

Habitats of Community Interest from the Danube Delta Biosphere Reserve and Associated Natura 2000 Sites (SCI, SPA) Inventoried between 2014-2018

Habitat de interes comunitar din Rezervația Biosferei Delta Dunării și siturile Natura 2000 asociate (SCI, SPA) inventariate în perioada 2014-2018

Mihai PETRESCU

Abstract

The present work is a result of the research theme “Research on flora and avifauna species, habitats and landscapes of conservative interest in the Natura 2000 sites in Dobrogea”, where there will be presented the aspects regarding the flora, vegetation and habitats of conservation importance within the Danube Delta Biosphere Reserve (D.D.B.R.) and the overlapping Natura 2000 sites (SCI, SPA). Taking into account that the frequency of the habitats and species within the studied areas was estimated according to their percentages observed within the research itineraries, respectively (for the threatened species) their coverage within the plots, their threat categories (endangered, vulnerable, rare, etc.) has only a preliminary character.

According to their estimated frequency within the studied site, most of the habitats could be considered endangered (13 habitats), followed by vulnerable (eight habitats), sporadic (three habitats) and rare (two habitats) ones. The assessed conservation status ranks from undisturbed (13 habitats), low disturbed (nine habitats), highly disturbed (two habitats) to medium disturbed (one habitat).

The number of threatened species is the highest within the loess/ rocky steppes (62C0 – 17 species), sand steppes (6260* – 12 species), sand beaches (1210 – nine species) and salt marshes and steppes (1530 – seven species). The rest of the habitats have between 0 and 5 threatened species.*

This outstanding natural heritage requires adequate management measures. Among the 25 habitats studied within proper research, six are priority ones for conservation overall the European Union. Within the Danube Delta Natura 2000 sites and overlapping sites, according to proper preliminary studies and criteria, most of these (14 habitats) should have a high priority within conservation measures, while seven habitats could be of secondary priority, followed by four habitats with a low priority.

Keywords: *D.D.B.R., habitats of community interest, threatened, endangered, vulnerable, sporadic, rare, disturbed, priority*

Introduction

The present work is a result of the research theme "Research on flora and avifauna species, habitats and landscapes of conservative interest in the Natura 2000 sites in Dobrogea", where there will be presented the aspects regarding the flora, vegetation and habitats of conservation importance within the Danube Delta Biosphere Reserve (D.D.B.R.) and the following Natura 2000 sites, wholly or partially overlapping with it (SCI, SPA): ROSCI0065 Delta Dunării, ROSPA0031 Delta Dunării and Complexul Razim-Sinoie, ROSPA0009 Beștepe-Mahmudia, as well as neighboring sites (ROSPA0052 Lacul Beibugeac). The ROSCI0066 Delta Dunării-Zona marină and ROSPA0076 Marea Neagră have not been studied, being beyond ICEM Tulcea's scientific competence, as these include marine habitats and species, studied by other institutions (I.N.C.D.M. „Gr. Antipa” Constanta etc.).

From the ecological point of view, Dobrogea region (that includes Tulcea and Constanța counties) represents the most important region of Romania, as here the largest surface of protected areas/ Natura 2000 sites occurs at the national level. It also represents the most important natural area in the European Union for the conservation of most species and habitats of community interest from the Steppic and Pontic bioregions.

In this context, even though numerous studies were conducted in Tulcea County, they were mainly focused on the Danube Delta area, for the remaining area the existing data being less detailed and/ or updated. For this particular reason the "Gavrilă Simion" Eco-Museum Research Institute of Tulcea (I.C.E.M.) initiated an overall and updated assessment of the natural heritage of this region within the Natura 2000 ecological network.

Within this work, there will be presented the plant species, vegetation and habitats from the Danube Delta Biosphere Reserve, but also from the Danube Delta Natura 2000 sites (SCI, SPA) as follows: ROSCI0065 Delta Dunării, ROSPA0031 Delta Dunării și Complexul Razim-Sinoie, ROSPA0009 Beștepe-Mahmudia, ROSPA0052 Lacul Beibugeac. Wherever possible there will be indicated the names of the places where the species, plant communities and/ or habitats were identified, or at least the territorial administrative unit (TAU) on whose territories they were identified.

Besides the scientific importance of this research, which can be used as a basis for the clarification, particularization and updating of the data regarding the presence occurrence, conservation status of some protected species and habitats, another goal is facilitating national and European funds at the level of each territorial administrative unit of the county. This could be achieved using the results of the research partially presented in this paper, for the: management on

a scientific basis of the natural heritage within the areas under the jurisdiction of the local authorities, both inside and outside protected areas; the drafting of the chapters regarding the natural heritage of each TAU within the financial applications; the procurement of clearings, etc.

Methods and Materials

The on-site research consisted in observations on itineraries and inventories generally in 100 square meters plots, according to the Braun-Blanquet method. The coenotaxa with an area below 100 square meters were considered plant community fragments, therefore they were not recorded in plots. Only in few situations, for forest habitats with high trees, of 200 square meters plots were used, in order to properly include all main key species. In the plots the species dominance is assessed according to the Braun-Blanquet scale. Within a certain plant community the dominance of the species identified outside the plots only and the sites where they are located are underlined in the text. The flora inventory is presented in the lists of species mentioned for each coenotaxon in the habitat description. For each species, between brackets, the variation limits of the dominance are mentioned, followed by the site where they were identified. For each plant community in a certain habitat first the most important species for conservation, represented by the key, respectively the threatened taxa there are presented. The remaining species, for the forests and thickets are grouped in vegetation layers that correspond to the main groups of biological forms (trees, shrubs/ lianas, grasses, etc.). The identification and framing of the plant species, coenotaxa and habitats are based on PHYSIS database and other papers or field guides (CIOCÂRLAN, 2009; DEVILLIERS *et alii*, 1996; DIHORU, DONIȚĂ, 1970; DONIȚĂ *et alii*, 2005; HOREANU, 1976b; IVAN, 1979; OLTEAN *et alii*, 1994; PETRESCU, 2007; PRODAN, 1934-1935; PRODAN, 1935-1936; PRODAN, 1938-1939; SANDA, ARCUȘ, 1999; SANDA *et alii*, 2008; SĂVULESCU *et alii*, 1952-1976; SÂRBU *et alii*, 2007).

The scientific names of the threatened taxa was maintained as it is listed in the National Red List (OLTEAN *et alii*, 1994) in order to avoid any confusion, even though the denomination of all the other species corresponds mainly to other more recent references (CIOCÂRLAN, 2009). The framing of the taxa was made according to the conservation importance. Thus taxa were framed to the subspecies level only where it was necessary to distinguish between infrataxa with or without conservation importance (ex. *Corydalis solida* subsp. *slivenensis* versus *Corydalis solida* subsp. *solida*), only in the case of the threatened taxa. The threatened species where the subspecies is not mentioned were mentioned in this form in order to correspond with the scientific denomination listed in the national red list (OLTEAN *et alii*, 1994).

For the key species the subspecies was mentioned only where the plant community denomination specifies the respective subspecies scientific name, in order to justify the proper framing of the studied phytocoenoses; like *Sedo hillebrandtii*-*Polytrichetum piliferi*, in which case it was necessary to separate *Sedum urvillei* subsp. *hillebrandtii* by *Sedum urvillei* subsp. *urvillei*. The other taxa, with no particular conservation value, were framed only to the species level, being mentioned in their *sensu lato* form, except the exceptional situations in which it was necessary to make a distinction between a native and an alien species (ex. *Cannabis sativa* subsp. *spontanea* versus *Cannabis sativa* subsp. *sativa*), significant for the conservation status of a certain plant community. Similar situations, where some subspecies that are important for conservation are mentioned, while the other taxa are only framed at the species level can also be quoted from the references mentioned previously (SANDA, VICOL, ȘTEFĂNUȚ, 2008).

The correspondence with the community interest habitats follows the descriptions in the EUR 27 version of the *Interpretation Manual of the European Union Habitats* (EUROPEAN COMMISSION-DG ENVIRONMENT, 2007). The preliminary assessment of the importance and conservation status of threatened species or habitats/coenotaxa, as a basis for the evaluation of the conservation priorities, was made by using a scale, as follows. For the species the first three gradations correspond to the IUCN threat categories (endangered, vulnerable, rare), to which the “critically endangered” category was added. For the next three gradations, that correspond to the IUCN category “not threatened”, the following frequency categories were used: sporadic, frequent, very frequent. A correspondence was also set between these categories and the Braun-Blanquet scale for the assessment of the dominance within the plots. For the preliminary evaluation of the habitat threat categories an adapted form of the previous scale was used, based on the estimation of the percentage limits in the research route within which the habitat/ coenotaxa was noticed (Table 1).

The conservation status was preliminary assessed by threat categories. Thus, the higher threat categories correspond to a lower conservation status, closer to an unfavourable level. Also the higher the number of threatened species, the better the conservation status can be considered. Taking into account if the habitat is a priority one not, combined with its threat category/ estimated area the habitat urgency for the intervention with adequate management measures was ranked, in decreasing order in three categories: high priority, priority, secondary priority.

Wherever data allowed also the conservation status of the plant communities/ habitats induced by the intensity of human activities was assessed. A simple scale which estimates a high, medium and low or null level of disturbance was used, taking into account the dominance indices and the number of ruderal and/or non-native species identified in the plots located in plant communities, in the studied habitats.

Table 1. The correspondence between the dominance, habitat frequency and the threat categories for species and habitats/ coenotaxa
Tabel 1. Corespondența dintre dominanță, frecvența habitatului și categoriile de amenințare pentru specii și habitate/ cenotaxoni

Dominance indices (specii)	Threat category	Habitat frequency in the studied area (% of the route)
– <5 individuals/ plot, with negligible dominance	critically endangered	-
+ – ≤ 1 % dominance	endangered	+ – ≤ 1 %
1 – 1-10 % dominance	vulnerable	I – 1-10 %
2 – 10-25 % dominance	rare	II – 10-25 %
3 – 25-50 % dominance	sporadic	III – 25-50 %
4 – 50-75 % dominance	frequent	IV – 50-75 %
5 – 75-100 % dominance	very frequent	V – 75-100 %

Within each plant community the presence of at least one ruderal/non-native species with a certain dominance index corresponds to a level of disturbance, i.e.: r – very low; + – low, 1 – medium; 2-5 – high. Additionally, for oak forests that are usually represented by more or less derived phytocoenoses, if the oak species proportion is: higher or equal to 2 (20%) – low disturbance; between (or equal to) 1 (10%) and 2 (20%) – medium disturbance; no oaks – high disturbance. The highest disturbance level in the canopy or shrub/grasses layer is considered representative for the overall plant community. Within the species list for each plant community the ruderal species are underlined, while the non-native ones are mentioned in the description of the respective coenotaxa.

HABITATS MENTIONED WITHIN THE DANUBE DELTA SCI THAT WERE NOT STUDIED WITHIN PROPER RESEARCH

The habitats mentioned in the initial documents that were used for the Danube Delta SCI (Formularul standard Natura 2000 – ROSCI0065), were not all studied within proper research, for different reasons. The habitats 1110 and 3140 overrun the frame of the present research, while the habitats 6120*, 6420, 6440, 6510 were not identified within proper inventories, as they most probably do not occur within the D.D.B.R. or Danube Delta SCI and SPA. This is explainable as when the initial documents for this SCI were elaborated the available data about this habitats were scarce, but nowadays the existing

information allows and requires the readjustment of these habitat lists. The 6410 habitat, even though is confirmed in some works (SANDA, ARCUŞ, 1999) within this studied area, was not observed within proper research so far.

1110 Sandbanks which are slightly covered by sea water all the time, was not studied as it overruns the frame of the present research, being mainly found within the Danube Delta-Marine zone SCI, studied by institutions specialized in marine research.

3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. (PAL.CLASS.: (22.12 or 22.15) x 22.44)), represented in the Danube Delta by the subtype **22.44 Chandalier algae submerged carpets** has as algae as key species, so it outruns the frame of the present research, focused on higher plants and habitats dominated by these.

6120 * Xeric sand calcareous grasslands (PAL.CLASS.: 34.12)

This habitat that corresponds to the subtype **34.12 Middle European pioneer calcareous sand swards** occurs, according to the PHYSIS database, in Western Europe and Western and Northern Central Europe, locally to Lithuania and Belarus. Thus its range does not include nor Romania nor the Danube Delta region. Also the alliances *Koelerion glaucae* and *Sileno conicae-Cerastion semidecandri*, or their synonyms (MUCINA *et alii*, 2016) are not present in the Danube Delta, at least according to synthesis works about this region (SANDA, ARCUŞ, 1999). Some of the key species of the 6120 habitat, like *Carex ligerica*, *Euphorbia seguieriana*, *Helichrysum arenarium*, *Koeleria glauca* could indicate similarities with the plant communities typical for the sandy steppes that occur in the Danube Delta, framed within the subtype **34.A21 Western Pontic sand steppes** and within the corresponding *Festucetalia vaginatae* order. Within this order there are included numerous plant communities mentioned from the Danube Delta and its adjacent areas from the Dobrogea Plateau (SANDA, ARCUŞ, 1999), which were also identified and described within proper research presented in this work, that are obviously included in the **6260* Pannonic sand steppes**. In conclusion the sandy steppes of the Danube Delta and the associated sites are framed obviously within the **6260* Pannonic sand steppes** (PAL.CLASS.: 34.A1, 34.A2), where the West Pontic basin, that includes the Danube Delta Biosphere Reserve and its associated sites, is explicitly mentioned, unlike for the 6120 habitat whose range does not include this region.

Probably due to a confusion between the two community interest habitats **6120* Xeric sand calcareous grasslands** (PAL.CLASS.: 34.12)-**34.12 Middle European pioneer calcareous sand swards**, respectively the **6260***

Pannonic sand steppes (PAL. CLASS.: 34.A1, 34.A2)-**34.A21 Western Pontic sand steppes**, the first habitat was included on the list of the D.D.B.R. habitats, while the second is missing. This confusion should be urgently revised, in order to replace the habitat **6120*** with **6260*** on the official list of the D.D.B.R. habitats of community interest, or to mention both provisory until accurate research will clarify this problem. On the other hand the priority habitat **6260*** occur without any doubt in the D.D.B.R. and associated sites, including, on a phytocoenological basis, all the sand steppes of this area, so that is unlike that some of these steppes could be framed into the **6120*** habitat. In this respect the presence of the **6260*** habitat within the D.D.B.R. and associated sites should be officially admitted, in order to include this priority habitat within management plans, or to readjust the management measures elaborated for the **6120*** habitat to the **6260***, taking into account that they are similar.

6410 *Molinia* meadows on calcareous, peaty or clayey-siltladen soils (*Molinion caeruleae*) (PAL.CLASS.: 37.31)

This habitat, framed into the subtype **37.31 Purple moorgrass meadows and related communities**, including plant communities from the alliance *Molinion caeruleae* is represented within the D.D.B.R. by the coenotaxa ***Vicio biennis-Molinietum euxinae* Dihoru et Negrean 1976**, according to synthesis works (SANDA, ARCUŞ, 1999). Quoted from Letea Forest, this one was not observed so far within proper inventories, so it should be a priority in the future field research.

6420 Mediterranean tall humid herb grasslands of the *Molinio-Holoschoenion* (PAL.CLASS.: 37.4)

This habitat presence into the D.D.B.R. and associated sites is doubtful, even if the coasts of the Black Sea are mentioned in its description. Even if within the subtype **37.4 Mediterranean tall humid grasslands**, that corresponds to the *Molinio-Holoschoenion* alliance, the Danube Delta and adjacent Dobrogea regions are mentioned, the *Molinio-Holoschoenion* alliance is described only from the Western Mediterranean, where it includes seasonally flooded meadows on subsaline soils (MUCINA *et alii*, 2016). *Molinio-Holoschoenion* alliance or its synonyms (MUCINA *et alii*, 2016) or plant communities framed within it were also not found within synthesis works about the vegetation of Dobrogea and the Danube Delta (SANDA, ARCUŞ, 1999). Taking into account some of the key species like first of all *Agrostis stolonifera*, then other taxa that can be co-dominant within these type of meadows (dominant within other habitats of community interest in which they were framed within the present work **1530*** (*Juncus maritimus*), **7230** (*Schoenus nigricans*) **6260*** (*Scirpus holoschoenus*) and also *Tetragonolobus maritimus*, *Orchis*

laxiflora (*Orchis laxiflora* subsp. *elegans*), this habitat could be represented in the D.D.B.R. by plant communities from the *Agrostion stoloniferae* alliance (SANDA, ARCUŞ, 1989), but this alliance is not mentioned within this 6420 habitat, nor within other community interest habitats. Representative for this alliance would be first of all the coenotaxa *Agrostetum stoloniferae* (Ujvarosi 1941) Burduja et al. 1956 that occur in the D.D.B.R. (SANDA, ARCUŞ, 1999). From this alliance, within proper research, there was identified so far the coenotaxa *Poëtum sylvicolae* Buia et al. 1959, presented below, but this fact does not ascertain the presence of the 6240 habitat within the D.D.B.R. and associated sites.

Another possibility is that this 6420 habitat was confused with the **7230 Alkaline fens** (PAL.CLASS.: 54.2) habitat of community interest, that occur without any doubt within the D.D.B.R.. Thus, it was recorded within the Corbu Beach at least, presented within the present work, framed within the subtype **54.217 Pontic dunal black sedge fens**, described within the PHYSIS database, represented by the coenotaxa ***Orchido-Schoenetum nigricans* Oberd.1957**. This was also quoted from nearby areas, southwards of the Corbu Beach (Năvodari), or within the proper D.D.B.R., from Sărăturile levee and Sfiştofca (SANDA, ARCUŞ, 1999). In this second situation, if finally it will be officially admitted that the 6420 does not exist within the D.D.B.R., it could be replaced by the 7230 habitat within management measures that could be revised adequately, or adapted, as these are similar habitats.

In conclusion the Danube Delta Biosphere Reserve Administration (D.D.B.R.A) should have as a priority to clarify if this habitat or other doubtful/ similar community interest habitats really occur within the D.D.B.R. and associated sites, in order to officially revise the list of the habitats of community interest, respectively to take measures for their conservation and to report them adequately to the European Commission.

***Poëtum sylvicolae* Buia et al. 1959** can be estimated so far as being endangered within the Tulcea's territory (TDV), where the only ruderal species observed in the plot is *Xanthium italicum* that corresponds to a low disturbance level from this point of view.

Key species: *Poa sylvicola* (5; TDV).

Other species: *Althaea officinalis* (+; TDV), *Cynodon dactylon* (1; TDV), *Phragmites australis* (+; TDV), *Rumex palustris* (+; TDV), *Senecio paludosus* (+; TDV), *Xanthium italicum* (+; TDV).

6440 Alluvial meadows of river valleys of the *Cnidion dubii*
(PAL.CLASS.: 37.23)

According to proper studies, this habitat does not occur within the

D.D.B.R. and associated sites, for several reasons. The corresponding habitat **37.23 Subcontinental riverine meadows** includes alluvial meadows from subcontinental climate regions of Central Europe, of which north-eastern Croatia is the closest area to the Danube Delta, still separated by hundreds of kilometers; the *Cnidion dubii* (syn. *Deschampsion caespitosae*) alliance, and the plant communities mentioned within it (*Violo-Cnidetium*, *Oenanthe lachenalii-Molinietum*, *Lathyro palustris-Gratioletum*, *Gratiolo-Caricetum praecosis-suzae*, *Cnidio-Violetum pumilae*, *Cnidio-Violetum elatioris*, *Juncetum atrati*) were not identified within proper research and are not quoted within synthesis works (SANDA, ARCUŞ, 1999) about the D.D.B.R. and associated sites; the habitat 6440 is not mentioned within synthesis works about the habitats of Romania (DONIŢĂ *et alii*, 2005). In conclusion the D.D.B.R.A should have as a priority to clarify if this habitat or other doubtful/ similar community interest habitats really occur within the D.D.B.R. and associated sites, in order to officially revise the list of the habitats of community interest, respectively to take measures for their conservation and to report them adequately to the European Commission.

6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) (PAL.CLASS.: 38.2)

According to proper studies, this habitat does not occur within the D.D.B.R. and associated sites, for several reasons. The corresponding habitat **38.2 Lowland and collinar hay meadows**, is characteristic of the Euro-Siberian zone, that includes the Danube Delta. However, the mentioned alliances *Arrhenatherion elatioris*, *Brachypodio-Centaureion nemoralis*, *Festucion pratensis* are not quoted (nor their synonyms or their component coenotaxa) within synthesis works (SANDA, ARCUŞ, 1999) about the D.D.B.R. and associated sites. Still the habitat 6510 is mentioned within synthesis works about the habitats of Romania (DONIŢĂ *et alii*, 2005). No phytocoenological arguments are presented for this framing that was probably done on the basis of key species only. Without the adequate use of the phytocoenological classification, this framing based only on key species can be misleading, as the same key species may occur in several habitats. Within the Annex 3 (DONIŢĂ *et alii*, 2005) within the 6150 habitat there it mentioned the subtype **R3715 Danubio-Pannonic *Agrostis stolonifera* meadows**, that is also mentioned from Dobrogea, that includes the Danube Delta. The same subtype is not mentioned anymore within the 6150 in the same reference, page 171. Still, the *Agrostis stolonifera* meadows also found within the Danube Delta, framed into the coenotaxa *Agrostetum stoloniferae* (Ujvarosi 1941) Burduja *et al.* 1956, that occur in the D.D.B.R. (SANDA, ARCUŞ, 1999), can be framed into the only subtype dominated by *Agrostis stolonifera* described in the PHYSIS database,

respectively **37.2422 Creeping bent flood swards**, but the 37.2422 code does not correspond to the 38.2 code typical for this habitat.

In conclusion, the D.D.B.R.A should have as a priority to clarify if this habitat or other doubtful/ similar community interest habitats really occur within the D.D.B.R. and associated sites, in order to officially revise the list of the habitats of community interest, respectively to take measures for their conservation and to report them adequately to the European Commission.

HABITATS IDENTIFIED WITHIN THE DANUBE DELTA BIOSPHERE RESERVE AND ASSOCIATED NATURA 2000 SITES, STUDIED WITHIN PROPER RESEARCH

Most of the habitats mentioned in the initial documents that were used for the Danube Delta SCI (Formularul standard Natura 2000 – ROSCI0065) were also confirmed and studied more or less in detail within our own investigations. Still, within proper research three new community interest habitats were identified within the D.D.B.R. and associated Natura 2000 sites habitat, that are not mentioned in the Danube Delta SCI: **2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)** (PAL.CLASS.: 16.212), **6260* Pannonic sand steppes** (PAL.CLASS.: 34.A1, 34.A2), **7230 Alkaline fens** (PAL.CLASS.: 54.2). This is explainable as when the initial documents for this SCI were elaborated the available data about these habitats were scarce, but nowadays the existing information allows and requires the readjustment of these habitat lists.

1150* Coastal lagoons (PAL.CLASS.: 21)

21 Coastal lagoons

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 9072 ha and a conservation status of B level.

The habitat subtypes that occur within this habitat, that extend on reduced areas in comparison with the open waters devoid of vegetation (higher plant coenotaxa), can be considered overall as mostly rare (sometimes from endangered to frequent), and mainly undisturbed, with isolated situations medium or low disturbance, first of all due to alien taxa (*Vallisneria spiralis*) and less to ruderal species. These subtypes were recorded mainly within the: Razim Lagoon-Grădiştea Island, the reed beds framed between the Razim Lagoon open waters and the Babadag Lake (Sarichioi TAU); Goloviţa Lagoon, between Cape Doloşman and Jurilovca (Jurilovca TAU), Tuzla Lake (Săcele TAU).

Polypogon monspeliensis was the only rare threatened species identified within this habitat as endangered.

It should be mentioned that, within this habitat, Sinoe lagoon can be considered as framed into the subtype **21.1 Sea-connected lagoons**, but the habitats within this lagoon were not yet studied within the present research.

21.2 Isolated lagoons

In the studied area, this habitat includes includes several other **habitat subtypes** as follows:

22.43 Rooted floating vegetation

This habitat subtype framed within the isolated lagoons subtype can be considered as between endangered and rare, and also undisturbed to medium disturbed, due to alien species (*Vallisneria spiralis*). It was recorded from the Razim Lagoon-Grădiștea Island (Sarichioi TAU), as well as within the Golovița Lagoon, between Cape Doloșman and Jurilovca (Jurilovca TAU).

Potamogetonum perfoliati Koch 1926 em. Passarge 1964 was observed as vulnerable and undisturbed in the area of the Grădiștea Island (GRD), Sarichioi TAU, and also towards the entrance in the channel that links the Razim Lagoon with the Babadag Lake. The plant community is formed usually by very sparse individuals of *Potamogeton perfoliatus*, being monodominant.

Key species: *Potamogeton perfoliatus* (+1; GRD).

Potamogetonum perfoliati Koch 1926 em. Passarge 1964, a rare and undisturbed association within the Golovița Lagoon, between Cape Doloșman and Jurilovca (GDJ), Jurilovca TAU, is usually monodominant and formed by very sparse individuals of *Potamogeton perfoliatus*.

Key species: *Potamogeton perfoliatus* (+1; GDJ).

Overall this plant community can be assessed as framed between vulnerable and rare, undisturbed, in the area of the Razim Lagoon-Grădiștea Island (Sarichioi TAU), as well as within the Golovița Lagoon between Cape Doloșman and Jurilovca (Jurilovca TAU).

Myriophyllo-Potametum lucentis Soó 1934 is a plant community in which there were framed, at least provisionally the phytocoenoses dominated by *Myriophyllum spicatum* and *Vallisneria spiralis* that occur in the ponds and channels within the reed beds adjacent to the Golovița Lagoon, between Cape Doloșman and Jurilovca (GDJ), even if *Potamogeton lucens* was not observed in the plots. These can be framed into the subassociation **vallisnerietosum V. Karpati 1963**, as described in synthesis works on the vegetation of Dobrogea and the Danube Delta (SANDA, ARCUȘ, 1999). In the studied areas it can be considered as endangered and highly disturbed, due to the dominant alien species *Vallisneria spiralis*.

Key species: *Myriophyllum spicatum* (2; GDJ), *Vallisneria spiralis* (2; GDJ).

Other species: *Phragmites australis* (+; GDJ), *Potamogeton perfoliatus* (+; GDJ).

22.41 Free-floating vegetation

This habitat subtype is framed into the habitat of community importance **3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation**, being observed within the reed beds adjacent to the Golovița Lagoon, between Cape Doloșman and Jurilovca (Jurilovca TAU), where it could be preliminary estimated as rare, also medium disturbed due to the co-dominant alien species *Vallisneria spiralis*.

***Ceratophylletum demersi* Hild.1956** was registered as rare and medium disturbed between Cape Doloșman and Jurilovca (GDJ), Jurilovca TAU.

Key species: *Ceratophyllum demersum* (2; GDJ).

Other species: *Myriophyllum spicatum* (1; GDJ), *Vallisneria spiralis* (1; GDJ).

22.4313 Fringed waterlily carpets

The habitat subtype is endangered and undisturbed within the Razim Lagoon, near the Grădiștea Island (Sarichioi TAU).

***Nymphoidetum peltatae* (Allorge 1922) Bellot 1951** was inventoried as endangered and undisturbed in the shallow waters of the Razim Lagoon, near the Grădiștea Island (GRD), Sarichioi TAU.

Key species: *Nymphoides peltata* (4; GRD).

Other species: *Ceratophyllum demersum* (+; GRD), *Schoenoplectus lacustris* (+; GRD).

***Nymphoidetum peltatae* (Allorge 1922) Bellot 1951**, an endangered and undisturbed association, was recorded in the area of the Grădiștea Island (GRD), Sarichioi TAU.

Key species: *Nymphoides peltata* (5; GRD).

Other species: *Phragmites australis* (+; GRD), *Potamogeton perfoliatus* (+; GRD).

44.1621 Lower Danube willow galleries

***Salicetum albae* Issler 1924 s.l.**, framed within the habitat of community importance **92A0 *Salix alba* and *Populus alba* galleries**, is considered an endangered plant community in the the reed beds adjacent to the Golovița Lagoon, between Cape Doloșman and Jurilovca (GDJ), Jurilovca TAU. There can be estimated a low level of non-native plant invasive tendencies (*Vallisneria spiralis*).

Key species: *Salix alba* (5; GDJ).

Other species:

- grasses/ undershrubs: *Calystegia sepium* (+; GDJ), *Phragmites australis* (1; GDJ), *Vallisneria spiralis* (+; GDJ).

53.1111 Freshwater [Phragmites] beds

This habitat subtype is mainly rare, sometimes frequent and mostly undisturbed, rarely low disturbed. It was recorded from: the Razim Lagoon-Grădiștea Island, Sarichioi TAU; the reed beds framed between the Razim Lagoon open waters and the Babadag Lake (Sarichioi TAU); Golovița Lagoon, between Cape Doloșman and Jurilovca (Jurilovca TAU). Even though widespread in the Danube Delta, *Trapa natans* was recorded as critically endangered within this habitat.

Scirpo-Phragmitetum W. Koch 1926 was observed as a rare and undisturbed plant community in the Razim Lagoon-Grădiștea Island (GRD), Sarichioi TAU, nearly monodominant.

Key species: *Phragmites australis* (4; GRD),

Other species: *Nympoides peltata* (+; GRD)

Scirpo-Phragmitetum W. Koch 1926 can be considered a frequent and undisturbed association in the vast reed beds framed between the Razim Lagoon open waters and the Babadag Lake (RB), Sarichioi TAU.

Key species: *Phragmites australis* (5; RB).

Threatened species: *Trapa natans* (r; RB).

Other species: *Calystegia sepium* (+; RB), *Lythrum salicaria* (+; RB), *Lycopus europaeus* (+; RB), *Pulicaria dysenterica* (+; RB), *Myriophyllum spicatum* (+; RB), *Najas marina* (+; RB), *Typha angustifolia* (+; RB).

Scirpo-Phragmitetum W. Koch 1926 can be considered a rare association within the Golovița Lagoon, between Cape Doloșman and Jurilovca (GDJ), Jurilovca TAU. A low disturbance is indicated by the presence of the ruderal species *Tanacetum vulgare*.

Key species: *Phragmites australis* (5; GDJ).

Other species: *Calystegia sepium* (+; GDJ), *Lythrum salicaria* (+; GDJ), *Lycopus europaeus* (+; GDJ), *Tanacetum vulgare* (+; GDJ).

53.1122 Dry halophile Phragmites beds

Astero tripolii-Phragmitetum humilis Krisch (1972) 1974 was identified as rare and undisturbed in the brackish waters of the Tuzla Lake (STZ), Săcele TAU. *Polypogon monspeliensis* was the only rare threatened species identified, endangered within the plots.

Key species: *Phragmites australis* subsp. *australis* var. *humilis* (4; STZ).

Threatened species: *Polypogon monspeliensis* (+; STZ).

Other species: *Elymus elongatus* (+; STZ), *Apera spica-venti* (1; STZ), *Atriplex prostrata* (1; STZ), *Bolboschoenus maritimus* (1; STZ), *Juncus gerardi* (+; STZ), *Suaeda maritima* (+; STZ).

1210 Annual vegetation of drift lines (PAL.CLASS.: 17.2)

17.2 Shingle beach drift lines

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4536 ha and a conservation status of B level.

The habitat is endangered and low disturbed, sometimes medium disturbed, mainly due to ruderal species, being less affected by alien taxa. The conservation importance of the habitat is enhanced by nine threatened species (*Artemisia tschernieviana*, *Crambe maritima*, *Convolvulus persicus*, *Eryngium maritimum*, *Ephedra distachya*, *Crambe maritima*, *Leymus racemosus* subsp. *sabulosus*, *Petasites spurius*, *Plantago coronopus*) these being framed between endangered and sporadic, at least within the plots. It was identified at the Sulina beach (Sulina TAU), Portița (Jurilovca TAU), between C.A. Rosetti and Cardon (C.A. Rosetti TAU).

17.22 Euro-Siberian shingle beach drift lines

Within this subtype there were identified several plant communities, as follows:

***Argusietum (Tournefortietum) sibiricae* Popescu et Sanda 1975**, an endangered plant community within the Sulina TAU's territory, where it was observed at the Sulina beach (SPL), Sulina TAU. There it is characterized by a low disturbance level, induced by one ruderal species. One rare threatened species, *Eryngium maritimum* is endangered, at least within the plots.

Key species: *Argusia sibirica* (2; SPL).

Threatened species: *Eryngium maritimum* (+; SPL).

Other species: *Lactuca tatarica* (+; SPL), *Salsola soda* (+; SPL), *Xanthium italicum* (1; SPL).

***Crambetum maritimae* (I. Șerbănescu 1970) Popescu et al. 1980** was found on the coastal sands of Portița (POR), Jurilovca TAU, where it occupies reduced areas, being framed as endangered. In its composition, four threatened species are included in the "rare" category at the national level, of which *Crambe maritima* and *Leymus racemosus* subsp. *sabulosus* are also considered vulnerable. Within the studied phytocoenoses these four species are mainly endangered, except the vulnerable *Leymus racemosus* subsp. *sabulosus* and the dominant key species. The two ruderal species, with significant coverage

(+/-1) indicate a medium disturbance, due to grazing and probably tourism activities on the beach adjacent to the resort.

Key species: *Crambe maritima* (3; POR).

Threatened species: *Crambe maritima* (3; POR), *Eryngium maritimum* (±; POR), *Leymus racemosus* subsp. *sabulosus* (1; POR), *Plantago coronopus* (±; POR).

Other species: *Bromus tectorum* (1; POR), *Centaurea arenaria* (+; POR), *Erodium cicutarium* (±; POR), *Glaucium flavum* (r; POR), *Gypsophila perfoliata* (±; POR), *Lactuca tatarica* (+; POR), *Lepidium perfoliatum* (r; POR), *Medicago lupulina* (r; POR), *Secale sylvestre* (+; POR).

***Convolvuletum persici* (Borza1931 n.n.) Sanda et al. 1998** is an endangered plant community that was noticed between C.A. Rosetti and Cardon (RC), in the surroundings of Cardon village (C.A. Rosetti TAU). There it can be considered as low disturbed as indicated by the non-native *Robinia pseudoacacia*. The dominant key species is also a rare threatened species, both at the national level and within the plant communities.

Key species: *Convolvulus persicus* (2; RC).

Threatened species: *Convolvulus persicus* (2; RC).

Other species: *Carex colchica* (+; RC), *Centaurea arenaria* (+; RC), *Cynodon dactylon* (+; RC), *Euphorbia seguieriana* (1; RC), *Polygonum arenarium* (+; RC), *Robinia pseudoacacia* (+; RC), *Scabiosa argentea* (+; RC).

***Convolvuletum persici* (Borza1931 n.n.) Sanda et al. 1998**, an endangered association within the Plaja (Beach) Sulina (SPL). It can be considered low disturbed as indicated by one ruderal species. Besides the key species another rare threatened species at the national level is *Eryngium maritimum*, endangered within the plots.

Key species: *Convolvulus persicus* (2; SPL).

Threatened species: *Convolvulus persicus* (2; SPL), *Eryngium maritimum* (+; SPL).

Other species: *Salsola soda* (+; SPL), *Xanthium italicum* (+; SPL).

***Convolvuletum persici* (Borza1931 n.n.) Sanda et al. 1998** can be considered as endangered within the Plaja (Beach) Sulina (SPL). It can be considered medium disturbed as indicated by two alien species with a significant coverage (*Conyza canadensis*, *Elaeagnus angustifolia*). Besides the key species, other rare threatened species at the national level are *Ephedra distachya* and *Petasites spurius*, endangered within the plots.

Key species: *Convolvulus persicus* (2; SPL).

Threatened species: *Convolvulus persicus* (2; SPL), *Ephedra distachya* (+; SPL), *Petasites spurius* (+; SPL).

Other species: *Centaurea arenaria* (+; SPL), *Conyza canadensis* (+; SPL), *Cynodon dactylon* (+; SPL), *Elaeagnus angustifolia* (1; SPL), *Euphorbia seguieriana* (+; SPL).

Overall this plant community is endangered and low disturbed (sometimes medium disturbed) mainly due to alien species and less to ruderal ones. Four threatened species were recorded (*Convolvulus persicus*, *Ephedra distachya*, *Eryngium maritimum*, *Petasites spurius*), the first one being rare while the other are endangered within the plots.

***Atripliceto hastatae-Cakiletum euxinae* Sanda et al. 1999** can be considered as endangered within the northernmost part of the Chituc levee (CN). It can be considered as low disturbed as indicated by one ruderal species. Two rare and vulnerable threatened species at the national level, *Artemisia tschernieviana* and *Crambe maritima*, are framed between endangered and vulnerable within this phytocoenosis.

Key species: *Cakile maritima* subsp. *euxina* (3; CN).

Threatened species: *Artemisia tschernieviana* (+; CN), *Crambe maritima* (1; CN).

Other species: *Lactuca tatarica* (+; CN), *Phragmites australis* subsp. *australis* var. *humilis* (+; CN), *Xanthium italicum* (+; CN).

1310 *Salicornia* and other annuals colonising mud and sand (PAL.CLASS.: 15.1)

15.1 Annual salt pioneer swards

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4536 ha and a conservation status of B level.

The habitat was mostly observed as endangered, but also vulnerable and sporadic in some cases. A natural status of conservation was observed within most of the plant communities, except the low disturbed *Suaedo-Bassietum hirsutae* (Br.-Bl. 1928) Țopa 1939. Most of the seven threatened species at the national level are endangered at least within the plots (*Crambe maritima*, *Eryngium maritimum*, *Convolvulus persicus*, *Halocnemum strobilaceum*, *Leymus racemosus* subsp. *sabulosus*, *Limonium meyeri*), *Euphorbia peplis* being critically endangered. It was recorded from: seashores that belong to the Murighiol and Jurilovca communes (Portița), Sulina (Sulina TAU), Caraorman (Crișan TAU), Cășla Vădanei (Sfântu Gheorghe TAU), Agighiol Lake (Valea Nucarilor TAU), Sarichioi TAU, Portița (Jurilovca TAU), Cășla Vădanei (Sfântu Gheorghe TAU), between Letea, C.Ă. Rosetti and Cardon (C.Ă. Rosetti TAU), Sarinasuf (Murighiol TAU), Histria-Saele levee (Istria TAU), Plaja (Beach) Corbu (Corbu TAU).

15.11521 Western Pontic glasswort-seablite-saltwort swards

As an overall assessment this habitat subtype/ plant community can be considered vulnerable, sometimes endangered, along the seashores that belong to the Murighiol and Jurilovca TAUs (Portița), to the Sulina TAU, as well as on the Sahalin Islands (Sfântu Gheorghe TAU). It can be considered as mainly undisturbed, in some cases medium disturbed, due to the alien species. This coenotaxon is particularly rich in threatened species (*Leymus racemosus* subsp. *sabulosus*, *Crambe maritima*, *Eryngium maritimum*, *Euphorbia peplis*, *Convolvulus persicus*), with even four such taxa per plot. These are mostly endangered within the coenotaxa, except the critically endangered *Euphorbia peplis* and *Convolvulus persicus*, whose populations are very rare, even if locally the latest can become dominant.

***Salsoletum sodae* Slavnic 1948** was identified especially between the vegetation-free stretch of beach and the low dunes partly fixed by the cenotaxon *Elymetum gigantei*. In the composition of the association only *Leymus racemosus* subsp. *sabulosus*, a vulnerable and rare species, is threatened on a national scale, being endangered in the plant community. Within both the coastal area and the whole territory of the Murighiol TAU, the coenotaxon can be considered as endangered.

***Salsoletum sodae* Slavnic 1948** was found as vulnerable, in the Portița area (POR), on wet sands. It has a reduced coverage, with four threatened species, three of the "vulnerable and rare" and one from the "rare" categories at the national level, but mostly endangered within the plant community, except the critically endangered *Euphorbia peplis*.

Key species: *Salsola soda* (2; POR).

Threatened species: *Crambe maritima* (+; POR), *Eryngium maritimum* (+; POR), *Euphorbia peplis* (r; POR), *Leymus racemosus* subsp. *sabulosus* (+; POR).

Other species: *Cakile maritima* subsp. *euxina* (r; POR), *Gypsophila perfoliata* (r; POR), *Lactuca tatarica* (1; POR), *Polygonum maritimum* (r; POR).

