Anexa 2

GUIDE FOR HABITATS IDENTIFICATION EUNIS - LEVEL 3, FOR ROMANIA

An Instrument for validating the distribution of ecosystems for the implementation of the MAES process in Romania

Version v.0.1

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Content

Introduction

The present report is the result of the project Demonstrating and promoting the natural values to support the decision-making process in Romania - N4D, it resulted from the activity 4.3 Field validation activity of distribution of EUNIS ecosystems/habitats level 3 specific to the national distribution of ecosystems (CLM) resulted from the mapping process carried out by the Romanian Space Agency (ROSA).

The classification system of the EUNIS habitats applied in Romania pointed out the presence of about 110 habitats of level 3 which are used in ecosystem mapping for the application of the MAES process. Given the high level of complexity of using more than 415 criteria for differentiation of EUNIS level 3 habitats proposed in the methodology presented in the EUNIS habitats classification manual (Davies, Moss, & Hill, 2004), in close connection with the existing information in Romania such as the one from the Romanian Habitats (Doniță N. P.-C., 2005), in this work you will find updated reference tables for the correspondence between them and the two classification systmes as well as the one with the Natura2000 habitats.

A major contribution is the description in romanian as well as highlighting the simple characters that allows you to identify in a summar field study these EUNIS level 3 habitats mapped in the ecosystem distribution map used in the MAES process by an association level of the characterstic structural elements.

Therefore you will be able to differentiate between Class A marine habitats, and Class B coastal habitats, Class C aquatic habitats, Class D wetlands, Class D meadows, Class F heathland, scrub and tundra, Class G forests, Class H inland unvegetated or sparsely vegetated habitats, Class I cultivated agricultural, horticultura land domestic habitats and Class J constructed, industrial and other artificial habitats.

A2.6 Littoral sediments dominated by aquatic angiosperm

Distribution: The Black Sea littoral (Midia, Mamaia, Agigea, Mangalia)

Habitat structure: The species constituting this habitat are isolated individuals developing on the Black Sea coastal sands shallow waters with *Zostera marina, Ruppia maritima, Zostera noltii, Zannichellia pedicelata, Potamogeton pectinatus, Najas minor, Ranunculus baudatii*.

Dominat species:
Zostera marina, Z. noltii (seagrass) – Family: *Zosteraceae* – marine submerged perennial species with linear broad-leaves.

Correspondences:

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1101 Isolated communities with *Zostera marina* and *Z. noltii*	A2.61 Sea grassbeds on littoral	1110 Sandbanks which are slightly covered by sea water all the time	Very high

Figure 1 Habitat A2.6

(photo: http://balance-eu.org/ singapore/index.php?gallery=./Seaweeds&image=PB_07.JPG**)**

Figure 2 *Zostera marina* (photo: http://www.iucnredlist.org/details/153538/0)

B1.1 Sand beach driftline

This type of habitat encompasses a shifting coastal dunes vegetation characterised by the presence of annual herbaceous species.

Distribution: The Black Sea littoral, from Sulina to Vama Veche, the sands from Danube Delta, Moldova (Habu Conachi) and Oltenia (Dăbuleni – Calafat) (Doniță et al., 2005).

Habitat sructure: The vegetation is consisting from annual plants sand phitocoenosss edificated by *Argusia (Tournefortia) sibirica, Cakile maritima, Eryngium maritimum, Salsola soda, Crambe maritima, Polygonum maritimum.* On the higher cliffs (Agigea, Eforie Nord) with mobile sands deposits species like *Convolvuus persicus, Bromus tectorum, Secale sylvestre, Convolvulus lineatus, Salsola kali* ssp. *ruthenica* are present. The most common species characterising the second level of the phytocoenoses are *Secale sylvestre, Apera spica-venti ssp. maritima, Bromus tectorum, Gypsophila trichotoma, Plantago arenaria, Euphorbia seguierana, Koeleria glauca, Achillea ochroleuca, Asperula setulosa, Corispermum nitidum, Gypsophila paniculata, Tragopogon floccosus, Festuca beckeri*.
Centaurea arenaria, Stachys nitens, Scabiosa argentea, Dianthus polymorphus, Onobrychis arenaria, Syrenia canna, Holoschenus vulgaris form the upper level of vegetation. The vegetation coverage is 60% to 65%.
Dominant species:
Secale sylvestre (rye) – Family: *Poaceae* – an annual herbaceous species (20-50 cm). The flowers are organized in double bifolds, aristated bracts with 1,5-3 cm arista. Lemma with rigid hips on the hull.
Cakile maritima* ssp. *euxina – Family: *Brassicaceae*. Annual herbaceous species (15-40 cm), glabrary with divided flashy leaves and purple flowers.

