosing natural and secondary pasture and grass land communities. The soil has developed to different stage and is eroded at places, exposing limestone bedrock. Part of these communities are primary, but some have developed on the place of pubescent oak (*Quercus pubescens*), flowering ash (*Fraxinus ornus),* and other xerothermic forest species with lower story of whitethorn (*Crataegus monogyna)*, smoke-tree (*Cotinus coggygria),* and other. Single representatives or small groups of these components of

former forest phytocenoses still occur within the researched region. The microrelief is complex and facilitates disproportionate, often group-type distribution of certain species. This is why the research of these phytocenoses resulted in their differentiation to 8 associations (Velchev, 2002). The relevant syntaxonomic analysis of collected data reveals that these are included in an association defined by the sigmatic method - *Paeonio tenuifoliae-Koelerietum brevis* nom. prov.

Characteristic species are: *Achillea clypeolata, Koeleria brevis, Atremisia pedemontana, Cerastium bulgaricum, Chamaecytisus jankae, Convolvulus cantabricus, Helianthemum salicifolium, Potentilla bornmuelleri, Satureja coerulea, Stipa lessingiana, Stipa ucrainica, Paeonia tenuifolia,* and *Iris pumila*.

Similar to this association is part of the vegetation in the north half of Dobrudzha (the area of Babadag). Two associations are differentiated in this region of Romania: *Stipo ucrainicae-Festucetum valesiacae* – primary by origin – and *Medicagini falcatae-Festucetum valesiace* – developed on the place of lethally damaged forest phytocenoses.
It should be noted that, even if the habitat type is referred to as "feather grass steppe", a lot of the steppe species have become extinct or considerably limited in distribution due to human impact. That is why we propose that in this habitat be also included the secondary steppe communities with occurrence of wild thyme and globe flower that have consequently developed to replace the feather grass steppes as a result of intensive pasture and surface erosion. For the Habitats Directive we propose West Pontic Feather Grass Steppes as nominal heading that would include the rudimentary indexes 34.9211 and 34.9213 of the Palearctic Habitats Classification.

The new unit proposed for inclusion in Council Directive 92/43/EEC is of limited distribution within the territory of two countries and is a valuable element of a vegetation type that has been widely spread in the researched region in the past. The occurrence of rare and endemic taxa and syntaxa, as well as the ongoing intensive process of civil construction in the region necessitate the protection of these specific steppe habitats.

Moesian *Tilia tomentosa* woods (PAL.CLASS. 41.841)

Silver lime dominated woods in Bulgaria are mainly distributed in the northeastern part of the country, and westwards reach the Danubian littoral ledges in the regions of Svishtov and Nikopol. Larger massifs are distributed in the area of Ludogorie and the Fore-Balkan. These mainly occupy limestone slopes and Danubian loess ledges of northerly and easterly exposure, as well as dank glens and canyons. At places lime-tree species has secondarily increased its presence at the account of common oak that has been subject to selective felling and is normally outspend in growth rate by lime-tree.

In Romania these woods are mainly distributed in the southeastern part of the country forming the association *Tilio tomentosae-Carpinetum betuli* Donita 1970 which incorporates the associations *Nectaroscordum-Tilietum tomentosae* Donita 1970, *Galantho plicatae-Tilietum tomentosae* Donita 1970, and *Tilio-Quercetum dalechampii* Donita 1970 occurring in the uplands of Babadag, Dobrudzha (Dihoru & Donita, 1970). Apart from lime-tree species, diagnostic are indicated to be *Crataegus pentagyna, Arum orientale,* and *Carpesium cernnum.* Another association in the region is *Ornithogalo-Tilio-Quercetum* A. Dihoru 1976 featured by the differential species: *Quercus robur, Tilia tomentosa, Arum orientale, Carpesium cernuum, Ornithogalum sphaerocarpum,* and *Scutellaria altissima.*

DESCRIPTION OF THE PROPOSED NEW HABITAT TYPES FOR THE NEEDS OF THE INTERPRETATION MANUAL OF EUROPEAN UNION HABITATS EUR 15/2

West Pontic Wormwood Steppes (Pal. Class. 34.9212)

1. Steppe grass communities of natural origin, ruderalized at places, developed on carbonate bedrock (in Romania on green shale, and in Bulgaria on marl). The habitat encloses steep white slopes along the West Black Sea Coast. In the structure of phytocenoses participate rare, threatened, and endemic (Bulgarian and Balkan) species.