***Salsoletum sodae* Slavnic 1948** was found as vulnerable, within Plaja (Beach) Sulina (SPL), Sulina TAU. It has a reduced coverage, with three threatened species, one "vulnerable and rare" and two from the "rare" category at the national level, all endangered within the plant community. It is a medium disturbed plant community, where the non-native *Amorpha fruticosa* has a significant coverage, higher than the one of the only ruderal taxon that was identified.

Key species: *Salsola soda* (2; SPL).

Threatened species: *Convolvulus persicus* (+; SPL), *Eryngium maritimum* (+; SPL), *Leymus racemosus* subsp. *sabulosus* (+; SPL).

Other species: *Amorpha fruticosa* (1; SPL), *Xanthium italicum* (+; SPL).

***Salsoletum sodae* Slavnic 1948**, is a vulnerable and undisturbed coenotaxon recorded from the Sahalin Islands (IS), Sfântu Gheorghe TAU. It has a reduced coverage, with one "vulnerable and rare" threatened species, endangered within the plant community.

Key species: *Salsola soda* (2; IS).

Threatened species: *Leymus racemosus* subsp. *sabulosus* (+; IS).

Other species: *Argusia sibirica* (+; IS), *Cakile maritima* (+; IS).

15.115211 Western Pontic glasswort swards

This habitat subtype/ coenotaxa was identified as endangered to sporadic within Sulina (Sulina TAU), Caraorman (Crișan TAU), Cășla Vădanei (Sfântu Gheorghe TAU), Agighiol Lake (Valea Nucarilor TAU, Sarichioi TAU, Portița (Jurilovca TAU), with a single threatened species, *Leymus racemosus* subsp. *sabulosus*, endangered within the coenotaxon. It can be considered as being in its natural status, as no ruderal/ alien species were observed.

***Salicornietum prostratae* Soó (1947) 1964**, a vulnerable plant community within the Sulina pastureland (SPS) area is typical for a natural status, especially due to its specific biotope extreme conditions, that prevent the occurrence of ruderal/ alien taxa.

Key species: *Salicornia europaea* (4; SPS).

Other species: *Aster tripolium* (+; SPS), *Argusia sibirica* (+; SPS), *Juncus maritimus* (+; SPS), *Puccinellia limosa* (+; SPS), *Spergularia media* (+; SPS), *Suaeda maritima* (+; SPS).

***Salicornietum prostratae* Soó (1947) 1964**, a sporadic coenotaxa, is represented by phytocoenoses that occupy relatively extensive areas to the east and north of the village of Caraorman (CON), Crișan TAU, characteristic for the salty soils.

Key species: *Salicornia europaea* (3; CON).

Other species: *Aster tripolium* (+; CON), *Bassia hirsuta* (1; CON), *Cynodon dactylon* (+; CON), *Puccinellia distans* subsp. *limosa* (+; CON), *Spergularia marina* (+; CON).

***Salicornietum prostratae* Soó (1927) 1964**, is a rare and undisturbed plant community in the Cășla Vădanei (GCV) area, between the Tătaru Canal and the seashore.

Key species: *Salicornia europaea* (4; GCV).

Other species: *Bassia hirsuta* (1; GCV), *Juncus littoralis* (+; GCV), *Puccinellia limosa* (+; GCV), *Spergularia media* (+; GCV), *Suaeda maritima* (+; GCV).

***Salicornietum prostratae* Soó (1927) 1964** is vulnerable and undisturbed on the Sahalin islands (IS). The only threatened, vulnerable and

rare species identified in the cenotaxon is *Leymus racemosus* subsp. *sabulosus*, endangered within the coenotaxa.

Key species: *Salicornia europaea* (4; GCV).

Threatened species: *Leymus racemosus* subsp. *sabulosus* (+; IS).

Other species: *Aster tripolium* (+; IS), *Bassia hirsuta* (1; GCV), *Halimione pedunculata* (+; IS), *Juncus littoralis* (+; GCV), *Puccinellia limosa* (+; GCV), *Spergularia media* (+; IS), *Suaeda maritima* (+; IS).

***Salicornietum prostratae* Soó (1927) 1964**, typical for the halophile soils from the northern part of the Agighiol Lake, can be considered as endangered in the studied area (LA), the specific low diversity being a consequence of the extreme conditions in which it develops.

Key species: *Salicornia europaea* (4; LA).

Other species: *Halimione pedunculata* (+; LA), *Puccinellia limosa* (+; LA), *Spergularia media* (+; LA).

***Salicornietum prostratae* Sanda, Popescu 1999**, described as endangered from the Razim Lagoon shore, at Sarichoi (SA), can be considered representative for this coenotaxa, as no ruderal/ alien species were recorded.

Key species: *Salicornia europaea* (3; SA)

Other species: *Aster tripolium* (+; SA), *Bassia hirsuta* (+; SA), *Bolboschoenus maritimus* (1; SA), *Halimione verrucifera* (±; SA), *Phragmites australis* subsp. *australis* var. *humilis* (+; SA), *Suaeda maritima* (+; SA).

***Salicornietum prostratae* Sanda, Popescu 1999** can be considered a vulnerable plant community within the Portița seashore (POR), Jurilovca TAU, where it has a representative aspect, as no alien/ ruderal species were identified.

Key species: *Salicornia europaea* (4; POR).

Other species: *Artemisia santonica* (+; POR), *Aster tripolium* (+; POR), *Halimione pedunculata* (+; POR), *Juncus littoralis* (+; POR), *Spergularia media* (+; POR).

15.115212 Western Pontic seablite swards

The subtype/ plant community was studied at Cășla Vădanei (Sfântu Gheorghe TAU), between Letea, C.A. Rosetti and Cardon (C.A. Rosetti TAU), Sarinasuf (Murighiol TAU), Histria-Saele levee (Istria TAU), being mostly observed as a vulnerable coenotaxa, sometimes as sporadic. Only two threatened species were recorded, *Halocnemum strobilaceum* and *Limonium meyeri*, both endangered within the coenotaxon. The absence of ruderal/ alien species shows a natural conservation status, sometimes low disturbed.

***Suaedetum maritimae* Soó 1927** forms narrow strips in the transition zone between the coenotaxon *Salicornietum prostratae* and *Juncetum littoralis*,

at Câșla Vădanei (GCV), where it occurs as vulnerable, being composed of very few halophilic species, being in its natural status.

Key species: *Suaeda maritima* (3; GCV).

Other species: *Bassia hirsuta* (1; GCV), *Puccinellia limosa* (+; GCV), *Salicornia europaea* (+; GCV).

***Suaedetum maritimae* Soó 1927**, observed within the Sulina pastureland area (SPS) as a vulnerable plant community, being devoid of ruderal/ alien species, is representative for a natural status.

Key species: *Suaeda maritima* (2; SPS).

Other species: *Aster tripolium* subsp. *pannonicus* (+; SPS), *Juncus maritimus* (+; SPS), *Puccinellia distans* subsp. *limosa* (+; SPS), *Spergularia media* (+; SPS), *Salicornia europaea* (1; SPS), *Tamarix ramosissima* (+; SPS).

***Suaedetum maritimae* Soó 1927**, recorded from the the Plaja (Beach) Sulina (SPL) as a vulnerable plant community, is low disturbed, as indicated by one ruderal species.

Key species: *Suaeda maritima* (2; SPL).

Other species: *Argusia sibirica* (+; SPL), *Atriplex prostrata* (+; SPL), *Phragmites australis* subsp. *australis* var. *humilis* (+; SPL), *Tamarix ramosissima* (+; SPL), *Xanthium italicum* (+; SPL).

***Suaedetum maritimae* Soó 1927** was recorded as sporadic, between C.A. Rosetti and Cardon (RC), being also observed between Letea and C.A. Rosetti, where they form narrow strips, several kilometers long, in areas with negative relief. Within this association was noted the presence of the threatened species *Limonium meyeri*, endangered within the plots, at least.

Key species: *Suaeda maritima* (3; RC).

Threatened species: *Limonium meyeri* (+; RC).

Other species: *Aeluropus littoralis* (1; RC), *Cynodon dactylon* (2; RC), *Halimione pedunculata* (+; RC), *Juncus gerardi* (+; RC), *Juncus littoralis* (+; RC), *Salicornia europaea* (1; RC), *Spergularia media* (1; RC).

***Suaedetum maritimae* Soó 1927** was recorded only in the Sarinasuf (SR) area, on the territory of Murighiol TAU, in conditions of maximum salinity, compared to most of the other associations. Here it can be provisionally classified as rare. *Halocnemum strobilaceum* is the only rare species included in the Red List of Higher Plants of Romania, endangered within the plant community.

Key species: *Salicornia europaea* (+; SR), *Suaeda maritima* (3; SR).

Threatened species: *Halocnemum strobilaceum* (+; SR).

Other species: *Aeluropus littoralis* (+; SR), *Halimione verrucifera* (+; SR), *Puccinellia limosa* (+; SR), *Spergularia media* (+; SR).

***Suaedetum maritimae* Soó 1927** plant community, identified as vulnerable at Histria (H)-Saele levee (Istria TAU) has a low level of disturbance,

indicated by the ruderal species *Cynanchum acutum*, with a reduced dominance.

Key species: *Suaeda maritima* (4; H).

Other species: *Artemisia santonica* (+; H), *Atriplex prostrata* (+; H), *Bolboschoenus maritimus* (+; H), *Cynanchum acutum* (+; H), *Elymus elongatus* (+; H), *Halimione verrucifera* (+; H), *Puccinellia limosa* (+; H).

15.145 Western Pontic *Bassia hirsuta* communities

This subtype is endangered and low disturbed, but still threatened by developments in the last location, being recorded from the Sulina beach (Sulina TAU) and Plaja (Beach) Corbu (Corbu TAU).

***Suaedo-Bassietum hirsutae* (Br.-Bl. 1928) Topa 1939** was observed as a pioneer vegetation endangered within the Sulina beach (SPL), a low disturbance being obvious, taking into account the presence of one ruderal and one non-native (*Conyza canadensis*) species, both with a reduced dominance.

Key species: *Bassia hirsuta* (2; SPL).

Other species: *Althaea officinalis* (+; SPL), *Atriplex prostrata* (r; SPL), *Conyza canadensis* (+; SPL), *Corispermum nitidum* (+; SPL), *Cynodon dactylon* (+; SPL), *Gypsophila perfoliata* (+; SPL), *Phragmites australis* (+; SPL), *Salicornia europaea* (+; SPL), *Solanum dulcamara* (+; SPL), *Xanthium italicum* (+; SPL).

***Suaedo-Bassietum hirsutae* (Br.-Bl. 1928) Topa 1939** is an endangered association within the Corbu Beach (CRB), Corbu TAU, a low disturbance being indicated by ruderal taxa, with a reduced dominance. Still the main threat for this subtype/ plant community is the probable extension of constructions/ developments.

Key species: *Bassia hirsuta* (2; CRB), *Suaeda maritima* (+; CRB).

Other species: *Aster tripolium* (+; CRB), *Artemisia santonica* (+; CRB), *Phragmites australis* subsp. *australis* var. *humilis* (+; CRB), *Salicornia europaea* (1; CRB), *Xanthium italicum* (+; CRB).

1410 Mediterranean salt meadows (*Juncetalia maritimi*) (PAL.CLASS.: 15.5)

15.5 Mediterranean salt meadows

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4,536 ha and a conservation status of A level.

This habitat was recorded as endangered and undisturbed to low disturbed, due to the presence of the alien species *Elaeagnus angustifolia*. This habitat was registered so far from the area towards the Sulina beach (Sulina TAU) and northwards of the Caraorman village (Crișan TAU), but it was

preliminary observed also near Sfântu Gheorghe. The dominant species, *Plantago coronopus* is also a threatened species at the national level.

15.5 Mediterranean salt meadows

***Plantaginetum coronopi* R. Tüxen 1937**, an endangered plant community within the Sulina beach (SPL), shows a low level of alien species invasive trend, these being only represented by *Elaeagnus angustifolia*. The dominant *Plantago coronopus* is also considered rare threatened taxon at the national level.

Key species: *Plantago coronopus* (2; SPL).

Threatened species: *Plantago coronopus* (2; SPL).

Other species: *Apera spica-venti* (+; SPL), *Cynodon dactylon* (1; SPL), *Gypsophila perfoliata* (+; SPL), *Elaeagnus angustifolia* (+; SPL), *Juncus littoralis* (+; SPL), *Plantago arenaria* (±; SPL), *Linum austriacum* (+; SPL), *Tamarix ramosissima* (+; SPL).

***Plantaginetum coronopi* R. Tüxen 1937** was studied northwards of the Caraorman village (CON), on sandy salinized soils, where it occurs on a restricted area, being framed as endangered and undisturbed.

Key species: *Plantago coronopus* (3; CON).

Threatened species: *Plantago coronopus* (3; CON).

Other species: *Aster tripolium* (r; CON), *Cynodon dactylon* (1; CON), *Juncus littoralis* (+; CON), *Puccinellia distans* subsp. *limosa* (+; CON), *Salicornia europaea* (+; CON), *Spergularia media* (+; CON).

1530* Pannonic salt-steppes and salt-marshes (PAL.CLASS.: 15.A1, 15.A2)

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4,536 ha and a conservation status of B level.

This habitat was mainly recorded as vulnerable, closely followed by the endangered and rare categories, being observed as sporadic only in isolated cases. In most of the analyzed situations, this habitat is in its natural status or low disturbed, and less medium disturbed, mainly due to ruderal species invasive trends. The situations where alien species were noticed are isolated. The locations where this habitat was recorded are: Portița, Dealul Călugăru-lancina Nature Reserve (Jurilovca TAU), Plopu, Beibugeac Lake, Sărături Lake, Sarinasuf, coastal dunes strips, Periteașca (Murighiol TAU), Ghiolul Cotului, Japșa Eraclia-Enisala (Sarichioi TAU), Agighiol Lake (Valea Nucarilor TAU), Sulina pastureland, Sulina beach (Sulina TAU), Sahalin islands, Tătaru Channel towards the seashore (Sfântu Gheorghe TAU), Danube floodplain (Beștepe, Mahmudia, Grindu, Topraichioi Lake (Mihai Bravu TAU), Pardina

TAU, Ceamurlia Lake (Ceamurlia de Jos TAU), Plaja (Beach) Corbu (Corbu TAU). The most important species from this habitat is *Centaurea pontica*, endemic within Romania, a species of community interest, critically endangered by the tourism developments and roads within the Sulina territory. Other six threatened species at the national level enhance the conservation value of this habitat, like *Plantago coronopus*, *Samolus valerandi*, *Leymus racemosus* subsp. *sabulosus*, *Hymenolobus procumbens* (endangered within the plots), *Polypogon monspeliensis* (endangered-sporadic within the plots), *Halocnemum strobilaceum* (endangered-vulnerable within the plots).

15.A2 Ponto-Sarmatic salt steppes and saltmarshes

***Puccinellio-Salicornietum* Popescu et al. 1987** is described as vulnerable in the Portița area (POR), where it develops on wet salinized sands, being considered in its natural status.

Key species: *Salicornia europaea* (3; POR), *Puccinellia distans* (2; POR).

Other species: *Aeluropus littoralis* (1; POR), *Artemisia santonica* (r; POR), *Bassia hirsuta* (+; POR), *Halimione pedunculata* (1; POR), *Puccinellia convoluta* (+; POR), *Spergularia media* (1; POR).

***Puccinellio-Salicornietum* Popescu et al. 1987**, characteristic for soils with a high salt concentration, occurs as rare near the Beibugeac Lake (LB), Murighiol TAU, where it can be considered as endangered, being in its natural status.

Key species: *Salicornia europaea* (2; LB), *Puccinellia limosa* (1; LB).

Other species: *Aeluropus littoralis* (+; LB), *Aster tripolium* (+; LB), *Halimione pedunculata* (+; LB), *Halimione verrucifera* (+; LB), *Spergularia media* (+; LB), *Suaeda maritima* (1; LB).

***Puccinellio-Salicornietum* Popescu et al. 1987**, rare within the Sărăturiu Lake (LS) Murighiol TAU, which frequently dries out completely, here having a natural status.

Key species: *Salicornia europaea* (3; LS), *Puccinellia limosa* (+; LS).

Other species: *Aster tripolium* (1; LS), *Phragmites australis* subsp. *australis* var. *humilis* (+; LS), *Spergularia media* (+; LS).

***Puccinellio-Salicornietum* Popescu et al. 1987** is endangered in the halophile meadows south of the Plopu village (PLS), Murighiol TAU, being considered in its natural status.

Key species: *Salicornia europaea* (3; PLS), *Puccinellia limosa* (1; PLS).

Other species: *Artemisia santonica* (+; PLS), *Aster tripolium* (+; PLS), *Bassia hirsuta* (+; PLS), *Halimione verrucifera* (r; PLS), *Juncus gerardi* (+; PLS), *Phragmites australis* subsp. *australis* var. *humilis* (+; PLS), *Suaeda maritima* (2; PLS).

***Puccinellio-Salicornietum* Popescu et al. 1987**, described as vulnerable from the Tuzla Lake saltmarshes (STZ), Săcele TAU, can be considered representative for this coenotaxa, as no ruderal/ alien species were recorded.

Key species: *Salicornia europaea* (2; STZ), *Puccinellia limosa* (1; STZ).

Other species: *Aeluropus littoralis* (+; STZ), *Elymus elongatus* (+; STZ), *Spergularia media* (+; STZ).

***Puccinellio-Salicornietum* Popescu et al. 1987**, vulnerable along the road towards the proper beach in the halophile meadows framed westwards by the Dobrogea Plateau, Plaja (Beach) Vadu (VDC) (Corbu TAU), can be considered in its natural status.

Key species: *Salicornia europaea* (3; VDC), *Puccinellia limosa* (1; VDC).

Other species: *Leymus elongatus* (+; VDC), *Artemisia santonica* (+; VDC), *Halimione pedunculata* (+; VDC), *Halimione verrucifera* (+; VDC), *Spergularia media* (+; VDC), *Suaeda maritima* (+; VDC).

***Puccinellio-Salicornietum* Popescu et al. 1987** is rare and undisturbed in the halophile meadows along the road between Periprava and C.A.Rosetti (PR), C.A.Rosetti TAU, outside the Pădurea Letea strictly protected area. There it was analyzed in the location where a massive soil salinization advance from the former fish farm abandoned ponds, towards the Letea Forest. This plot is adjacent to the declining pure stands of *Fraxinus pallisae*, of which numerous trees are already dead. It is also less than 100 m from the plot that belongs to the coenotaxon ***Asparago pseudoscaberi-Quercetum pedunculiflorae* Popescu et al. 1997** that was placed close to the concrete fountain, next to the Periprava-Rosetti road.

Key species: *Salicornia europaea* (2; PR), *Puccinellia limosa* (+; PR).

Other species: *Aeluropus littoralis* (1; PR), *Aster tripolium* (1; PR), *Suaeda maritima* (1; PR).

***Puccinellio-Salicornietum* Popescu et al. 1987** is endangered and undisturbed within Plaja (Beach) Corbu (CRB), Corbu TAU. Still it is threatened by the probable extension of constructions/ developments.

Key species: *Salicornia europaea* (5; CRB), *Puccinellia limosa* (+; CRB).

Other species: *Aster tripolium* (+; CRB), *Bassia hirsuta* (+; CRB), *Phragmites australis* subsp. *australis* var. *humilis* (+; CRB).

This plant community can be considered in its natural status, mostly rare, but still vulnerable in many situations, being identified at Portița (Jurilovca TAU), Beibugeac Lake and Sărăturii Lake (Murighiol TAU), Tuzla Lake saltmarshes (Săcele TAU), Plaja (Beach) Vadu, Plaja (Beach) Corbu (Corbu TAU).

***Polypogonetum monspeliensis* Morariu 1957** has an obvious conservative value, being dominated by the rare threatened species *Polypogon monspeliensis*. The association is sporadic and undisturbed within the plots, as

well as due to the very small areas observed at Ghiolul Cotului (GCO), Sarichioi TAU, where it can be assessed as endangered.

Key species: *Polypogon monspeliensis* (3; GCO).

Threatened species: *Polypogon monspeliensis* (3; GCO).

Other species: *Aeluropus littoralis* (+; GCO), *Aster tripolium* (+; GCO), *Atriplex prostrata* (+; GCO), *Bolboschoenus maritimus* (1; GCO), *Phragmites australis* (2; GCO).

***Polypogonietum monspeliensis* Morariu 1957** is an endangered and low disturbed coenotaxa, due to ruderal species. It was recorded within the area of the Ceamurlia Lake (LC), Ceamurlia de Jos TAU, where the key threatened species, *Polypogon monspeliensis*, is assessed as rare.

Key species: *Polypogon monspeliensis* (2; LC).

Threatened species: *Polypogon monspeliensis* (2; LC).

Other species: *Alisma plantago-aquatica* (+; LC), *Lolium perenne* (+; LC), *Ononis spinosa* (+; LC), *Phragmites australis* subsp. *australis* var. *humilis* (+; LC), *Puccinellia limosa* (+; LC), *Trifolium fragiferum* (1; LC), *Xanthium italicum* (+; LC).

The plant community is considered endangered and in its natural status, being observed at Ghiolul Cotului (Sarichioi TAU), respectively at the Ceamurlia Lake (Ceamurlia de Jos TAU).

15.A2143 Western Ponto-Caspian saltmarsh grass swards

This habitat subtype/ association is framed between endangered and vulnerable and from undisturbed to low disturbed, with no threatened species identified so far. It was recorded from Ghiolul Cotului (Sarichioi TAU) and Plaja (Beach) Vadu (Corbu TAU).

***Aeluropetum littoralis* Prodan 1939** occurs on reduced areas, as vulnerable, at Ghiolul Cotului (GCO), Sarichioi TAU, where it has an undisturbed status.

Key species: *Aeluropus littoralis* (3; GCO).

Other species: *Bolboschoenus maritimus* (+; GCO), *Aster tripolium* (+; GCO), *Phragmites australis* (+; GCO), *Salicornia herbacea* (+; GCO), *Spergularia media* (+; GCO), *Suaeda maritima* (+; GCO).

***Aeluropetum littoralis* Prodan 1939** occurs on reduced areas, as endangered, at Plaja (Beach) Vadu (Corbu TAU), where it can be considered low disturbed, with only one ruderal species with a low coverage.

Key species: *Aeluropus littoralis* (5; VDC).

Other species: *Bolboschoenus maritimus* (1; VDC), *Cynanchum acutum* (+; VDC), *Juncus littoralis* (1; VDC).

15.A211 Western Pontic saline steppes

The habitat subtype/ plant community, mainly observed as rare, and less as vulnerable and endangered, was studied at Plopu, Sărăturii Lake, Beibugeac Lake (Murighiol TAU), Agighiol Lake (Valea Nucarilor TAU), Ghiolul Cotului (Sarichioi TAU), Tuzla Lake (Săcele TAU), Plaja (Beach) Vadu (Corbu TAU). It can be assessed overall as low disturbed, due to ruderal species presence, and less in its natural status, or medium disturbed. Only in one situation alien species were observed, at Sarichioi, but with a low presence.

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993** may be classified as rare within the halophile meadows south of Plopu (PLS). These phytocoenoses occur on the higher microrelief and saline soils compared to those dominated by *Salicornia europaea* or *Suaeda maritima*.

Key species: *Artemisia santonica* (4; PLS).

Other species: *Aeluropus litoralis* (+; PLS), *Aster tripolium* (+; PLS), *Juncus gerardi* (+; PLS), *Puccinelia limosa* (1; PLS), *Salicornia europaea* (+; PLS), *Spergularia media* (+; PLS).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993**, rare around the Sărăturii Lake (LS), has no ruderal/ alien species, being undisturbed from this point of view.

Key species: *Artemisia santonica* (4; LS).

Other species: *Lotus tenuis* (+; LS), *Puccinelia limosa* (1; LS), *Salicornia europaea* (+; LS), *Trifolium fragiferum* (+; LS).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993**, rare within the Beibugeac Lake (LB), shows a medium disturbance, due to the presence of three indicator species like *Arenaria serpyllifolia*, *Bromus hordeaceus*, *Senecio vernalis*.

Key species: *Artemisia santonica* (3; LB).

Other species: *Achillea setacea* (+; LB), *Agropyron elongatum* (+; LB), *Arenaria serpyllifolia* (+; LB), *Bromus hordeaceus* (1; LB), *Medicago minima* (+; LB), *Puccinelia limosa* (1; LB), *Senecio vernalis* (+; LB).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993** has been inventoried as vulnerable, on reduced areas, which occupy the saline soils of Ghiolul Cotului (GCO), Sarichioi TAU.

Key species: *Artemisia santonica* (2; GCO).

Other species: *Halimione pedunculata* (1; GCO), *Hordeum hystrix* (+; GCO), *Juncus gerardi* (+; GCO), *Limonium gmelinii* (2; GCO), *Phragmites australis* subsp. *australis* var. *humilis* (+; GCO).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993** identified at Ghiolul Cotului (GCO), between Sarichioi and Enisala villages, is considered a rare plant community in the respective area, where the three

ruderal species observed, even though with a reduced dominance, represent half of the phytocoenosis inventory, that indicates a medium disturbance.

Key species: *Artemisia santonica* (5; GCO).

Other species: *Bromus squarrosus* (+; CGO), *Daucus carota* (+; GCO), *Limonium gmelinii* (+; CGO), *Melilotus officinalis* (+; GCO), *Phragmites australis* subsp. *australis* var. *humilis* (+; GCO).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993**, an endangered plant community, studied at Sarichoi, on the Razim Lagoon shore (SA), has a low level of invasive alien plants occurrence (*Amaranthus retroflexus*, *Conyza canadensis*), respectively a medium presence of ruderal species (four species) with a restricted dominance.

Key species: *Artemisia santonica* (5; SA).

Other species: *Achillea setacea* (+; SA), *Amaranthus retroflexus* (+; SA), *Artemisia vulgaris* (+; SA), *Bromus tectorum* (+; SA), *Conyza canadensis* (+; SA), *Melilotus albus* (+; SA), *Melilotus officinalis* (+; SA).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993**, endangered around the Agighiol Lake (LA), Valea Nucarilor TAU, has a low degree of ruderalization, here being identified two species of this type, *Cichorium intybus* and *Daucus carota*, with low coverage.

Key species: *Artemisia santonica* (3; LA).

Other species: *Cichorium intybus* (+; LA), *Cynodon dactylon* (2; LA), *Daucus carota* (+; LA), *Juncus gerardi* (+; LA), *Phragmites australis* subsp. *australis* var. *humilis* (+; LA), *Spergularia media* (+; LA).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993**, vulnerable south of Iazurile (VNIZ), Valea Nucarilor TAU, has a low degree of ruderalization, here being identified two such species, with low coverage. The coenotaxa has a small number of species, both due to grazing and more saline soils.

Key species: *Artemisia santonica* (3; VNIZ).

Other species: *Bromus hordeaceus* (+; VNIZ), *Chenopodium glaucum* (+; VNIZ), *Cynodon dactylon* (2; VNIZ), *Hordeum geniculatum* (+; VNIZ).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993**, plant community identified as vulnerable from Histria (H) area (Grindul Saele), Istria TAU, is representative for this coenotaxon, as no ruderal/ alien species were identified.

Key species: *Artemisia santonica* (3; H).

Other species: *Aeluropus littoralis* (+; H), *Puccinellia limosa* (+; H).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993** represents a vulnerable plant community from Cape Doloşman (CDO), where it is characterized by a medium level of ruderal species' presence, as most of the

taxa belong to this category, having also a significant variation of their dominance (+-1).

Key species: *Artemisia santonica* (3; CDO).

Other species: *Bromus hordeaceus* (1; CDO), *Bromus tectorum* (+; CDO), *Capsella bursa-pastoris* (+; CDO), *Festuca valesiaca* (+; CDO), *Geranium pusillum* (+; CDO), *Lamium amplexicaule* (+; CDO), *Medicago minima* (+; CDO), *Myosotis stricta* (+; CDO), *Plantago lanceolata* (+; CDO), *Poa angustifolia* (+; CDO), *Poa bulbosa* (+; CDO), *Senecio vernalis* (+; CDO), *Stellaria media* (+; CDO).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993** represents a vulnerable and undisturbed plant community at Lake Tuzla (STZ), Săcele TAU.

Key species: *Artemisia santonica* (4; STZ).

Other species: *Aeluropus littoralis* (1; STZ), *Cynodon dactylon* (1; STZ), *Elymus elongatus* (+; STZ), *Puccinellia limosa* (+; STZ), *Salicornia europaea* (+; STZ), *Suaeda maritima* (+; STZ).

***Artemisietum santonici* Soó 1947 corr. Guterm. et Mucina 1993** has been inventoried as vulnerable and undisturbed, on reduced areas, in the halophile meadows along the road to the beach at Plaja (Beach) Vadu, Corbu TAU (VDC).

Key species: *Artemisia santonica* (3; VDC).

Other species: *Aeluropus littoralis* (+; VDC), *Aster tripolium* (+; VDC), *Elymus elongatus* (+; VDC), *Juncus littoralis* (+; VDC), *Plantago arenaria* (+; VDC), *Suaeda maritima* (+; VDC).

15.A21271 Western Pontic tall rush salinebeds

This habitat subtype/ plant community can be considered between endangered and sporadic, being found within Sulina pastureland (Sulina TAU), Tătaru Channel towards the seashore (Sfântu Gheorghe TAU), Portița (Jurilovca TAU), Plaja Corbu (Corbu TAU), with phytocoenoses either in their natural status or with a low disturbance aspect, exceptionally medium disturbed. Three threatened species were recorded, all endangered, at least in the plots: *Plantago coronopus*, *Polypogon monspeliensis*, *Samolus valerandi*. Even if the species composition is undisturbed, mainly because the saline soil avoids ruderal or alien species occurrence, in the area between the Sulina cemetery and the bare section of the Sulina beach, this habitat subtype is affected by fragmentation and the reduction of its area, because of the tourism constructions/developments and acces roads/pathways.

***Juncetum littoralis* Popescu et al. 1992** is a vulnerable plant community, including in the area where it was studied, Sulina pastureland (SPS). There a low degree of ruderal and alien species invasion can be

observed by the presence of one taxon for each of these categories, *Cynanchum acutum*, respectively *Elaeagnus angustifolia*. Its conservation importance is also underlined by the presence of one rare threatened species, endangered within these phytocoenoses, *Plantago coronopus*.

Key species: *Juncus littoralis* (5; SPS).

Threatened species: *Plantago coronopus* (+; SPS).

Other species: *Atriplex prostrata* (+; SPS), *Cynanchum acutum* (+; SPS), *Cynodon dactylon* (+; SPS), *Elaeagnus angustifolia* (+; SPS), *Lactuca tatarica* (+; SPS), *Spergularia media* (+; SPS), *Tamarix ramosissima* (+; SPS).

***Juncetum littoralis* Popescu et al. 1992** is a rare and low disturbed coenotaxon, within plaja (Beach) Sulina (SPL). There were recorded two rare threatened species, endangered within these phytocoenoses, *Plantago coronopus* and *Polypogon monspeliensis*.

Key species: *Juncus littoralis* (4; SPL).

Threatened species: *Plantago coronopus* (+; SPL), *Polypogon monspeliensis* (+; SPL).

Other species: *Aeluropus littoralis* (1; SPL), *Aster tripolium* (+; SPL), *Atriplex prostrata* (+; SPL), *Cynanchum acutum* (+; SPL), *Pulicaria dysenterica* (+; SPL), *Spergularia media* (+; SPL), *Tamarix ramosissima* (+; SPL).

***Juncetum littoralis* Popescu et al. 1992** occurs as sporadic, in parallel strips on the higher microrelief, alternating with low areas covered by the coenotaxa *Salicornietum prostratae*, developed between the Tătaru Canal and the seashore (CTA), close to the Cășla Vădanei area, Sfântu Gheorghe TAU, on large areas considered in their natural status. The two rare species threatened at the national level are considered endangered within the plant community (*Polypogon monspeliensis*, *Samolus valerandi*).

Key species: *Juncus littoralis* (4; CTA).

Threatened species: *Polypogon monspeliensis* (±; CTA), *Samolus valerandi* (±; CTA).

Other species: *Aeluropus littoralis* (1; CTA), *Aster tripolium* (+; CTA), *Atriplex prostrata* (+; CTA), *Puccinellia limosa* (1; CTA), *Spergularia media* (+; CTA), *Suaeda maritima* (+; CTA).

***Juncetum littoralis* Popescu et al. 1992** can be estimated as an endangered plant community within the Portița seashore area (POR), Jurilovca TAU. Within the analyzed plot there were recorded no alien/ ruderal taxa.

Key species: *Juncus littoralis* (4; POR).

Other species: *Bassia hirsuta* (+; POR), *Juncus gerardi* (+; POR), *Phragmites australis* subsp. *australis* var. *humilis* (+; POR), *Salicornia europaea* (+; POR), *Spergularia media* (+; POR).

***Juncetum littoralis* Popescu et al. 1992** is a vulnerable plant community within the Plaja Corbu (Corbu TAU), where it has a low degree of ruderal and

alien species invasion trend that can be observed by the presence of one taxon for each of these categories, *Daucus carota*, respectively *Conyza canadensis*.

Key species: *Juncus littoralis* (3; CRB).

Other species: *Artemisia santonica* (+; CRB), *Centaurea arenaria* (+; CRB), *Conyza canadensis* (+; CRB), *Daucus carota* (+; CRB), *Linum austriacum* (+; CRB), *Plantago arenaria* (+; CRB).

***Juncetum littoralis* Popescu et al. 1992** is a rare plant community within Plaja (Beach) Vadu (Corbu TAU). It is medium disturbed, as one ruderal species was observed in the plots, with a significant coverage.

Key species: *Juncus littoralis* (4; VDC).

Other species: *Aeluropus littoralis* (+; VDC), *Bolboschoenus maritimus* (1; VDC), *Cynanchum acutum* (1; VDC), *Lythrum salicaria* (+; VDC).

***Juncetum littoralis* Popescu et al. 1992** is a rare and undisturbed plant community within Plaja (Beach) Vadu, (Corbu TAU).

Key species: *Juncus littoralis* (3; VDC).

Other species: *Artemisia santonica* (+; VDC), *Elymus elongatus* (+; VDC), *Cynodon dactylon* (+; VDC), *Daucus carota* (+; VDC), *Gypsophila perfoliata* (+; VDC), *Puccinellia limosa* (+; VDC), *Verbascum banaticum* (+; VDC).

15.A21273 Western Pontic *Agropyron elongatus* saline beds

This habitat subtype/ plant community occur as endangered to rare, sometimes sporadic, within Dealul Călugăru-lancina Nature Reserve (Jurilovca TAU), Ghiolul Cotului (Sarichioi TAU), Plaja (Beach) Corbu (Corbu and Săcele TAUs), Tuzla Lake saltmarshes (Săcele TAU). It was assessed as low disturbed due to grazing.

***Agropyretum elongati* I. Șerbănescu 1965** plant community, analyzed as vulnerable within Dealul Călugăru-lancina Nature Reserve (DCI), Jurilovca TAU, has a low participation of ruderal species (three taxa).

Key species: *Elymus elongatus* (3; DCI).

Other species: *Achillea setacea* (+; DCI), *Artemisia santonica* (+; DCI), *Cichorium intybus* (+; DCI), *Cynodon dactylon* (2; DCI), *Dactylis glomerata* (+; DCI), *Daucus carota* subsp. *carota* (+; DCI), *Ononis spinosa* (+; DCI), *Phragmites australis* (+; DCI), *Teucrium scordium* (+; DCI), *Verbena officinalis* (+; DCI).

***Agropyretum elongati* Șerbănescu I. 1964** plant community was recorded as endangered at Ghiolul Cotului (GCO), between Sarichioi and Enisala. In this case a low level of disturbance due to ruderal plants invasion can be estimated, indicated by the reduced dominance of two such species.

Key species: *Elymus elongatus* (4; GCO).

Other species: *Artemisia santonica* (+; GLO), *Cynodon dactylon* (1; GCO), *Daucus carota* (+; GCO), *Limonium gmelinii* (+; GCO), *Melilotus albus* (+; GCO), *Phragmites australis* subsp. *australis* var. *humilis* (+; GCO).

***Agropyretum elongati* I. Șerbănescu 1965**, a rare plant community within Plaja (Beach) Corbu (CRB) (Corbu TAU), has a low participation of ruderal species (two taxa).

Key species: *Elymus elongatus* (4; CRB).

Other species: *Artemisia santonica* (+; CRB), *Daucus carota* (+; CRB), *Melilotus albus* (+; CRB), *Pulicaria dysenterica* (+; CRB).

***Agropyretum elongati* I. Șerbănescu 1965** a rare plant community within Plaja (Beach) Corbu (CRB), Corbu TAU has a low participation of ruderal (one taxon) and alien species (*Conyza canadensis*).

Key species: *Elymus elongatus* (5; CRB).

Other species: *Conyza canadensis* (+; CRB), *Cynanchum acutum* (+; CRB), *Juncus littoralis* (+; CRB), *Lythrum salicaria* (+; CRB).

***Agropyretum elongati* I. Șerbănescu 1965** plant community, analyzed as sporadic within Tuzla Lake saltmarshes (Săcele TAU), has a low participation of ruderal species (two taxa).

Key species: *Elymus elongatus* (4; STZ).

Threatened species: *Polypogon monspeliensis* (+; STZ),

Other species: *Atriplex prostrata* (+; STZ), *Bromus squarrosus* (+; STZ), *Cichorium intybus* (+; STZ), *Cynodon dactylon* (+; STZ), *Ononis spinosa* (+; STZ), *Trifolium fragiferum* (+; STZ).

***Agropyretum elongati* I. Șerbănescu 1965** plant community was analyzed as vulnerable within the Plaja (Beach) Vadu (VDS), Săcele TAU. It can be considered low disturbed, as only one ruderal taxon was observed.

Key species: *Elymus elongatus* (4; VDS).

Other species: *Aeluropus littoralis* (+; VDS), *Apera spica-venti* (+; VDS), *Artemisia santonica* (+; VDS), *Cynanchum acutum* (+; VDS).

***Agropyretum elongati* I. Șerbănescu 1965** plant community, analyzed as vulnerable within the Plaja (Beach) Vadu (VDS), Corbu TAU, can be considered low disturbed as two ruderal taxa were observed.

Key species: *Elymus elongatus* (3; VDC).

Other species: *Artemisia santonica* (+; VDC), *Bromus squarrosus* (+; VDC), *Centaurea arenaria* (+; VDC), *Juncus littoralis* (+; VDC), *Pulicaria dysenterica* (+; VDC), *Xanthium italicum* (+; VDC).

***Agropyretum elongati* Șerbănescu I. 1964** is considered vulnerable locally in the Beibugeac Lake area (LB). A low level of ruderal species invasive trend is showed by the two such taxa. The association was also observed in the Periteașca area.

Key species: *Agropyron elongatum* (3; LB).

Other species: *Artemisia santonica* (1; LB), *Cichorium intybus* (+; LB), *Conyza canadensis* (+; LB), *Cynodon dactylon* (1; LB), *Ononis spinosa* (+; LB).

15. A2124 Western Pontic saltmarsh rush saline meadows

***Scorzonero parviflorae-Juncetum gerardii* (Wenzl.1933) Wendelbg. 1943**, an endangered plant community, described from the Danube floodplain – Beștepe TAU (BLD), shows a low degree of disturbance, as only two ruderal species with a reduced dominance were observed.

Key species: *Juncus gerardi* (4; BLD).

Other species: *Cynodon dactylon* (1; BLD), *Plantago major* (+; BLD), *Polygonum aviculare* (+; BLD), *Potentilla reptans* (+; BLD), *Ranunculus sceleratus* (r; BLD), *Ranunculus trichophyllus* (+; BLD).

***Scorzonero parviflorae-Juncetum gerardii* (Wenzl. 1933) Wendelbg.**

1943 can be preliminarily estimated as vulnerable, being identified in the saline meadows south of Plopu (PLS). The low disturbance is indicated only by *Plantago major*, with a low coverage.

Key species: *Juncus gerardi* (3; PLS).