Correspondences:

Romania Habitats	EUNIS Habitats	Natura 2000 Habitats	Conservative value
R1601 Western pontic communities with *Cakile maritima* ssp. *euxina* and *Argusia sibirica*	B1.132 Pontic sand beach annual communities	1210 Annual vegetation of drift lines	High
R1605 Western pontic communities with *Secale sylvestre, Apera maritima* and *Bromus tectorum*	B1.132 Pontic sand beach annual communities	-	Very high

Figure 3 Habitat B1.1 (photo: Roxana Ion)

Figure 4 *Cakile maritima* (photo: Roxana Ion)

B1.3 Shifting coastal dunes

The habitat includes the shifting coastal dunes vegetation.

Distribution: marine sands and the Black Sea littoral, the Danube Delta sands (Sulina, Sf. Gheorghe).

Habitat structure: The phytocoenosis are structured on two levels: the shortest level consists of species like *Bromus tectorum, Secale sylvestre, Plantago arenaria, Apera maritima, Carex colchica, Secale sylvestre, Polygonumarenarium, Festuca beckeri, Minuartia setacea, Koeleria glauca,Helichrysum arenarium, Seseli arenarium*. These species use the sand humidity during the spring and end its vegetative cycle at the begin of the dry season. Among these species there are also some psamophilous perennial plants like *Elymus (Leymus) sabulosus, Agropyrum junceum, Centaurea arenaria, Gypsophila trichotoma, Artemisiatschernieviana (arenaria), Corispermumnitidum, Eryngium maritim, Scabiosaargentea, Euphorbia seguierana, Syrenia montana, Dianthus polymorphus, Consolida regalis, Stipa borysthenica* ssp. *sabulosa, Artemisia campestris, Elymus sabulosus* which form the upper level of the vegetation, 45-50 cm high.

Dominant species: In our country, the habitat is represented by herbaceous communities adapted to the shifting coastal dunes.
Leymus sabulosus (mammoth wild rye) – Family: *Poaceae*. Herbaceous perennial plant, 50-100 cm high. It has long rhizomes and stalks, inflorescence clustered in herbs with 3-5 hermaphrodite flowers. ***Melilotus alba*** (white-flowered sweet clover, white melilot) – Family *Fabaceae*. Biannual plant, 30-150 cm high, with serrated foliage on the edges, multiflorous raceme inflorescence with small flowers, indehiscent legume fruit.

Correspondences:

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1602 Western pontic communities with *Elymus (Leymus) sabulosus* şi *Artemisia (Arenaria) tschernieviana*	B1.313 Pontic embryonic dunes	2110 Embryonic shifting dunes	Very high
R1608 Western pontic communities with *Melilotus alba* and *Plantago arenaria*	B1.324 Pontic white dunes	-	High

Figure 5 General view of the habitat B1.3 (photo: Roxana Ion)

Figure 6 Plant species of shifting coastal dunes (photo: Roxana Ion)

B1.4 Coastal stable dune grassland (grey dunes)

Distribution: Dobrogea, marine sands from Danube Delta: Sulina, Sf. Gheorghe, Ciotic, littoral sands from Mamaia to Midia-Năvodari, Letea hill (Hasmacul Mic, Hasmacul Mare, Dâmbul lui Bălan), Caraorman hill, Sărăturile hill.