2. Plants: *Artemisia lerchiana, Agropyron brandzae, Alyssum caliacrae, Aster oleifolius, Astragalus glaucus, Astragalus spruneri, Jurinea stoechadifolia, Kochia prostrata, Linum austriacum, Thymus zygioides*.

3. Corresponding categories: *Pimpinello-Thymion zhygoidi*, *Alysso caliacrae-Artemisietum lerchianae, Agropyro-Thymetum zygioidis*.

4. Geographic distribution: Dobrudzha – Bulgaria (between Balchik and Kaliakra) and Romania (Babadag).

West Pontic Feather Grass Steppes (Pal. Class.: 34.9211, 34.9213)

1. Pastureland natural or secondary grass communities on plane terrain along the West Black Sea Coast and soil developed to different stages on limestone bedrock.

2. Plants: *Achillea clypeolata, Koeleria brevis, Atremisia pedemontana, Cerastium bulgaricum, Chamaecytisus jankae, Convolvulus cantabricus, Helianthemum*

salicifolium, Potentilla hornmuelleri, Satureja coerulea, Stipa lessingiana, Stipa ucrainica, Paeonia tenuifolia, Iris pumila.

3. Corresponding categories: *Festucion valesiacae, Pimpinello-Thymion zhygoidi, Paeonio tenuifoliae-Koelerietum brevis, Stipo ucrainicae-Festucetum valesiacae, Medicagini falcatae-Festucetum valesiacae*.

4. Geographic distribution: Dobrudzha (Bulgaria, Romania).

Moesian *Tilia tomentosa* woods (PAL.CLASS. 41.841)

1. Xerophytic to meso-xerophytic woods dominated by Silver lime, distributed in the continental regions of Southeastern Europe. Mainly occurring in the hilly plains and foothills on northerly and easterly slopes of different bedrock: loess, limestone, and other. Apart from xerothermic *Quercetalia* species (*Helleborus odorus, Ligustrum vulgare*) in the biological composition of these woods participate mesophyllic representatives of *Fagetalia* and *Carpinion* (*Scilla bifolia, Staphylea pinnata, Nectaroscordum siculum*).

2. Plants: *Tilia tomentosa*, *Staphylea pinnata, Carpinus betulus, Hedera helix, Helleborus odorus, Corydalis spp., Galanthus spp., Arum spp. Scilla bifolia, Nectaroscordum siculum, Anemone ranunculoides, Isopyrum thalictroides, Scutellaria altissima, Carpesium cernuum*

3. Corresponding categories: *Tilio tomentosae-Carpinetum betuli* Donita 1970, *Ornithogalo-Tilio-Quercetum* A. Dihoru 1976, *Staphyleo-Tilietum tomentosae* Tzonev 2003.

4. Geographic distribution: North Bulgaria, Serbia, and Romania.

PROPOSALS FOR AMENDMENT AND EXPANSION OF THE EXISTING HABITAT TYPES WITH CODES 2110, 2120, 2130 AND 2180

To the habitat type with code **2110 Embryonic shifting dunes** (Pal. Class.: 16.211) could be included the habitat **16.2113** (Pal. Class.), connected in Bulgaria with the assosiation *Cakilo euxine-Salsoletum ruthenicae* Vich. 1971 of the union *Euphorbion peplis* R. Tx. 1950 from the presented in Romania class *Cakiletea maritimae* R. Tx. et Prsg. 1950 in R. Tx. 1950. The species characterizing the habitat type are *Salsola ruthenica, Xanhium strumarium* ssp. *italicum, Elymus farctus, Crambe maritima, Lactuca tatarica, Euphorbia peplis, Polygonum maritimum, Glaucium flavum*. They are spread all over the coastline but they have been under anthropogenic pressure in the greatest scale. The vegetation of the typical beaches is conserved only at places that are still aside from the tourist invasion – Irakli, Durankulak, Kamchiiskite piasatzi. It could be assumed that this vegetation is decreasing more and more along the Black Sea coast, which necessitates the fast designation of protected zones for this habitat, where the human presence will be restricted.