Other species: *Artemisia santonica* (1; PLS), *Aster tripolium* (1; PLS), *Halimione pedunculata* (+; PLS), *Plantago major* (+; PLS), *Phragmites australis* subsp. *australis* var. *humilis* (+; PLS), *Salicornia europaea* (+; PLS).

The plant community in general can be considered as endangered to vulnerable, being recorded in the Danube floodplain – Beștepe TAU and Plopu, where it shows a low disturbance level from the ruderal species point of view.

15.A21271 (Western Pontic tall rush saline beds)

***Juncetum maritimi* (Rübel 1930) Pign. 1953**, represented by phytocoenoses more or less in their natural status, was encountered in the low areas on the west part of the coastal dunes strips, where it could be classified as rare locally, in the area of the whole Murighiol TAU being endangered.

15. A21275 Western Pontic *Cynodon* saline beds

Overall this subtype/ plant community was observed mainly as a vulnerable association, less as endangered and exceptionally as rare, in the following areas: Danube floodplain, within the territories of the TAUs Beștepe, Mahmudia, Grindu; Toprachioi Lake (Mihai Bravu TAU); Sulina pastureland, Sulina Beach (Sulina TAU); Pardina TAU, Tătaru channel (Sfântu Gheorghe TAU); Agighiol Lake (Valea Nucarilor TAU); Japșa Eraclia-Enisala (Sarichioi TAU), Cape Doloșman (Capul Doloșman), at Zimbru (Jurilovca TAU); Plaja (Beach) Corbu (Corbu TAU). A low disturbance due to ruderal (due to grazing and soil compaction) and less to alien species was noticed in most situations, followed by examples of medium disturbance and just one case of natural status. Only two threatened species were recorded, of which *Plantago*

coronopus is endangered in this plant community, while the most important is *Centaurea pontica*, endemic within Romania, a species of community interest, critically endangered by the tourism developments and roads within the Sulina territory.

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** plant community can be considered vulnerable within the Beștepe TAU's territory, within the Danube floodplain (BLD). The six ruderal species, even though they have a reduced dominance, represent half of the species inventory and thus indicate a medium degree of human activities influence.

Key species: *Cynodon dactylon* (2; BLD), *Trifolium fragiferum* (+; BLD).

Other species: *Bromus hordeaceus* (+; BLD), *Bromus tectorum* (+; BLD), *Hordeum murinum* (+; BLD), *Juncus gerardi* (+; BLD), *Mentha aquatica* (+; BLD), *Plantago major* (+; BLD), *Poa pratensis* (1; BLD), *Potentilla anserina* (+; BLD), *Potentilla reptans* (+; BLD), *Verbena officinalis* (+; BLD).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958**, can be considered as a vulnerable and low disturbed coenotaxon, mainly due to grazing, which favour the occurrence of three ruderal and one non-native species (*Ambrosia artemisiifolia*). It was observed in the Danube floodplain, between the riverbanks and the dam parallel to the Danube (GL), on the Grindu TAU's territory, Danube Delta SPA.

Key species: *Cynodon dactylon* (4; GL).

Other species: *Achillea setacea* (+; GL), *Ambrosia artemisiifolia* (+; GL), *Althaea officinalis* (+; GL), *Cannabis sativa* subsp. *spontanea* (+; GL), *Linaria vulgaris* (+; GL), *Mentha pulegium* (1; GL), *Pulicaria dysenterica* (+; GL), *Xanthium italicum* (+; GL), *Xanthium spinosum* (+; GL).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** plant community was assessed as endangered in the Danube floodplain framed within the Mahmudia TAU's territory (MLD). It can be considered as an example of medium disturbed phytocoenosis, as the eight ruderal species prevail largely within its inventory.

Key species: *Cynodon dactylon* (4; MLD).

Other species: *Bromus hordeaceus* (+; MLD), *Bromus sterilis* (+; MLD), *Bromus tectorum* (+; MLD), *Cannabis sativa* subsp. *spontanea* (+; MLD), *Convolvulus arvensis* (+; MLD), *Elymus repens* (+; MLD), *Polygonum aviculare* (+; MLD), *Potentilla reptans* (1; MLD), *Xanthium italicum* (+; MLD).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** plant community, vulnerable in the studied area, was inventoried within Mahmudia TAU in the Danube floodplain (MLD). It is characterized by a low level of disturbance, as only three ruderal taxa with reduced dominance were observed.

Key species: *Cynodon dactylon* (4; MLD), *Trifolium fragiferum* (+; MLD)

Other species: *Arenaria serpyllifolia* (+; MLD), *Capsella bursa-pastoris* (+; MLD), *Galium pedemontanum* (+; MLD), *Hordeum murinum* (+; MLD), *Medicago lupulina* (+; MLD), *Mentha pulegium* (+; MLD), *Myosotis stricta* (+; MLD), *Plantago lanceolata* (+; MLD), *Potentilla reptans* (+; MLD).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** plant community is endangered, as it was only identified so far on reduced areas close to the Toprachioi Lake, Mihai Bravu TAU (MBT). Even though the five ruderal species have a reduced dominance, the fact that they overpass in number the other native species indicates a medium disturbance due to grazing.

Key species: *Cynodon dactylon* (5; MBT).

Other species: *Calystegia sepium* (+; MBT), *Cichorium intybus* (+; MBT), *Daucus carota* subsp. *carota* (+; MBT), *Phragmites australis* (+; MBT), *Plantago major* (+; MBT), *Ranunculus sceleratus* (+; MBT), *Stellaria media* (+; MBT), *Xanthium italicum* (+; MBT).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** can be considered an endangered plant community within the Sulina TAU's territory, in the situations where *Centaurea pontica* occur, these being only identified on very restricted locations within the Sulina pastureland (SPS) area, between the Sulina Town and the channel adjacent to Sulina beach. These grasslands show a medium level of ruderal species invasive tendencies, being represented by six taxa, which are equal in number with the typical species for this plant community, regardless of their reduced dominance. There can be deduced also a low disturbance due to the only non-native species, *Conyza canadensis*. The only threatened taxa, *Centaurea pontica*, has an exceptional importance as it is endangered and endemic within Romania, where it was only identified at Sulina and Sf. Gheorghe (Ciotica), the last location being quoted (SANDA, ARCUȘ, 1999). Within this plant community it can be estimated as endangered to vulnerable, but taking into account the very restricted areas of the coenotaxa where this species occur, it can be considered as critically endangered within Sulina territory. It should be underlined that this species is mainly threatened by the tourism constructions/ developments, roads, etc.

Key species: *Cynodon dactylon* (3; SPS).

Threatened species: *Centaurea pontica* (+-1; SPS).

Other species: *Conyza canadensis* (+; SPS), *Euphorbia seguieriana* (+; SPS), *Gypsophila perfoliata* (+; SPS), *Melilotus albus* (+; SPS), *Onopordum acanthium* (+; SPS), *Portulaca oleracea* (+; SPS), *Salsola soda* (+; SPS), *Tragus racemosus* (+; SPS), *Tribulus terrestris* (+; SPS), *Tamarix ramosissima* (+; SPS), *Xanthium italicum* (+; SPS).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** plant community was also studied separately, in other areas where *Centaurea pontica* does not occur in the respective phytocoenoses, at Sulina beach (SPL). There it can be

considered as rare, a low disturbed status being indicated by the reduced dominance of a ruderal and two non-native species (*Conyza canadensis*, *Elaeagnus angustifolia*). The only threatened taxon, *Plantago coronopus*, slightly enhances the conservation importance.

Key species: *Cynodon dactylon* (4; SPL).

Threatened species: *Plantago coronopus* (+; SPL).

Other species: *Apera spica-venti* (+; SPL), *Conyza canadensis* (+; SPL), *Cynanchum acutum* (+; SPL), *Elaeagnus angustifolia* (+; SPL), *Euphorbia seguieriana* (+; SPL), *Gypsophila perfoliata* (+; SPL), *Juncus littoralis* (+; SPL), *Pulicaria dysenterica* (+; SPL), *Tamarix ramosissima* (+; SPL).

***Trifolium fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** forms sporadic grasslands near Cardon village, as well as between C.A. Rosetti and the Cardon locality (RC). A low disturbance status is showed by the reduced dominance of two non-native species (*Conyza canadensis*, *Elaeagnus angustifolia*) and a ruderal one.

Key species: *Cynodon dactylon* (3; RC), *Trifolium fragiferum* (2; RC)

Other species: *Conyza canadensis* (+; RC), *Linum austriacum* (+; RC), *Oenothera biennis* (+; RC), *Pulicaria dysenterica* (+; RC), *Scirpoides holoschoenus* (+; RC), *Teucrium scordium* (+; RC), *Xanthium italicum* (+; RC).

***Trifolium fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** can be considered as vulnerable between Letea and C.A. Rosetti. Three ruderal species with a reduced coverage show a low disturbance level, mainly due to grazing and treampling.

Key species: *Cynodon dactylon* (3; LR), *Trifolium fragiferum* (+; LR).

Other species: *Althaea officinalis* (+; LR), *Artemisia santonica* (+; LR), *Aster tripolium* (+; LR), *Cichorium intybus* (+; LR), *Euphorbia palustris* (+; LR), *Euphorbia seguieriana* (+; LR), *Mentha pulegium* (+; LR), *Onopordum acanthium* (+; LR), *Plantago major* (+; LR), *Potentilla reptans* (1; LR).

***Trifolium fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** plant community is vulnerable on the shores of the Nebunu Lake, (LN), near Periprava, C.A. Rosetti TAU. A low disturbance is indicated by one ruderal species with a reduced coverage.

Key species: *Cynodon dactylon* (3; LN).

Other species: *Apera spica-venti* (+; LN), *Euphorbia seguieriana* (1; LN), *Scabiosa argentea* (+; LN), *Xanthium italicum* (+; LN), *Verbascum banaticum* (+; LN).

***Trifolium fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** was identified as undisturbed and vulnerable, north of the village of Caraorman (CON), Crişan TAU.

Key species: *Cynodon dactylon* (2; CON), *Trifolium fragiferum* (1; CON).

Other species: *Gnaphalium luteo-album* (+; CON), *Mentha aquatica* (+;

CON), *Mentha pulegium* (+; CON), *Potentilla reptans* (1; CON), *Teucrium scordium* (+; CON).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958** is considered as vegetation typical for disturbed, compacted soils (DIHORU, DONIȚĂ, 1970). In the Murighiol TAU, it belongs to the vulnerable category. Between Dunavățu de Jos and Zaporojeni Fortress (DZ), it makes the transition between the wetlands and the steppe vegetation. The extension of the phytocenoses frames it into the "rare" category. Four ruderal species show a low disturbance, mainly due to grazing.

Key species: *Cynodon dactylon* (4; DZ), *Trifolium fragiferum* (1; DZ).

Other species: *Althaea officinalis* (+; DZ), *Artemisia santonica* (+; DZ), *Aster tripolium* (+; DZ), *Cichorium intybus* (+; DZ), *Euphorbia palustris* (+; DZ), *Mentha aquatica* (+; DZ), *Plantago major* (+; DZ), *Phragmites australis* (+; DZ), *Polygonum aviculare* (+; DZ), *Pulicaria dysenterica* (+; DZ), *Xanthium italicum* (+; DZ).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958**, was identified as vulnerable on the territory of Pardina TAU (PA), in some willow (*Salix alba*) vistas, on reduced areas. Grazing is indicated by three species, with low coverage.

Key species: *Cynodon dactylon* (3; PA), *Trifolium fragiferum* (1; PA).

Other species: *Althaea officinalis* (+; PA), *Bromus sterilis* (+; PA), *Bromus tectorum* (+; PA), *Cerastium glomeratum* (+; PA), *Hordeum murinum* (+; PA), *Mentha aquatica* (+; PA), *Medicago lupulina* (+; PA), *Potentilla reptans* (1; PA), *Salix alba* (+; PA), *Verbena officinalis* (+; PA).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958**, is vulnerable in the transition zone between Enisala Fortress Hill and Japșa Eraclia (JE), on saline soils, where it can be assessed as low disturbed, taking into account that only *Plantago major* was observed as a ruderal species.

Key species: *Cynodon dactylon* (3; JE).

Other species: *Atriplex prostrata* (+, JE), *Crypsis aculeata* (1; JE), *Juncus gerardi* (1; JE), *Plantago major* (+; JE), *Spergularia media* (+; JE).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958**, considered vulnerable, consists in the pastures close to the Tătaru channel (CTA), but has been observed also in the northern part of the sand levee that lies between the channels Buhaz-Zăton, respectively Gârla Turcească. Two ruderal species show a low disturbance due to grazing.

Key species: *Cynodon dactylon* (4; CTA), *Trifolium fragiferum* (1; CTA).

Other species: *Lycopus europaeus* (+; CTA), *Lythrum salicaria* (+; CTA), *Plantago major* (+; CTA), *Potentilla reptans* (+; CTA), *Pulicaria dysenterica* (+; CTA), *Teucrium scordium* (+; CTA), *Xanthium italicum* (+; CTA).

***Trifolio fragifero-Cynodontetum* Br.-Bl. et Bolos 1958**, considered vulnerable, was analyzed in the pastures from north of the Agighiol Lake (LA), Valea Nucarilor TAU, where it dominates. Ruderal taxa affect the coenotaxon

to a small extent, being represented by some species like *Cichorium intybus*, *Hordeum geniculatum* and *Xanthium italicum*.

Key species: *Cynodon dactylon* (3, LA).

Other species: *Artemisia santonica* (+; LA), *Cichorium intybus* (+; LA), *Hordeum geniculatum* (+; LA), *Juncus gerardi* (1; LA), *Puccinellia limosa* (+; LA), *Salicornia europaea* (+; LA), *Xanthium italicum* (+; LA).

Trifolium fragifero-Cynodontetum Br.-Bl. et Bolos 1958 can be considered an endangered plant community. It was identified in the floodplain adjacent to Cape Doloșman (Capul Doloșman), at Zimbru (CDZ), Jurilovca TAU, where grazing is indicated by a low level of ruderal species invasion (six species).

Key species: *Cynodon dactylon* (4; CDZ), *Trifolium fragiferum* (1; CDZ).

Other species: *Artemisia santonica* (+; CDZ), *Chenopodium glaucum* (+; CDZ), *Cichorium intybus* (+; CDZ), *Hordeum geniculatum* (+; CDZ), *Lolium perenne* (+; CDZ), *Mentha aquatica* (+; CDZ), *Plantago major* (+; CDZ), *Polygonum aviculare* (+; CDZ), *Verbena officinalis* (+; CDZ).

Trifolium fragifero-Cynodontetum Br.-Bl. et Bolos 1958 can be considered an vulnerable plant community within the southernmost area of the Danube Delta Biosphere Reserve, known as Plaja (Beach) Corbu (CRB), Corbu TAU, framed between the western limit of the D.D.B.R.A and the sea, where a low disturbance is indicated by a reduced invasive trend of ruderal species (two species) and alien taxon (*Conyza canadensis*).

Key species: *Cynodon dactylon* (3; CRB), *Trifolium fragiferum* (1; CRB).

Other species: *Agropyron elongatum* (+; CRB), *Conyza canadensis* (+; CRB), *Daucus carota* (+; CRB), *Lotus tenuis* (+; CRB), *Melilotus albus* (+; CRB), *Scirpoides holoschoenus* (+; CRB).

15.A2131 Western Pontic *Puccinellia solonetz* swards

Globally this habitat subtype/ plant community is assessed as endangered to rare, from undisturbed to low disturbed, being recorded in the Beibugeac Lake and Sarinasuf areas (Murighiol TAU), Cape Doloșman, Zimbru area (Jurilovca TAU), Saele levee-Histria area (Istria TAU). Three threatened species (*Hymenolobus procumbens*, *Limonium bellidifolium* subsp. *danubiale*, *Polypogon monspeliensis*) were registered, mainly endangered and less vulnerable within the plots.

Puccinellietum limosae Rapaics et Soó 1933, in the analyzed situations, is situated in the transition zone between the coenotaxa characteristic for the highly saline soils and those with a lower salinity degree. This undisturbed plant community is rare within the Beibugeac Lake (LB).

Key species: *Aster tripolium* (+; LB), *Puccinellia limosa* (2; LB).

Other species: *Cynodon dactylon* (+; LS), *Halimione pedunculata* (+; LB), *Halimione verrucifera* (+; LB), *Phragmites australis* subsp. *australis* var. *humilis*

(1; LB), *Salicornia europaea* (1; LB), *Spergularia media* (+; LB), *Suaeda maritima* (+; LS).

***Puccinellietum limosae* Rapaics et Soó 1933**, classified as rare within the Sarinasuf area (SR). The only threatened species identified in this areas is *Polypogon monspeliensis*, rare at national level, vulnerable locally. A low level of ruderal species presence can be observed as there were two species of this kind with a reduced coverage in the plots.

Key species: *Puccinelia limosa* (4; SR).

Threatened species: *Polypogon monspeliensis* (1; SR).

Other species: *Bromus squarrosus* (+; SR), *Halimione pedunculata* (+; SR), *Lactuca tatarica* (+; SR), *Phragmites australis* subsp. *australis* var. *humilis* (1; SR), *Plantago major* (+; SR).

***Puccinellietum limosae* Rapaics et Soó 1933** plant community, identified at Cape Doloşman, Zimbru area (CDZ), Jurilovca TAU, can be considered endangered and undisturbed. One vulnerable threatened plant *Hymenolobus procumbens* is endangered in this phytocoenosis.

Key species: *Aster tripolium* (+; CDZ), *Puccinelia limosa* (2; CDZ).

Threatened species: *Hymenolobus procumbens* (+; CDZ).

Other species: *Artemisia santonica* (+; CDZ), *Spergularia media* (+; CDZ), *Suaeda maritima* (1; CDZ), *Phragmites australis* subsp. *australis* var. *humilis* (1; CDZ).

***Puccinellietum limosae* Rapaics et Soó 1933**, an endangered plant community, was observed within the Saele levee, Histria area (H), Istria TAU, where *Limonium bellidifolium* subsp. *danubiale*, a vulnerable and rare threatened species, enhances its conservative value, also underlined by the absence of ruderal/ alien taxa.

Key species: *Puccinelia limosa* (4; H).

Threatened species: *Limonium bellidifolium* subsp. *danubiale* (+; H).

Other species: *Halimione verrucifera* (1; H), *Juncus gerardi* (+; H), *Salicornia europaea* (+; H), *Suaeda maritima* (+; H).

***Puccinellietum limosae* Rapaics et Soó 1933** is a vulnerable plant community between Letea and C.A. Rosetti, where it can be considered in its natural status.

Key species: *Puccinelia limosa* (2; LR).

Other species: *Aeluropus littoralis* (+; LR), *Halimione pedunculata* (1; LR), *Suaeda maritima* (+; LR).

15.A2133 Western Pontic *Bassia sedoides* hollows

***Bassietum sedoidis* Ubrizsy 1948 corr. Soó 1964** was identified as endangered, in its natural status, totally isolated on the Sahalin islands (IS), Sfântu Gheorghe TAU, within the *Salicornietum prostratae* association. There the only threatened, vulnerable and rare species is *Leymus racemosus* subsp. *sabulosus*, endangered within the plant community.

Key species: *Bassia sedoides* (3; IS).

Threatened species: *Leymus racemosus* subsp. *sabulosus* (+; IS).

Other species: *Aster tripolium* (+; IS), *Salicornia europaea* (1; IS), *Spergularia media* (+; IS).

15.A21425 Western Pontic orache flats

This habitat subtype/ coenotaxon was recorded as endangered and undisturbed on the shores of Sărăturii Lake (Murighiol TAU) and Plaja (Beach) Sulina (Sulina TAU). Even if the species composition is undisturbed, mainly because the saline soil avoids ruderal or alien species occurrence, in the area between the Sulina Cemetery and the bare section of the Sulina beach, this habitat subtype is affected by fragmentation and the reduction of its area, because of the tourism constructions/ developments and acces roads/ pathways.

***Obionetum pedunculatae* I. Serbănescu 1965** has been encountered as undisturbed phytocoenoses on the shores of Sărăturii Lake (LS), on the territory of Murighiol TAU, on restricted areas, which justifies its classification as endangered.

Key species: *Halimione pedunculata* (3; LS).

Other species: *Artemisia santonica* (+; LS), *Aster tripolium* (+; LS), *Juncus gerardi* (+; LS), *Puccinellia limosa* (+; LS), *Suaeda maritima* (1; SPL).

***Obionetum pedunculatae* I. Serbănescu 1965**, an endangered coenotaxa within the Plaja (Beach) Sulina, Sulina town (SPL), was observed as undisturbed phytocoenoses.

Key species: *Halimione pedunculata* (2; SPL).

Other species: *Aeluropus littoralis* (+; SPL), *Puccinellia limosa* (+; SPL), *Salicornia europaea* (1; SPL), *Spergularia media* (+; SPL), *Suaeda maritima* (1; SPL), *Tamarix ramosissima* (+; SPL).

15. A2143 Western Ponto-Caspian saltmarsh grass swards

***Aeluropetum littoralis* (Prodan 1939) Şerbănescu 1965**, an endangered coenotaxa within the Beştepe commune area, within the Danube floodplain (BLD), can be considered as being at the upper limit of the low disturbance category, from the ruderal species presence (five taxa) point of view.

Key species: *Aeluropus littoralis* (2; BLD).

Other species: *Capsella bursa-pastoris* (+; BLD), *Chenopodium glaucum* (+; BLD), *Juncus gerardi* (+; BLD), *Matricaria recutita* (+; BLD), *Mentha pulegium* (+; BLD), *Plantago major* (+; BLD), *Polygonum aviculare* (+; BLD), *Ranunculus sceleratus* (+; BLD), *Rorippa sylvestris* (1; BLD), *Sclerochloa dura* (+; BLD).

***Aeluropetum littoralis* (Prodan 1939) Șerbănescu 1965**, an endangered plant community, identified at Sarichoi, on the Razim Lagoon shore (SA), can be considered as representative for a good level of conservation, as no ruderal/ alien species were recorded in the plots.

Key species: *Aeluropus littoralis* (5; SA).

Other species: *Aster tripolium* (+; SA), *Atriplex hastata* (+; SA), *Puccinellia limosa* (+; SA), *Salicornia europaea* (+; SA), *Suaeda maritima* (+; SA).

***Aeluropetum littoralis* (Prodan 1939) Șerbănescu 1965**, a vulnerable plant community, identified in the Histria area (H), within the Saele levee, Istria TAU, can be estimated as a representative natural phytocoenosis, taking into account the absence of ruderal/ non-native taxa.

Key species: *Aeluropus littoralis* (5; H).

Other species: *Artemisia santonica* (+; H), *Aster tripolium* (+; H), *Atriplex prostrata* (+; H), *Bolboschoenus maritimus* (+; H), *Phragmites australis* subsp. *australis* var. *humilis* (+; H), *Salicornia herbacea* (+; H), *Suaeda maritima* (+; H).

This plant community can be considered overall as endangered, sometimes vulnerable, and from its natural status to low disturbed, due to grazing.

15.A2151 Western Pontic *Halimione* scrub

This subtype/ association was identified as endangered to rare in the Beibugeac Lake area (Murighiol TAU) and Ghiolul Cotului (Sarichioi TAU). In both locations no alien/ ruderal species were observed, so these can be considered as samples of undisturbed phytocoenoses. Two threatened species, endangered within these phytocoenoses, were recorded, *Halocnemum strobilaceum* and *Hymenolobus procumbens*, both endangered locally.

***Obionetum verruciferae* (Keller 1923) Țopa 1939** has been found as rare, in the Lake Beibugeac (LB) area, Murighiol TAU. Among the two threatened species at the national level *Halocnemum strobilaceum* is rare and *Hymenolobus procumbens* is vulnerable. In this association both species can be considered endangered.

Key species: *Halimione verrucifera* (3; LB).

Threatened species: *Halocnemum strobilaceum* (+; LB), *Hymenolobus procumbens* (+; LB).

Other species: *Salicornia europaea* (+; LB).

***Obionetum verruciferae* (Keller 1923) Topa 1939** was encountered as endangered, on very reduced surfaces at Ghiolul Cotului (GCO) Sarichioi TAU, where they formed narrow strips, intercalated between other cenotaxons, depending on the degree of salinity of the soil.

Key species: *Halimione verrucifera* (3; GCO).

Other species: *Limonium gmelinii* (+; GCO), *Suaeda maritima* (+; GCO), *Puccinellia convoluta* (2; GCO).

15.A2152 Western Pontic *Halocnemum* scrub

***Halocnemum strobilacei* (Keller 1925) Topa 1939** is of particular conservation importance, as it is dominated by the threatened species *Halocnemum strobilaceum*, rare at the national and local levels. This undisturbed association can be considered as vulnerable in the Sarinasuf area (SR).

Key species: *Halocnemum strobilaceum* (2; SR)

Threatened species: *Halocnemum strobilaceum* (2; SR)

Other species: *Halimione pedunculata* (+; SR), *Puccinellia limosa* (+; SR), *Salicornia europaea* (+; SR), *Suaeda maritima* (1; SR).

2110 Embryonic shifting dunes (PAL.CLASS.: 16.211)

16.211 Embryonic dunes

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4536 ha and a conservation status of B level.

The habitat was recorded as endangered within the small beach close to the Sulina Lighthouse, but it was also observed as endangered close to the northernmost part of the Chituc levee. The habitat was registered as being in a low disturbance situation, mostly because of the ruderal taxa, but also as an alien species was noticed. Three threatened species enhance the conservation importance of this coenotaxon, *Artemisia tschernieviana*, *Crambe maritima* and *Leymus racemosus* subsp. *sabulosus*, being framed locally between endangered and rare.

16.2113 Pontic embryonic dunes

This subtype is endangered and low disturbed, due to ruderal and less to alien species. Three threatened species enhance the conservation importance of this coenotaxon, *Artemisia tschernieviana*, *Crambe maritima*, *Leymus racemosus* subsp. *sabulosus*, being framed locally between endangered and rare.

Elymetum gigantei* Morariu 1957**, an endangered plant community within the Sulina Arm influx into the sea, including the artificial area of the dyke (SV), is represented within this habitat by the subassociation ***cakiletosum

euxinae Vich. subass. nova, characterized by a low disturbance level, both induced by three ruderal species, respectively by one non-native taxon (*Amorpha fruticosa*). The dominant *Leymus racemosus* subsp. *sabulosus* is vulnerable within the plots, being sparse within these phytocoenoses

Key species: *Leymus racemosus* subsp. *sabulosus* (1; SV), *Cakile maritima* subsp. *euxina* (1; SV).

Threatened species: *Leymus racemosus* subsp. *sabulosus* (1; SV).

Other species: *Amorpha fruticosa* (+; SV), *Argusia sibirica* (+; SV), *Bassia sedoides* (+; SV), *Cynanchum acutum* (+; SV), *Lactuca tatarica* (+; SV), *Melilotus albus* (+; SV), *Phragmites australis* subsp. *australis* var. *humilis* (+; SV), *Salsola soda* (+; SV), *Xanthium italicum* (+; SV).

Elymetum gigantei Moraru 1957, can be assessed as an endangered plant community within the the northernmost part of the Chituc levee (CN), where it is represented by the subassociation **cakiletosum euxinae Vich. subass. nova**, low disturbed due to the non-native *Elaeagnus angustifolia*. The dominant *Leymus racemosus* subsp. *sabulosus* is rare within the plots, being sparse within these phytocoenoses, followed by the vulnerable *Crambe maritima* and the endangered *Artemisia tschernieviana*.

Key species: *Leymus racemosus* subsp. *sabulosus* (2; CN), *Cakile maritima* subsp. *euxina* (2; CN).

Threatened species: *Artemisia tschernieviana* (+; CN), *Crambe maritima* (1; CN), *Leymus racemosus* subsp. *sabulosus* (2; CN).

Other species: *Elaeagnus angustifolia* (+; CN), *Lactuca tatarica* (+; CN), *Phragmites australis* subsp. *australis* var. *humilis* (1; CN), *Salsola soda* (+; CN).

2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) (PAL.CLASS.: 16.212)

16.212 White dunes

The habitat is not mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), but still it exists in the D.D.B.R. and associated sites of community importance. Even if the subtype **16.2124 Pontic white dunes** is not explicitly mentioned within the list of subtypes, it is nevertheless framed into the habitat **16.212 White dunes** that includes Mobile dunes forming the seaward cordon or cordons of dune systems of the coasts of the nemoral, steppe, Mediterranean and warm-temperate humid zones. In this case the 16.2124 habitat subtype is framed within the dune systems of the coast of the steppe zone. If this habitat was excluded, then the 16.212 mentioned after the name of this 2120 habitat should have between brackets only the codes of the subtypes described within the EUR 27 and EUR 28 versions of the Habitats Manual, like for other restrictive community interest

habitats, which is not the case. Such an example of restrictive habitat would be **2190 Humid dune slacks** (PAL.CLASS.: 16.3 = 16.31 to 16.35) where the subtypes of 16.3 are clearly mentioned within the correspondence with the Palaearctic classification codes. Thus, this habitat 2120 includes all the subtypes of **16.212 White dunes**, described or not in these manuals.

The subtype **16.2124 Pontic white dunes** includes the mobile dunes of the Black Sea coasts, with *Leymus racemosus* subsp. *sabulosus* (*Elymus giganteus*) and other key species, framed among others into the *Elymetum gigantei* plant community. It is urgent to include this habitat into the list of recently identified community interest habitats within the D.D.B.R. and its associated Natura 2000 sites, in order to avoid its degradation, through the implementation of adequate management measures. Thus, this is one of the most fragile and threatened habitats in the studied area, being exposed to degradation of the vegetation, fragmentation and reduction of its area due to the fact that it is a favourite habitat for tourism/ beach activities and constructions/ developments, access roads, etc. The D.D.B.R.A should have as a priority to clarify if this habitat or other doubtful/ similar community interest habitats really occur within the D.D.B.R. and associated sites, in order to officially revise the list of the habitats of community interest, respectively to take measures for their conservation and to report them adequately to the European Commission.

Taking into account the important estimated area of 22,682 ha, (Formularul standard Natura 2000 – ROSCI0065) of the habitat **2130 *Fixed coastal dunes with herbaceous vegetation (grey dunes)-16.22B Pontic fixed dunes**, it is probable that within this habitat was included also by confusion the area of the habitat **16.2124 Pontic white dunes**, framed into the habitat **2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)**.

The habitat was recorded from vulnerable to frequent within the territories of the Sulina TAU (Sulina beach), Jurilovca TAU (Portița), Murighiol TAU (coastal low dunes), Sfântu Gheorghe TAU (Câșla Vădanei, Sahalin Islands), Plaja (Beach) Vadu (Săcele TAU), Plaja (Beach) Corbu (Corbu TAU). The habitat was registered mainly as undisturbed, very rare in a medium or low disturbance situation. This plant community/ habitat is one of the most rich in rare species within the Danube Delta natural site (SCI, SPA), with its eight threatened taxa, mainly endangered within these phytocoenoses (*Artemisia tschernieviana*, *Crambe maritima*, *Ephedra distachya*, *Petasites spurius*, *Stachys maritima*), except *Astrodaucus littoralis* (critically endangered), *Eryngium maritimum* (endangered-vulnerable), *Leymus racemosus* subsp. *sabulosus* (endangered-frequent).

16.2124 Pontic white dunes

***Elymetum gigantei* Morariu 1957**, a vulnerable plant community within the Sulina Town's territory, where it was observed at the Sulina beach (SPL), is

characterized by a medium disturbance level, both induced by one ruderal species, respectively by two non-native taxa (*Amorpha fruticosa*, *Elaeagnus angustifolia*), with a characteristic dominance variation (+-1). Three rare threatened species, of which *Leymus racemosus* subsp. *sabulosus* is also vulnerable, confer a high conservation value to this coenotaxon, two (*Eryngium maritimum*, *Petasites spurius*) being endangered within these phytocoenoses, while *Leymus racemosus* subsp. *sabulosus* is rare.

Key species: *Leymus racemosus* subsp. *sabulosus* (2; SPL).

Threatened species: *Eryngium maritimum* (+; SPL), *Leymus racemosus* subsp. *sabulosus* (2; SPL), *Petasites spurius* (+; SPL).

Other species: *Amorpha fruticosa* (+; SPL), *Cynodon dactylon* (1; SPL), *Elaeagnus angustifolia* (+-1; SPL), *Hippophaë rhamnoides* (+; SPL), *Salsola soda* (+; SPL), *Secale sylvestre* (+; SPL), *Xanthium italicum* (+; SPL).

***Elymetum gigantei* Morariu 1957** is frequent on the coastal sand strip belonging to the Jurilovca TAU, contributing to the partial fixing of the sand substrate. In the Portița area (POR) the association is in its natural status, characterized by a great richness of threatened species, namely five species included in the "rare" category at the national level. Of these, *Crambe maritima* and *Leymus racemosus* subsp. *sabulosus* are also considered vulnerable. Besides the two species (*Crambe maritima*, *Stachys maritima*) endangered within the respective phytocoenosis, *Astrodaucus littoralis* is critically endangered, *Eryngium maritimum* is considered vulnerable, while *Leymus racemosus* subsp. *sabulosus* is frequent, being a key species.

Key species: *Leymus racemosus* subsp. *sabulosus* (4; POR).

Threatened species: *Astrodaucus littoralis* (r; POR), *Crambe maritima* (+; POR), *Eryngium maritimum* (1; POR), *Leymus racemosus* subsp. *sabulosus* (3-4; POR), *Stachys maritima* (+; POR).

Other species: *Argusia sibirica* (+; POR), *Artemisia santonica* (r; POR), *Cynodon dactylon* (r; POR), *Lactuca tatarica* (1; POR), *Tamarix ramosissima* (+; POR).

***Elymetum gigantei* Morariu 1957** is frequent in the Portița area (POR), being in its natural status, where it shelters six threatened taxa. Of these, *Leymus racemosus* subsp. *sabulosus* is also considered vulnerable. Most of them are endangered within the respective phytocoenosis, except the vulnerable *Eryngium maritimum* and *Stachys maritima*, respectively the frequent, dominant species *Leymus racemosus* subsp. *sabulosus*.

Key species: *Leymus racemosus* subsp. *sabulosus* (3; POR).

Threatened species: *Astrodaucus littoralis* (±; POR), *Eryngium maritimum* (1; POR), *Leymus racemosus* subsp. *sabulosus* (3-4; POR), *Polypogon monspeliensis* (+; POR), *Stachys maritima* (1; POR).

Other species: *Argusia sibirica* (+; POR), *Centaurea arenaria* (+; POR), *Cynodon dactylon* (+; POR), *Lactuca tatarica* (2; POR), *Tamarix ramosissima* (+; POR).

***Elymetum gigantei* Morariu 1957** can be considered sporadic, in its natural status at the level of coastal low dunes that belong to the Murighiol TAU. In addition to the dominant species *Leymus racemosus* subsp. *sabulosus*, another threatened taxa, included in the same category of vulnerable and rare species, is *Crambe maritima*. At the level of the association, the first species is classified in the "frequent" category, while the latter is endangered.

***Elymetum gigantei* Morariu 1957** has been encountered as pioneer vegetation, with low coverage, vulnerable, in its natural status, in the Cășla Vădanei area (GCV), Sfântu Gheorghe TAU. The key species is considered threatened, vulnerable and rare, being also vulnerable at the local level, within theses phytocoenoses.

Key species: *Leymus racemosus* subsp. *sabulosus* (1; GCV).

Threatened species: *Eryngium maritimum* (+; GCV), *Leymus racemosus* subsp. *sabulosus* (1, GCV).

Other species: *Carex colchica* (+; GCV), *Centaurea arenaria* (+; GCV), *Euphorbia seguieriana* (+; GCV), *Phragmites australis* (+; GCV).

***Elymetum gigantei* Morariu 1957** occurs as phytocoenoses with more or less closed aspect, rare on the Sahalin islands (IS). The key species is considered threatened, vulnerable and rare, being sporadic within the plots. A low disturbance is obvious, as one alien taxon, *Amorpha fruticosa*, and a ruderal one, *Xanthium italicum*, were observed.

Key species: *Leymus racemosus* subsp. *sabulosus* (3; IS).

Other species: *Amorpha fruticosa* (+; IS), *Argusia sibirica* (1; IS), *Salsola soda* (+; IS), *Tamarix ramosissima* (+; IS), *Xanthium italicum* (+; IS).

***Elymetum gigantei* Morariu 1957** occurs as vulnerable and undisturbed at Plaja (Beach) Vadu, (VDS), Săcele TAU. Its conservation value is underlined by the presence of four rare and mostly vulnerable taxa at the national level, like *Artemisia tschernieviana*, *Crambe maritima*, *Eryngium maritimum*, *Leymus racemosus* subsp. *sabulosus*. Within the phytocoenoses, besides the dominant *Leymus racemosus* subsp. *sabulosus*, the other are endangered, except the vulnerable *Eryngium maritimum*.

Key species: *Leymus racemosus* subsp. *sabulosus* (3; VDS,).

Threatened species: *Artemisia tschernieviana* (+; VDS), *Crambe maritima* (+; VDS), *Eryngium maritimum* (1; VDS), *Leymus racemosus* subsp. *sabulosus* (3, VDS).

Other species: *Centaurea arenaria* (+; VDS).

***Elymetum gigantei* Morariu 1957**, a rare plant community within the Plaja (Beach) Corbu (CRB), Corbu TAU, is characterized by a low disturbance

level, induced by one ruderal species. Four rare threatened species, of which *Leymus racemosus* subsp. *sabulosus* and *Crambe maritima* are also vulnerable, confer a high conservation value to this coenotaxon. *Astrodaucus littoralis*, *Eryngium maritimum*, *Crambe maritima* are endangered within these phytocoenoses while *Leymus racemosus* subsp. *sabulosus* is rare.

Key species: *Leymus racemosus* subsp. *sabulosus* (2; CRB).

Threatened species: *Astrodaucus littoralis* (+; CRB), *Crambe maritima* (+; CRB), *Eryngium maritimum* (+; CRB), *Leymus racemosus* subsp. *sabulosus* (2; CRB).

Other species: *Centaurea arenaria* (+; CRB), *Chondrilla juncea* (+; CRB), *Euphorbia seguieriana* (+; CRB), *Gypsophila perfoliata* (+; CRB), *Linum austriacum* (+; CRB), *Linaria genistifolia* (+; CRB), *Teucrium polium* subsp. *capitatum* (+; CRB).

This plant community was observed as vulnerable to frequent within the territories of the Sulina Town (Sulina beach), Jurilovca TAU (Portița), Murighiol TAU (coastal low dunes), Sfântu Gheorghe TAU (Câșla Vădanei, Sahalin islands), also at Plaja (Beach) Vadu (Săcele TAU) and Plaja (Beach) Corbu (Corbu TAU). In most situations the phytocoenoses were in a natural status, very rare in a medium or low disturbance situation. This plant community/ habitat is one of the most rich in rare species within the Danube Delta natural site (SCI, SPA), with its seven threatened taxa, mainly endangered within these phytocoenoses (*Artemisia tschernieviana*, *Crambe maritima*, *Petasites spurius*, *Stachys maritima*), except *Astrodaucus littoralis* (critically endangered), *Eryngium maritimum* (endangered-vulnerable), *Leymus racemosus* subsp. *sabulosus* (endangered-frequent).

***Artemisietum arenariae* Popescu et Sanda1977** has been encountered as a rare coenotaxon, at Plaja (Beach) Corbu (CRB), Corbu TAU. The key species is considered threatened, endangered and rare, being also rare at the local level. The other three rare threatened taxa are endangered within these phytocoenoses. A low disturbance is obvious, as two ruderal taxa were observed, with a low coverage.

Key species: *Artemisia tschernieviana* (2; CRB).

Threatened species: *Artemisia tschernieviana* (2; CRB), *Leymus racemosus* subsp. *sabulosus* (+; CRB), *Eryngium maritimum* (+; CRB), *Crambe maritima* (+; CRB).

Other species: *Bromus tectorum* (+; CRB), *Centaurea arenaria* (+; CRB), *Melilotus albus* (+; CRB), *Secale sylvestre* (+; CRB).

***Artemisietum arenariae* Popescu et Sanda1977**, a rare plant community at Plaja (Beach) Corbu (CRB), Corbu commune is considered low disturbed as one ruderal taxa was observed, with a low coverage. The key species is considered threatened, endangered and rare, being also rare at the

local level. The other two rare threatened taxa are endangered (*Eryngium maritimum*) and vulnerable *Leymus racemosus* subsp. *sabulosus* within these phytocoenoses.

Key species: *Artemisia tschernieviana* (2; CRB).

Threatened species: *Artemisia tschernieviana* (2; CRB), *Leymus racemosus* subsp. *sabulosus* (1; CRB), *Eryngium maritimum* (+; CRB).

Other species: *Melilotus albus* (1; CRB).

***Artemisietum arenariae* Popescu et Sanda 1977** has been encountered at Plaja (Beach) Vadu (VDS), Săcele TAU, where it can be assessed as undisturbed and rare. Its conservation importance is enhanced by five rare threatened taxa, among which *Crambe maritima* is also vulnerable, all endangered within these phytocoenoses.

Key species: *Artemisia tschernieviana* (2; VDS).

Threatened species: *Artemisia tschernieviana* (2; VDS), *Astrodaucus littoralis* (+; VDS), *Crambe maritima* (+; VDS), *Eryngium maritimum* (+; VDS), *Ephedra distachya* (+; VDS).

Other species: *Secale sylvestre* (1; VDS).

This association is assessed overall as rare, and between low disturbed and undisturbed. Its six threatened taxa are mainly endangered within these phytocoenoses (*Astrodaucus littoralis*, *Crambe maritima*, *Eryngium maritimum*, *Ephedra distachya*, *Leymus racemosus* subsp. *sabulosus*), except the dominant *Artemisia tschernieviana*.

2130 *Fixed coastal dunes with herbaceous vegetation (grey dunes)

(PAL.CLASS.: 16.221 to 16.227, 16.22B)

16.22B Pontic fixed dunes

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 22682 ha and a conservation status of A level. Taking into account the important estimated area of 22682 ha, (Formularul standard Natura 2000 – ROSCI0065) of the habitat **2130 *Fixed coastal dunes with herbaceous vegetation (grey dunes)-16.22B Pontic fixed dunes**, it is probable that within this habitat was included also by confusion the area of the habitat **16.2124 Pontic white dunes**, framed into the habitat **2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)**.

Globally this habitat can be considered as vulnerable and in its natural status. It was recorded from the southern part of Caraorman Forest (CO), Crișan TAU.

16.22B1 Western Pontic fixed dunes

***Scabioso argenteae-Artemisietum campestris* Popescu, Sanda 1987** was identified as vulnerable on the low dunes in the south part of Pădurea Caraorman (CO), Crișan TAU, where it is characterized by a small number of species. It can be considered in its natural status, as no alien/ ruderal species were identified.

Key species: *Artemisia campestris* (3; CO), *Scabiosa argentea* (+; CO).

Other species: *Carex colchica* (+; CO), *Centaurea arenaria* (+; CO), *Euphorbia seguieriana* (+; CO), *Verbascum banaticum* (+; CO).

2160 Dunes with *Hippophaë rhamnoides* (PAL.CLASS.: 16.251)

The habitat occur mostly in Western Europe, according to the description of the subtype **16.251 Sea-buckthorn dune thickets** available within the PHYSIS database, as mentioned in the Manual EUR 28, where there is not mentioned the alliance/ plant communities or other upper phytocoenological classification levels, in order to allow an accurate framing. The *Hippophaë rhamnoides* formations that occur in the D.D.B.R. and associated Natura 2000 are also similar with the subtype **44.6622 Danube Delta *Hippophaë-Populus canescens* galleries**, that is described as having a closed shrub layer dominated by *Hippophaë rhamnoides*, even if in the studied situations there was not observed any sparse canopy of *Populus canescens*. Also for this subtype in the PHYSIS database there is not mentioned any alliance/ plant communities or other upper phytocoenological classification levels, in order to allow an accurate framing. As a conclusion, until further research or more clearly defined habitat descriptions, at least provisory, the thickets dominated with *Hippophaë rhamnoides* (without a *Populus canescens* canopy at least) can be considered as framed into the subtype **16.251 Sea-buckthorn dune thickets** and the corresponding habitat of community importance 2160. Thus, ***Calamagrostio epigei-Hippophaëtum rhamnoides* Popescu, Sanda, Nedelcu 1986** is the only plant community dominated by *Hippophaë rhamnoides* within the Danube Delta and the whole Dobrogea, according to synthesis works concerning this region (SANDA, ARCUȘ, 1999), where there is not mentioned any occurrence of *Populus canescens*, that also corresponds to proper observations.

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4536 ha and a conservation status of A level.

The habitat subtype/ plant community can be considered mainly as endangered and less vulnerable, being observed as low disturbed to medium disturbed, due to alien or ruderal species invasive trend, sometimes in its natural status. It was observed at the Sulina beach (Sulina TAU), between C.A. Rosetti

and Cardon (C.A. Rosetti TAU), Cășla Vădanei (Sfântu Gheorghe TAU). Two rare threatened species were recorded, *Eryngium maritimum* and *Ephedra distachya*, both endangered within the plots.

***Calamagrostis epigei-Hippophaëtum rhamnoides* Popescu, Sanda, Nedelcu 1986** plant community is vulnerable in the Sulina beach area (SPL), where a medium level of non-native species invasion was estimated from the dominance variation (+-1) of *Conyza canadensis* and *Elaeagnus angustifolia*. The only threatened species is *Eryngium maritimum*, endangered within the plots.

Key species: *Calamagrostis epigeios* (1; SPL), *Hippophaë rhamnoides* (4; SPL).

Threatened species: *Eryngium maritimum* (+; SPL).

Other species: *Conyza canadensis* (+; SPL), *Elaeagnus angustifolia* (+; SPL), *Eupatorium cannabinum* (+; SPL), *Euphorbia seguieriana* (+; SPL), *Tamarix ramosissima* (+; SPL).

***Calamagrostis epigei-Hippophaëtum rhamnoides* Popescu, Sanda, Nedelcu 1986** generally occupies the depressions between the dunes, or the lower part of the dunes, which are encountered in the studied area between C.A. Rosetti and Cardon (RC), there being framed as endangered. A low disturbance can be guessed from the presence of the alien species *Conyza canadensis*, as well as of three ruderal species, all with a reduced coverage.

Key species: *Hippophaë rhamnoides* (5, RC), *Calamagrostis epigeios* (+; RC).

Other species:

- shrubs/ lianas: *Tamarix ramosissima* (1; RC).

- grasses/ undershrubs: *Cannabis sativa* subsp. *spontanea* (+; RC), *Centaurea arenaria* (1; RC), *Chondrilla juncea* (+; RC), *Consolida regalis* (+; RC), *Conyza canadensis* (+; RC), *Cynodon dactylon* (+; RC), *Euphorbia seguieriana* (+; RC), *Medicago falcata* (+; RC), *Plantago arenaria* (+-1; RC), *Polygonum arenarium* (+; RC), *Salsola soda* (+; RC), *Scabiosa argentea* (+; RC).

***Calamagrostis epigei-Hippophaëtum rhamnoides* Popescu, Sanda, Nedelcu 1986** was recorded between C.A. Rosetti and Cardon (RC), there being framed as endangered. A low disturbance is indicated by the presence of the alien species *Morus alba*, *Prunus cerasifera*, as well as of one ruderal species, with a reduced coverage.

Key species: *Hippophaë rhamnoides* (3, RC), *Calamagrostis epigeios* (1; RC).

Threatened species: *Ephedra distachya* (+; RC).

Other species:

- shrubs/ lianas: *Evonymus europaeus* (+; RC), *Morus alba* (+; RC), *Rhamnus cathartica* (+; RC), *Prunus cerasifera* (+; RC).

- grasses/ undershrubs: *Agrostis stolonifera* (+; RC), *Consolida regalis* (+; RC), *Cynodon dactylon* (+; RC), *Euphorbia seguieriana* (+; RC), *Rosa canina* (+; RC), *Phragmites australis* (+; RC), *Teucrium chamaedriss* (+; RC).

***Calamagrostis epigei-Hippophaëtum rhamnoides* Popescu, Sanda, Nedelcu 1986** is framed as vulnerable within the Plaja (Beach) Sulina (SPL). A medium disturbance can be guessed from the presence (+1) of the alien species *Amorpha fruticosa*, *Conyza canadensis*, *Elaeagnus angustifolia*, as well as of one ruderal species. Just one threatened taxon was identified, endangered within the plots.

Key species: *Calamagrostis epigeios* (1; SPL), *Hippophaë rhamnoides* (3; SPL).

Threatened species: *Eryngium maritimum* (+; SPL).

Other species: *Amorpha fruticosa* (1; SPL), *Conyza canadensis* (+; SPL), *Cynodon dactylon* (+; SPL), *Elaeagnus angustifolia* (1; SPL), *Euphorbia seguieriana* (+; SPL), *Linum austriacum* (+; SPL), *Salsola soda* (+; SPL), *Tamarix ramosissima* (+; SPL), *Xanthium italicum* (+; SPL).

***Calamagrostis epigei-Hippophaëtum rhamnoides* Popescu, Sanda, Nedelcu 1986** is represented by compact bushes that occur as endangered and undisturbed in the area of the Câșla Vădanei (GCV) dunes, Sfântu Gheorghe TAU, on restricted areas, being also noticed on the banks between the Buhaz-Zătoane and Gârla Turcească Channel, where these phytocoenoses are rare.

Key species: *Hippophaë rhamnoides* (5, GCV).

Other species:

- trees: *Populus alba* (1; GCV).

- shrubs/ lianas: *Rubus caesius* (+; GCV).

- grasses/ undershrubs: *Carex colchica* (+; GCV), *Centaurea arenaria* (+; GCV), *Euphorbia seguieriana* (+; GCV), *Linum austriacum* (+; GCV), *Teucrium chamaedris* (1; GCV), *Verbascum banaticum* (+; GCV).

2190 Humid dune slacks (PAL.CLASS.: 16.3 = 16.31 to 16.35)

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4536 ha and a conservation status of A level.

The habitat was mainly recorded as vulnerable and less from endangered to sporadic, mostly undisturbed, sometimes low disturbed. It was recorded between C.A. Rosetti and Cardon, along the Magearu Channel, near the Letea village (C.A. Rosetti TAU); along the Buhaz-Zăton Channel, Meleaua Sahalin, Tătaru Channel, Sahalin Islands (Sfântu Gheorghe TAU); the northern and

northwestern part of the Caraorman levee, the channel from the north-western part of the Caraorman levee (Crișan TAU); Meleaua Sahalin (Sfântu Gheorghe TAU); Prospect area (Sulina TAU); Portița area (Jurilovca TAU); Plaja Corbu, Plaja (Beach) Vadu (Corbu TAU); between C.A. Rosetti, Letea and Cardon (C.A. Rosetti TAU); along the channel situated southwards of the Sulina beach, road Cardon-Sulina (Sulina TAU).

Most of the six threatened species are endangered within the plots and less vulnerable or frequent (*Salvinia natans*, *Trapa natans*, *Polypogon monspeliensis*, *Scirpus littoralis*, *Samolus valerandi* and *Stratiotes aloides*). To these there can be added *Marsilea quadrifolia*, species of community importance, vulnerable taking into account that this is the only location where it was recorded at least within proper studies. Even if in the plot it is vulnerable, it can be considered as critically endangered within the studied area. Thus it could be considered a high priority within conservation measures, like also *Scirpus littoralis*, only identified within the Sahalin Islands, so far, at least within proper research.

Subtype 16.31-Dune-slack pools (fresh-water aquatic communities (cf. 22.4) of permanent dune-slack water bodies

The habitat subtype was mainly recorded as a vulnerable and sometimes sporadic, undisturbed. It was observed from: between C.A. Rosetti and Cardon, along the Magearu Channel, near the Letea village (C.A. Rosetti TAU) along the Buhaz-Zăton Channel (Sfântu Gheorghe TAU), the channel from the north-western part of the Caraorman levee (Crișan TAU), Meleaua Sahalin (Sfântu Gheorghe TAU) and Prospect area (Sulina TAU). Threatened species like *Trapa natans*, *Salvinia natans*, *Stratiotes aloides*, were recorded, mainly endangered and less vulnerable or frequent.

22.4311 Water-lily beds

This habitat with its two associations is vulnerable and in its natural status, being observed between C.A. Rosetti and Cardon, along the Magearu Channel, near the Letea village (C.A. Rosetti TAU) as well as along the Buhaz-Zăton Channel (Sfântu Gheorghe TAU), and the channel from the north-western part of the Caraorman levee (Crișan TAU). Three threatened species were recorded, endangered within the plots at least, except the endangered-vulnerable taxa *Salvinia natans*.

***Nymphaetum albae* Vollmar 1947**, inventoried between C.A. Rosetti and Cardon (RC) as vulnerable and in its natural status, was also observed along the Magearu Channel, near the Letea village. The only species of conservative interest identified so far is *Salvinia natans*, included in the “not threatened” category.

Key species: *Nymphaea alba* (5; RC).

Threatened species: *Salvinia natans* (1; RC).

Other species: *Typha angustifolia* (1; RC).

***Nymphaetum albae* Vollmar 1947**, even if it has a reduced biodiversity, in the situations observed in the Buhaz-Zăton Channel (CBZ) area, where it is vulnerable and undisturbed, has three taxa from the National Red List (OLTEAN *et alii*, 1994), two of which are vulnerable, namely *Stratiotes aloides* and *Trapa natans*, while *Salvinia natans* being not threatened.

Key species: *Nymphaea alba* (4; CBZ).

Threatened species: *Salvinia natans* (+; CBZ), *Stratiotes aloides* (+; CBZ), *Trapa natans* (+; CBZ).

***Myriophyllo verticillati-Nupharetum luteae* W. Koch 1926** is representative for the aquatic phytocoenoses, present in the almost stagnant waters of the channel from the north-western part of the Caraorman levee, Crișan TAU (CON), where it was identified as vulnerable and undisturbed. Within these cenotaxa, the threatened species *Salvinia natans*-not threatened, protected by the Berne Convention, and the vulnerable *Stratiotes aloides*, were identified. In the plots the first is assessed as vulnerable and the second as endangered.

Key species: *Myriophyllum verticillatum* (1; CON), *Nuphar lutea* (3; CON).

Threatened species: *Salvinia natans* (1; CON), *Stratiotes aloides* (+; CON).

Other species: *Typha angustifolia* (1; CON).

22.4312 Water chestnut carpets

This plant community/ habitat can be assessed as vulnerable-sporadic, being representative for a natural status, being studied in the Meleaua Sahalin (Sahalin Bay) (Sfântu Gheorghe TAU) and Prospect area (Sulina TAU). It shelters two taxa protected by the Berne Convention, *Trapa natans* and *Salvinia natans*, the first being frequent, as it is a key species, while the second is vulnerable within the studied phytocoenoses.

***Trapetum natantis* V. Kárpáti 1963** is widespread especially in the Meleaua Sahalin (Sahalin Bay) (ME), Sfântu Gheorghe TAU, especially in the areas with intense sedimentation in its northern sector, where it can be considered sporadic and in its natural status. Besides the dominant species, considered vulnerable, another threatened taxon is *Salvinia natans* (nt). Within the plots the first is sporadic, while the second is considered vulnerable.

Key species: *Trapa natans* (3; ME).

Threatened species: *Salvinia natans* (1; ME), *Trapa natans* (3; ME).

Other species: *Ceratophyllum demersum* (+; ME), *Phragmites australis* (+; ME), *Salvinia natans* (1; ME).

***Trapa natans* V. Karpati 1963**, a vulnerable plant community, was observed as endangered in the channel adjacent to Sulina TAU – Prospect area (SP). Within its much reduced inventory the threatened plants are represented by two taxa protected by the Berne Convention. Thus, within the studied phytocoenosis, besides the dominant *Trapa natans*, *Salvinia natans* can be estimated as vulnerable. Globally, this coenotaxon can be considered as representative for a natural status.

Key species: *Trapa natans* (4; SP).

Threatened species: *Salvinia natans* (1; SP), *Trapa natans* (4; SP).

Other species: *Typha latifolia* (+; SP).

Subtype 16.35-Dune-slack reedbeds, sedgebeds and canebeds: reedbeds, tall-sedge communities and canebeds (cf. 53.1, 53.2, 53.3) of dune-slacks

This habitat subtype was identified mainly as vulnerable, less rare, sporadic or endangered. It is mainly in its natural status and less low disturbed. It was recorded from Meleaua Sahalin, between the Sfântu Gheorghe TAU and the seashore, Buhaz-Zăton Channel, Tătaru Channel, Sahalin Islands, Buhaz-Zăton Channel (Sfântu Gheorghe TAU); Portița area (Jurilovca TAU); Plaja (Beach) Corbu, Plaja (Beach) Vadu, (Corbu TAU); C.A. Rosetti, Letea and Cardon (C.A. Rosetti TAU); Prospect area, road Cardon-Sulina (Sulina TAU), along the channel situated southwards of the Sulina beach, in the northern and north-western part of the Caraorman levee (Crișan TAU). Most of the six species that enhance its conservation value are endangered within the plots, these being represented by *Salvinia natans*, *Trapa natans*, *Polypogon monspeliensis*, *Scirpus littoralis*, *Samolus valerandi*, *Stratiotes aloides* and *Marsilea quadrifolia*.

53.1111 Freshwater *Phragmites* beds

The association/ habitat was observed mainly as rare, sometimes vulnerable or sporadic, typical for a natural status, at the Tătaru Channel, Sahalin Islands (Sfântu Gheorghe TAU), and between C.A. Rosetti and Cardon (C.A. Rosetti TAU).

***Scirpo-Phragmitetum* W. Koch 1926** is represented by permanently flooded reedbeds, poor in species, without threatened taxa, phytocoenoses that were inventoried on the territory of Sfântu Gheorghe TAU, along the Tătaru Channel where it is vulnerable and in its natural status (CTA).

Key species: *Phragmites australis* (4; CTA).

Other species: *Iris pseudacorus* (+; CTA), *Myriophyllum spicatum* (+; CTA), *Nuphar luteum* (+; CTA), *Potamogeton natans* (+; CTA), *Rumex hydrolapathum* (+; CTA), *Typha angustifolia* (1; CTA).

***Scirpo-Phragmitetum* W. Koch 1926**, rare within the Sahalin islands (IS), was also observed on important surfaces in the area of the Buhaz-Zăton Channel.

Key species: *Phragmites australis* (5; IS).

Other species: *Myriophyllum spicatum* (+; IS), *Nuphar luteum* (+; IS), *Rumex hydrolapathum* (+; IS), *Typha angustifolia* (1; IS).

***Scirpo-Phragmitetum* W. Koch 1926**, described as rare and in its natural status, from the area between C.A. Rosetti and Cardon (RC) form reedbeds around Letea, showing a low conservative value, highlighted by the absence of threatened species, at least in the surveyed areas.

Key species: *Phragmites australis* (4; RC).

Other species: *Alisma plantago-aquatica* (+; RC), *Berula erecta* (+; RC), *Calystegia sepium* (+; RC), *Lycopus europaeus* (+; RC), *Mentha aquatica* (+; RC), *Nymphaea alba* (+; RC), *Salix cinerea* (+; RC), *Senecio paludosus* (+; RC), *Sium latifolium* (+; RC), *Stachys palustris* (+; RC), *Typha angustifolia* (1; RC).

***Scirpo-Phragmitetum* W. Koch 1926**, is described as sporadic and in its natural status, from Plaja (Beach) Vadu (VDC), Corbu TAU.

Key species: *Phragmites australis* (5; VDC).

Other species: *Calystegia sepium* (+; VDC), *Mentha aquatica* (+; VDC), *Pulicaria dysenterica* (+; VDC).

53.1122 Dry halophile *Phragmites* beds

The habitat/ plant community can be considered vulnerable, sometimes rare, mainly in its natural status and less low disturbed. It was recorded between C.A. Rosetti and Cardon (C.A. Rosetti TAU), Portița area (Jurilovca TAU), Sahalin Islands (Sfântu Gheorghe TAU), Plaja Corbu, Plaja (Beach) Vadu (Corbu TAU).

***Astero tripolii-Phragmitetum humilis* Krisch (1972) 1974**, identified as vulnerable and undisturbed, between C.A. Rosetti and Cardon (RC), forms a transition zone between freshwater reedbeds and the halophile vegetation. It is worth highlighting the presence of the rare threatened species *Samolus valerandi*, endangered in the respective phytocoenoses.

Key species: *Phragmites australis* subsp. *australis* var. *humilis* (5; RC).

Threatened species: *Samolus valerandi* (+; RC).

Other species: *Berula erecta* (+; RC), *Galium palustre* (+; RC), *Lycopus europaeus* (+; RC), *Mentha aquatica* (+; RC), *Pulicaria dysenterica* (+; RC), *Senecio paludosus* (+; RC), *Sium latifolium* (+; RC), *Stachys palustris* (+; RC).

***Astero tripolii-Phragmitetum humilis* Krisch (1972) 1974** was identified as vulnerable and undisturbed in the Portița area (POR), Jurilovca TAU, where it occupies the transition areas between the low sand dunes and the wetlands, being characteristic for the humid sandy and saline substrate.

Key species: *Aeluropus littoralis* (+; POR), *Aster tripolium* (+; POR), *Phragmites australis* subsp. *australis* var. *humilis* (4; POR).

Other species: *Artemisia santonica* (1; POR), *Atriplex prostrata* (1; POR), *Gypsophila perfoliata* (r; POR), *Halimione pedunculata* (+; POR), *Lactuca tatarica* (+; POR), *Puccinellia gigantea* (1; POR), *Spergularia media* (+; POR).

***Astero tripolii-Phragmitetum humilis* Krisch (1972) 1974**, characteristic of the transition areas between the saline soils and the wetlands, has been inventoried as vulnerable on the Sahalin Islands (IS) at the edge of the coastal dunes, their influence being obvious in the presence of the vulnerable and rare species *Leymus racemosus* subsp. *sabulosus*, endangered locally. A low disturbance was noticed, as one ruderal species was identified, but with a low coverage.

Key species: *Phragmites australis* subsp. *australis* var. *humilis* (4; IS).

Threatened species: *Leymus racemosus* subsp. *sabulosus* (+; IS).

Other species: *Argusia sibirica* (+; IS), *Aster tripolium* (+; IS), *Suaeda maritima* (+; IS), *Xanthium italicum* (+; IS).

***Astero tripolii-Phragmitetum humilis* Krisch (1972) 1974**, identified as vulnerable and low disturbed, within Plaja Corbu (CRB), Corbu TAU.

Key species: *Phragmites australis* subsp. *australis* var. *humilis* (5; CRB).

Other species: *Cynanchum acutum* (1; CRB), *Lythrum salicaria* (+; CRB), *Juncus littoralis* (+; CRB).

***Astero tripolii-Phragmitetum humilis* Krisch (1972) 1974** was identified as rare and undisturbed at Plaja (Beach) Vadu (VDC), Corbu TAU.

Key species: *Phragmites australis* subsp. *australis* var. *humilis* (5; VDC)

Other species: *Althaea officinalis* (+; VDC), *Cynanchum acutum* (1; VDC), *Juncus littoralis* (+; VDC), *Lythrum salicaria* (+; VDC), *Pulicaria dysenterica* (+; VDC).

***Astero tripolii-Phragmitetum humilis* Krisch (1972) 1974** was identified as rare and undisturbed at Plaja (Beach) Vadu (VDC), Corbu TAU.

Key species: *Phragmites australis* subsp. *australis* var. *humilis* (4; VDC)

Other species: *Althaea officinalis* (+; VDC), *Aster tripolium* (+; VDC), *Atriplex hastata* (+; VDC), *Pulicaria dysenterica* (1; VDC), *Solanum dulcamara* (+; VDC).

53.12 Common club rush beds

***Schoenoplectetum lacustris* Chouharch 1924**, a vulnerable and undisturbed plant community, forms narrow strips in the shallow waters near the banks of the Tătaru Channel (CTA).

Key species: *Schoenoplectus lacustris* (5, CTA).

Other species: *Myriophyllum spicatum* (+; CTA), *Phragmites australis* (+; CTA), *Sagittaria sagittifolia* (+; CTA), *Sparganium erectum* (+; CTA), *Typha angustifolia* (+; CTA).

53.131 Great reed mace beds

This plant community/ habitat can be considered vulnerable and in its natural status or low disturbed, being recorded from Prospect area (Sulina TAU) and Buhaz-Zăton Channel (Sfântu Gheorghe TAU). Two threatened species were identified, mainly endangered, *Salvinia natans* and *Trapa natans*, the first being also observed as vulnerable.

***Typhetum latifoliae* G. Lang 1973**, a vulnerable coenotaxon recorded from the channel adjacent to Sulina TAU-Prospect area (SP), is low disturbed, as one ruderal taxon was registered. It has a certain conservation importance, due to the presence of two taxa protected by Bern Convention.

Key species: *Typha latifolia* (5; SP).

Threatened species: *Salvinia natans* (1; SP), *Trapa natans* (+; SP).

Other species: *Gratiola officinalis* (+; SP), *Lycopus europaeus* (+; SP), *Mentha aquatica* (+, SP), *Solanum dulcamara* (+; SP), *Tanacetum vulgare* (+; SP), *Typha angustifolia* (+; SP).

***Typhetum latifoliae* G. Lang 1973** is predominantly distributed in shallow waters along the channels, being inventoried as vulnerable and undisturbed along the Buhaz-Zăton Channel (CBZ), Sfântu Gheorghe TAU, where two species included in the National Red List were identified. Of these, *Trapa natans* is vulnerable, while *Salvinia natans* is in the "not threatened" category, both being endangered within these phytocoenoses.

Key species: *Typha latifolia* (5; CBZ).

Threatened species: *Salvinia natans* (+; CBZ), *Trapa natans* (+; CBZ).

Other species: *Iris pseudacorus* (+; CBZ), *Nymphaea alba* (+; CBZ).

53.132 Lesser reedmace beds

This plant community/ habitat is vulnerable and undisturbed, rarely low disturbed due to ruderal taxa or even medium disturbed by alien species. It was recorded between C.A. Rosetti, Letea and Cardon villages (C.A. Rosetti TAU), along the channel situated southwards of the Sulina beach, or from there towards the town (Sulina TAU), in the northern and north-western part of the Caraorman levee (Crișan TAU), Buhaz-Zătoane Channel (Sfântu Gheorghe TAU). *Salvinia natans* and *Stratiotes aloides*, two species identified, are both endangered within the plots.

***Typhetum angustifoliae* Pignatti 1953** was recorded as vulnerable and low disturbed, as indicated by one ruderal species between C.A. Rosetti and Letea villages (LR), both on the banks of the canals and in the areas with negative relief on wet soils. In the permanently flooded phytocoenoses, two threatened species, *Salvinia natans*, protected by the Berne Convention, listed as not threatened, and the vulnerable *Stratiotes aloides*, have been reported, both endangered within the plots.

Key species: *Typha angustifolia* (4; LR).

Threatened species: *Salvinia natans* (+; LR), *Stratiotes aloides* (+; LR).

Other species: *Alisma plantago-aquatica* (1; LR), *Calystegia sepium* (+; LR), *Lycopus europaeus* (+; LR), *Lythrum salicaria* (+; LR), *Mentha aquatica* (+; LR), *Nymphaea alba* (1; LR), *Pulicaria dysenterica* (+; LR), *Sagittaria sagittifolia* (+; LR), *Schoenoplectus lacustris* (+; LR), *Sparganium erectum* (+; LR), *Xanthium italicum* (+; LR).

***Typhetum angustifoliae* Pignatti 1953** was recorded as vulnerable and undisturbed at Nebunu Lake, (LN), near Periprava, C.A. Rosetti TAU.

Key species: *Typha angustifolia* (4; LN).

Other species: *Alisma plantago-aquatica* (+; LN), *Mentha aquatica* (+; LN), *Sparganium erectum* (+; LN), *Schoenoplectus lacustris* (+; LN).

***Typhetum angustifoliae* Pignatti 1953** was recorded as vulnerable and undisturbed between C.A. Rosetti and Cardon (RC).

Key species: *Typha angustifolia* (4-5; RC).

Other species: *Althaea officinalis* (1; RC), *Calystegia sepium* (+; RC), *Lycopus europaeus* (+; RC), *Mentha aquatica* (+; RC), *Nymphoides peltata* (+; RC), *Pulicaria dysenterica* (+; RC), *Sagittaria sagittifolia* (+; RC), *Sium latifolium* (+; RC), *Sparganium erectum* (+; RC).

***Typhetum angustifoliae* Pignatti 1953**, a vulnerable plant community, was identified along the channel situated southwards of the Sulina beach (SPL), in connection with the sea. This can be considered as typical for a natural status.

Key species: *Typha angustifolia* (4; SPL).

Other species: *Alisma plantago-aquatica* (+; SPL), *Calystegia sepium* (+; SPL), *Sparganium ramosum* (+; SPL), *Schoenoplectus tabernaemontani* (+; SPL), *Typha latifolia* (+; SPL).

***Typhetum angustifoliae* Pignatti 1953**, a vulnerable plant community, was recorded at the Sulina beach (SPL), towards the town. This is an example of medium disturbed phytocoenosis, due to the presence of non-native species, like *Acorus calamus* and *Elaeagnus angustifolia*, with a significant dominance (+-1).

Key species: *Typha angustifolia* (3; SPL).

Other species: *Acorus calamus* (+; SPL), *Alisma plantago-aquatica* (+; SPL), *Calystegia sepium* (+; SPL), *Elaeagnus angustifolia* (1; SPL), *Lycopus*

europaeus (+; SPL), *Mentha aquatica* (+; SPL), *Pulicaria dysenterica* (+; SPL), *Potentilla reptans* (1; SPL), *Sparganium ramosum* (+; SPL).

***Typhetum angustifoliae* Pignatti 1953** was recorded as vulnerable and in its natural status along the channel from the north-western part of the Caraorman levee (CON), as well as in other wetland areas in the area.

Key species: *Typha angustifolia* (4; CON).

Other species: *Alisma plantago-aquatica* (+; CON), *Berula erecta* (+; CON), *Euphorbia palustris* (+; CON), *Gnaphalium luteo-album* (+; CON), *Lycopus europaeus* (+; CON), *Mentha aquatica* (+; CON), *Phragmites australis* (1; CON), *Salix alba* (+; CON), *Scirpus lacustris* (1; CON), *Senecio paludosus* (+; CON), *Solanum dulcamara* (+; CON).

***Typhetum angustifoliae* Pignatti 1953** was recorded as vulnerable and undisturbed in the northern part of the Caraorman levee (CON).

Key species: *Typha angustifolia* (4; CON).

Other species: *Calystegia sepium* (+; CON), *Euphorbia palustris* (+; CON), *Gnaphalium luteo-album* (+; CON), *Lythrum salicaria* (+; CON), *Mentha aquatica* (1; CON), *Phragmites australis* (+; CON), *Rumex hydrolapathum* (+; CON), *Scirpus lacustris* (+; CON), *Senecio paludosus* (+; CON), *Sium latifolium* (+; CON).

***Typhetum angustifoliae* Pignatti 1953** is represented, in the analyzed situations, by vulnerable and undisturbed phytocoenoses, dominated exclusively by *Typha angustifolia* bordering the Buhaz-Zătoane Channel (CBZ).

Key species: *Typha angustifolia* (5; CBZ)

53.133 Laxmann`s reed mace beds

The association/ habitat is endangered and either in its natural satus or low disturbed, being inventoried adjacent to the road Cardon-Sulina (Sulina TAU) and on the Sahalin Islands (Sfântu Gheorghe TAU).

***Typhetum laxmannii* Nedelcu 1969** was identified in a low dune slack adjacent to the road Cardon-Sulina (SN), being framed as endangered. A low disturbance is indicated by the only ruderal species, *Xanthium italicum*, with a reduced dominance. Only one rare threatened species, *Samolus valerandi*, locally endangered, was observed in the plots.

Key species: *Typha laxmannii* (3; SN).

Threatened species: *Samolus valerandi* (1; SN).

Other species: *Althaea officinalis* (+; SN), *Aster tripolium* (+; SN), *Cynodon dactylon* (+; SN), *Eupatorium cannabinum* (1; SN), *Lythrum salicaria* (+; SN), *Mentha aquatica* (+; SN), *Pulicaria dysenterica* (+; SN), *Xanthium italicum* (+; SN).

***Typhetum laxmannii* Nedelcu 1969** is an isolated occurrence on the Sahalin Islands (IS), where it is endangered and in its natural status. Its conservative value is increased by the presence of two threatened rare species, *Polypogon monospermiensis* and *Scirpus littoralis*, both endangered within the plots.

Key species: *Typha laxmannii* (4; IS).

Threatened species: *Polypogon monospermiensis* (+; IS), *Scirpus littoralis* (+; IS).

Other species: *Phragmites australis* (+; IS), *Typha angustifolia* (+; IS).

53.143 Erect bur-reed communities

Sparganietum erecti Roll.1938, was observed as an endangered plant community between the Sfântu Gheorghe TAU and the seashore (SG), where the threatened species *Marsilea quadrifolia*, species of community importance is vulnerable. Still taking into account that this is the only location where it was recorded, at least within proper studies, even if in the plot it is vulnerable, it can be considered as critically endangered within the studied area.

Key species: *Sparganium erectum* (2; SG).

Threatened species: *Marsilea quadrifolia* (1; SG), *Salvinia natans* (1; SG).

Other species: *Hydrocharis morsus-ranae* (+; SG), *Lemna minor* (+; SG), *Lycopus europaeus* (+; SG), *Mentha aquatica* (+; SG), *Phragmites australis* (+; SG), *Tamarix ramosissima* (1; SG).

53.14B Iris beds

***Iretum pseudacori* Eggler 1933** was recorded as an endangered association along the Buhaz-Zăton (CBZ) channel, Sfântu Gheorghe TAU, where it crosses the sand levees, being able to be considered as a dune slack water. Two species included in the National Red List (OLTEAN *et alii*, 1994) were recorded, *Salvinia natans* and *Trapa natans*, protected by the Berne Convention, both endangered within the plots.

Key species: *Iris pseudacorus* (4; CBZ).

Threatened species: *Salvinia natans* (+; CBZ), *Trapa natans* (+; CBZ).

Other species: *Nymphaea alba* (+; CBZ), *Phragmites australis* (+; CBZ).

3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation (PAL.CLASS.: 22.13 x (22.41 or 22.421))

22.41 Free-floating vegetation

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 45,364 ha and a conservation status of A level.

The habitat was recorded mainly as vulnerable, sometimes endangered or rare, being in its natural status. It was observed at the northern part of the Letea levee, at the Nebunu Lake in the surroundings Periprava and Letea villages, outside the Pădurea Letea strictly protected area, between C.A. Rosetti and Cardon and near Periprava (C.A. Rosetti TAU), Danube floodplain, close to the Getic fortress (Beștepe TAU), Eracle Channel (Chilia Veche TAU), west of the Zaporozheni Fortress (Murighiol TAU). All the three threatened species (*Salvinia natans*, *Trapa natans*, *Stratiotes aloides*) among which two are protected by the Berne Convention, are in reality not threatened within the D.D.B.R. and associated sites. All are either dominant within their coenotaxa, or can reach the endangered/ vulnerable level, within other associations.

22.41 Free-floating vegetation

This habitat subtype was often observed within the Danube Delta SCI and SPA, where it could be preliminary estimated as vulnerable and undisturbed. *Stratiotes aloides* and *Trapa natans* are vulnerable threatened species, the last being protected by the Berne Convention, being framed between endangered and vulnerable within the plots.

***Ceratophylletum demersi* Hild. 1956** was registered as vulnerable and undisturbed within the Nebunu Lake, (LN), near Periprava, C.A. Rosetti TAU.

Key species: *Ceratophyllum demersum* (3; LN).

Other species: *Phragmites australis* (1; LN), *Typha angustifolia* (+; LN).

***Ceratophylletum demersi* Hild. 1956**, a vulnerable plant community that occurs in the lakes of the Danube floodplain, close to the Getic fortress, near Beștepe TAU (BLD), shelters one vulnerable threatened species, *Stratiotes aloides*, endangered at least within the analysed phytocoenosis. As no ruderal/ alien taxa were recorded, it can be considered as representative for a natural status.

Key species: *Ceratophyllum demersum* (3; BLD).

Threatened species: *Stratiotes aloides* (±; BLD).

Other species: *Myriophyllum spicatum* (1; BLD), *Nymphaea alba* (1; BLD), *Ranunculus trichophyllus* (+; BLD), *Potamogeton lucens* (±; BLD).

***Ceratophylletum demersi* Hild. 1956** represents a vulnerable and undisturbed plant community identified in the Eracle Channel, Chilia Veche TAU (CHE) that has two vulnerable threatened taxa. Of these, *Trapa natans* is vulnerable and *Stratiotes aloides* is endangered within the analysed situations.

Key species: *Ceratophyllum demersum* (5; CHE).

Threatened species: *Stratiotes aloides* (+; CHE), *Trapa natans* (1; CHE).

Other species: *Hydrocharis morsus-ranae* (+; CHE).

***Ceratophylletum submersi* (Soó 1927 n.n.) Den Hartog et Segal 1964**, a vulnerable plant community within the Danube floodplain, Beștepe TAU, can

be considered as being close to its natural status as no alien/ ruderal species were identified.

Key species: *Ceratophyllum submersum* (3; BLD).

Other species: *Bolboschoenus maritimus* (+; BLD), *Myriophyllum spicatum* (1; BLD), *Nymphoides peltata* (+; BLD), *Phragmites australis* (+; BLD), *Potamogeton crispus* (1; BLD), *Ranunculus trichophyllus* (+; BLD).

22.412 Frogbit rafts

This habitat subtype was often observed within the Danube Delta SCI and SPA, where it could be preliminary estimated as endangered and undisturbed, below being presented just two examples of it. There was recorded only one threatened species, *Salvinia natans*, endangered to vulnerable within the plots.

***Lemno-Hydrocharitetum morsus-ranae* (Oberd.) Pass. 1978**, was observed as an endangered and undisturbed association in the surroundings of the Letea village (LE). *Salvinia natans* is the only threatened species, also protected by the Berne Convention, endangered within the plots.

Key species: *Hydrocharis morsus-ranae* (3; LE).

Threatened species: *Salvinia natans* (+; LE),

Other species: *Cicuta virosa* (+; LE), *Ceratophyllum demersum* (2; LE), *Lemna minor* (+; LE), *Nymphaea alba* (1; LE), *Nymphoides peltata* (+; LE), *Schoenoplectus lacustris* (+; LE), *Typha angustifolia* (+; LE).

***Lemno-Hydrocharitetum morsus-ranae* (Oberd.) Pass. 1978** was identified on small areas to the west of the Zaporojeni Fortress (CZV), on the territory of Murighiol TAU, where it can be assessed as endangered and undisturbed. It is worth highlighting the presence of a species from the Red List of Higher Plants of Romania, *Salvinia natans*, classified as "not threatened" at the national level, but protected by the Berne Convention, considered vulnerable within the phytocoenoses.

Key species: *Hydrocharis morsus-ranae* (2; CZV), *Lemna minor* (1; CZV), *Salvinia natans* (1; CZV).

Threatened species: *Salvinia natans* (1; CZV).

Other species: *Ceratophyllum demersum* (+; CZV), *Stachys palustris* (+; CZV), *Phragmites australis* (+; CZV), *Typha angustifolia* (+; CZV).

22.415 *Salvinia* covers

This habitat subtype was often observed within the Danube Delta SCI and SPA, where it could be preliminary estimated between vulnerable and rare, undisturbed, below being presented just an example of it.

***Lemno-Salvinietum natantis* Miyavaki et J.Tx. 1960** was identified as an endangered and undisturbed plant community, at the northern part of the Letea levee, in the surroundings Periprava village, outside the Pădurea Letea

strictly protected area (PEN), C.A. Rosetti TAU. The dominant *Salvinia natans* is the only threatened species, also protected by the Berne Convention.

Key species: *Salvinia natans* (4; PEN).

Threatened species: *Salvinia natans* (+; PEN),

Other species: *Lemna minor* (+; PEN), *Ceratophyllum demersum* (2; PEN).