To the group of habitats with code **2120 Shifting dunes along the shoreline with *Ammophila arenaria*** (white dunes) (Pal. Class.: 16.212) could be included additionally the habitat **16.2124** (Pal. Class.), connected in Bulgaria with the associations *Xanthio italici-Leymetum sabulosi* Tzonev, M. Dimitrov, Russakova 2003 and *Ammophilo arundinaceae-Elymetum gigantei* Vich. 1971 from union *Elymion gigantei Morariu* 1957, which includes also the described on the territory of Romania association *Elymetum gigantei* Morariu 1957. The habitat type is characterized with the following species: *Ammophila arenaria, Leymus racemosus* ssp. *sabulosus, Silene thymifolia, Medicago marina, Stachys maritima, Eryngium maritimum, Euphorbia paralias, E. seguerana, Centaurea arenaria* и *Lactuca tatarica*. The association *Xanthio italici-Leymetum sabulosi* Tzonev, M. Dimitrov, Russakova, 2003 is found on the transition

between the typical embryonic dunes and the white dunes. It usually takes sections in the foot of the white dunes towards the sea. It consists mainly from bristly and root perennial species among which are preserved some typical representatives of *Cakilo euxinae-Salsoletum ruthenicae* Vich. 1971. These are *Euphorbia peplis, Polygonum maritimum etc.* In the association *Ammophilo arundinaceae-Elymetum gigantei* Vich. 1971 some degradation changes are observed connected with decreasing the participation of some typical psamophytic - *Euphorbia paralias, Medicago marina*. Its spreading is also restricted. The white dunes are preserved in larger scale along the North Black Sea coast where the anthropogenic pressure is lower.

To the group of habitats with **code 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)** (Pal. Class.: 16.221 до 16.227) should be additionally included the habitat **16.22B1 West Pontic fixed dunes** (Pal. Class.) with its varieties as follows:

16.22B121 West Pontic *Ephedra-Carex* fixed dunes. The habitat is found in the region "Anna-Maria" (close to the Romanian border). The association *Alysso borzaeani-Ephedretum distachiae* Tzonev, M. Dimitrov, Russakova, 2003 is described. On the territory of Romania are known the associations *Ephedro-Caricetum colchicae* (Mor. 1939) Krausch 1965 and *Scabioso ucrainicae-Caricetum ligericae* (Simon 1960) Krausch 1965. The associations mentioned above are connected with the union *Scabiosion argentaeae*. The main species characterizing the habitat are *Ephedra distachya, Cynanchum acutum* и *Carex ligerica.* This habitat is uniquely found only on this very north beach of Bulgaria. The place is relatively well preserved due to the fact that for long time it has been in the buffer zone of the frontier line. In the last years the visits to it are more frequent. There are path ways made through the dunes that break their wholeness and destroy the vegetation. The place should be urgently protected moreover that it conserves an endemic syntaxon.

16.22B122 Nort-western Pontic *Alyssum-Secale* fixed dunes. This habitat is relatively widely spread along the Black Sea coast of Bulgaria. It is confirmed for the regions of

Slanchev briag, Nessebar, Arkutino and Ropotamo. It is presented by the sub-associations *Alyssetosum borzaeani* и *Secaletosum sylvestris* of association *Aurinio uechtritziani-Artemisietum campestris* Tzonev, M. Dimitrov, Russakova, 2003. In Romania the association *Secaletum sylvestris* Popescu et Sanda 1973 goes to the same habitat. The habitat is connected with the union *Sileno thymifoliae-Jurinion kilaeae* Gehu et al. 1989 and the species *Silene thymifolia, Jurinea albicaulis* ssp. *kilaea, Secale sylvestre* and *Alyssum borzaeanum*. The grey dunes take the biggest area of all the dunes on the Black Sea. With the biggest variety are the ones in the region between the mouth of Kamchia River and the village of Shkorpilovtzi, Nessebar and Slanchev briag and at Arkutino. At the last find the association mentioned is presented with the sub-association *Pancratietosum maritimi.* The sub-association *Alyssetosum borzaeani* is developing on the typical grey dunes, on which perennial grass plants are seen. Sub-association *Secaletosum sylvestre* presents some sections (slopes with south or west exposure and top parts) with more unstable sands and with participation of annual species. Sub-association *Syntrichietosum ruralis* takes sections with well trodden and wet sands and slopes with north exposure with pioneering vegetation – mosses, lichens and annual grass species. They are with high conservational value and are under increasing anthropogenic pressure, connected mainly with the building of new resorts and hotels. Serious attention should be paid to the conservation of the biggest dune complex in the regions of Kamchia – Shkorpilovtzi, Ropotamo – Arkutino, Nessebar – Slanchev briag, Primorsko – Kiten.