22.413 Water-soldier rafts

The habitat subtype can be overall assessed as vulnerable, sometimes endangered and undisturbed, being observed around the Letea village, between C.A. Rosetti and Cardon (C.A. Rosetti TAU), within the Eracle Channel (Chilia Veche TAU). *Stratiotes aloides*, *Salvinia natans* and *Trapa natans* are the threatened species registered, the last two being protected by the Berne Convention, and framed between vulnerable and rare, while the first is dominant within these phytocoenoses.

***Stratiotetum aloidis* Nowinski 1930** was noticed as endangered and in its natural status in the wetlands around the Letea village (LE). *Salvinia natans* is the only threatened species, also protected by the Berne Convention, endangered within the plots.

Key species: *Stratiotes aloides* (2; LE).

Threatened species: *Salvinia natans* (1; LE), *Stratiotes aloides* (2; LE).

Other species: *Cicuta virosa* (+; LE), *Ceratophyllum demersum* (1; LE), *Nymphaea alba* (1; LE), *Nymphoides peltata* (+; LE), *Phragmites australis* (+; LE), *Typha angustifolia* (+; LE).

***Stratiotetum aloidis* Nowinski 1930**, a vulnerable plant community, at least within the Eracle Channel, Chilia Veche TAU (CHE), besides the dominant species has also another vulnerable threatened taxon, *Trapa natans*. It can be considered as typical for a natural status, taking into account the absence of ruderal/ alien species.

Key species: *Stratiotes aloides* (4; CHE).

Threatened species: *Stratiotes aloides* (4; CHE), *Trapa natans* (1; CHE).

Other species: *Nymphaea alba* (1; CHE), *Nuphar lutea* (1; CHE), *Phragmites australis* (+; CHE), *Typha angustifolia* (+; CHE).

***Stratiotetum aloidis* Nowinski 1930**, recorded as vulnerable and undisturbed between C.A. Rosetti and Cardon (RC), in a silted channel, is dominated by the threatened species *Stratiotes aloides*.

Key species: *Stratiotes aloides* (5; RC).

Threatened species: *Stratiotes aloides* (5; RC).

Other species: *Nymphaea alba* (+; RC), *Phragmites australis* (+; RC), *Schoenoplectus lacustris* (+; RC), *Typha angustifolia* (+; RC).

3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoëto-Nanojuncetea* (PAL.CLASS.: 22.12 x (22.31 and 22.32))

22.32 Euro-Siberian dwarf annual amphibious swards

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4536 ha and a conservation status of A level.

Within proper research this habitat was so far recorded as an endangered and low disturbed plant community only on the north-western part of the Caraorman levee, Crișan TAU, but it is probably more extended throughout the Delta.

***Pulicario-Menthetum pulegii* Slavnič 1951** was inventoried as endangered on restricted areas, adjacent to the channel from the north-western part of the Caraorman levee, Crișan TAU. A low disturbance due to alien species (*Conyza canadensis*) was noticed.

Key species: *Mentha pulegium* (2; CON), *Pulicaria vulgaris* (+; CON).

Other species: *Conyza canadensis* (+; CON), *Cynodon dactylon* (2; CON), *Euphorbia palustris* (+; CON), *Mentha aquatica* (1; CON), *Potentilla reptans* (+; CON), *Rubus caesius* (+; CON), *Trifolium repens* (+; CON).

3160 Natural dystrophic lakes and ponds (PAL.CLASS.: 22.14)

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4,536 ha and a conservation status of B level.

Within proper research this habitat was so far recorded as an endangered and undisturbed plant community only in the reed beds framed between the Razim Lagoon open waters and the Babadag Lake (Sarichioi TAU). Two threatened species were identified *Utricularia vulgaris* and *Aldrovanda vesiculosa*, of which the last is endangered at the national level, being a species of community interest. While, at least in the plots the first is critically endangered, the second is dominant.

22.14 Dystrophic waterbodies

***Spirodelo-Aldrovandetum* Borhidi et Komlódi 1959** was recorded as an endangered and undisturbed plant community in the reed beds framed between the Razim Lagoon open waters and the Babadag Lake (RB), Sarichioi TAU. Among the two threatened species identified, *Utricularia vulgaris* is rare

and *Aldrovanda vesiculosa* is endangered at the national level, being a species of community interest. While, at least in the plots the first is critically endangered, the second is dominant.

Key species: *Aldrovanda vesiculosa* (2; RB).

Threatened species: *Aldrovanda vesiculosa* (2; RB), *Utricularia vulgaris* (r; RB).

Other species: *Berula erecta* (+; RB), *Ceratophyllum demersum* (1; RB), *Phragmites australis* (+; RB), *Typha latifolia* (+; RB), *Hydrocaris morsus-ranae* (+; RB).

3260 Water courses of plain to montane levels with the *Ranunculon fluitantis* and *Callitricho-Batrachion* vegetation (PAL.CLASS.: 24.4)

The habitat is represented by the subtype **24.4 Euhydrophytic river vegetation**, and more detailed in the studied area by **24.43 Mesotrophic river vegetation**. This habitat was observed without being recorded in plots, as it was nearly monodominant (*Ranunculus trichophyllus*) within the Sulina pastureland, in a shallow channel towards the sea, being considered thus as endangered and undisturbed.

3270 Rivers with muddy banks with *Chenopodion rubri* p.p. and *Bidention* p.p. vegetation (PAL.CLASS.: 24.52)

24.52 Euro-Siberian annual river mud communities

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4536 ha and a conservation status of A level.

Even though this habitat is frequent in the Danube Delta, where most channel banks are muddy or sandy-muddy, it was studied within proper research on restricted areas, as it is sometimes dominated by ruderal species, with very low conservation value or even ruderal species that could decrease the conservation value of other community interest habitat if they become invasive. This situation is valid mainly for the *Xanthietum italicii* plant community, where the key species is ruderal, while other plant communities within this habitat are dominated by native non-ruderal taxa. Still, this is an important habitat for the fauna, so it should not be neglected.

This habitat was so far recorded as vulnerable and highly disturbed, mainly due to the ruderal species and less because of the alien ones. It was observed in the surroundings of the Periprava village, outside the Pădurea Letea strictly protected area (C.A. Rosetti TAU), from where *Periploca graeca* has migrated into these phytocoenoses, where it can be considered endangered.

24.52 Euro-Siberian annual river mud communities

Xanthietum italicii Timár 1950 was identified as vulnerable at the northern part of the Letea levee, in the surroundings of the Periprava village, outside the Pădurea Letea strictly protected area (PEN), C.A. Rosetti TAU, on muddy-sandy soils. It can be considered as highly disturbed, as two ruderal species were recorded, of which one is dominant, while one alien taxon, *Amorpha fruticosa* has a reduced coverage.

Key species: *Xanthium italicum* (4; PEN).

Threatened species: *Periploca graeca* (+; PEN),

Other species: *Agrostis stolonifera* (+; PEN), *Alisma plantago-aquatica* (+; PEN), *Amorpha fruticosa* (+; PEN), *Cynodon dactylon* (1; PEN), *Daucus carota* (+; PEN), *Euphorbia palustris* (+; PEN), *Lythrum salicaria* (+; PEN), *Mentha aquatica* (+; PEN), *Populus alba* (+; PEN), *Potentilla reptans* (+; PEN), *Ranunculus sceleratus* (+; PEN), *Senecio paludosus* (+; PEN), *Sparganium erectum* (+; PEN).

40C0* Ponto-Sarmatic deciduous thickets (PAL.CLASS.: 31.8B7)

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), being estimated preliminary as having 4 ha and a conservation status of B level.

This habitat was so far recorded as endangered (sometimes vulnerable) and low disturbed (medium disturbed in some situations), as indicated by ruderal and less by alien species) mainly due to grazing. Its locations include the slopes facing the Danube floodplain (Nufăru TAU), Cape Doloșman (Jurilovca TAU), between Dunavățu de Jos and Zaporojeni Fortress (Murighiol TAU), Dealurile Beștepe Nature Reserve (Beștepe and Mahmudia TAUs), Cape Doloșman (Jurilovca TAU). Among the four rare threatened species *Asparagus verticillatus* is vulnerable, *Ornithogalum fimbriatum* and *Myrrhoides nodosa* endangered, while *Paliurus spina-christi* is framed as frequent-sporadic within the analyzed phytocoenoses.

31.8B721 Ponto-Sarmatic hawthorn-blackthorn scrub

The plant community/ habitat was mainly observed as endangered, and less as vulnerable, low disturbed, sometimes with a medium level of disturbance, due to grazing, indicated by ruderal and less invasive non-native taxa. It was recorded within the slopes facing the Danube floodplain (Nufăru TAU), Cape Doloșman (Jurilovca TAU) and between Dunavățu de Jos and Zaporojeni Fortress (Murighiol TAU). *Paliurus spina-christi* is the only threatened taxa identified as endangered in the plots

***Pruno spinosae-Crataegetum* Soó (1927) 1931** plant community can be estimated as endangered within the Nufăru TAU. It was analysed on the slopes

of the loess plateau adjacent to the Danube floodplain (NTL), included in the Beştepe-Mahmudia SPA. Four ruderal species with a low dominance indicate a low disturbance from this point of view.

Key species: *Prunus spinosa* (4; NTL).

Other species:

- shrubs: *Rhamnus cathartica* (+; NTL), *Ulmus procera* (+; NTL);
 - grasses/ undershrubs: *Bromus japonicus* (+; NTL), *Coronilla varia* (+; NTL), *Dactylis glomerata* (+; NTL), *Eryngium campestre* (+; NTL), *Euphorbia agraria* (+; NTL), *Cruciata pedemontana* (+; NTL), *Iris variegata* (+; NTL), *Marrubium peregrinum* (+; NTL), *Phragmites australis* (+; NTL), *Poa angustifolia* (+; NTL), *Teucrium chamaedrys* (+; NTL), *Ulmus procera* (+; NTL).

***Pruno spinosae-Crataegetum* Soó (1927) 1931**, a vulnerable plant community from Cape Doloşman (CDO), Jurilovca TAU, taking into account that the five ruderal species are more numerous than the other taxa, it can be estimated as having a medium level of disturbance.

Key species: *Prunus spinosa* (4; CDO).

Other species:

- shrubs/ trees: *Pyrus pyraister* (1; CDO), *Rhamnus cathartica* (1; CDO), *Rosa canina* (+; CDO);
 - grasses/ undershrubs: *Agropyron cristatum* (+; CDO), *Anthriscus cerefolium* (+; CDO), *Bromus sterilis* (+; CDO), *Carduus thoermeri* (+; CDO), *Crepis sancta* (+; CDO), *Geranium pusillum* (+; CDO).

***Pruno spinosae-Crataegetum* Soó (1927) 1931** plant community was studied at Cape Doloşman, Jurilovca TAU, where it can be considered endangered. *Paliurus spina-christi* is considered a vulnerable and rare threatened species at the national level, endangered within the plots. Five ruderal species indicate a low disturbance, as they all have a reduced dominance.

Key species: *Prunus spinosa* (5; CDO).

Threatened species: *Paliurus spina-christi* (+; CDO).

Other species: *Agropyron cristatum* (+; CDO), *Anthriscus cerefolium* (1; CDO), *Arum orientale* (r; CDO), *Conium maculatum* (+; CDO), *Cynodon dactylon* (+; CDO), *Geranium pusillum* (+; CDO), *Lamium amplexicaule* (+; CDO), *Marrubium vulgare* (+; CDO), *Stellaria media* (+; CDO).

***Pruno spinosae-Crataegetum* Soó (1927) 1931**, an endangered plant community from Cape Doloşman, Jurilovca TAU, has a medium level of ruderal plant invasion, as the nine such species prevail within its inventory, among which *Anthriscus caucalis* has a significant dominance.

Key species: *Prunus spinosa* (5; CDO).

Other species:

- grasses/ undershrubs: *Anthriscus caucalis* (1; CDO), *Bromus sterilis* (+; CDO), *Galium aparine* (+; CDO), *Geranium pusillum* (+; CDO), *Lamium purpureum* (+; CDO), *Lepidium latifolium* (+; CDO), *Onopordum acanthium* (+; CDO), *Senecio vernalis* (+; CDO), *Sisymbrium orientale* (+; CDO), *Stellaria media* (+; CDO).

***Pruno spinosae-Crataegetum* Soó (1927) 1931** was found in the Danube Delta SPA on the territory of Murighiol TAU, between Dunavățu de Jos and Zaporojeni Fortress (DZ), in microdepressions of the loessoid steep banks that border the wetlands adjacent to Soschi Lake. Only an isolated clump of *Prunus spinosa*, without *Crataegus monogyna*, was observed. Thus, this phytocoenosis can be considered as endangered. Five ruderal species and one alien taxon, with a low coverage, indicate a low disturbance, but to its upper limit.

Key species: *Prunus spinosa* (5; DZ).

Other species:

- grasses/ undershrubs: *Artemisia annua* (+; DZ), *Ballota nigra* (+; DZ), *Consolida regalis* (+; DZ), *Conyza canadensis* (+; DZ), *Elymus hispidus* (+; DZ), *Euphorbia seguieriana* (+; DZ), *Fagopyrum convolvulus* (+; DZ), *Linaria genistifolia* (+; DZ), *Malva sylvestris* (+; DZ), *Marrubium peregrinum* (+; DZ), *Vinca herbacea* (+; DZ).

***Pruno spinosae-Crataegetum* Soó (1927) 1931** occur as endangered along the road from Periprava towards C.A.Rosetti (PR), C.A.Rosetti TAU, outside the Pădurea Letea strictly protected area, in the location where a massive soil salinization advance from the former fish farm abandoned ponds towards the Letea forest. One ruderal species, with a reduced coverage, indicate a low disturbance.

Key species: *Crataegus monogyna* (1; PR), *Prunus spinosa* (5; PR).

Other species:

- shrubs/ lianas: *Fraxinus pallisae* (+; PR), *Ligustrum vulgare* (+; PR), *Populus tremula* (1; PR), *Rosa canina* (+; PR).

- grasses/ undershrubs: *Cynanchum acutum* (+; PR).

31.8B731 Western Pontic jasmine Christ's thorn scrub

This plant community/habitat can be considered as endangered, having a low (sometimes medium) level of invasion of ruderal species and less of non-native taxa, being observed within the Dealurile Beștepe Nature Reserve (Beștepe and Mahmudia TAUs) and Cape Doloșman (Jurilovca TAU). Among the three rare threatened species *Asparagus verticillatus* is vulnerable, *Ornithogalum fimbriatum* and *Myrrhoides nodosa* endangered, while *Paliurus spina-christi* is framed as frequent-sporadic within the analyzed phytocoenoses.

***Asphodelino luteae-Paliuretum* Sanda et al. 1999** plant community can be considered as endangered within the Dealurile Beștepe nature reserve sector framed within the Beștepe commune (DBBE). There it was registered a low level of invasion of non-native (*Prunus cerasifera*), respectively ruderal species (three taxa). The key species is also a vulnerable and rare threatened plant at the national level, framed as frequent within the plots.

Key species: *Paliurus spina-christi* (4; DBBE).

Threatened species: *Paliurus spina-christi* (4; DBBE).

Other species:

- shrubs/ lianas: *Crataegus monogyna* (+; DBBE), *Rosa canina* (+; DBBE);;

- grasses/ undershrubs: *Agrimonia eupatoria* (+; DBBE), *Anthriscus caucalis* (+; DBBE), *Bromus sterilis* (+; DBBE), *Crepis sancta* (+; DBBE), *Festuca valesiaca* (+; DBBE), *Cruciata pedemontana* (+; DBBE), *Poa angustifolia* (+; DBBE), *Potentilla argentea* (+; DBBE), *Prunus cerasifera* (+; DBBE), *Trifolium campestre* (+; DBBE), *Xeranthemum anuum* (+; DBBE).

***Asphodelino luteae-Paliuretum* Sanda et al. 1999** plant community is endangered within the Dealurile Beștepe Nature Reserve, Mahmudia TAU (DBM) and also within the whole studied territory. There the only threatened species is the dominant *Paliurus spina-christi*, vulnerable and rare. There can be estimated a low invasive process of the non-native species (*Alianthus altissima*), while the seven ruderal species with a significant dominance variation (+-1) show a medium level of disturbance.

Key species: *Paliurus spina-christi* (3; DBM).

Threatened species: *Paliurus spina-christi* (3; DBM).

Other species:

- shrubs/ lianas: *Ailanthus altissima* (+; DBM), *Rhamnus cathartica* (+; DBM), *Rosa canina* (+; DBM);

- grasses/ undershrubs: *Achillea setacea* (+; DBM), *Agrimonia eupatoria* (+; DBM), *Artemisia austriaca* (+; DBM), *Bromus sterilis* (1; DBM), *Carthamus lanatus* (+; DBM), *Crepis sancta* (+; DBM), *Cruciata pedemontana* (+; DBM), *Geranium pusillum* (+; DBM), *Marrubium peregrinum* (+; DBM), *Medicago minima* (+; DBM), *Orlaya grandiflora* (+; DBM), *Poa angustifolia* (+; DBM), *Stellaria media* (+; DBM), *Teucrium chamaedrys* (+; DBM), *Thymus pannonicus* (+; DBM), *Vicia angustifolia* (+; DBM).

***Asphodelino luteae-Paliuretum* Sanda et al. 1999** can be estimated as an endangered coenotaxon at Cape Doloșman (CDO), Jurilovca TAU. The only threatened species, vulnerable and rare is the dominant *Paliurus spina-christi*. It can be considered a low disturbed habitat, taking into account the reduced dominance of the four ruderal species.

Key species: *Paliurus spina-christi* (4; CDO).

Threatened species: *Paliurus spina-christi* (4; CDO).

Other species:

- shrubs/ trees (within the shrub layer)/ lianas: *Evonymus verrucosus* (+; CDO), *Rosa canina* (+; CDO);

- grasses/ undershrubs: *Agropyron cristatum* (+; CDO), *Anthriscus cerefolium* (+; CDO), *Convolvulus cantabricus* (+; CDO), *Geranium rotundifolium* (+; CDO), *Marrubium vulgare* (+; CDO), *Poa angustifolia* (+; CDO), *Stellaria media* (+; CDO), *Veronica hederifolia* (+; CDO).

Asphodelino luteae-Paliuretum Sanda et al. 1999 is an endangered coenotaxa within Cape Doloșman (CDO), Jurilovca TAU. Besides the dominant and vulnerable *Paliurus spina-christi*, other rare threatened species, like *Asparagus verticillatus* and *Myrrhoides nodosa*, contribute to the high conservation value of this coenotaxon, the last two being vulnerable, respectively endangered within this phytocoenosis. A medium level of disturbance can be deduced from the presence of 13 ruderal taxa, that represent half of the total number of recorded species.

Key species: *Paliurus spina-christi* (4; CDO).

Threatened species: *Asparagus verticillatus* (1; CDO), *Myrrhoides nodosa* (+; CDO), *Paliurus spina-christi* (4; CDO).

Other species:

- shrubs/ lianas: *Rosa canina* (+; CDO);

- grasses/ undershrubs: *Achillea coarctata* (+; CDO), *Agropyron cristatum* (+; CDO), *Anthriscus cerefolium* (+; CDO), *Arum orientale* (+; CDO), *Bassia hirsuta* (+; CDO), *Bromus sterilis* (1; CDO), *Convolvulus cantabricus* (+; CDO), *Crepis sancta* (+; CDO), *Eryngium campestre* (+; CDO), *Euphorbia agraria* (+; CDO), *Fragaria viridis* (+; CDO), *Galium aparine* (+; CDO), *Geranium pusillum* (+; CDO), *Lamium amplexicaule* (+; CDO), *Lamium purpureum* (+; CDO), *Marrubium peregrinum* (+; CDO), *Poa angustifolia* (+; CDO), *Poa bulbosa* (+; CDO), *Sisymbrium orientale* (+; CDO), *Thlaspi perfoliatum* (+; CDO), *Verbascum banaticum* (+; CDO), *Vinca herbacea* (+; CDO).

Asphodelino luteae-Paliuretum Sanda et al. 1999 was recorded as endangered in the area of Movila Pârcălabului (MP), Jurilovca TAU, on very small areas. These sub-Mediterranean shrubs were also observed as fragments of association on the shores of the Golovița Lake, between Cape Doloșman and Jurilovca. The three rare threatened species (*Asparagus verticillatus*, *Ornithogalum fimbriatum*, *Paliurus spina-christi*) range from endangered to sporadic within the phytocoenoses. It can be framed as a low disturbed community, due to the five ruderal taxa with reduced coverage indices.

Key species: *Paliurus spina-christi* (3; DCI, MP).

Threatened species: *Asparagus verticillatus* (1; MP), *Ornithogalum fimbriatum* (+; MP), *Paliurus spina-christi* (3; MP).

Other species:

- grasses/ undershrubs: *Arum orientale* (+; MP), *Elymus hispidus* (1; MP), *Erodium cicutarium* (+; DCI), *Galium aparine* (+; MP), *Lamium amplexicaule* (+; MP), *Marrubium peregrinum* (+; MP), *Teucrium chamaedris* (r; MP), *Thlaspi perfoliatum* (+; MP), *Verbascum phoeniceum* (r; MP), *Vinca herbacea* (+; MP).

***Asphodelino luteae-Paliuretum* Sanda et al. 1999** was recorded as endangered in the Dealul Călugăru-lancina Nature Reserve, Jurilovca TAU, on reduced areas. It was assessed as a medium disturbed community, due to the numerous ruderal taxa, that overpass half of the species number.

Key species: *Paliurus spina-christi* (4; DCI).

Threatened species: *Paliurus spina-christi* (4; DCI).

Other species:

- grasses/ undershrubs: *Artemisia austriaca* (+; DCI), *Elymus hispidus* (1; DCI), *Erodium cicutarium* (+; DCI), *Galium aparine* (+; DCI), *Lamium amplexicaule* (+; DCI), *Marrubium vulgare* (+; DCI), *Muscari racemosum* (+; DCI), *Onopordum acanthium* (+; DCI), *Poa angustifolia* (+; DCI), *Sisymbrium orientale* (+; DCI), *Stellaria media* (1; DCI).

62C0* Ponto-Sarmatic steppes (PAL.CLASS.: 34.92)**34.92 Ponto-Sarmatic steppes**

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4,536 ha and a conservation status of A level.

This habitat includes most of the the steppes on loess substrata, the rocky steppe and the feathergrass steppes being described separately within the subtypes **34.9211. Western Pontic thyme steppes**, respectively **34.9213 Western Pontic feathergrass steppes**. The habitat was mainly observed as vulnerable, with a predominant low disturbance character, still with a few plant communities indicating high disturbance through overgrazing, like ***Artemisia austriacae-Poëtum bulbosae***. The 62 C0* habitat was observed at Dealurile Beștepe Nature Reserve (Beștepe, Mahmudia TAUs), Cape Doloșman, Dealul Călugăru-lancina Nature Reserve (Jurilovca TAU), Dealurile Movila, Zaporojeni Fortress, between Dunavățu de Jos and Zaporojeni Fortress, the hill situated westwards of the Zaporojeni Fortress (Murighiol TAU), Grădiștea Island (Sarichioi TAU), the loess plateau which borders the Danube floodplain (Nufăru TAU). The habitat is one of the richest in threatened species, except the critically endangered *Salvia aethiopis*, most of the 23 such taxa being endangered, at least in the studied phytocoenoses: *Achillea leptophylla*, *Asparagus verticillatus*, *Astragalus dolichophyllus*, *Astragalus ponticus*, *Centaurea jankae*, *Conringia austriaca*, *Convolvulus lineatus*, *Dianthus nardiformis*, *Echinops ritro* subsp.

ruthenicus, *Ephedra distachya*, *Euphorbia nicaeensis* subsp. *cadrlateri*, *Festuca callieri*, *Gagea bulbifera*, *Koeleria lobata*, *Onobrychis gracilis*, *Onithogalum amphibolum*, *Pimpinella tragi* subsp. *lithophila*, *Potentilla bornmuelleri*, *Scorzonera mollis*, *Scutellaria orientalis*, *Silene compacta*, *Thymus zygioides*.

34.92 Ponto-Sarmatic steppes

***Medicagini minimae-Festucetum valesiaca* Wagner 1941** plant community was studied within the Dealurile Beștepe Nature Reserve, Beștepe TAU (DBBE), where it can be estimated as rare. Taking into account the dominance variation (+-1) of the eight ruderal species, a medium degree of disturbance can be established.

Key species: *Festuca valesiaca* (4; DBBE).

Other species: *Achillea coarctata* (+; DBBE), *Achillea setacea* (+; DBBE), *Agropyron cristatum* (+; DBBE), *Bassia prostrata* (+; DBBE), *Bromus hordeaceus* (+; DBBE), *Capsella bursa-pastoris* (+; DBBE), *Cerastium brachypetalum* (1; DBBE), *Convolvulus arvensis* (+; DBBE), *Erysimum diffusum* (+; DBBE), *Cruciata pedemontana* (+; DBBE), *Koeleria macrantha* (+; DBBE), *Plantago lanceolata* (+; DBBE), *Poa bulbosa* (+; DBBE), *Senecio vernalis* (+; DBBE), *Teucrium chamaedrys* (+; DBBE), *Trifolium arvense* (+; DBBE).

***Medicagini minimae-Festucetum valesiaca* Wagner 1941**, a sporadic plant community, analysed within the Dealul Călugăru-lancina Nature Reserve (DCI), can be considered representative for a very low impact of human activities, as it only includes one ruderal species with a reduced dominance. Beside this, the three rare threatened species observed in the plot enhance its conservation value.

Key species: *Festuca valesiaca* (4; DCI).

Threatened species: *Convolvulus lineatus* (+; DCI), *Echinops ritro* subsp. *ruthenicus* (+; DCI), *Thymus zygioides* (+; DCI).

Other species: *Asperula tenella* (+; DCI), *Campanula sibirica* (+; DCI), *Carduus thoermeri* (+; DCI), *Dichanthium ischaemum* (+; DCI), *Euphorbia seguieriana* (+; DCI), *Koeleria macrantha* (+; DCI), *Linaria genistifolia* (r; DCI), *Medicago falcata* (+; DCI), *Stipa capillata* (+; DCI), *Teucrium polium* subsp. *capitatum* (+ DCI).

***Medicagini minimae-Festucetum valesiaca* Wagner 1941** plant community is frequent within the Dealurile Beștepe Nature Reserve (DBM), Mahmudia TAU. The four rare threatened taxa enhance its importance for conservation, these being endangered within this coenotaxon. Four ruderal species indicate a low invasive trend from this point of view.

Key species: *Festuca valesiaca* (3; DBM).

Threatened species: *Astragalus ponticus* (+; DBM), *Echinops ritro* subsp. *ruthenicus* (+; DBM), *Potentilla bornmuelleri* (+; DBM), *Onobrychis gracilis* (+; DBM).

Other species: *Campanula rapunculus* (+; DBM), *Crepis sancta* (+; DBM), *Crataegus monogyna* (+; DBM), *Cichorium intybus* (+; DBM), *Dichanthium ischaemum* (1; DBM), *Digitalis lanata* (+; DBM), *Eryngium campestre* (+; DBM), *Euphorbia glareosa* subsp. *glareosa* (+; DBM), *Euphorbia seguieriana* (+; DBM), *Koeleria macrantha* (+; DBM), *Leontodon crispus* (+; DBM), *Orlaya grandiflora* (+; DBM), *Sanguisorba minor* (+; DBM), *Teucrium chamaedrys* (+; DBM), *Teucrium polium* subsp. *capitatum* (+; DBM), *Thlaspi perfoliatum* (+; DBM), *Thymus pannonicus* (+; DBM), *Trifolium campestre* (+; DBM).

Medicagini minimae-Festucetum valesiaca Wagner 1941 is a vulnerable plant community at Cape Doloşman (CDO), Jurilovca TAU. Six ruderal taxa, that represent half of this phytocoenosis species inventory, with a low dominance, indicate a medium disturbance.

Key species: *Festuca valesiaca* (4; CDO).

Other species: *Agropyron cristatum* (1; CDO), *Artemisia dzevanovskiyi* (+; CDO), *Bassia prostrata* (+; CDO), *Erodium cicutarium* (+; CDO), *Erophila verna* (+; CDO), *Geranium rotundifolium* (+; CDO), *Lamium purpureum* (+; CDO), *Marrubium peregrium* (+; CDO), *Poa bulbosa* (+; CDO), *Taraxacum erythrospermum* (+; CDO).

Medicagini minimae-Festucetum valesiaca Wagner 1941, a vulnerable plant community identified within Cape Doloşman (CDO), Jurilovca TAU, has only *Echinops ritro* subsp. *ruthenicus* as a threatened species, endangered within this phytocoenosis. There can be assessed a low level of ruderal species invasion, taking into account that the only such taxon, *Artemisia austriaca*, also has a low dominance.

Key species: *Festuca valesiaca* (4; CDO), *Medicago minima* (+; CDO).

Threatened species: *Echinops ritro* subsp. *ruthenicus* (+; CDO).

Other species: *Agropyron cristatum* (+; CDO), *Artemisia austriaca* (+; CDO), *Artemisia dzevanovskiyi* (+; CDO), *Bassia prostrata* (+; CDO), *Euphorbia seguieriana* (+; CDO), *Silene conica* (+; CDO), *Sedum urvillei* subsp. *hillebrandtii* (+; CDO).

Medicagini minimae-Festucetum valesiaca Wagner 1941 can be estimated as rare in the Dealurile Beştepe Nature Reserve (DBBE), Beştepe TAU, of the three threatened rare species identified here *Dianthus nardiformis* having an European importance. Those species may be considered as endangered in the association. A low degree of ruderal species invasive trend is indicated by the reduced coverage of four indicator species.

Key species: *Festuca valesiaca* (3; DBBE).

Threatened species: *Achillea leptophylla* (+; DBBE), *Dianthus nardiformis* (+; DBBE), *Potentilla bormuelleri* (+; DBBE).

Other species: *Achillea setacea* (+; DBBE), *Artemisia austriaca* (+; DBBE), *Echium italicum* (+; DBBE), *Eryngium campestre* (+; DBBE), *Falcaria vulgaris* (+; DBBE), *Leontodon crispus* (+; DBBE), *Phleum phleoides* (+; DBBE), *Potentilla argentea* (+; DBBE), *Ranunculus illyricus* (+; DBBE), *Sanguisorba minor* (1; DBBE), *Teucrium polium* subsp. *capitatum* (+; DBBE).

As an overall assessment this plant community can be considered as rare, but it was observed also with different frequencies, from vulnerable up to the frequent category. It is in general low disturbed, and less medium disturbed by grazing. It was observed within the Dealurile Beștepe Nature Reserve (Beștepe, Mahmudia TAUs), Cape Doloșman and Dealul Călugăru-lancina Nature Reserve (Jurilovca TAU). It is characterized by an outstanding richness of threatened taxa (*Achillea leptophylla*, *Astragalus ponticus*, *Convolvulus lineatus*, *Echinops ritro* subsp. *ruthenicus*, *Potentilla bormuelleri*, *Onobrychis gracilis* and *Thymus zygoides*), mostly rare at the national level, except *Dianthus nardiformis*, which is also vulnerable, of European importance. All these threatened species are endangered within the studied phytocoenoses.

***Artemisia austriacae-Poëtum bulbosae* Pop 1970** plant community can be considered a vulnerable coenotaxa within the Dealurile Beștepe Nature Reserve (DBM), Mahmudia TAU. Even though it has a secondary character, its conservative value is underlined by the presence of four rare threatened taxa, endangered within the analysed phytocoenoses. Due to grazing, there is a very intense degree of ruderal plants invasive tendencies (five species), of which some are dominant or co-dominant.

Key species: *Artemisia austriaca* (1; DBM), *Poa bulbosa* (3; DBM).

Threatened species: *Achillea leptophylla* (+; DBM), *Convolvulus lineatus* (+; DBM), *Echinops ritro* subsp. *ruthenicus* (+; DBM), *Potentilla bormuelleri* (+; DBM).

Other species: *Echium italicum* (+; DBM), *Eryngium campestre* (+; DBM), *Marrubium peregrinum* (+; DBM), *Potentilla argentea* (+; DBM), *Stipa capillata* (+; DBM), *Teucrium chamaedrys* (+; DBM), *Thymus pannonicus* (+; DBM).

***Artemisia austriacae-Poëtum bulbosae* Pop 1970** is a secondary plant community, vulnerable within the Dealul Călugăru-lancina Nature Reserve (DCI), Jurilovca TAU. This represents the result of overgrazing, obvious in the case of the key species dominance (1-2). These occur together with other four ruderal species. Altogether these indicate an intense ruderal species invasion process, as they also represent more than half of this phytocoenosis inventory.

Key species: *Artemisia austriaca* (1; DCI), *Poa bulbosa* (2; DCI).

Other species: *Agropyron cristatum* (1; DCI), *Asperula tenella* (+; DCI), *Bassia prostrata* (+; DCI), *Centaurea solstitialis* (+; DCI), *Eryngium campestre* (+; DCI), *Festuca valesiaca* (1; DCI), *Marrubium peregrinum* (+; DCI), *Medicago minima* (+; DCI), *Onopordum acanthium* (+; DCI).

***Artemisia austriacae-Poëtum bulbosae* Pop 1970** represents a vulnerable coenotaxon within Cape Doloşman (CDO). There was identified only one rare threatened taxon, estimated as endangered within this plant community. Due to the eight ruderal taxa, that include the dominant/ codominant *Artemisia austriaca* and *Poa bulbosa*, this coenotaxon can be considered as highly disturbed.

Key species: *Artemisia austriaca* (1; CDO), *Poa bulbosa* (2; CDO).

Threatened species: *Astragalus dolichophyllus* (+; CDO).

Other species: *Agropyron cristatum* (+; CDO), *Arenaria serpyllifolia* (+; CDO), *Bassia prostrata* (+; CDO), *Convolvulus arvensis* (+; CDO), *Erodium cicutarium* (+; CDO), *Eryngium campestre* (+; CDO), *Euphorbia seguieriana* (+; CDO), *Festuca valesiaca* (+; CDO), *Geranium pusillum* (+; CDO), *Lamium amplexicaule* (+; CDO), *Marrubium peregrinum* (+; CDO), *Medicago minima* (+; CDO), *Silene conica* (+; CDO), *Teucrium chamaedrys* (+; CDO).

***Artemisia austriacae-Poëtum bulbosae* Pop 1970**, a vulnerable plant community from Cape Doloşman (CDO), Jurilovca TAU, besides the dominant *Poa bulbosa*, includes other four ruderal taxa, being framed into a high level of these species invasion.

Key species: *Poa bulbosa* (3; CDO).

Other species: *Achillea coarctata* (+; CDO), *Artemisia austriaca* (+; CDO), *Artemisia dzevanovskyi* (+; CDO), *Arenaria serpyllifolia* (+; CDO), *Bassia prostrata* (+; CDO), *Erodium cicutarium* (+; CDO), *Festuca valesiaca* (1; CDO), *Geranium pusillum* (+; CDO), *Marrubium vulgare* (+; CDO), *Medicago minima* (+; CDO), *Silene conica* (+; CDO), *Taraxacum erythrospermum* (+; CDO), *Teucrium polium* subsp. *capitatum* (+; CDO), *Teucrium chamaedris* (+; CDO).

***Artemisia austriacae-Poëtum bulbosae* Pop 1970**, encountered in the Danube Delta SPA on the territory of Murighiol TAU, is a secondary coenotaxon, being favored by overgrazing. It is very frequent in the pastures from the Dealurile Movila (MD). Despite the secondary character, these phytocoenoses represent some conservative value, due to the presence of species threatened with extinction, rare in Romania, respectively endangered in the studied areas, like *Echinops ritro* subsp. *ruthenicus*. Beside the dominant ruderal species, three other such species, with a reduced coverage, indicate a high disturbance due to grazing.

Key species: *Poa bulbosa* (2; MD).

Threatened species: *Echinops ritro* subsp. *ruthenicus* (+; MD).

Other species: *Achillea coarctata* (+; MD), *Agropyron cristatum* (+; MD), *Consolida regalis* (+; MD), *Eryngium campestre* (+; MD), *Euphorbia seguieriana* (1; MD), *Linaria genistifolia* (+; MD), *Marrubium peregrinum* (+; MD), *Teucrium polium* subsp. *capitatum* (+; MD), *Xeranthemum annuum* (+; MD).

***Artemisia austriacae*-Poëtum bulbosae Pop 1970** is frequent on the hill westwards of the Zaporojeni Fortress (CZV), Murighiol TAU. This is an example of highly disturbed overgrazed phytocoenosis, as most of the species are ruderal, including the dominant ones.

Key species: *Artemisia austriaca* (1; CZV, DZ), *Bromus tectorum* (+; CZV), *Poa bulbosa* (2; CZV).

Other species: *Anthemis austriaca* (+; CZV), *Bromus squarrosus* (+; CZV), *Convolvulus arvensis* (+; CZV), *Cichorium intybus* (+; CZV), *Erodium cicutarium* (1; CZV), *Eryngium campestre* (+; CZV), *Koeleria macrantha* (1; CZV), *Medicago minima* (+; CZV), *Papaver dubium* (+; CZV), *Senecio vernalis* (+; CZV), *Sisymbrium orientale* (+; CZV).

***Artemisia austriacae*-Poëtum bulbosae Pop 1970** was observed as vulnerable on restricted areas, on the loess banks adjacent to the wetlands, between Dunavățu de Jos and Zaporojeni Fortress (DZ). *Euphorbia nicaeensis* subsp. *cadrlateri*, a subendemic species threatened with extinction, rare in Romania, is endangered in the researched plots. Within this highly disturbed coenotaxon, five ruderal species and one alien species-*Conyza canadensis*, show a low invasive trend of the alien taxa in the plots.

Key species: *Artemisia austriaca* (4; DZ).

Threatened species: *Euphorbia nicaeensis* subsp. *cadrlateri* (+; DZ).

Other species: *Agropyron cristatum* (+; DZ), *Bassia prostrata* (+; DZ), *Convolvulus arvensis* (+; DZ), *Conyza canadensis* (+; DZ), *Consolida regalis* (+; DZ), *Cynodon dactylon* (+; DZ), *Dichanthium ischaemum* (+; DZ), *Galium humifusum* (+; DZ), *Limonium latifolium* (+; DZ), *Marrubium peregrinum* (+; DZ), *Medicago minima* (+; DZ), *Phlomis pungens* (+; DZ), *Plantago lanceolata* (+; DZ), *Xeranthemum annuum* (+; DZ).

***Artemisia austriacae*-Poëtum bulbosae Pop 1970**, a very frequent plant community, is dominant within the vegetation of Grădiștea Island (GRD), Sarichioi TAU, intensely grazed. Even under these conditions, one threatened species, namely *Salvia aethiopis* (E/R) was identified, threatened at the national level and critically endangered in the studied phytocoenoses. Overgrazing is indicated by five ruderal species, among which two are dominant within this highly disturbed phytocoenosis.

Key species: *Artemisia austriaca* (2; GRD), *Poa bulbosa* (3; GRD).

Threatened species: *Salvia aethiopis* (r; GRD).

Other species: *Achillea nobilis* subsp. *neilreichii* (+; GRD), *Ajuga chamaeepytis* (+; GRD), *Artemisia santonica* (+; GRD), *Asperula tenella* (+; GRD),

Bassia prostrata (+; GRD), *Convolvulus arvensis* (+; GRD), *Cynodon dactylon* (+; GRD), *Euphorbia agraria* (+; GRD), *Euphorbia seguieriana* (+; GRD), *Medicago falcata* (+; GRD), *Medicago minima* (+; GRD), *Salvia nemorosa* (+; GRD).

An overall assessment indicates that this plant community can be considered vulnerable, and less very frequent or frequent. Being a result of overgrazing, it is highly disturbed. It was observed at Dealurile Beștepe Nature Reserve (Mahmudia TAU), Dealul Călugăru-Iancina Nature Reserve, Cape Doloșman (Jurilovca TAU), Dealurile Movila, Zaporojeni Fortress, between Dunavățu de Jos and Zaporojeni Fortress (Murighiol TAU), Grădiștea Island (Sarichioi TAU). Despite the high disturbance, seven threatened species at the national level were recorded, mainly endangered within the plots (*Achillea leptophylla*, *Astragalus dolichophyllus*, *Convolvulus lineatus*, *Echinops ritro* subsp. *ruthenicus*, *Euphorbia nicaeensis* subsp. *cadrlateri*, *Potentilla bornmuelleri*) except the critically endangered *Salvia aethiops*.

***Agropyretum pectiniformae* (Prodan 1939) Dihoru 1970** is a vulnerable plant community analysed from Dealurile Beștepe Nature Reserve-Mahmudia commune (DBM). In the studied locations one rare threatened species (*Conringia austriaca*) was identified, endangered within the respective phytocoenosis. The influence of grazing obviously leads to a medium level of disturbance, indicated by the 10 ruderal species with significant dominance (+-1).

Key species: *Agropyron cristatum* (3; DBM).

Threatened species: *Conringia austriaca* (+; DBM).

Other species: *Bromus squarrosus* (+; DBM), *Convolvulus arvensis* (+; DBM), *Cichorium intybus* (+; DBM), *Dactylis glomerata* (+; DBM), *Dichanthium ischaemum* (+; DBM), *Erodium cicutarium* (+; DBM), *Eryngium campestre* (+; DBM), *Euphorbia seguieriana* (+; DBM), *Koeleria macrantha* (+; DBM), *Linum austriacum* (+; DBM), *Marrubium peregrinum* (+; DBM), *Medicago minima* (+; DBM), *Orlaya grandiflora* (+; DBM), *Poa bulbosa* (1; DBM), *Reseda lutea* (+; DBM), *Sanguisorba minor* (+; DBM), *Teucrium polium* subsp. *capitatum* (+; DBM), *Thymus pannonicus* (+; DBM), *Tragopogon dubius* (+; DBM), *Xeranthemum annuum* (+; DBM).

***Agropyretum pectiniformae* (Prodan 1939) Dihoru 1970** is a vulnerable plant community, analyzed from Dealurile Beștepe Nature Reserve (DBM), Mahmudia TAU. The influence of grazing obviously leads to a medium level of disturbance, indicated by the nine ruderal species with significant dominance (+-1).

Key species: *Agropyron cristatum* (3; DBM).

Other species: *Bromus squarrosus* (+; DBM), *Convolvulus arvensis* (+; DBM), *Cichorium intybus* (+; DBM), *Dactylis glomerata* (+; DBM), *Dichanthium ischaemum* (+; DBM), *Erodium cicutarium* (+; DBM), *Eryngium campestre* (+;

DBM), *Euphorbia seguieriana* (+; DBM), *Koeleria macrantha* (+; DBM), *Linum austriacum* (+; DBM), *Marrubium peregrinum* (+; DBM), *Medicago minima* (+; DBM), *Orlaya grandiflora* (+; DBM), *Poa bulbosa* (1; DBM), *Reseda lutea* (+; DBM), *Sanguisorba minor* (+; DBM), *Teucrium polium* subsp. *capitatum* (+; DBM), *Thymus pannonicus* (+; DBM), *Tragopogon dubius* (+; DBM), *Xeranthemum annuum* (+; DBM).

Agropyretum pectiniformae (Prodan 1939) Dihoru 1970 plant community was inventoried as vulnerable within Dealul Călugăru-lancina Nature Reserve (DCI), Jurilovca TAU, where the seven ruderal species recorded within the plot indicate a low influence of grazing.

Key species: *Agropyron cristatum* (3; DCI).

Other species: *Agropyron elongatum* (+; DCI), *Artemisia annua* (+; DCI), *Artemisia santonica* (+; DCI), *Bassia prostrata* (+; DCI), *Carduus thoermeri* (+; DCI), *Centaurea solstitialis* (+; DCI), *Consolida regalis* (+; DCI), *Cynodon dactylon* (2; DCI), *Chondrilla juncea* (+; DCI), *Crataegus monogyna* (±; DCI), *Eryngium campestre* (+; DCI), *Galium humifusum* (+; DCI), *Phragmites australis* (r; DCI), *Salvia nemorosa* (+; DCI), *Teucrium polium* subsp. *capitatum* (±; DCI), *Sambucus ebulus* (+; DCI).

Agropyretum pectiniformae (Prodan 1939) Dihoru 1970 is considered a vulnerable plant community within the Nufăru TAU. It was studied on the loess plateau that borders the Danube floodplain (NTL). There were observed two rare threatened species at the national level, endangered within the respective phytocoenosis. The nine ruderal species have a reduced dominance, so there can be estimated that the coenotaxon is at the upper limit of the low invasive tendencies of this kind of taxon.

Key species: *Agropyron cristatum* (3; NTL).

Threatened species: *Asparagus verticillatus* (+; NTL), *Echinops ritro* subsp. *ruthenicus* (+; NTL).

Other species: *Bassia prostrata* (+; NTL), *Bromus japonicus* (+; NTL), *Campanula sibirica* (+; NTL), *Centaurea solstitialis* (+; NTL), *Cichorium intybus* (+; NTL), *Crataegus monogyna* (+; NTL), *Dactylis glomerata* (+; NTL), *Eryngium campestre* (+; NTL), *Euphorbia seguieriana* (+; NTL), *Cruciata pedemontana* (+; NTL), *Koeleria macrantha* (+; NTL), *Iris variegata* (+; NTL), *Marrubium peregrinum* (+; NTL), *Poa bulbosa* (+; NTL), *Pastinaca graveolens* (+; NTL), *Phlomis pungens* (+; NTL), *Plantago lanceolata* (+; NTL), *Sisymbrium orientale* (+; NTL), *Stipa capillata* (+; NTL), *Sanguisorba minor* (+; NTL), *Tragopogon dubius* (+; NTL), *Ulmus minor* (+; NTL).

Agropyretum pectiniformae (Prodan 1939) Dihoru 1970, a rare plant community, was inventoried within Dealul Călugăru-lancina Nature Reserve (DCI), where the seven ruderal species recorded within the plot indicate a low influence of grazing.

Key species: *Agropyron cristatum* (3; DCI).

Other species: *Elymus elongatus* (+; DCI), *Artemisia annua* (+; DCI), *Artemisia santonica* (+; DCI), *Bassia prostrata* (+; DCI), *Carduus thoermeri* (+; DCI), *Centaurea solstitialis* (+; DCI), *Consolida regalis* (+; DCI), *Cynodon dactylon* (2; DCI), *Chondrilla juncea* (+; DCI), *Crataegus monogyna* (+; DCI), *Eryngium campestre* (+; DCI), *Galium humifusum* (+; DCI), *Phragmites australis* (r; DCI), *Salvia nemorosa* (+; DCI), *Teucrium polium* subsp. *capitatum* (+; DCI), *Sambucus ebulus* (+; DCI).

***Agropyretum pectiniformae* (Prodan 1939) Dihoru 1970**, a vulnerable plant community within Cape Doloşman (CDO), Jurilovca TAU, has a low disturbance level due to the ruderal species invasion, indicated by the seven such species with a reduced dominance.

Key species: *Agropyron cristatum* (3; CDO).

Other species: *Achillea coarctata* (+; CDO), *Artemisia dzevanovskiyi* (+; CDO), *Crepis sancta* (+; CDO), *Eryngium campestre* (+; CDO), *Euphorbia seguieriana* (+; CDO), *Galium aparine* (+; CDO), *Geranium pusillum* (+; CDO), *Cruciata pedemontana* (1; CDO), *Lamium amplexicaule* (+; CDO), *Marrubium peregrinum* (+; CDO), *Medicago minima* (+; CDO), *Myosotis stricta* (+; CDO), *Senecio vernalis* (+; CDO).

***Agropyretum pectiniformae* (Prodan 1939) Dihoru 1970**, a vulnerable plant community, was inventoried at Cape Doloşman, where only one rare threatened species was observed, endangered within this coenotaxon. Grazing impact is obvious, as six ruderal species with a reduced dominance rank this phytocoenosis towards the upper limit of the low disturbance level.

Key species: *Agropyron cristatum* (3; CDO).

Threatened species: *Thymus zygioides* (+; CDO).

Other species: *Artemisia dzevanovskiyi* (1; CDO), *Carduus thoermeri* (+; CDO), *Cichorium intybus* (+; CDO), *Erodium cicutarium* (+; CDO), *Erophila verna* (+; CDO), *Festuca valesiaca* (+; CDO), *Lamium purpureum* (+; CDO), *Medicago minima* (+; CDO), *Poa bulbosa* (+; CDO), *Taraxacum erythrospermum* (+; CDO), *Teucrium polium* subsp. *capitatum* (+; CDO).

***Agropyretum pectiniformae* (Prodan 1939) Dihoru 1970** has been identified as endangered on the hill situated westwards of the Zaporojeni Fortress (CZV), Murighiol TAU. In these phytocoenoses, representative for the primary steppe, only one threatened species was observed, the rare *Echinops ritro* subsp. *ruthenicus*, endangered within the association. There was recorded a medium level of disturbance.

Key species: *Agropyron cristatum* (3; CZN).

Threatened species: *Echinops ritro* subsp. *ruthenicus* (+; CZV).

Other species: *Anthemis austriaca* (+; CZV), *Artemisia austriaca* (+; CZV), *Bassia prostrata* (+; CZV), *Bromus squarrosus* (+; CZV), *Erodium cicutarium* (+;

CZV), *Medicago minima* (1; CZV), *Phlomis pungens* (+; CZV), *Poa bulbosa* (1; CZV), *Senecio vernalis* (+; CZV), *Silene conica* (+; CZV), *Sisymbrium orientale* (+; CZV), *Xeranthemum annuum* (+; CZV).

This plant community was mainly observed as vulnerable, sometimes as rare or endangered, being characterized by a low level of disturbance that can rise up to a medium degree of ruderal species invasive tendencies. Three threatened species were identified in the plots; all endangered within the phytocoenoses, such as *Asparagus verticillatus*, *Conringia austriaca*, *Echinops ritro* subsp. *ruthenicus*. It was recorded from Dealurile Bestepe Nature Reserve (Mahmudia TAU), Dealul Călugăru-lancina Nature Reserve, Cape Doloșman (Jurilovca TAU), the loess plateau which borders the Danube floodplain (Nufaru TAU), Zaporojeni Fortress (Murighiol TAU).

***Botriochloetum (Andropogonetum) ischaemi* (Kist. 1937) Pop 1977**, a secondary cenotaxon, is considered to be vulnerable within the pastures on loess soils that make the transition between the plateau area and the reedbeds between Dunavățu de Jos and Zaporojeni Fortress (DZ), areas included in the Danube Delta SPA. Four ruderal species with a low coverage indicate a low disturbance.

Key species: *Dichanthium ischaemum* (5; DZ).

Other species: *Artemisia annua* (+; DZ), *Artemisia austriaca* (+; DZ), *Bassia prostrata* (+; DZ), *Bromus tectorum* (+; DZ), *Cichorium intybus* (+; DZ), *Euphorbia seguieriana* (+; DZ), *Linaria genistifolia* (+; DZ), *Medicago falcata* (+; DZ), *Plantago arenaria* (+; DZ).

***Elytrigietum hispidi* (Dihoru 1970) Popescu, Sanda 1988**, a typical plant community for the primary steppe, vulnerable at Cape Doloșman (CDO), Jurilovca TAU, is characterized by a low level of invasion by ruderal species, these being represented by five such taxa, with a reduced dominance.

Key species: *Elymus hispidus* (4; CDO).

Other species: *Achillea coarctata* (+; CDO), *Agropyron cristatum* (1; CDO), *Artemisia absinthium* (+; CDO), *Bromus squarrosus* (+; CDO), *Dactylis glomerata* (+; CDO), *Euphorbia agraria* (+; CDO), *Marrubium peregrinum* (+; CDO), *Medicago falcata* (+; CDO), *Melica ciliata* (+; CDO), *Poa angustifolia* (+; CDO), *Reseda lutea* (+; CDO), *Teucrium chamaedris* (+; CDO), *Thalictrum minus* (+; CDO).

***Koelerietum macranthae* (Răv. et al. 1956) Popescu, Sanda 1988** is a vulnerable plant community which was inventoried from the Dealurile Beștepe Nature Reserve (DBM), Mahmudia TAU, considered endangered within the whole studied area. Two rare threatened species were observed, both being endangered within this phytocoenosis. There can be estimated a low level of disturbance both due to the non-native species (*Elaeagnus angustifolia*), as well

as from the ruderal taxa point of view, the six such species having a reduced dominance.

Key species: *Koeleria macrantha* (3; DBM).

Threatened species: *Onobrychis gracilis* (+; CF), *Potentilla bornmuelleri* (+; DBM).

Other species: *Acinos arvensis* (+; DBM), *Agrimonia eupatoria* (+; DBM), *Ajuga chamaepytis* (+; DBM), *Bromus tectorum* (+; DBM), *Bromus squarrosus* (+; DBM), *Dactylis glomerata* (+; DBM), *Dichanthium ischaemum* (+; DBM), *Elaeagnus angustifolia* (+; DBM), *Cichorium intybus* (+; DBM), *Euphorbia seguieriana* (+; DBM), *Festuca valesiaca* (1; DBM), *Medicago minima* (1; DBM), *Plantago lanceolata* (+; DBM), *Sanguisorba minor* (+; DBM), *Teucrium chamaedrys* (+; DBM), *Teucrium polium* subsp. *capitatum* (+; DBM), *Thymus pannonicus* (+; DBM), *Tragopogon dubius* (+; DBM), *Veronica prostrata* (+; DBM).

***Koelerietum macranthae* (Răvăruț et al. 1965) Popescu, Sanda 1988**, typical for the primary steppe, occur in a relatively small proportion in the natural meadows from the hill situated westwards of the Zaporojeni Fortress (CZV), Murighiol TAU, where it falls into the "rare" category. Within these phytocoenoses, the rare, threatened species *Echinops ritro* subsp. *ruthenicus*, is endangered in the plots. A low level of disturbance, but to its upper limit, is indicated by the seven ruderal taxa.

Key species: *Koeleria macrantha* (4; CZV).

Specii amenintate: *Echinops ritro* sp. *ruthenicus* (+; CZV).

Other species: *Achillea nobilis* subsp. *neilreichii* (+; CZV), *Ajuga chamaepytis* (+; CZV), *Anthemis austriaca* (+; CZV), *Arenaria serpyllifolia* (+; CZV), *Artemisia austriaca* (+; CZV), *Bassia prostrata* (+; CZV), *Chondrilla juncea* (+; CZV), *Convolvulus arvensis* (+; CZV), *Erodium cicutarium* (+; CZV), *Eryngium campestre* (+; CZV), *Medicago minima* (1; CZV), *Phlomis pungens* (+; CZV), *Verbascum banaticum* (+; CZV), *Viola arvensis* (+; CZV).

This plant community can be assessed overall as vulnerable-rare, with a low disturbance level and three threatened species, like *Echinops ritro* subsp. *ruthenicus*, *Onobrychis gracilis*, *Potentilla bornmuelleri*. It was recorded from Dealurile Beștepe Nature Reserve (Mahmudia TAU) and the hill situated westwards of the Zaporojeni Fortress (Murighiol TAU).

***Stipetum capillatae* (Hueck 1931) Krausch 1961** plant community can be considered vulnerable in the Dealurile Beștepe Nature Reserve (DBBE), Beștepe TAU, while within the whole commune it can be estimated as endangered. Despite its numerous ruderal species (eighteen taxa), it still can be framed into the low disturbance category, due to their reduced dominance.

Key species: *Stipa capillata* (3; DBBE).

Other species: *Bromus squarrosus* (+; DBBE), *Convolvulus cantabricus*

(+; DBBE), *Crepis sancta* (+; DBBE), *Crataegus monogyna* (+; DBBE), *Digitalis lanata* (+; DBBE), *Echium italicum* (+; DBBE), *Eryngium campestre* (+; DBBE), *Erysimum diffusum* (+; DBBE), *Euphorbia seguieriana* (+; DBBE), *Festuca valesiaca* (1; DBBE), *Cruciata pedemontana* (+; DBBE), *Orlaya grandiflora* (+; DBBE), *Poa angustifolia* (+; DBBE), *Poa bulbosa* (+; DBBE), *Sanguisorba minor* (+; DBBE), *Senecio vernalis* (+; DBBE), *Teucrium chamaedrys* (+; DBBE), *Thymus pannonicus* (+; DBBE), *Tragopogon dubius* (+; DBBE).

***Stipetum capillatae* (Hueck 1931) Krausch 1961** plant community, inventoried as vulnerable within Dealul Călugăru-lancina Nature Reserve (DCI), Jurilovca TAU, has a medium level of ruderal species contribution to its structure, underlined by the dominance variation (+1) within the seven such taxa. Only one rare threatened species, endangered at least within this phytocenosis, was identified.

Key species: *Stipa capillata* (4; DCI).

Threatened species: *Echinops ritro* subsp. *ruthenicus* (+; DCI).

Other species: *Achillea coarctata* (+; DCI), *Agropyron cristatum* (+; DCI), *Artemisia austriaca* (+; DCI), *Carduus thoermeri* (+; DCI), *Carthamus lanatus* (+; DCI), *Consolida regalis* (+; DCI), *Eryngium campestre* (+; DCI), *Euphorbia seguieriana* (+; DCI), *Festuca valesiaca* (+; DCI), *Inula oculus-christi* (+; DCI), *Marrubium peregrinum* (+; DCI), *Medicago minima* (+; DCI), *Poa bulbosa* (1; DCI), *Teucrium polium* subsp. *capitatum* (+; DCI), *Thymus pannonicus* (+; DCI).

The association is vulnerable, with a low to medium level of disturbance, being studied within the Dealurile Beștepe Nature Reserve (Beștepe TAU), Dealul Călugăru-lancina Nature Reserve (Jurilovca TAU). Only one threatened taxon, endangered within these phytocoenoses was recorded, *Echinops ritro* subsp. *ruthenicus*.

***Agropyro cristati-Kochietum prostratae* Zólyomi 1958** is a rare plant community, studied within the Cape Doloșman (CDO), Jurilovca TAU, where it can be considered rare. It has one rare threatened species, endangered within this coenotaxa. A low level of ruderal species invasion can be observed, taking into account the five such taxa with reduced dominance.

Key species: *Agropyron cristatum* (1; CDO), *Bassia prostrata* (3; CDO).

Threatened species: *Echinops ritro* subsp. *ruthenicus* (+; CDO).

Other species: *Artemisia dzevanovskyi* (+; CDO), *Calystegia sepium* (+; CDO), *Cynanchum acutum* (+; CDO), *Falcaria vulgaris* (+; CDO), *Hyoscyamus niger* (r; CDO), *Lactuca tatarica* (+; CDO), *Papaver dubium* (+; CDO), *Urtica dioica* (+; CDO).

***Agropyro cristati-Kochietum prostratae* Zólyomi 1958** plant community, observed at Cape Doloșman, as a vulnerable coenotaxon, has a medium disturbance level due to grazing as the seven ruderal species, despite their reduced dominance, are more numerous than the other taxa.

Key species: *Agropyron cristatum* (2; CDO), *Bassia prostrata* (2; CDO).

Other species: *Achillea coarctata* (+; CDO), *Artemisia dzevanovskyi* (+; CDO), *Carduus thoermeri* (+; CDO), *Eryngium campestre* (+; CDO), *Euphorbia agraria* (+; CDO), *Geranium rotundifolium* (+; CDO), *Lamium amplexicaule* (+; CDO), *Marrubium peregrinum* (+; CDO), *Onopordum acanthium* (+; CDO), *Taraxacum erythrospermum* (+; CDO).

***Agropyro cristati-Kochietum prostratae* Zólyomi 1958**, of primary origin, appears in its characteristic locations, respectively on the more or less eroded slopes of the loess terrace, in the vicinity of the Zaporojeni Fortress (CZ), Murighiol TAU. The association has a reduced frequency in the respective steppe meadows, being estimated as vulnerable. A low degree of ruderal species invasive tendencies can be deduced from the presence of three indicator species with a reduced coverage.

Key species: *Agropyron cristatum* (1; CZ), *Bassia prostrata* (3; CZ).

Other species: *Anthemis tinctoria* (+; CZ), *Erodium cicutarium* (+; CZ), *Euphorbia agraria* (+; CZ), *Euphorbia seguieriana* (+; CZ), *Medicago minima* (+; CZ), *Phlomis pungens* (+; CZ), *Silene conica* (+; CZ), *Sisymbrium orientale* (+; CZ), *Verbascum banaticum* (+; CZ), *Xeranthemum annuum* (+; CZ).

***Agropyro cristati-Kochietum prostratae* Zólyomi 1958** forms the sparse vegetation of the cliffs and steep slopes of Grădiştea Island (GRD), Sarichioi TAU, where it can be considered vulnerable. Two ruderal species indicate a low disturbance.

Key species: *Agropyron cristatum* (1; GRD), *Bassia prostrata* (2; GRD).

Other species: *Artemisia santonica* (1; GRD), *Cichorium intybus* (+; GRD), *Galium humifusum* (+; GRD), *Plantago lanceolata* (+; GRD), *Teucrium polium* subsp. *capitatum* (+; GRD), *Thymus pannonicus* (+; GRD).

The plant community, assessed overall as vulnerable, sometimes rare, has a low disturbance level, sometimes medium, being less accessible for grazing. Only one rare threatened species was recorded *Echinops ritro* subsp. *ruthenicus*, endangered within the plots. It was observed at Cape Doloşman (Jurilovca TAU), Zaporojeni Fortress (Murighiol TAU), Grădiştea Island (Sarichioi TAU).

34.9211 Western Pontic thyme steppes

This mainly vulnerable habitat can be considered as low disturbed by grazing, being recorded at Cape Doloşman, Movila Pârcălabului, Călugăru-lancina Nature Reserve (Jurilovca TAU), Dealurile Beştepe Nature Reserve (Mahmudia and Beştepe TAUs). Besides *Centaurea jankae* (species of community interest), other threatened species of European importance, like *Dianthus nardiformis*, *Ornithogalum amphibolum*, enhance the outstanding conservation value of this most rich in rare species habitat subtype (17 species).

To these can be added: *Achillea leptophylla*, *Convolvulus lineatus*, *Echinops ritro* subsp. *ruthenicus*, *Ephedra distachya*, *Festuca callieri*, *Gagea bulbifera*, *Koeleria lobata*, *Onobrychis gracilis*, *Pimpinella tragi* subsp. *lithophila*, *Potentilla bornmuelleri*, *Scorzonera mollis*, *Scutellaria orientalis*, *Silene compacta*, *Thymus zygoides*.

Agropyro-Thymetum zygoidi Dihoru (1969) 1970 plant community was identified within the Dealurile Beștepe Nature Reserve in the sector that belongs to the Mahmudia TAU (DBM), where it can be considered vulnerable. It has the highest conservation value among the coenotaxa inventoried within the Mahmudia territory, as it shelters the most numerous threatened species (seven taxa). Among these, *Dianthus nardiformis* is vulnerable at the national level and of European importance, while within this coenotaxon all threatened species are endangered, except the first that is vulnerable. Even though they are numerous, the ten ruderal species still have a reduced dominance and consequently they place this community within the low disturbed category.

Key species: *Agropyron ponticum* (1; DBM), *Thymus zygoides* (3; DBM).

Threatened species: *Achillea leptophylla* (+; DBM), *Dianthus nardiformis* (+; DBM), *Festuca callieri* (+; DBM), *Koeleria lobata* (+; DBM), *Potentilla bornmuelleri* (+; DBM), *Thymus zygoides* (3; DBM).

Other species: *Achillea nobilis* subsp. *neilreichii* (+; DBM), *Androsace maxima* (+; DBM), *Artemisia austriaca* (+; DBM), *Bromus squarrosus* (+; DBM), *Bombycilaena erecta* (+; DBM), *Convolvulus arvensis* (+; DBM), *Coronilla varia* (+; DBM), *Crepis sancta* (+; DBM), *Cichorium intybus* (+; DBM), *Dichanthium ischaemum* (+; DBM), *Erodium cicutarium* (+; DBM), *Eryngium campestre* (+; DBM), *Echium italicum* (+; DBM), (+; DBM), *Euphorbia seguieriana* (+; DBM), *Medicago minima* (+; DBM), *Poa bulbosa* (+; DBM), *Potentilla argentea* (+; DBM), *Sanguisorba minor* (+; DBM), *Sedum urvillei* subsp. *hillebrandtii* (+; DBM), *Teucrium polium* subsp. *capitatum* (+; DBM), *Tragopogon dubius* (+; DBM), *Xeranthemum annuum* (+; DBM).

Agropyro-Thymetum zygoidi Dihoru (1969) 1970, considered vulnerable within the Dealurile Beștepe (DBM), Mahmudia TAU, was analyzed in the eastern part of the protected area, on a limestone substrate, the respective phytocoenoses having a special conservation value, especially due to the seven threatened species that were inventoried there. Of these, *Dianthus nardiformis* and *Ornithogalum amphibolum* are of European importance, while *Euphorbia nicaeensis* subsp. *cadrlateri* is subendemic. In this part of the reserve, the association has been affected by soil removal over several tens of square meters. At the level of the association, most of these seven taxa are estimated to be endangered, others are vulnerable (*Euphorbia nicaeensis* subsp. *cadrlateri*, *Potentilla bornmuelleri*), rare (*Festuca callieri*) or sporadic

(*Thymus zygoides*). The level of ruderalization is low, as indicated by the coverage of indicator species such as *Chondrilla juncea*, *Consolida regalis*, *Eryngium campestre*, *Poa bulbosa*.

Key species: *Thymus zygoides* (3; DBM).

Specii amenintate: *Achillea leptophylla* (+; DBM), *Dianthus nardiformis* (+; DBM), *Euphorbia nicaeensis* subsp. *cadrlateri* (\pm 1; DBM), *Festuca callieri* (2; DBM), *Ornithogalum amphibolum* (\pm ; DBM), *Potentilla bornmuelleri* (+1; DBM), *Thymus zygoides* (3; DBM).

Other species: *Achillea coarctata* (+; DBM), *Androsace elongata* (\pm ; DBM), *Bombycilaena erecta* (+; DBM), *Chondrilla juncea* (+; DBM), *Consolida regalis* (+; DBM), *Eryngium campestre* (+; DBM), *Euphorbia seguieriana* (+; DBM), *Poa bulbosa* (+; DBM), *Stipa capillata* (+; DBM), *Teucrium polium* subsp. *capitatum* (+; DBM).

Agropyro-Thymetum zygoidi Dihoru (1969) 1970, a vulnerable coenotaxon at Cape Doloşman (CDO), Jurilovca TAU, has a high conservation value, enhanced by five mostly rare threatened taxa, of which *Centaurea jankae* is also endangered and endemic for Dobrogea. Two ruderal species with a reduced dominance indicate a low disturbed coenotaxon.

Key species: *Thymus zygoides* (2; CDO).

Threatened species: *Centaurea jankae* (\pm ; CDO), *Festuca callieri* (1; CDO), *Koeleria lobata* (+; CDO), *Pimpinella tragi* subsp. *lithophila* (+; CDO), *Thymus zygoides* (2; CDO).

Other species: *Artemisia dzevanovskiyi* (+; CDO), *Bassia prostrata* (+; CDO), *Cerastium pumilum* (+; CDO), *Crepis sancta* (+; CDO), *Gypsophila pallasii* (+; CDO), *Lamium amplexicaule* (+; CDO), *Medicago minima* (+; CDO), *Taraxacum erythrospermum* (+; CDO).

Agropyro-Thymetum zygoidi Dihoru (1969) 1970 was studied at Cape Doloşman, Jurilovca TAU, where it is considered vulnerable, being characterized by the massive presence of the *Artemisia dzevanovskiyi*. The four threatened species listed as rare, of national interest, are endangered within the phytocoenoses, except the dominant *Thymus zygoides*. It can be considered an undisturbed example of this association.

Key species: *Agropyron ponticum* (2; CDO), *Thymus zygoides* (2; CDO).

Threatened species: *Echinops ritro* subsp. *ruthenicus* (+; CDO), *Festuca callieri* (+; CDO), *Pimpinella tragi* subsp. *lithophila* (+; CDO), *Thymus zygoides* (2; CDO).

Other species: *Agropyron cristatum* (1; CDO), *Artemisia dzevanovskiyi* (2; CDO), *Asperula tenella* (+; CDO), *Gypsophila pallasii* (+; CDO), *Linaria genistifolia* (+; CDO), *Stipa capillata* (+; DCO), *Teucrium polium* subsp. *capitatum* (+; CDO).

This plant community is assessed as vulnerable and mainly low disturbed, with isolated cases of phytocoenoses in their natural status. It was observed at Dealurile Beștepe Nature Reserve (Mahmudia TAU), Cape Doloșman, Movila Pârcălabului, Călugăru-Iancina Nature Reserve (Jurilovca TAU). It has the highest number of threatened species among all the studied habitats/phytocoenoses, these being represented by 11 such species, mostly rare at the national level (*Achillea leptophylla*, *Echinops ritro* subsp. *ruthenicus*, *Festuca callieri*, *Koeleria lobata*, *Pimpinella tragium* subsp. *lithophila*, *Potentilla bornmuelleri*, *Thymus zygioides*), while *Centaurea jankae* (species of community interest), *Dianthus nardiformis*, *Ornithogalum amphibolum*, are of European importance, *Euphorbia nicaeensis* subsp. *cadilateri* being also subendemic.

***Festucetum callierii* Șerbănescu 1965** plant community was studied in the Dealurile Beștepe Nature Reserve (DBM), Mahmudia TAU, where it can be estimated as vulnerable. Five rare threatened species were inventoried, all endangered within this coenotaxon. The four ruderal taxa indicate a low level of disturbance.

Key species: *Festuca callieri* (3; DBM).

Threatened species: *Achillea leptophylla* (+; DBM), *Festuca callieri* (+; DBM), *Echinops ritro* subsp. *ruthenicus* (±; DBM), *Onobrychis gracilis* (+; DBM), *Thymus zygioides* (+; DBM).

Other species: *Arenaria serpyllifolia* (+; DBM), *Bromus squarrosus* (+; DBM), *Bombycilaena erecta* (+; DBM), *Crataegus monogyna* (+; DBM), *Digitalis lanata* (+; DBM), *Phleum phleoides* (+; DBM), *Eryngium campestre* (+; DBM), *Orlaya grandiflora* (+; DBM), *Poa bulbosa* (+; DBM), *Potentilla argentea* (+; DBM), *Sanguisorba minor* (+; DBM), *Senecio vernalis* (+; DBM), *Sedum urvillei* subsp. *hillebrandtii* (1; DBM), *Trifolium campestre* (+; DBM), *Teucrium chamaedrys* (+; DBM), *Trifolium arvense* (+; DBM).

***Festucetum callierii* Șerbănescu 1965 apud Dihoru (1969) 1970** plant community can be considered as vulnerable within the Dealurile Beștepe Nature Reserve (DBM), Mahmudia TAU, where *Festuca callieri* and *Silene compacta* are the only threatened species, framed into the „rare” category at the national level. In this phytocoenosis the first is dominant, while the second is endangered. From the dominance variation (+-1) of the six ruderal species there can be deduced a medium level of disturbance.

Key species: *Festuca callieri* (3; DBM).

Threatened species: *Festuca callieri* (3; DBM), *Silene compacta* (+; DBM).

Other species: *Androsace elongata* (+; DBM), *Artemisia austriaca* (+; DBM), *Agropyron cristatum* (+; DBM), *Bassia prostrata* (+; DBM), *Bombycilaena erecta* (+; DBM), *Bromus tectorum* (+; DBM), *Echium italicum* (+; DBM), *Eryngium campestre* (+; DBM), *Euphorbia seguieriana* (+; DBM), *Galium*

pedemontanum (+; DBM), *Plantago lanceolata* (+; DBM), *Poa bulbosa* (+; DBM), *Potentilla argentea* (+; DBM), *Teucrium polium* subsp. *capitatum* (+; DBM), *Trifolium arvense* (+; DBM), *Trifolium campestre* (+; DBM), *Verbascum banaticum* (+; DBM).

***Festucetum callierii* Șerbănescu 1965 apud Dihoru (1969) 1970** is a vulnerable coenotaxon within the Dealurile Beștepe Nature Reserve, Beștepe TAU, where six rare threatened species were recorded, mainly endangered within the plots, except the critically endangered *Scorzonera mollis*. A low level of ruderalization is indicated by five species with low coverage.

Key species: *Festuca callieri* (2; DBBE).

Threatened species: *Achillea leptophylla* (+; DBBE), *Convolvulus lineatus* (+; DBBE), *Potentilla bormuelleri* (+; DBBE), *Scorzonera mollis* (1; DBBE), *Scutellaria orientalis* (+; DBBE), *Thymus zygioides* (1; DBBE).

Other species: *Artemisia austriaca* (+; DBBE), *Asperula tenella* (+; DBBE), *Convolvulus arvensis* (+; DBBE), *Eryngium campestre* (+; DBBE), *Leontodon crispus* (+; DBBE), *Phleum phleoides* (+; DBBE), *Poa bulbosa* (+; DBBE), *Rumex acetosella* (+; DBBE), *Scleranthus annuus* (+; DBBE), *Sedum urvillei* subsp. *hillebrandtii* (+; DBBE), *Teucrium polium* subsp. *capitatum* (+; DBBE).

The plant community is vulnerable, mostly low (sometimes medium) disturbed, being recorded within Dealurile Beștepe Nature Reserve (Mahmudia and Beștepe TAUs). With its nine threatened species it can be ranked on the second place after *Agropyro-Thymetum zygioidi*, from this point of view (*Achillea leptophylla*, *Convolvulus lineatus*, *Echinops ritro* subsp. *ruthenicus*, *Onobrychis gracilis*, *Potentilla bormuelleri*, *Scorzonera mollis*, *Scutellaria orientalis*, *Silene compacta*, *Thymus zygioides*).

***Sedo hillebrandtii-Polytrichetum piliferi* Horeanu et Mihai 1974** is typical for the rocky steppe within the Dealurile Beștepe Nature Reserve, Beștepe TAU sector (DBBE), being endangered within the studied area, where two rare threatened species were observed, endangered within these phytocoenoses. There can be estimated a low level of disturbance indicated by three ruderal species.

Key species: *Polytrichum piliferum* (2; DBBE).

Threatened species: *Festuca callieri* (+; DBBE), *Silene compacta* (+; DBBE).

Other species: *Artemisia austriaca* (+; DBBE), *Asperula tenella* (+; DBBE), *Bombacilaena erecta* (+; DBBE), *Chondrilla juncea* (+; DBBE), *Digitaria sanguinalis* (+; DBBE), *Kohlruschia prolifera* (+; DBBE), *Potentilla argentea* (+; DBBE), *Rumex acetosella* (1; DBBE), *Scleranthus perennis* (+; DBBE), *Stipa capillata* (+; DBBE).

***Sedo hillebrandtii-Polytrichetum piliferi* Horeanu et Mihai 1974**, an endangered coenotaxa in the Dealul Călugăru-lancina (DCI) nature reserve,

Jurilovca commune, where among the four rare threatened taxa *Gagea bulbifera* is also vulnerable at the national level. All these are endangered within the phytocoenoses, except the vulnerable *Thymus zygoides*. A low level of disturbance is indicated by the six ruderal taxa with a reduced coverage.

Key species: *Polytrichum piliferum* (1; DCI), *Sedum urvillei* subsp. *hillebrandtii* (1; DCI).

Threatened species: *Ephedra distachya* (+; DCI), *Gagea bulbifera* (+; DCI), *Koeleria lobata* (+; DCI), *Thymus zygoides* (1; DCI).

Other species: *Acinos arvensis* (+; DCI), *Asperula tenella* (+; DCI), *Chelidonium majus* (+; DCI), *Erodium cicutarium* (+; DCI), *Erophila verna* (+; DCI), *Lamium amplexicaule* (+; DCI), *Muscari racemosum* (+; DCI), *Poa bulbosa* (+; DCI), *Ranunculus illyricus* (+; DCI), *Taraxacum erythrospermum* (+; DCI), *Veronica hederifolia* (+; DCI).

The association can be considered endangered and low disturbed, being studied within the Dealurile Beștepe Nature Reserve, Beștepe TAU, Dealul Călugăru-lancina Nature Reserve, Jurilovca TAU. It has an important conservation value also due to the six threatened taxa, mainly endangered within the plots (*Ephedra distachya*, *Festuca callieri*, *Gagea bulbifera*, *Koeleria lobata*, *Silene compacta*, *Thymus zygoides*).

***Teucrio polii-Melicetum ciliatae* V. Pușcaru et al. 1978**, a vulnerable plant community, studied within Dealul Călugăru-lancina Nature Reserve (DCI), has a low dominance of ruderal species, five taxa being framed in this category. There is just one rare threatened species in the recorded plot, endangered within the respective phytocoenosis.

Key species: *Melica ciliata* (3; DCI), *Teucrium polium* subsp. *capitatum* (+; DCI).

Threatened species: *Thymus zygoides* (+; DCI).

Other species: *Achillea coarctata* (+; DCI), *Agropyron cristatum* (1; DCI), *Asperula tenella* (+; DCI), *Bromus squarrosus* (+; DCI), *Carduus thoermeri* (+; DCI), *Carthamus lanatus* (+; DCI), *Cichorium intybus* (+; DCI), *Convolvulus cantabricus* (+; DCI), *Echium italicum* (±; DCI).

***Teucrio polii-Melicetum ciliatae* V. Pușcaru et al. 1978** plant community, observed at Cape Doloșman (CDO), Jurilovca TAU, where it can be considered vulnerable, is developed on screes, which only allow the presence of few species, among which no ruderal/ alien plants were identified.

Key species: *Melica ciliata* (4; CDO).

Other species: *Crataegus monogyna* (+; CDO), *Dactylis glomerata* (+; CDO), *Pyrus pyraister* (+; CDO), *Poa angustifolia* (+; CDO), *Ulmus procera* (+; CDO).

This plant community can be considered as vulnerable, being framed between low disturbed and undisturbed. It was studied within Dealul Călugăru-

Iancina Nature Reserve and Cape Doloşman (Jurilovca TAU), where only one rare threatened species, *Thymus zygioides* was recorded in the plots, being endangered within the respective phytocoenosis.

34.9213 Western Pontic feathergrass steppes

***Stipo ucrainicae-Festucetum valesiaca* Dihoru (1969) 1970** is a vulnerable primary cenotaxon, having a regional character specific to Dobrogea. In the studied area there were inventoried four rare threatened species, mostly endangered within the plots, except the key species *Stipa ucrainica*. Of these, the two subendemic *Euphorbia nicaeensis* subsp. *cadrlateri* and *Euphorbia nicaeensis* subsp. *dobrogensis* are endangered within the cenotaxon, while *Tanacetum millefolium* is vulnerable. The highest conservative value is held by *Stipa ucrainica*, a threatened species of European importance. The association was identified in a single location, on the hill westwards of Zaporojeni Fortress (CZV), Murighiol TAU. Six ruderal species with significant coverage (+-1) indicate a medium disturbance due to grazing.

Key species: *Festuca valesiaca* (1; CZV), *Stipa ucrainica* (2; CZV).

Threatened species: *Euphorbia nicaeensis* subsp. *cadrlateri* (+; CZV), *Euphorbia nicaeensis* subsp. *dobrogensis* (+; CZV), *Stipa ucrainica* (2; CZV), *Tanacetum millefolium* (+-1; CZV).

Other species: *Anthemis tinctoria* (+; CZV), *Arenaria serpyllifolia* (+; CZV), *Artemisia austriaca* (1; CZV), *Aster oleifolius* (+; CZV), *Eryngium campestre* (+; CZV), *Koeleria macrantha* (1; CZV), *Medicago minima* (+; CZV), *Papaver dubium* (+; CZV), *Phlomis pungens* (+; CZV), *Poa bulbosa* (1; CZV), *Potentilla argentea* (+; CZV), *Salvia austriaca* (+; CZV), *Salvia nemorosa* (+; CZV), *Senecio vernalis* (+; CZV), *Silene conica* (+; CZV), *Thymus pannonicus* (+; CZV), *Veronica dillenii* (+; CZV), *Viola arvensis* (+; CZV).