16.22B123 Nort-western Pontic *Calamagrostis-Scirpus* fixed dunes. The habitat is spread fractionally in the microdepressions of the grey dunes along the whole coastline. It is characterized with clearly determined dominant role of *Calamagrostis epigeios* and the participation of *Juncus littoralis* and *Holoschoenus vulgaris.* For Romania are known the associations *Calamagrosti-Tamaricetum ramosissimae* Simon et Dihoru 1962 and *Aperetum maritimae Popescu* et al. 1980. It is included in habitat **2190 Humid dune slacks** that is well characterized in the Interpretation manual and does not need additional description.

BLACK SEA PHYTOCENOTIC DESCRIPTIONS' LOCALITIES

Field season I – 2003

Phytocenotic descriptions (PD) No 1 to No 28 – the sandbank between Durankulak lake and the Black sea

PD No 29 to No 40 – the sandbank between Shablenska Touzla and the Black sea

PD No 41 to No 53 – Ana Maria beach northern from Cosmos camp

PD No 54 to No 75 – Shkorpilovtci beach, 3 km northward direction Kamchia river mouth

PD No 76 to No 80 – Kamchia Protected area

PD No 81 – "Luna" camp, northern from Obzor

PD No 82 to No 91 – Irakli beach

PD No 92 to No 101 – Southern beach of Nessebar

PD No 102 to No 110 – Nessebar new town

PD No 111 to No 114 – Slanchev bryag resort

PD No 115 to No 125 – Zlatna ribka camp north from Sozopol

PD No 126 to No 130 – On the line from Pyassachna lilia reserve to Kavatcite camp southern from Sozopol

PD No 131 and No132 – Dyuni resort and the northern strand of the Alepu marsh

PD No 133 to No 147 – Primorsko spa

PD No 148 to No 164 – Arkutino motel and the dunes in Ropotamo reserve

PD No 165 and No 166 – Pobitite kamani stone forest, the formation eastern from Slanchevo village

Note: In the course of data processing and analysis 54 intermediate and untypical descriptions were identified and neglected. In the attached Appendix the descriptions are listed with their initial numbers corresponding to these in the above list.

Field season II – 2004

PD No 1 to No 4 – Balchik, on the crossroad to Touzlata

PD No 5 to No 8 – Bachik, cape Ikiantuluk

PD No 9 to No 15 – Balchik, Touzlata

PD No 16 to No 24 – Kavarna, Chirakman

PD No 25 and No 26 – Bozhuretc village, Kairyaka

PD No 27 to No 34 – while slopes at the Topola village

PD No 35 to No 40 – westward from Bulgarevo, Kairyaka

PD No 41 to No 43 – the Zelenka road

PD No 44 to No 47 – cape Kaliakra, the fortress

PD No 48 to No 62 – cape Kaliakra, the crossroad to Bolata

PD No 63 – Bolata, cliffs in the bay

PD No 64 to No 71 – northward from Bolata bay

PD No 72 and No 73 - Taukliman marsh, Russalka resort

PD No 74 Yailata protected area

PD No 75 to No 77 – on the road from Yailata to S. Nikola village

PD No 78 and to No 82 – Vidno village, Gyorensko dere area

LOCALITIES OF THE *TILIA TOMENTOSA* WOODS PHYTOCENOTIC DESCRIPTIONS

PD No 1, 2 and 3 - Pleven town

PD No 4 to No 7 and No 25 - Tzarevetz village

PD No 8 - Somovit village

PD No 9 and 10 - Dragash vojvoda village

PD No 11 and 12 - Bjala voda village

PD No 13 to No 20 - Bozuritza village

PD No 21 and 22 - Vurbitza village

PD No 23 and 26 - Kajluka Protected landscape

PD No 24 - Opanetz village

PD No 27 - Sanadinovo village

PD No 28 - Pelishat village

PD No 29 - Vubel village

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APPENDIX I

SYNTAXONOMIC ANALYSIS OF THE PHYTOCENOTIC DESCRIPTIONS ALONG THE BLACK SEA, FIELD SEASON I

APPENDIX II

SYNTAXONOMIC ANALYSIS OF THE PHYTOCENOTIC DESCRIPTIONS ALONG THE BLACK SEA, FIELD SEASON II

APPENDIX III

SYNTAXONOMIC ANALYSIS OF THE PHYTOCENOTIC DESCRIPTIONS OF THE *TILIA TOMENTOSA* WOODS