6260 * Pannonic sand steppes (PAL.CLASS.: 34.A1, 34.A2)

34.A2 Ponto-Sarmatic sand steppes

Some of the key species of the 6120 habitat, like *Carex ligERICA*, *Euphorbia seguieriana*, *Helichrysum arenarium*, *Koeleria glauca* could indicate similarities with the plant communities typical for the sandy steppes that occur in the Danube Delta, framed within the subtype **34.A21 Western Pontic sand steppes** and within the corresponding *Festucetalia vaginatae* order. Within this order there are included numerous plant communities mentioned from the Danube Delta and its adjacent areas from the Dobrogea Plateau (SANDA, ARCUŞ, 1999), which were also identified and described within proper research presented in this work, that are obviously included in the **6260* Pannonic sand steppes**. In conclusion the sandy steppes of the Danube Delta and the associated sites are framed obviously within the **6260* Pannonic sand**

steppes (PAL.CLASS.: 34.A1, 34.A2), in its description being explicitly mentioned the West Pontic basin, that includes the Danube Delta Biosphere Reserve and its associated sites.

Probably due to a confusion between the two community interest habitats **6120* Xeric sand calcareous grasslands** (PAL.CLASS.: 34.12)-**34.12 Middle European pioneer calcareous sand swards**, respectively the **6260* Pannonic sand steppes** (PAL.CLASS.: 34.A1, 34.A2)-**34.A21 Western Pontic sand steppes**, the first habitat was included on the list of the D.D.B.R. habitats, while the second is missing. This confusion should be urgently revised, in order to replace the habitat **6120*** with **6260*** on the official list of the D.D.B.R. habitats of community interest, or to mention both provisory, until accurate research will clarify this problem. On the other hand the priority habitat **6260*** occur without any doubt in the D.D.B.R. and associated sites, including all the sand steppes of this area, so that is unlike that some of these steppes could be framed into the **6120*** habitat. In this respect the presence of the **6260*** habitat within the D.D.B.R. and associated sites should be officially admitted, in order to include this priority habitat within management plans, or to readjust the management measures elaborated for the **6120*** habitat to the **6260***, taking into account that they are similar.

This **6260*** habitat can be considered overall as sporadic, but sometimes it was identified also with different frequencies from endangered to very frequent. It was mostly recorded as highly disturbed, followed in decreasing order by medium or low disturbed phytocoenoses, rarely undisturbed cases. The locations where it was observed are: between Letea and C.A. Rosetti, Pădurea Letea strictly protected area, between C.A. Rosetti and Cardon (C.A. Rosetti TAU), west of Dunavățu de Jos, between Dunavățu de Jos and Zaporojeni Fortress, in its vicinity, within the Pardina TAU and along the road between Tudor Vladimirescu (Tulcea TAU)-Ceatalchioi-Plauru (Ceatalchioi TAU), west of Dunavățu de Jos (Murighiol TAU), westwards the Caraorman village, Caraorman Forest (Crișan TAU), Câșla Vădanei (Sfântu Gheorghe TAU), Bisericuța Island (Jurilovca TAU), Plaja (Beach) Vadu (Corbu TAU).

This habitat has an enhanced conservation importance as it holds the second place after the **62C0* Ponto-Sarmatic steppes** habitat, with its 13 threatened species, mostly endangered within the plots: *Artemisia tschernieviana*, *Astragalus varius*, *Convolvulus persicus*, *Ephedra distachya*, *Eryngium maritimum*, *Leymus racemosus* subsp. *sabulosus*, *Limonium meyeri*, *Onosma arenaria*, *Periploca graeca*, *Plantago coronopus*, *Salix rosmarinifolia*, *Syrenia montana*, except the critically endangered *Corispermum marchalii*.

34.A21 Western Pontic sand steppes

This habitat subtype includes within the studied area the plant communities framed within the *Festucion vaginatae* alliance, and consequently, according to synthesis references (SANDA, ARCUŞ, 1989), the coenotaxa ***Saliceto rosmarinifoliae-Holoschoenetum vulgaris* Mititelu et al. 1973**. This one can be also framed according to the Palaearctic Habitats Classification within the subtype **37.26412 Pontic dune slack *Holoschoenus* grasslands**, which is not included in any habitats of community interest. Thus, within this work these plant communities will be considered as framed within 34.A21, also taking into account their restricted distribution, only within the sand dunes of the Letea and Caraorman levees, which require proper conservation measures, first of all their framing into this protected habitat 6260*.

Overall this habitat subtype/ plant community can be considered as vulnerable and low disturbed. It was identified between C.A. Rosetti and Cardon, Letea Forest (C. A. Rosetti TAU), Caraorman Forest, west of the village of Caraorman (Crişan TAU). Three threatened species were recorded, *Limonium meyeri*, *Periploca graeca*, *Salix rosmarinifolia*, the first critically endangered within these phytocoenoses, the second vulnerable, while the third is sporadic to frequent.

***Saliceto rosmarinifoliae-Holoschoenetum vulgaris* Mititelu et al. 1973** was inventoried as vulnerable between C.A. Rosetti and Cardon (RC), where the only threatened species encountered in this subassociation ***holoschoenetum* Popescu et Sanda 1987**, was *Limonium meyeri*, critically endangered within these phytocoenoses. These are low disturbed, as indicated by one ruderal species and the alien taxa *Conyza canadensis* and *Elaeagnus angustifolia*, all with a reduced dominance.

Key species: *Scirpoides holoschoenus* (3; RC).

Threatened species: *Limonium meyeri* (r; RC).

Other species: *Carex colchica* (+; RC), *Conyza canadensis* (+; RC), *Cynodon dactylon* (2; RC), *Daucus carota* (+; RC), *Elaeagnus angustifolia* (+; RC), *Euphorbia seguieriana* (+; RC), *Juncus littoralis* (+; RC), *Medicago falcata* (+; RC), *Plantago arenaria* (+; RC), *Polygonum arenarium* (+; RC), *Scabiosa argentea* (+; RC), *Teucrium scordium* (+; RC), *Verbascum banaticum* (+; RC), *Vincetoxicum hirundinaria* (+; RC).

***Saliceto rosmarinifoliae-Holoschoenetum vulgaris* Mititelu et al. 1973** was inventoried as vulnerable within the Letea Forest (PL), there were also recorded phytocoenoses dominated by *Salix rosmarinifolia*, plus another rare threatened species, *Periploca graeca*, vulnerable within the plots. These coenotaxa are low disturbed, as indicated by one ruderal species and the alien taxa *Conyza canadensis*, all with a reduced dominance.

Key species: *Scirpoides holoschoenus* (+, PL), *Salix rosmarinifolia* (4; PL).

Threatened species: *Periploca graeca* (1; PL), *Salix rosmarinifolia* (4; PL).

Other species: *Consolida regalis* (+; PL), *Conyza canadensis* (+; PL), *Euphorbia seguieriana* (+; RC), *Linaria genistifolia* (+; PL), *Vincetoxicum hirundinaria* (+; PL).

Saliceto rosmarinifoliae-Holoschoenetum vulgaris Mititelu et al. 1973 forms vulnerable and undisturbed pioneer thickets within the strictly protected area of the Caraorman Forest (CO). The species *Salix rosmarinifolia* is the only threatened taxon.

Key species: *Salix rosmarinifolia* (3; CO), *Scirpoides holoschoenus* (+; CO).

Threatened species: *Salix rosmarinifolia* (3; CO)

Other species: *Artemisia campestris* (+; CO), *Asparagus pseudoscaber* (+; CO), *Calamagrostis epigeios* (+; CO), *Carex colchica* (+; CO), *Centaurea arenaria* (+; CO), *Cynodon dactylon* (+; CO), *Euphorbia seguieriana* (+; CO), *Populus alba* (+; CO), *Quercus pedunculiflora* (+; CO), *Tamarix ramosissima* (+; CO).

Saliceto rosmarinifoliae-Holoschoenetum vulgaris Mititelu et al. 1973 is represented by vulnerable phytocoenoses dominated by *Scirpoides holoschoenus*, without the participation of the species *Salix rosmarinifolia*, as in the cases observed west of the village of Caraorman (COV), Crișan TAU. A low disturbance is indicated by the alien species *Conyza canadensis*.

Key species: *Scirpoides holoschoenus* (4; CO).

Other species: *Asparagus pseudoscaber* (+; CO), *Calamagrostis epigeios* (+-1; CO), *Carex colchica* (+-1; CO), *Centaurea arenaria* (+; CO), *Conyza canadensis* (+; CO), *Euphorbia seguieriana* (+; CO), *Juncus littoralis* (+; RC), *Hippophaë rhamnoides* (1; CO), *Rosa canina* (+; CO), *Tamarix ramosissima* (+; CO), *Verbascum banaticum* (+; CO).

34.A2111 Western Pontic sand pioneer grass swards

This habitat subtype was identified as endangered to very frequent. It was observed between Letea and C.A. Rosetti, Bisericuța Island, and west of Dunavățu de Jos, between Dunavățu de Jos and Zaporojeni Fortress, in its vicinity, as well as within the Pardina TAU and along the road between Tudor Vladimirescu-Ceatalchioi-Plauru, Ceatalchioi TAU. Three threatened species were recorded, *Limonium meyeri*, *Periploca graeca*, both endangered within the plots, respectively the vulnerable *Plantago coronopus*.

Bromo-Cynodontetum Pop I. 1970 occupies important areas, being very frequent between Letea and C.A. Rosetti (LR), where it covers most of the flat

sandy terrain, its monotonous appearance being interrupted by inflorescences of the rare threatened species *Limonium meyeri*, endangered within these phytocoenoses. It can be considered as medium disturbed, as shown by the four ruderal species with a reduced coverage.

Key species: *Bromus tectorum* (1; LR), *Cynodon dactylon* (3; LR).

Threatened species: *Limonium meyeri* (+; LR).

Other species: *Elymus repens* (+; LR), *Artemisia santonica* (+; LR), *Consolida regalis* (+; LR), *Eryngium campestre* (+; LR), *Euphorbia seguieriana* (1; LR), *Holoschoenus vulgaris* (1; LR), *Juncus littoralis* (+; LR), *Medicago minima* (+; LR), *Plantago arenaria* (1; LR), *Teucrium scordium* (+; LR), *Vincetoxicum hirundinaria* (+; LR).

Bromo-Cynodontetum Pop I. 1970, was observed as very frequent between Letea and C.A. Rosetti (LR). It can be considered medium disturbed, as indicated by the three ruderal species with a reduced coverage. *Plantago coronopus* is the only threatened species, vulnerable within the plots.

Key species: *Bromus squarrosus* (1; LR), *Cynodon dactylon* (3; LR).

Threatened species: *Plantago coronopus* (1; LR).

Other species: *Artemisia austriaca* (+; LR), *Eryngium campestre* (+; LR), *Euphorbia seguieriana* (+; LR), *Juncus littoralis* (+; LR).

Bromo-Cynodontetum Pop I. 1970 can be considered as rare in the area between C.A. Rosetti and Cardon (RC). A low disturbance is indicated by one ruderal taxon, with a reduced coverage.

Key species: *Bromus squarrosus* (+; RC), *Cynodon dactylon* (2; RC).

Other species: *Euphorbia seguieriana* (1; RC), *Linum austriacum* (+; RC), *Polygonum arenarium* (+; RC), *Secale sylvestre* (+; RC).

Bromo-Cynodontetum Pop 1977 was recorded as endangered on the Bisericuța Island (IB), where it occupies restricted areas, on soils with a limestone substrate. It can be considered as highly disturbed, as shown by the four ruderal species with a reduced coverage.

Key species: *Bromus tectorum* (3; IB), *Cynodon dactylon* (2; IB).

Other species: *Allium rotundum* (+; IB), *Ballota nigra* (+; IB), *Chondrilla juncea* (+; IB), *Chenopodium album* (+; IB), *Verbascum banaticum* (+; IB).

Bromo-Cynodontetum Pop 1977 plant community was described as endangered from Insula Bisericuța (Bisericuța Island), Jurilovca TAU, within the Razim Lagoon where, as a particular aspect, this phytocoenosis does not occur on sand substrata but on steppe soils formed on loess. There can be assessed an intense level of disturbance due to the invasive tendencies of both non-native species (*Amorpha fruticosa*) and mainly ruderal taxa, these being represented by four such species with a significant dominance of (+-2).

Key species: *Bromus tectorum* (2; IB), *Cynodon dactylon* (3; IB).

Other species: *Amorpha fruticosa* (+; IB), *Cichorium intybus* (+; IB), *Malva sylvestris* (+; IB), *Onopordum acanthium* (+; IB), *Trigonella procumbens* (+; IB).

Bromo-Cynodontetum I. Pop 1970 is characteristic of sandy soils west of Dunavățu de jos (DDV), where it is predominant, being sporadic in natural meadows. Four ruderal species and an alien one (*Conyza canadensis*) with a reduced coverage, indicate a low disturbance.

Key species: *Bromus tectorum* (+; DJV), *Cynodon dactylon* (3; DJV).

Other species: *Artemisia annua* (+; DJV), *Consolida regalis* (+; DJV), *Conyza canadensis* (+; DJV), *Cynanchum vincetoxicum* (+; DJV), *Euphorbia seguieriana* (+; DJV), *Linaria genistifolia* (+; DJV), *Plantago arenaria* (2; DJV), *Polygonum arenarium* (+; DJV), *Verbascum banaticum* (+; DJV), *Xanthium italicum* (+; DJV).

The plant community, recorded overall as endangered to very frequent, can be considered from low to highly disturbed, being observed between Letea and C.A. Rosetti, Bisericuța Island, and west of Dunavățu de Jos. Only *Limonium meyeri* was noticed as a threatened plant, endangered within the plots.

Brometum tectorum Bojko 1934 characterizes the natural vegetation of the sandy meadows between Dunavățu de Jos and Zaporojeni Fortress (DZ), where it can be considered vulnerable. It can be assessed as a medium disturbed association, as the ruderal species prevail, even if having a low coverage.

Key species: *Bromus tectorum* (4; DZ).

Other species: *Anthemis austriaca* (+; DZ), *Chondrilla juncea* (+; DZ), *Convolvulus arvensis* (+; DZ), *Descurainia sophia* (+; DZ), *Papaver rhoeas* (+; DZ), *Silene conica* (+; DZ).

Brometum tectorum Bojko 1934 was observed in the vicinity of the Zaporojeni Fortress (CZ), where it can be considered vulnerable. This can be an example of highly disturbed phytocoenosis, with its seven ruderal species, of which *Bromus tectorum* is dominant.

Key species: *Bromus tectorum* (5; CZ).

Other species: *Anthemis austriaca* (+; CZ), *Bassia prostrata* (+; CZ), *Descurainia sophia* (+; CZ), *Euphorbia agraria* (+; CZ), *Hordeum murinum* (1; CZ), *Kohlruschia prolifera* (+; CZ), *Marrubium peregrinum* (+; CZ), *Medicago minima* (+; CZ), *Poa bulbosa* (1; CZ), *Salvia nemorosa* (+; CZ), *Senecio vernalis* (+; CZ), *Sisymbrium orientale* (+; CZ), *Trigonella procumbens* (+; CZ).

Brometum tectorum Bojko 1934, sporadic, intensely grazed in the studied areas, from the territory of the Pardina TAU, dominated by ruderal species, of which *Bromus tectorum* is dominant, can be framed into the highly disturbed category.

Key species: *Bromus tectorum* (4; PA).

Other species: *Elymus repens* (1; PA), *Althaea officinalis* (+; PA), *Bromus hordeaceus* (1; PA), *Centaurea calcitrapa* (+; PA), *Hordeum murinum* (+; PA), *Matricaria recutita* (+; PA), *Plantago major* (1; PA), *Potentilla reptans* (1; PA).

***Brometum tectorum* Bojko 1934** was encountered as vulnerable within the pastures distributed predominantly along the Tudor Vladimirescu-Ceatalchioi-Plauru road, Ceatalchioi TAU (CET), under intense grazing conditions, where half of the species are ruderal, including the dominant *Bromus tectorum*, thus being highly disturbed.

Key species: *Bromus tectorum* (3; CET)

Other species: *Achillea setacea* (+; CET), *Elymus repens* (1; CET), *Althaea officinalis* (+; CET), *Artemisia annua* (+; CET), *Bromus hordeaceus* (+; CET), *Centaurea calcitrapa* (+; CET), *Potentilla reptans* (+; CET), *Rorripa sylvestris* (+; CET), *Rumex palustris* (+; CET).

The association is mostly vulnerable, up to sporadic sometimes, being highly disturbed (medium disturbed in some cases). It was recorded between Dunavățu de Jos and Zaporojeni Fortress, in its vicinity, as well as within the Pardina TAU and along the road between Tudor Vladimirescu-Ceatalchioi-Plauru, Ceatalchioi TAU.

***Secali sylvestris-Brometum tectorum* Harghitai 1940** was studied as an endangered and undisturbed pioneer vegetation, with very low coverage on the dunes northwards of the Caraorman levee, northwest of the village (CON), Crișan TAU. Despite the low number of species, the conservation value of the phytocoenosis is increased by the critically endangered taxa *Corispermum marschalii*.

Key species: *Secale sylvestre* (1; CON).

Threatened species: *Corispermum marschalii* (r; CON).

Other species: *Centaurea arenaria* (+; CON), *Euphorbia seguieriana* (+; CON).

***Secali sylvestris-Brometum tectorum* Harghitai 1940**, a vulnerable and low disturbed plant community, at the Plaja (Beach) Vadu (VDC), Corbu TAU. Its conservation value is enhanced by the rare threatened taxa *Astragalus varius*, endangered within the plots.

Key species: *Bromus tectorum* (+; VDC), *Secale sylvestre* (1; VDC).

Threatened species: *Astragalus varius* (+; VDC).

Other species: *Apera spica-venti* (+; VDC), *Centaurea arenaria* (+; VDC), *Cynanchum acutum* (+; VDC), *Cynodon dactylon* (+; VDC), *Euphorbia seguieriana* (1; VDC), *Linaria genistifolia* (+; VDC), *Linum austriacum* (+; VDC), *Plantago arenaria* (+; VDC), *Polygonum arenarium* (1; VDC), *Scabiosa argentea* (+; VDC), *Teucrium polium* subsp. *capitatum* (+; VDC), *Plantago arenaria* (+; VDC), *Scirpoides holoschoenus* (+; VDC).

***Secali sylvestris-Brometum tectorum* Harghita 1940**, is a rare and undisturbed plant community, at the Plaja (Beach) Vadu (VDS), Săcele TAU. Three threatened species were recorded, of which *Artemisia tschernieviana* is also endangered at the national level. All these are endangered within the plots.

Key species: *Secale sylvestre* (2; VDS).

Threatened species: *Artemisia tschernieviana* (+; VDS), *Ephedra distachya* (+; VDS), *Eryngium maritimum* (+; VDS).

Other species: *Centaurea arenaria* (+; VDS), *Euphorbia seguieriana* (1; VDS), *Linum austriacum* (+; VDS), *Medicago falcata* (+; VDS), *Polygonum arenarium* (+; VDS), *Salsola soda* (+; VDS).

This plant community is considered overall as endangered to vulnerable and undisturbed (rarely low disturbed), being found on the Caraorman levee, northwest of the village (Crișan TAU) and at Plaja (Beach) Vadu (Corbu TAU, Săcele TAU). Five threatened species enhance the conservation value of this coenotaxa, the critically endangered *Corispermum marchalii* and the endangered *Artemisia tschernieviana*, *Astragalus varius*, *Eryngium maritimum*, *Ephedra distachya*.

***Aperetum maritimae* Popescu, Sanda, Doltu 1980** was recorded within the Letea forest (PL), where it can be considered endangered and low disturbed due to the two ruderal taxa that were observed. *Periploca graeca* is the only threatened species identified within this coenotaxon, endangered within the plots.

Key species: *Apera spica-venti* (3; PL).

Threatened species: *Periploca graeca* (+; PL).

Other species: *Bromus squarrosus* (+; PL), *Cynanchum acutum* (+; PL), *Cynodon dactylon* (1; PL), *Euphorbia seguieriana* (1; PL), *Secale sylvestre* (+; PL), *Verbascum banaticum* (+; PL).

34.A2112 Western Pontic sand pioneer forb swards

The habitat subtype/plant community is framed between vulnerable and sporadic and from undisturbed to low disturbed, due to ruderal and less to alien species. It was identified west of Dunavățu de Jos (Murighiol TAU) and Plaja (Beach) Corbu (Corbu TAU). Three endangered-vulnerable threatened species were recorded within the plots *Artemisia tschernieviana* and *Eryngium maritimum*.

***Plantaginetum arenariae* (Buia et al. 1960) Popescu, Sanda 1987**, is spread as sporadic and low disturbed (with two ruderal and one alien species, *Conyza canadensis*) on important areas on the sands to the west of Dunavățu

de Jos (DJV), Murighiol TAU. The dominant *Plantago arenaria* is also a threatened species, rare at the national level.

Key species: *Plantago arenaria* (4; DJV).

Threatened species: *Plantago arenaria* (4; DJV).

Other species: *Chondrilla juncea* (+; DJV), *Centaurea arenaria* (1; DJV), *Conyza canadensis* (+; DJV), *Convolvulus arvensis* (+; DJV), *Medicago falcata* (+; DJV), *Polygonum arenarium* (+; DJV), *Verbascum banaticum* (+; DJV).

***Plantaginietum arenariae* (Buia et al. 1960) Popescu, Sanda 1987**, is spread as vulnerable and undisturbed at Plaja (Beach) Corbu (CRB), Corbu TAU. Two rare threatened species enhance the conservation importance of these phytocoenoses (*Artemisia tschernieviana*, *Eryngium maritimum*), the first being endangered at the national level and vulnerable locally, while the second is endangered, at least within the plots.

Key species: *Plantago arenaria* (2; CRB).

Threatened species: *Artemisia tschernieviana* (1; CRB), *Eryngium maritimum* (+; CRB), *Plantago arenaria* (2; CRB).

Other species: *Artemisia tschernieviana* (1; CRB), *Centaurea arenaria* (1; CRB), *Eryngium maritimum* (+; CRB), *Euphorbia seguieriana* (+; CRB), *Polygonum arenarium* (+; CRB).

34.A21222 Western Pontic *Scabiosa* sand steppes

This habitat subtype/ association is mainly sporadic, sometimes from vulnerable to rare. It is considered as low disturbed to undisturbed. It was recorded between C.A. Rosetti and Cardon (C.A. Rosetti TAU), within the Caraorman Forest (Crișan TAU), at Câșla Vădanei (Sfântu Gheorghe TAU) and at Plaja (Beach) Vadu (Corbu TAU). This is one of the richest plant communities from the threatened species point of view (eight species), most of them being endangered within the phytocoenoses (*Astragalus varius*, *Convolvulus persicus*, *Ephedra distachya*, *Leymus racemosus* subsp. *sabulosus*, *Onosma arenaria*, *Periploca graeca*, *Salix rosmarinifolia*, *Syrenia montana*).

***Scabioso argenteae-Caricetum colchicae* (Simon 1960) Krausch 1965** dominates the semi-desert vegetation characteristic of the sand dunes in the Letea forest (PL), where it is sporadic. This coenotaxon has five rare threatened taxa that were identified, all endangered locally. A very low disturbance is underlined by the presence of the ruderal species *Consolida regalis*.

Key species: *Carex colchica* (2; PL), *Ephedra distachya* (1; PL), *Scabiosa argentea* (1; PL).

Threatened species: *Ephedra distachya* (1; PL), *Leymus racemosus* subsp. *sabulosus* (+; PL), *Periploca graeca* (+; PL), *Salix rosmarinifolia* (+; PL), *Syrenia montana* (+; PL).

Other species: *Artemisia campestris* (1; PL), *Centaurea arenaria* (+; PL), *Consolida regalis* (+; PL), *Cynodon dactylon* (+; PL), *Euphorbia seguieriana* (+; PL), *Scirpoides holoschoenus* (+; PL), *Linum austriacum* (+; PL), *Polygonum arenarium* (+; PL), *Secale sylvestre* (1; PL), *Vitis sylvestris* (r; PL).

Scabioso argenteae-Caricetum colchicae (Simon 1960) Krausch 1965 is synonymous with **Caricetum colchicae (Simon 1960) Krausch 1965**. It can be considered sporadic within the dunes in the Letea forest (PL), where it is mainly represented by its sub-association **ephedretosum stat. nov.**, synonymous with **Ephedro-Caricetum colchicae (Prodan 1939 n.n. Morariu 1959) Sanda et Popescu 1973**. Only one rare threatened taxa was observed in the plots, the co-dominant *Ephedra distachya*. Although this plant community seems undisturbed as no ruderal, nor alien species were observed, still some species were grazed, more probably by the rare horses or cattle small herds.

Key species: *Carex colchica* (1; PL), *Ephedra distachya* (2; PL), *Scabiosa argentea* (+; PL).

Threatened species: *Ephedra distachya* (2; PL).

Other species: *Artemisia campestris* (1; PL), *Cynodon dactylon* (+; PL), *Euphorbia seguieriana* (1; PL), *Polygonum arenarium* (+; PL), *Prunus spinosa* (+; PL), *Secale sylvestre* (1; PL).

Scabioso argenteae-Caricetum colchicae (Simon 1960) Krausch 1965 was identified as sporadic among the white poplar clumps between C.A. Rosetti and Cardon (RC). Two rare treated species were identified, all endangered within the association (*Convolvulus persicus*, *Ephedra distachya*). A low disturbance is indicated by the presence of two ruderal species, with a low coverage.

Key species: *Carex colchica* (2; RC), *Scabiosa argentea* (1; RC).

Threatened species: *Convolvulus persicus* (+; RC), *Ephedra distachya* (+; RC).

Other species: *Artemisia campestris* (1; RC), *Bassia laniflora* (+; RC), *Bromus tectorum* (+; RC), *Centaurea arenaria* (+; RC), *Consolida regalis* (+; RC), *Cynodon dactylon* (+; RC), *Euphorbia seguieriana* (1; RC), *Helichrysum arenarium* (r; RC), *Plantago arenaria* (+; RC), *Silene conica* (+; RC).

Scabioso argenteae-Caricetum colchicae (Simon 1960) Krausch 1965 covers the largest part of the dunes in the strictly protected area, where it can be considered as rare and undisturbed, both in the Caraorman Forest area (CO), Crișan TAU, as well as in the area of the dunes that extends northwards from its boundaries. Characteristic of mobile and semimobile dunes, these phytocoenoses have a sparse appearance, generally with a low coverage,

gradually decreasing to the most exposed areas to the wind.

Key species: *Carex colchica* (2; CO), *Scabiosa argentea* (+; CO).

Other species: *Artemisia campestris* (+; CO), *Bassia laniflora* (+; CO), *Euphorbia seguieriana* (2; CO), *Linum austriacum* (+; CO), *Polygonum arenarium* (+; CO), *Scirpoides holoschoenus* (+; CO), *Secale silvestre* (1; CO), *Syrenia cana* (+; CO).

Scabioso argenteae-Caricetum colchicae (Simon 1960) Krausch 1965 is a vulnerable and undisturbed plant community, typical of the dunes on the seashore, especially for the Cășla Vădanei (VDS) area, Sfântu Gheorghe TAU, from which the presence of two threatened species was highlighted. Of these, *Onosma arenaria* is endangered and subendemic, while *Ephedra distachya* is vulnerable within the phytocoenoses.

Key species: *Carex colchica* (1; GCV), *Scabiosa argentea* (+; GCV).

Threatened species: *Onosma arenaria* (+; GCV), *Ephedra distachya* (1; GCV).

Other species: *Bassia laniflora* (+; GCV), *Centaurea arenaria* (1; GCV), *Cynanchum acutum* (+; GCV), *Euphorbia seguieriana* (1; GCV), *Hippophaë rhamnoides* (+; CTA), *Linum austriacum* (+; GCV), *Polygonum arenarium* (+; CTA), *Vincetoxicum hirundinaria* (+; GCV).

Scabioso argenteae-Caricetum colchicae (Simon 1960) Krausch 1965 is a vulnerable and undisturbed plant community at Plaja (Beach) Vadu (VDC), Corbu TAU. Only one rare threatened taxa was identified, endangered within these phytocoenoses.

Key species: *Carex colchica* (2; VDC), *Scabiosa argentea* (+; VDC).

Threatened species: *Astragalus varius* (+; VDC).

Other species: *Centaurea arenaria* (+; VDC), *Euphorbia seguieriana* (+; VDC), *Medicago falcata* (+; VDC), *Linum austriacum* (+; VDC), *Linaria genistifolia* (+; VDC), *Secale silvestre* (1; VDC).

6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (PAL.CLASS.: 37.7 and 37.8)

37.7 Wet and nitrophilous tall herb edge communities, along water courses and woodland borders

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 136,093 ha and a conservation status of A level.

Even if it is more widespread within the D.D.B.R., within proper research this habitat was so far recorded as endangered and undisturbed only in the Letea village surroundings, C.A.Rosetti TAU, but it was also observed along the channel that links Letea village with Merhei Lake.

***Euphorbietum palustris* Westhoff 1969** is a plant community that was identified as endangered and undisturbed in the surroundings of the Letea village, C.A.Rosetti TAU (LE).

Key species: *Euphorbia palustris* (2; LE).

Other species: *Cynodon dactylon* (1; LE), *Mentha aquatica* (1; LE), *Potentilla reptans* (1; LE), *Schoenoplectus lacustris* (+; LE).

7210 *Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (PAL.CLASS.: 53.3)

53.3 Fen-sedge beds

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 4 ha and a conservation status of B level.

The habitat, that is described in the PHYSIS database as the subtype **53.3 Fen-sedge beds** was observed within proper studies only on reduced areas along the Litoral (Tătaru) channel between Sfântu Gheorghe and Sulina, isolated in the middle of compact reed beds. Being inaccessible, it was not possible to record the component species within plots, nor to assess its conservation status in relation with ruderal/ alien species.

7230 Alkaline fens (PAL.CLASS.: 54.2)

54.2 Rich fens

This habitat is endangered and low disturbed within the Corbu Beach, as indicated by ruderal and alien species. It can be considered even critically endangered within the territory of the Danube Delta Biosphere Reserve and associated Natura 200 sites, as it was only found at Corbu within proper research, where it is highly threatened by tourism activities and especially by the expansion of constructions or roads. *Leymus racemosus* subsp. *sabulosus* is the only threatened species endangered within the plots.

As this habitat is not mentioned within the list of habitats of community interest within the D.D.B.R. and associates sites, it is possible that the similar 6420 habitat (see also comments about 6420 habitat within Chapter 1.3) was confused with the **7230 Alkaline fens** (PAL.CLASS.: 54.2) habitat of community interest. The latest habitat occur without any doubt within the D.D.B.R.. Thus, it was recorded within the Corbu Beach at least, presented within the present work, framed within the subtype **54.217 Pontic dunal black sedge fens**, described within the PHYSIS database, represented by the coenotaxon ***Orchido-Schoenetum nigricans* Oberd.1957**. This was also quoted from nearby areas, southwards of the Corbu Beach (Năvodari), or within the proper D.D.B.R., from Sărăturile levee and Sfiștofca (SANDA, ARCUȘ, 1999).

In this situation, if finally it will be officially admitted that the 6420 does not exist within the D.D.B.R., it could be replaced by the 7230 habitat within management measures that could be revised adequately, or adapted, as these are similar habitats.

54.217 Pontic dunal black sedge fens

***Orchido-Schoenetum nigricans* Oberd.1957**, described so far in synthesis works concerning the vegetation of Dobrogea (SANDA, ARCUŞ, 1999), is framed within the ***Caricion davallianae* Klika 1934** alliance that belongs to this habitat. It is an endangered plant community within the humid dune slacks of Corbu Beach (CRB), which is the only location where it was identified within proper research, within the whole Danube Delta Natura 2000 sites (SCI, SPA) that include the Danube Delta Biosphere Reserve territory. A low disturbance is indicated by one ruderal alien species, *Conyza canadensis*. Only the vulnerable and rare *Leymus racemosus* subsp. *sabulosus* was recorded in the plots, as endangered locally.

Key species: *Schoenus nigricans* (3; CRB).

Threatened species: *Leymus racemosus* subsp. *sabulosus* (+; CRB).

Other species: *Elymus elongatus* (+; CRB), *Artemisia santonica* (+; CRB), *Conyza canadensis* (+; CRB), *Daucus carota* (+; CRB), *Juncus littoralis* (+; CRB), *Holoschoenus vulgaris* (r; CRB), *Lythrum salicaria* (1; CRB), *Tamarix ramosissima* (+; CRB).

91AA* Eastern white oak woods (PAL.CLASS.: 41.7371, 41.7372)

41.7372 Moesian white oak woods

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 9 ha and a conservation status of B level.

This habitat subtype/ plant community is sporadic and low to highly disturbed within Dealurile Beştepe Nature Reserve (Mahmudia TAU). Two rare threatened species were identified, *Myrrhoides nodosa* and *Symphytum tauricum*, both endangered within the plots.

41.73723 Moesian *Paeonia peregrina*-white oak woods

***Paeonio peregrinae-Carpinetum orientalis* Doniţă 1970** plant community can be considered as sporadic within the Dealurile Beştepe Nature Reserve, Mahmudia TAU (DBM). From the two rare threatened species, both endangered within this phytocoenosis, *Symphytum tauricum* is only found in few protected areas in Dobrogea. The two ruderal species with reduced contribution to the inventory of this coenotaxon show a low disturbance from this point of view.

Key taxa: *Carpinus orientalis* (2; DBM), *Quercus pubescens* (2; DBM).

Threatened species: *Myrrhoides nodosa* (+; DBM), *Symphytum tauricum* (+; DBM).

Other species:

- trees: *Fraxinus ornus* (1; DBM);

- shrubs/ lianas: *Crataegus monogyna* (+; DBM), *Rhamnus cathartica* (+; DBM);

- grasses/ undershrubs: *Brachypodium sylvaticum* (+; DBM), *Galium aparine* (+; DBM), *Geum urbanum* (+; DBM), *Parietaria officinalis* (+; DBM), *Poa nemoralis* (+; DBM), *Polygonatum latifolium* (+; DBM), *Thlaspi perfoliatum* (+; DBM), *Vinca herbacea* (+; DBM).

***Paeonio peregrinae-Carpinetum orientalis* Doniță 1970** plant community is considered sporadic within the Dealurile Beștepe Nature Reserve, Mahmudia TAU (DBM), where the two ruderal taxa indicate a low disturbed phytocoenosis in the grasses layer. Still, this can be considered overall a highly disturbed coenotaxa, taking into account the absence of oaks in the tree layer.

Key species: *Carpinus orientalis* (5; DBM)

Other species:

- shrubs/ lianas: *Crataegus monogyna* (+; DBM), *Rhamnus cathartica* (+; DBM).

- grasses/ undershrubs: *Galium aparine* (+; DBM), *Geranium lucidum* (+; DBM), *Geum urbanum* (+; DBM), *Glechoma hirsuta* (+; DBM), *Stellaria media* (+; DBM).

92 A0 *Salix alba* and *Populus alba* galleries (PAL.CLASS.: 44.141, 44.162 and 44.6)

44.6 Mediterraneo-Turanian riverine forests

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 13609 ha and a conservation status of A level.

This habitat can be considered overall as mainly sporadic and less endangered to vulnerable, only in particular cases being observed as frequent locally. It is mostly a low disturbed habitat, sometimes undisturbed to medium disturbed as indicated by ruderal and less alien species. This could be explained by the negative effect of grazing, but also in the alien species case by the spreading of the seeds of non-native species (introduced in plantations or accidentally through human activities) mainly with the waters of the Danube nearly all over the Delta. There was observed also a particular case of soil salinization that advances towards the north-eastern edge of the Letea forest, that obviously has affected some areas where *Fraxinus pallisae* stands dried

out for this reason, outside the Letea Forest strictly protected area. The habitat is widespread in many areas of the Delta, being recorded at within the Danube floodplain, framed within the TAUs Grindu, Isaccea, Mahmudia, Nufăru, Tulcea Town (Dunărea Veche); the Eracle Channel (Chilia Veche TAU); Maliuc TAU, Lipovenilor Channel, east of the Dunavățu de Jos village (Murighiol TAU); banks along the Danube at Ivancea (Crișan TAU); channel between the Erenciuc Lake and the Caraorman levee, Pădurea Caraorman strictly protected area (Crișan TAU); Topolca forest (Ceatalchioi TAU); Pătlăgeanca and Ceatalchioi (Ceatalchioi TAU), Pardina TAU; northern and western part of the Letea levee, in the surroundings Periprava village, outside the Letea forest strictly protected area, between C.A. Rosetti and Cardon (C.A. Rosetti TAU). The only threatened species observed was *Periploca graeca* usually endangered, sometimes vulnerable.

44.1621 Lower Danube willow galleries

This habitat subtype/ plant community was mostly observed as vulnerable, and less as ranking from endangered to frequent (Figure 1). In most of the phytocoenoses a low level of disturbance was noticed, followed by medium levels, with only isolated cases of undisturbed plant communities. The disturbance is due mainly to ruderal taxa and less to alien species invasive tendencies. It was registered at Eracle Channel (Chilia Veche TAU), within the Danube floodplain framed within the TAUs Grindu, Isaccea, Mahmudia, Nufăru, Tulcea (Dunărea Veche), as well as in other locations like: Maliuc TAU, Lipovenilor Channel (Murighiol TAU), east of the Dunavățu de Jos village (Murighiol TAU), banks along the Danube at Ivancea (Crișan TAU), channel between the Erenciuc Lake and the Caraorman levee (Crișan TAU), Topolca forest (Ceatalchioi TAU), Pătlăgeanca (Ceatalchioi TAU), Pardina TAU, northern part of the Letea levee, in the surroundings Periprava village, outside the Pădurea Letea strictly protected area, C.A. Rosetti TAU. *Periploca graeca* is the only threatened taxon that was observed, endangered within the phytocoenoses.

***Salicetum albae* Issler 1924 s.l.** is considered a rare plant community in the Eracle Channel area (CHE), Chilia TAU. There can be estimated a medium level of non-native plant invasive tendencies (*Amorpha fruticosa*, *Prunus cerasifera*), taking into account their dominance variation limits (+-1). The only ruderal taxon recorded has a reduced dominance, so it indicates a low disturbance from this point of view.

Key species: *Amorpha fruticosa* (1; CHE), *Salix alba* (4; CHE).

Other species:

- trees: *Prunus cerasifera* (+; CHE);
- shrubs: *Rubus caesius* (1; CHE);
- grasses/ undershrubs: *Arctium lappa* (+; CHE), *Bidens tripartita* (+; CHE), *Iris pseudacorus* (+; CHE), *Myosotis scorpioides* (+; CHE), *Myosoton*

aquaticum (+; CHE), *Phragmites australis* (+; CHE), *Rumex palustris* (+; CHE), *Solanum dulcamara* (+; CHE), *Symphytum officinale* (±; CHE).

***Salicetum albae* Issler 1924 s.l.** is an endangered plant community which was observed on the Grindu TAU's territory, Danube Delta SPA, in the Danube floodplain (GL), as isolated willow stands. A medium level of disturbance, as a result of grazing, can be deduced from the presence of five ruderal taxa which represent half of the inventory.

Key species: *Populus alba* (+; GL), *Salix alba* (5; GL).

Other species: *Elymus repens* (+; GL), *Cannabis sativa* subsp. *spontanea* (+; GL), *Cynodon dactylon* (+; GL), *Mentha aquatica* (+; GL), *Setaria viridis* (+; GL), *Xanthium italicum* (+; GL).

***Salicetum albae* Issler 1924 s.l.** can be estimated as a vulnerable coenotaxon within the Danube floodplain, Isaccea town's territory, where it was studied downstream of Isaccea (ILD). The three non-native taxa with a significant dominance variation (+-1) indicate a medium disturbance.

Key species: *Amorpha fruticosa* (+; ILD), *Salix alba* (+; ILD).

Other species: *Fraxinus americana* (+; ILD), *Morus alba* (+; ILD), *Rubus caesius* (+; ILD), *Vitis sylvestris* (+; ILD), *Solanum dulcamara* (+; ILD).

***Salicetum albae* Issler 1924 s.l.** was observed as a vulnerable plant community within the Mahmudia TAU territory in the Danube floodplain (MLD), along the river. Some of the stands are formed of old growth trees. There can be estimated a low level of disturbance both from the non-native species presence (*Amorpha fruticosa*, *Fraxinus americana*, *Morus alba*) as well as due to the ruderal taxa invasive trends (three species).

Key species: *Amorpha fruticosa* (+; MLD), *Salix alba* (3; MLD).

Other species:

- trees: *Fraxinus americana* (+; MLD), *Morus alba* (+; MLD);

- grasses/ undershrubs: *Arctium lappa* (+; MLD), *Artemisia annua* (+; MLD), *Bidens tripartita* (+; MLD), *Elymus repens* (+; MLD), *Mentha pulegium* (+; MLD), *Myosoton aquaticum* (+; MLD), *Potentilla reptans* (+; MLD), *Rorippa sylvestris* (+; MLD).

***Salicetum albae* Issler 1924 s.l.** plant community can be considered sporadic within the Maliuc TAU area (MV). There can be assessed a medium degree of non-native species presence as *Amorpha fruticosa* reaches a dominance index of 1. Two ruderal species, with a reduced dominance, indicate a low disturbance level from this point of view.

Key species: *Amorpha fruticosa* (1; MV), *Salix alba* (4; MV).

Other species:

- shrubs/ lianas: *Rubus caesius* (+; MV);

- grasses/ undershrubs: *Arctium lappa* (+; MV), *Butomus umbellatus* (+; MV), *Lycopus europaeus* (+; MV), *Myosoton aquaticum* (+; MV), *Phragmites*

australis (+; MV), *Rorippa austriaca* (+; MV), *Rumex palustris* (+; MV), *Symphytum officinale* (+; MV), *Typha angustifolia* (+; MV), *Urtica dioica* (+; MV).

***Salicetum albae* Issler 1924 s.l.** plant community, considered vulnerable within the Nufăru TAU's territory, was inventoried in the Danube floodplain, along the Danube (NLD). The two non-native species (*Fraxinus americana*, *Morus alba*) show a low disturbance from this point of view.

Key species: *Salix alba* (5; NLD).

Other species:

- trees: *Fraxinus americana* (+; NLD), *Morus alba* (+; NLD);
- shrubs: *Rubus caesius* (+; NLD);
- grasses/ undershrubs: *Bidens tripartita* (+; NLD), *Calystegia sepium* (+; NLD), *Poa sylvicola* (+; NLD), *Solanum dulcamara* (+; NLD).

***Salicetum albae* Issler 1924 s.l.** plant community can be considered a vulnerable coenotaxon within the Dunărea Veche area, within the territory of Tulcea TAU (TDV). It has a low degree of ruderal plant invasion, as only one such species was identified here, with a restricted dominance.

Key species: *Salix alba* (5; TDV).

Other species:

- shrubs: *Rubus caesius* (+; TDV);
- grasses/ undershrubs: *Bidens tripartita* (+; TDV), *Bromus sterilis* (+; TDV), *Iris pseudacorus* (+; TDV), *Lycopus europaeus* (+; TDV), *Myosoton aquaticum* (+; TDV), *Poa sylvicola* (+; TDV), *Rumex palustris* (+; TDV), *Rumex hydrolapathum* (+; TDV), *Stachys palustris* (+; TDV).

***Salicetum albae* Issler 1924 s.l.** occurs as narrow strips the banks of the channels or of the Sfântu Gheorghe Arm of the Danube, Murighiol TAU, where it can be considered rare and low disturbed, as indicated by one ruderal species with a low coverage, being studied in the area of Lipovenilor Channel (CL).

Key species: *Salix alba* (4; CL).

Other species:

- shrubs/ lianas: *Rubus caesius* (+; CL);
- grasses/ undershrubs: *Calystegia sepium* (+; CL), *Carex riparia* (+; CL), *Iris pseudacorus* (+; CL), *Mentha aquatica* (+; CL), *Phragmites australis* (+; CL), *Solanum dulcamara* (+; CL), *Stachys palustris* (+; CL), *Tanacetum vulgare* (+; CL).

***Salicetum albae* Issler 1924 s.l.** was registered to the east of the Dunavățu de Jos village (DJE) Murighiol commune, where it can be considered vulnerable. It has a reduced participation of the ruderal species, being classified as low disturbed.

Key species: *Salix alba* (4; CL, DJE).

Other species:

- trees: *Morus alba* (+; DJE), *Populus nigra* (+; DJE), *Prunus cerasifera* (+; DJE);

- shrubs/ lianas: *Rubus caesius* (2; DJE);
 - grasses/ undershrubs: *Arctium lappa* (+; DJE), *Artemisia vulgaris* (+; DJE), *Berula erecta* (+; DJE), *Bidens tripartita* (+; DJE), *Carex riparia* (1; DJE), *Eupatorium cannabinum* (+; DJE), *Myosoton aquaticum* (+; DJE), *Phragmites australis* (+; DJE), *Ranunculus sceleratus* (+; DJE), *Solanum dulcamara* (+; DJE), *Typha angustifolia* (+; DJE).

***Salicetum albae* Issler 1924 s.l.** was recorded on the banks along the Danube, being rare at Ivancea (IV), Crișan TAU, where it can be considered low disturbed, as indicated by the two ruderal species and *Amorpha fruticosa*, an alien taxon.

Key species: *Amorpha fruticosa* (+; IV), *Salix alba* (5; IV).

Other species:

- grasses/ undershrubs: *Arctium lappa* (+; IV), *Bidens tripartita* (+; IV), *Glycyrrhiza echinata* (+; IV), *Iris pseudacorus* (+; IV), *Lycopus europaeus* (+; IV), *Lycopus exaltatus* (+; EC), *Mentha aquatica* (+; IV), *Plantago major* (+; IV), *Potentilla reptans* (+; IV), *Ranunculus sceleratus* (+; IV), *Rumex palustris* (+; IV).

***Salicetum albae* Issler 1924 s.l.** is frequent and in its natural status along the channel between the Erenciuc Lake and the Caraorman levee (EC), Crișan TAU.

Key species: *Salix alba* (5; EC).

Other species:

- trees: *Populus alba* (+; EC);
 - grasses/ undershrubs: *Bidens tripartita* (+; EC), *Iris pseudacorus* (+; EC), *Lycopus europaeus* (+; EC), *Lycopus exaltatus* (+; EC), *Mentha aquatica* (+; EC), *Myosoton aquaticum* (+; EC), *Solanum dulcamara* (+; EC), *Stachys palustris* (+; EC), *Tamarix ramosissima* (+; EC).

***Salicetum albae* Issler 1924 s.l.** occupies large and representative areas within the Ceatalchioi TAU, of high conservative and landscape value, in the Topolca forest (PTO) where it can be considered sporadic and low disturbed due to the presence of the alien species *Fraxinus americana* and of three ruderal species.

Key species: *Populus alba* (1; PTO), *Salix alba* (5; PTO).

Other species:

- trees: *Fraxinus americana* (+; PTO);
 - shrubs/ lianas: *Rubus caesius* (+; PTO);
 - grasses/ undershrubs: *Arctium lappa* (+; PTO), *Aristolochia clematitis* (+; PTO), *Glechoma hederacea* (+; PTO), *Gratiola officinalis* (+; PTO), *Lycopus europaeus* (+; PTO), *Lysmachia nummularia* (+; PTO), *Mentha aquatica* (+; PTO), *Myosoton aquaticum* (+; PTO), *Potentilla reptans* (+; PTO), *Rumex palustris* (+; PTO), *Urtica dioica* (+; PTO).

***Salicetum albae* Issler 1924 s.l.** was recorded as vulnerable, and low disturbed, as shown by three ruderal species. It was observed along the Danube's arms, to the south-east of Pătlăgeanca (PSE), Ceatalchioi TAU.

Key species: *Salix alba* (5; PSE).

Other species:

- shrubs/ lianas: *Rubus caesius* (+; PSE);
- grasses/ undershrubs: *Artemisia annua* (+; PSE), *Cynodon dactylon* (+; PSE), *Potentilla reptans* (+; PSE), *Solanum dulcamara* (+; PSE), *Stellaria media* (+; PSE), *Urtica dioica* (+; PSE).

***Salicetum albae* Issler 1924 s.l.** is sporadic on the territory of Pardina TAU. The analyzed phytocoenoses are disturbed at a medium level, as indicated by the dominance indices of the two ruderal and two alien species (*Fraxinus americana*, *Amorpha fruticosa*).

Key species: *Amorpha fruticosa* (1; PA), *Salix alba* (4; PA), *Populus alba* (1; PA), *Populus nigra* (+; PA).

Other species:

- trees: *Fraxinus americana* (+; PA)
- shrubs/ lianas: *Vitis sylvestris* (+; PA)
- grasses/ undershrubs: *Arctium lappa* (+; PA), *Bidens tripartita* (+; IV, EC; PA), *Bromus sterilis* (1; PA), *Rumex palustris* (+; PA), *Solanum dulcamara* (+; PA).

***Salicetum albae* Issler 1924 s.l.** was recorded as vulnerable the northern part of the Letea levee, in the surroundings Periprava village, outside the Pădurea Letea strictly protected area (PEN), C.A. Rosetti TAU. Locally some stands have willow trees probably older than a century, with a high conservation value. It can be considered low disturbed due to the presence of the alien species *Fraxinus americana* and *Morus alba*. The only threatened species is *Periploca graeca*, endangered within the plots.

Key species: *Salix alba* (4; PEN).

Threatened species: *Periploca graeca* (+; PEN)

Other species:

- trees: *Fraxinus americana* (+; PEN), *Morus alba* (+; PEN).
- grasses/ undershrubs: *Myosoton aquaticum* (+; PEN), *Potentilla reptans* (+; PEN), *Solanum dulcamara* (+; PEN), *Symphytum officinale* (+; PEN), *Viburnum opulus* (+; PEN).

44.6611 Western Pontic white poplar galleries

This habitat subtype/ plant community was observed as endangered to sporadic, mainly low disturbed and sometime medium disturbed or in its natural status. It was recorded within the Tulcea territory, between C.A. Rosetti and Cardon, in the west part of the Letea forest (C.A. Rosetti), at Pătlăgeanca (Ceatalchioi TAU), Caraorman strictly protected area (Crișan TAU), eastwards of Dunăvățu de Jos (Murighiol TAU). The only threatened species is *Periploca graeca*, endangered within the plots.

Populetum albae (Br.-Bl. 31 pp.) Borza 37 plant community is vulnerable within the Tulcea territory (TDV). The three non-native species (*Fraxinus americana*, *Morus alba*, *Amorpha fruticosa*), with a reduced dominance, indicate a low level of disturbance, but close to its upper limit, as they are nearly as numerous as the native non-ruderal taxa. The two ruderal species, by their restricted dominance, show also a low level of invasive trend from this point of view.

Key species: *Populus alba* (5; TDV).

Other species:

- trees: *Fraxinus americana* (+; TDV), *Morus alba* (+; TDV), *Salix alba* (+; TDV);

- shrubs/ lianas: *Amorpha fruticosa* (+; TDV), *Rubus caesius* (+; TDV), *Vitis sylvestris* (+; TDV);

- grasses/ undershrubs: *Bidens tripartita* (+; TDV), *Chenopodium album* (+; TDV), *Elymus repens* (+; TDV), *Lysimachia nummularia* (+; TDV), *Potentilla reptans* (+; TDV), *Vicia angustifolia* (+; TDV).

Populetum albae (Br.-Bl. 31 pp.) Borza 37 was observed as rare and undisturbed, especially in the west of the Letea Forest (PL), where they often form large stands, without oak species, or with insignificant coverage. The only rare threatened species identified so far is the liana *Periploca graeca*.

Key species: *Populus alba* (5; PL).

Threatened species: *Periploca graeca* (+; PL).

Other species:

- trees: *Fraxinus pallisae* (+; PL), *Pyrus pyraister* (+-1; PL), *Quercus pedunculiflora* (+; PL).

- grasses/ undershrubs: *Euphorbia palustris* (+; PL), *Iris pseudacorus* (+; PL), *Phragmites australis* (+; PL), *Symphytum officinale* (+; PL), *Teucrium scordium* (+; PL).

Populetum albae (Br.-Bl. 31 pp.) Borza 37 was observed as vulnerable within the Letea Forest (PL), without oak species, or with insignificant coverage. A low disturbance can be guessed from the presence of a ruderal species, with a reduced coverage. The only rare threatened species identified so far is the liana *Periploca graeca*.

Key species: *Populus alba* (4; PL).

Threatened species: *Periploca graeca* (+; PL).

Other species:

- trees: *Fraxinus angustifolia* (+; PL), *Fraxinus pallisae* (+; PL), *Pyrus pyraister* (+; PL), *Quercus pedunculiflora* (+; PL);

- shrubs/ lianas: *Cornus sanguinea* (+; PL), *Crataegus monogyna* (+; PL), *Rubus caesius* (+; PL);

- grasses/ undershrubs: *Asparagus pseudoscaber* (+; PL), *Elymus repens* (+; PL), *Euphorbia seguieriana* (+; PL), *Thelypteris palustris* (+; PL).

Populetum albae (Br.-Bl. 31 pp.) Borza 37 was encountered as sporadic and undisturbed between C.A. Rosetti and Cardon (RC), C.A. Rosetti TAU. A medium level of disturbance is indicated by two ruderal species with a significant variation of the coverage indices.

Key species: *Populus alba* (5; RC).

Other species:

- shrubs/ lianas: *Evonymus europaeus* (+; RC);

- grasses/ undershrubs: *Elymus repens* (1; RC), *Asparagus pseudoscaber* (+; RC), *Cynanchum acutum* (+; RC), *Euphorbia palustris* (+; PL), *Iris pseudacorus* (+; PL), *Phragmites australis* (+; PL), *Pulicaria dysenterica* (+; RC), *Symphytum officinale* (+; PL), *Teucrium scordium* (+; PL).

Populetum albae (Br.-Bl. 31 pp.) Borza 37 was encountered as sporadic and undisturbed between C.A. Rosetti and Cardon (RC), C.A. Rosetti TAU. Only one ruderal taxon and two non-native species *Amorpha fruticosa* and *Prunus cerasifera* show a low disturbance level.

Key species: *Populus alba* (5; RC).

Other species:

- trees: *Alnus glutinosa* (+; RC), *Populus tremula* (1; RC), *Prunus cerasifera* (+; RC), *Pyrus pyraister* (+; RC);

- shrubs/ lianas: *Amorpha fruticosa* (+; RC), *Cornus sanguinea* (+; RC), *Evonymus verrucosus* (+; RC), *Ligustrum vulgare* (+; RC), *Rhamnus cathartica* (+; RC);

- grasses/ undershrubs: *Ballota nigra* (+; RC), *Vincetoxicum hirundinaria* (+; RC).

Populetum albae (Br.-Bl. 31 pp.) Borza 37 is encountered as endangered especially on the higher levees along the Danube's arms to the north and east from Pătlăgeanca (RC), Ceatalchioi TAU. The white poplars sometimes reach a monumental size. A medium disturbance level is obvious as the ruderal species dominate, with significant indices (+-1). Also two non-native (*Amorpha fruticosa*, *Fraxinus americana*) occur with a low coverage.

Key species: *Populus alba* (4; PNE).

Other species:

- trees: *Fraxinus americana* (+; PNE), *Salix alba* (2; PNE), *Ulmus minor* (+; PNE);

- shrubs/ lianas: *Amorpha fruticosa* (+; PNE), *Rubus caesius* (+; PNE), *Vitis sylvestris* (+; PNE);

- grasses/ undershrubs: *Elymus repens* (1; PNE), *Arctium lappa* (+; PNE), *Aristolochia clematidis* (+; PNE), *Artemisia annua* (+; PNE), *Bromus sterilis* (+;

PNE), *Geranium rotundifolium* (+; PNE), *Hordeum murinum* (+; PNE), *Marrubium vulgare* (+; PNE), *Urtica dioica* (+; PNE).

***Populetum albae* (Br.-Bl. 31 pp.) Borza 37** is represented by the white poplar clumps from the slacks between the Dunes of the Caraorman strictly protected area, Crișan TAU, considered vulnerable and undisturbed. There the key species characteristic for the so called “hasmac” forests dominated by *Quercus pedunculiflora* and *Fraxinus pallisae* are absent or occur in a negligible proportion. The only rare threatened species identified is *Periploca graeca*, endangered within these phytocoenoses.

Key species: *Populus alba* (5; CO).

Threatened species: *Periploca graeca* (+; CO).

Other species:

- trees: *Fraxinus pallisae* (+; CO), *Quercus pedunculiflora* (+; CO);
- shrubs/ lianas: *Rubus caesius* (+; CO);
- grasses/ undershrubs: *Asparagus pseudoscaberrimus* (+; CO), *Calamagrostis epigeios* (+; CO).

***Populetum albae* (Br.-Bl. 31 pp.) Borza 37** is particularly representative for the shores of the Sfântu Gheorghe Arm of the Danube, on higher and evolved levees, being estimated as endangered in the wetlands eastwards of Dunavățu de Jos (DJE). A medium level of disturbance can be guessed from the dominance indices (+1) of both ruderal (three species) and non-native species (*Morus alba*, *Prunus cerasifera*).

Key species: *Populus alba* (4; DJE).

Other species:

- trees: *Morus alba* (+; DJE), *Prunus cerasifera* (1; DJE), *Salix alba* (1; DJE);
- grasses/ undershrubs: *Arctium lappa* (+; DJE), *Artemisia vulgaris* (1; DJE), *Ballota nigra* (+; DJE), *Bryonia alba* (+; DJE), *Taraxacum officinale* (+; DJE).

44.6621 Danube Delta periploca-poplar-oak-ash galleries

The habitat subtype/plant community is assessed as sporadic and less as endangered, mostly in its natural status, sometimes low disturbed, due to alien and ruderal species (possibly favored by grazing), or even to the supposed negative effects of advancing soil salinization, on restricted areas at the north-eastern edge of the Letea forest (outside the protected area). It was observed within the Letea and Caraorman forests, but also as a particular *Quercus pedunculiflora* phytocoenosis at Ceatalchioii, that was at least provisionally framed within this habitat. The only threatened species, *Periploca graeca*, was mainly observed as endangered, but sometimes also as vulnerable.

***Asparagus pseudoscaber-Quercetum pedunculiflorae* Popescu et al. 1997**, including the sub-association ***fraxinetosum pallisae* (Krausch 1965) Sanda, Popescu 1992**, form the local clumps of forest wells known as "hasmac" found in the low areas between the sand dunes, in the strictly protected area Pădurea Letea, where they occur as sporadic and in their natural status. This plant community is home to the rare threatened species *Periploca graeca*, endangered within the plots.

Key species: *Asparagus pseudoscaber* (+; PL), *Fraxinus pallisae* (5; PL), *Galium rubioides* (+; PL), *Periploca graeca* (+; PL), *Quercus pedunculiflora* (1; PL).

Threatened species: *Periploca graeca* (+; PL).

Other species:

- trees: *Malus sylvestris* (+; PL), *Populus alba* (+; PL), *Populus tremula* (1; PL), *Pyrus pyraeaster* (+; PL);

- shrubs/ lianas: *Cornus sanguinea* (+; PL), *Crataegus monogyna* (+; PL), *Rhamnus frangula* (+; PL), *Rubus caesius* (1; PL);

- grasses/ undershrubs: *Convallaria majalis* (r; PL), *Loranthus europaeus* (+; PL), *Odontites vernus* (+; PL), *Phragmites australis* (+; PL).

***Asparagus pseudoscaber-Quercetum pedunculiflorae* Popescu et al. 1997**, including the sub-association ***fraxinetosum pallisae* (Krausch 1965) Sanda, Popescu 1992**, form the local clumps of forest wells known as "hasmac" found in the low areas between the sand dunes, in the strictly protected area Pădurea Letea, where they occur as sporadic and low disturbed as indicated by two ruderal species with a low coverage. The rare threatened species *Periploca graeca* was recorded as vulnerable within the plots.

Key species: *Asparagus pseudoscaber* (+; PL), *Fraxinus pallisae* (+; PL), *Galium rubioides* (+; PL), *Periploca graeca* (1; PL), *Quercus pedunculiflora* (4; PL), *Vitis sylvestris* (+; PL).

Threatened species: *Periploca graeca* (1; PL).

Other species:

- trees: *Fraxinus angustifolia* (1; PL), *Malus sylvestris* (+; PL), *Populus alba* (+; PL), *Populus tremula* (+; PL), *Pyrus pyraeaster* (1; PL);

- shrubs/ lianas: *Berberis vulgaris* (1; PL), *Cornus sanguinea* (+; PL), *Crataegus monogyna* (1; PL), *Ligustrum vulgare* (+; PL), *Prunus spinosa* (+; PL), *Rubus caesius* (+; PL);

- grasses/ undershrubs: *Elymus repens* (+; PL), *Consolida regalis* (r; PL), *Convallaria majalis* (+; PL), *Odontites vernus* (+; PL), *Vincetoxicum hirundinaria* (+; PL).

***Asparagus pseudoscaber-Quercetum pedunculiflorae* Popescu et al. 1997** was recorded as sporadic and undisturbed. The only rare threatened species is *Periploca graeca*, vulnerable within the plots.

Key species: *Asparagus pseudoscaber* (+; PL), *Fraxinus pallisae* (1; PL), *Periploca graeca* (1; PL), *Quercus pedunculiflora* (3; PL).

Threatened species: *Periploca graeca* (1; PL).

Other species:

- trees: *Populus alba* (1; PL);
 - shrubs/ lianas: *Crataegus monogyna* (+-1; PL), *Rhamnus cathartica* (+; PL), *Rubus caesius* (+; PL).

- grasses/ undershrubs: *Veronica spicata* (+; PL).

***Asparago pseudoscaber-Quercetum pedunculiflorae* Popescu et al.**

1997 was recorded as vulnerable along the road between Periprava and C.A.Rosetti (PR), C.A.Rosetti TAU, outside the Pădurea Letea strictly protected area, in the location where a massive soil salinization advance from the former fish farm abandoned ponds towards the Letea Forest. In order to be able to assess the evolution of this patch of forest in the future, if the salinization process will still advance, the plot of 10x10 m was placed so that it includes a concrete fountain that is located close to the above mentioned road, that can be used as a mark. This phytocoenosis can be assessed as low disturbed, as it includes a ruderal species, and an alien species, *Prunus cerasifera*, with a low coverage. This can be explained by the slight human impact due to the vicinity of the road. Yet, there were not observed species that could indicate soil salinization, but the deep roots of the oaks are maybe already in contact with an increasing salt concentration in the soil, which could explain the massive presence of *Loranthus europaeus*, an indicator of a decline in the oak vitality.

Key species: *Fraxinus pallisae* (2; PL), *Quercus pedunculiflora* (3; PR).

Other species:

- shrubs/ lianas: *Cornus sanguinea* (+; PR), *Crataegus monogyna* (+; PR), *Loranthus europaeus* (1; PR), *Prunus cerasifera* (+; PR), *Pyrus pyraster* (+; PR), *Rubus caesius* (+; PR).

- grasses/ undershrubs: *Arctium lappa* (+; PR), *Eupatorium cannabinum* (+; PR), *Mentha aquatica* (+; PR).

***Asparago pseudoscaber-Quercetum pedunculiflorae* Popescu et al.**

1997 found isolated on the territory of the Ceatalchioi TAU (CET), along the road Pătlașgeanca-Ceatalchioi-Plauru, was included at least provisionally in the 92A0 habitat of community interest (44.6621), although some characteristic species (*Periploca graeca*, *Fraxinus pallisae*, *Fraxinus angustifolia*) are missing in the studied situation, in relation to the phytocoenoses of Letea and Caraorman. It should be taken into account that from the two typical associations of *Quercus pedunculiflora* specific for floodplains described in Romania (SANDA et alii, 2008), the composition of this phytocoenosis is the closest to that of the association and habitat quoted above. It can be considered endangered, as it occupies a very small area, less than 1 hectare, still the

respective stands have a certain conservative value, being probably the only case of oak phytocenosis identified in the delta outside the Letea and Caraorman levees. It is also worth mentioning that the specimens of *Quercus pedunculiflora* are at least over a century old. A low disturbance is indicated both by the presence of alien species like *Acer negundo*, *Fraxinus americana* and also of two ruderal species, all with a reduced dominance.

Key species: *Quercus pedunculiflora* (2; CET).

Other species:

- trees: *Acer negundo* (+; CET), *Fraxinus americana* (+; CET), *Populus alba* (2; CET), *Ulmus minor* (1; CET);

- shrubs/ lianas: *Amorpha fruticosa* (+; CET), *Rubus caesius* (+; CET), *Vitis sylvestris* (+; CET);

- grasses/ undershrubs: *Aristolochia clematitis* (+; CET), *Bromus sterilis* (+; CET), *Linaria vulgaris* (+; CET).

***Asparago pseudoscaberi-Quercetum pedunculiflorae* Popescu et al. 1997** is the most representative and widespread forest habitat in the Caraorman Forest (CO), Crișan TAU, where it can be considered as sporadic and low disturbed, due to the presence of two non-native species like *Morus alba* and *Prunus cerasifera*. The specific, lush aspect of these forests, is especially conferred by the threatened liana *Periploca graeca*, endangered within these phytocenoses.

Key species: *Asparagus pseudoscaber* (+; CO), *Fraxinus pallisae* (1; CO), *Periploca graeca* (+; CO), *Quercus pedunculiflora* (2; CO).

Threatened species: *Periploca graeca* (+; CO).

Other species:

- trees: *Morus alba* (+; CO), *Prunus cerasifera* (+; CO), *Populus alba* (1; CO), *Pyrus pyraister* (+; CO), *Ulmus procera* (+; CO);

- shrubs/ lianas: *Rubus caesius* (+; CO);

- grasses/ undershrubs: *Alliaria petiolata* (+; CO), *Glechoma hirsuta* (+; CO), *Mentha aquatica* (+; CO).

***Asparago pseudoscaberi-Quercetum pedunculiflorae* Popescu et alii 1997** can be considered as sporadic and undisturbed in the Caraorman Forest (CO), Crișan TAU. *Fraxinus pallisae* becomes co-dominant in the lowest areas between the sand dunes, where ground water is more accessible. These phytocenoses are included in the sub-association ***fraxinetosum pallisae* (Krausch, 1965) Popescu et al. 1997**. The rare threatened liana *Periploca graeca* is endangered within these phytocenoses.

Key species: *Asparagus pseudoscaber* (+; CO), *Fraxinus pallisae* (3; CO), *Periploca graeca* (+; CO), *Quercus pedunculiflora* (3; CO), *Vitis sylvestris* (+; CO).

Threatened species: *Periploca graeca* (+; CO).

Other species:

- trees: *Populus alba* (1-2; CO), *Pyrus pyraister* (+; CO), *Ulmus procera* (+-1; CO).
- shrubs/ lianas: *Rubus caesius* (+-1; CO).
- grasses/ undershrubs: *Alliaria petiolata* (+-1; CO), *Glechoma hirsuta* (+-1; CO), *Mentha aquatica* (+; CO), *Symphytum officinale* (+; CO).

92D0 Southern riparian galleries and thickets (*Nerio-Tamaricetea* and *Securinegion tinctoriae*) (PAL.CLASS.: 44.81 to 44.84)

44.81 Oleander, chaste tree and tamarisk galleries

The habitat is mentioned within the initial documents that were used for the SCI (Formularul standard Natura 2000 – ROSCI0065), estimated preliminary as having 907 ha and a conservation status of B level.

Within proper research this habitat was so far recorded as endangered to vulnerable, and from undisturbed to medium disturbed from the species composition and structure point of view. Still in the area between the Sulina Cemetery and the bare section of the Sulina beach, this habitat subtype can be considered as highly disturbed, as it is affected by fragmentation and the reduction of its area, because of the tourism constructions/developments and acces roads/ pathways. It was recorded as follows: between the localities Tudor Vladimirescu (Tulcea TAU) and Pătlăgeanca (Ceatalchioi TAU); within Pardina TAU; at the Sulina beach (Sulina TAU); the north of the Caraorman levee, outside the forest (Crișan TAU); Cășla Vădanei (Sfântu Gheorghe TAU). Four rare threatened species, endangered within the plots, were registered (*Leymus racemosus* subsp. *sabulosus*, *Limonium meyeri*, *Polypogon monspeliensis*, *Scolymus hispanicus*)

44.814112 Danube small reed fresh water tamarix stands

The habitat subtype/ plant community is endangered to vulnerable, respectively medium disturbed. It was observed between the localities of Tudor Vladimirescu (Tulcea TAU) and Pătlăgeanca (Ceatalchioi TAU) and within Pardina TAU.

***Calamagrostio-Tamaricetum ramosissimae* Simon et Dihoru (1962) 1963**, was inventoried as endangered, on very small areas between the localities Tudor Vladimirescu and Pătlăgeanca (TVP), on Tulcea TAU's territory. The only non-native species is *Amorpha fruticosa*, along with two ruderal taxa having with a significant coverage (+-1), that shows a medium disturbance.

Key species: *Tamarix ramosissima* (5; TVP).

Other species:

- shrubs/ lianas: *Amorpha fruticosa* (+; TVP), *Rubus caesius* (1; TVP).

- grasses/ undershrubs: *Elymus repens* (1; TVP), *Althaea officinalis* (+; TVP), *Aristolochia clematitis* (+; TVP), *Linaria vulgaris* (+; TVP), *Lycopus exaltatus* (+; TVP).

***Calamagrostio-Tamaricetum ramosissimae* Simon et Dihoru (1962) 1963** is vulnerable, being represented by bushes with more or less isolated distribution within the territory of Pardina TAU (PA). Three ruderal species with significant dominance indices variation (+-1), indicate a medium level of the ruderal species invasive tendencies.

Key species: *Tamarix ramosissima* (4; PA).

Other species: *Elymus repens* (1; PA), *Arctium lappa* (+; PA), *Eleocharis palustris* (+; PA), *Mentha aquatica* (+; PA), *Rumex palustris* (+; PA), *Taraxacum officinale* (+; PA).

44.81412 Western Pontic coastal *Tamarix smyrnensis* stands

The habitat subtype/ plant community is mainly vulnerable, sometimes endangered, mainly undisturbed, rarely low disturbed. Even if the species composition is usually undisturbed, mainly because the saline soil avoids ruderal or alien species occurrence, in the area between the Sulina Cemetery and the bare section of the Sulina beach, this habitat subtype is affected by fragmentation and the reduction of its area, because of the tourism constructions/ developments and acces roads/ pathways. It was recorded from the Sulina beach (Sulina TAU), the north of the Caraorman levee, outside the forest (Crișan TAU), Cășla Vădanei (Sfântu Gheorghe TAU). Four rare threatened species, endangered within the plots, were registered (*Leymus racemosus* subsp. *sabulosus*, *Limonium meyeri*, *Polypogon monspeliensis*, *Scolymus hispanicus*).

***Calamagrostio-Tamaricetum ramosissimae* Simon et Dihoru (1962) 1963**, synonymous (SANDA *et alii*, 2008) with ***Tamaricetum pallasii* Borza 1931 n.n.**, a vulnerable plant community, was studied in the areas adjacent to the Sulina beach (SPL). There, the only ruderal species, *Cynanchum acutum*, shows a low invasive trend of the ruderal taxa. A high disturbance is indicated by the non-native species *Elaeagnus angustifolia*. Despite this unfavourable conservation level, two rare threatened species occur in the analysed plot, where they are both endangered.

Key species: *Tamarix ramosissima* (3; SPL).

Threatened species: *Leymus racemosus* subsp. *sabulosus* (+; SPL), *Scolymus hispanicus* (+; SPL).

Other species: *Althaea officinalis* (+; SPL), *Conyza canadensis* (+; SPL), *Cynanchum acutum* (+; SPL), *Cynodon dactylon* (+; SPL), *Gypsophila perfoliata* (+; SPL), *Juncus littoralis* (+; SPL), *Elaeagnus angustifolia* (2; SPL), *Pulicaria dysenterica* (+; SPL).

***Calamagrostio-Tamaricetum ramosissimae* Simon et Dihoru (1962)**

1963, a vulnerable plant community, was studied in the areas adjacent to the Sulina beach (SPL). Two ruderal species indicate a low disturbance. Two rare threatened species occur in the analysed plot, where they are both endangered.

Key species: *Calamagrostis epigeios* (1; SPL), *Tamarix ramosissima* (3; SPL).

Threatened species: *Limonium meyeri* (+; SPL), *Polypogon monspeliensis* (+; SPL).

Other species: *Aster tripolium* (+; SPL), *Atriplex prostrata* (1; SPL), *Cynanchum acutum* (+; SPL), *Juncus littoralis* (1; SPL), *Juncus maritimus* (+; SPL), *Polygonum aviculare* (+; SPL), *Puccinellia limosa* (+; SPL), *Pulicaria dysenterica* (+; SPL).

***Calamagrostio-Tamaricetum ramosissimae* Simon et Dihoru (1962)**

1963 was investigated as vulnerable and undisturbed in the strictly protected area Pădurea Caraorman, in the north, outside the forest (CON). Here *Tamarix ramosissima* forms phytocoenoses with low coverage, although the shrub is relatively frequent but predominantly spread as isolated specimens. A low disturbance is indicated by the alien species *Conyza canadensis*.

Key species: *Tamarix ramosissima* (3; CON).

Other species: *Conyza canadensis* (+; CON), *Cynodon dactylon* (1; CON), *Gnaphalium luteo-album* (+; CON), *Potentilla anserina* (r; CON), *Potentilla reptans* (1; CON), *Scirpoides holoschoenus* (+; CON), *Verbascum banaticum* (+; CON).

***Calamagrostio-Tamaricetum ramosissimae* Simon et Dihoru (1962)**

1963 occur as small clumps, predominantly in the low areas between the coastal dunes of the Câșla Vădanei (GCV), where it can be considered endangered and undisturbed. *Leymus racemosus* subsp. *sabulosus* is the only threatened species observed in this habitat, where it is endangered.

Key species: *Tamarix ramosissima* (4; GCV).

Threatened species: *Leymus racemosus* subsp. *sabulosus* (+; GCV).

Other species:

- grasses/ undershrubs: *Bassia laniflora* (+; GCV), *Carex colchica* (+; GCV), *Centaurea arenaria* (1; GCV), *Euphorbia seguieriana* (+; GCV), *Linaria genistifolia* (+-1; GCV), *Linum austriacum* (+; GCV), *Polygonum arenarium* (+; GCV).

91F0 Riparian mixed forests of *Quercus robur*, *Ulmus laevis* and *Ulmus minor*, *Fraxinus excelsior* or *Fraxinus angustifolia* of great rivers (*Ulmion minoris*) (PAL.CLASS.: 44.4)

44.4 Mixed oak-elm-ash forests of great rivers

This habitat was recorded as an endangered plant community, medium disturbed due to ruderal taxa, that was identified only at Cape Doloșman, at least within proper research, so far.

Fraxino-Ulmetum Oberdorfer 53 is a vulnerable plant community within Cape Doloşman (CDO), Jurilovca TAU. It should be mentioned that, even though these phytocoenoses are not adjacent to any river, still the waters of the Razim Lagoon come from the Danube, so the ecological conditions are (nearly) identical with the ones for other coenotaxon included in this habitat. There the five ruderal taxa, that represent half of the species inventory, indicate a medium degree of ruderal plant invasive trend.

Key species: *Ulmus minor* (5; CDO).

Other species:

- shrubs/ lianas: *Crataegus monogyna* (+; CDO), *Evonymus europaeus* (+; CDO);
 - grasses/ undershrubs: *Anthriscus cerefolium* (+; CDO), *Anthriscus sylvestris* (+; CDO), *Chelidonium majus* (+; CDO), *Lamium purpureum* (+; CDO), *Ligustrum vulgare* (+; CDO), *Urtica dioica* (+; CDO), *Veronica hederifolia* (+; CDO).

Conclusions

Taking into account that the frequency of the habitats and species within the studied areas was estimated according to their percentages observed within the research itineraries, respectively (for the threatened species) their coverage within the plots, their threat categories (endangered, vulnerable, rare, etc.) has only a preliminary character. These aspects could become more accurate if the D.D.B.R. would promote as priority measures the proper mapping of habitats/ species respectively detailed species populations assessments.

According to their estimated frequency within the studied site, most of the habitats could be considered **endangered** (13 habitats), followed by **vulnerable** (eight habitats), **sporadic** (three habitats) and **rare** (two habitats) ones. The assessed conservation status ranks from **undisturbed** (13 habitats), **low disturbed** (nine habitats), **highly disturbed** (two habitats) to **medium disturbed** (one habitat).

The number of threatened species is the highest within the loess/ rocky steppes (62C0* – 17 species), sand steppes (6260* – 12 species), sand beaches (1210 – nine species) and salt marshes and steppes (1530 – seven species). The rest of the habitats have between zero and five threatened species.

This outstanding natural heritage requires adequate management measures. Among the 25 habitats studied within proper research, six are priority ones for conservation overall in the European Union. Within the Danube Delta Natura 2000 sites and overlapping sites, according to proper preliminary studies and criteria, most of these (14 habitats) should have a **high priority** within conservation measures, while seven habitats could be of **secondary priority**, followed by four habitats with a **low priority**.



Figure 1. ***Salicetum albae*** (photo M. Petrescu)



Figure 2. ***Asparago pseudoscaberi-Quercetum pedunculiflorae***
in strictly protected area Pădurea Letea (photo M. Petrescu)

References

- CIOCÂRLAN, V., 2009, *Flora ilustrată a României*, Edit. Ceres, București.
- DEVILLIERS, P., DEVILLIERS-TERSCHUREN, J., LINDEN, C.V., 1996, *Paelearctic habitats. PHYSIS Data Base*, Royal Belgian Institute of Natural Sciences, Bruxelles.
- DIHORU, DONIȚĂ, 1970, *Flora și vegetația Podișului Babadag*, Edit. Academiei R.S.R., București.
- DONIȚĂ, N., POPESCU, A., PĂUCĂ-COMĂNESCU, M., MIHĂILESCU, Simona, BIRIȘ, I. A., 2005, *Habitatele din România*, Edit. Tehnică Silvică, București.
- HOREANU, Cl., 1976b, *Vegetația pajiștilor xerofile din Podișul Casimcea*, Peuce V, Tulcea, 335-346.
- IVAN, D., 1979, *Fitocenologie și vegetația R.S.R.*, Edit. Didactică și Pedagogică, București.
- MUCINA, L. (corresponding author), 2016, *Vegetation of Europe: Hierarchical Floristic Classification system of Vascular Plant, Bryophyte, Lichen, and Algal Communities*, Applied Vegetation Science, **9**, (Suppl. 1): 3-264.
- OLTEAN, M., NEGREAN, G., POPESCU, A., ROMAN, N., DIHORU, GH., SANDA, V., MIHĂILESCU, Simona, 1994, *Lista roșie a plantelor superioare din România*, Studii, sinteze, documentații de ecologie, Partea I, București.
- PETRESCU, M., 2007, *Dobrogea și Delta Dunării. Conservarea florei și habitatelor*, Biblioteca Istro-Pontica, ICEM Tulcea, Tulcea.
- PRODAN, I., 1934-1935, *Conspectul Florei Dobrogei*, Bul. Acad. Agron., Vol. **5** (1), Cluj: 1-170.
- PRODAN, I., 1935-1936, *Conspectul Florei Dobrogei*, Bul. Acad. Agron., Vol. **6**, Cluj: 1-57.
- PRODAN, I., 1938-1939, *Conspectul Florei Dobrogei*, Bul. Fac. Agron., Vol. **7**, Cluj: 1-89.
- SĂVULESCU, T., (edit), 1952-1976, *Flora Republicii Populare Române – Flora Republicii Socialiste Române, I-XIII*, Edit. Academiei Republicii Socialiste România, București.
- SANDA, V., ARCUȘ, Mariana, 1999, *Sintaxonomia grupărilor vegetale din Dobrogea și Delta Dunării*, Edit. Cultura, Pitești.
- SANDA, V., VICOL, I., ȘTEFĂNUȚ, S., 2008, *Biodiversitatea ceno-structurală a învelișului vegetal din România*, Edit. Ars Docendi, București.
- SÂRBU, I., ȘTEFAN, N., OPREA, A., 2013, *Plante vasculare din România: determinant ilustrat de teren*, Edit. Victor B Victor, București.
- *** 2007, *Interpretation Manual of the European Union Habitats*, European Comission-DG Environment - EUR27.
- *** Formularul standard Natura 2000 – ROSCI0065.

Mihai PETRESCU

„Gavrilă Simion” Eco-Museum Research Institute of Tulcea
 mihaipetrescu2@gmail.com