Habitat structure: This type of habitat brings togheter the sandy and coastal fixed dunes habitats, characterized by the presence of herbaceous vegetation. Usually these phytocoenoses are structured on two levels of vegetation. The upper level includes 45-50 cm high species, reaching up to 1 m in the case of *Calamagrostis epigeios* phytocoenoses. The number of species is relatively large, with a vegetation coverage of about 75%. Dominant and edifying species are present in various associations: *Carex colchica, Scabiosa argentea, Ephedra distachya, Silene otitis, Secale sylvestre, Festuca beckeri, Stachys patula, Elymus sabulosus, Salvia verticillata, Euphorbia sequierana, Silene borysthenica, Medicago falcata, Holoschoenus vulgaris, Astragalus varius, Verbascum banaticum, Melica ciliata, Seseli tortuosum, Salvia aethiopis; Stipa borysthenica, Artemisia campestris, Scabiosa argentea, Elymus sabulosus; Schoenus nigricans, Carex distans, Lythrum salicaria, Sonchus arvensis, Calamagrostis epigeios, Festuca arundinacea, Artemisia santonicum, Juncus ittoralis, Holoschoenus vulgaris, Agropyron junceum, Cirsium alatum; Scabiosa argentea, Euphorbia seguierana, Syrenia montana, Dianthus polymorphus, Centaurea arenaria, Consolida regalis, Stipa borysthenica ssp. sabulosa, Artemisia campestris, Elymus sabulosus; Calamagrostis epigeios, Artemisia tschernieviana, Holoschoenus vulgaris, Lythrum virgatum, Festuca arundinacea* ssp. *orientalis; Petasites spurius cu Argusia sibirica, Secale sylvestre, Apera maritima, Bromus tectorum.* The lower level is made up of many species like: *Alyssum borzeanum, Plantago arenaria, Siderites montana, Thlaspi perfoliatum, Poa bulbosa, Bromus tectorum, Alyssum hirsutum, Polytrichum piliferum; Secale sylvestre, Carex colchica, Dianthus polymorphus, Fumana procumbens, Ephedra distachya, Asperula setulosa, Centaurea arenaria, Seseli tortuosum, Helichrysum arenarium, Agrostis pontica, Pulicaria dysenterica, Orchis laxiflora ssp.elegans, Teucrium scordium, Plantago maritima, Taraxacum bessarabicum, Centaurium pulchellum, Samolus valerandii, Cynodon dactylon, Gypsophila trichotoma, Merendera sobolifera, Carex colchica, Secale sylvestre, Polygonum arenarium, Festuca beckeri, Bromus tectorum, Minuartia setacea, Koeleria glauca, Helichrysum arenarium, Gypsophila trichotoma, Seseli arenarium, Apera spica-venti* ssp. *maritima, Agrostis pontica, Carex distans, Sonchus arvensis, Teucrium scordium, Cynodon dactylon.*

Dominant species:
Ephedra distachya (somlatha) – Family: *Ephedraceae*. Short shrub (-50 cm), strongly branched, scaly opposite leaves, female flowers are grouped by two, fleshy involucre with orange-reddish color.
Stipa borysthenica – Family: *Poaceae*. Herbaceous perennial rare species. The external side of the leaf is glabrous.

Scabiosa argentea – Family: *Dipsacaceae*. Herbaceous biperennial species, the upper half of calyx with 8 furrows among 8 ribs, white-yellow corolla.
Calamagrostis epigeios (wood small-reed) – Family: *Poaceae*. Herbaceous perennial species, 60-150 cm high, with short arista and erect panicle inflorescence.
Schoenus nigricans (black bog-rush, black sedge) – Family: *Cyperaceae*. Herbaceous perennial species, 15-50 cm high, terminal inflorescence, capituliform, brownish-brown, with 1-4 spicules, basal leaves.
Petasites spurius (woolly butterbur) – Family: *Asteraceae*. Herbaceous perennial species, 10-40 cm high, large basal leaves, more or less heart shaped, grouped rays in terminal races, the upper leaves form a glabrous involucre.

Correspondences:

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1603 Western pontic communities with *Carex colchica* and *Ephedra distachya*	B1.4B1 Western Pontic fixed dunes	2130 *Fixed coastal dunes with herbaceous vegetation (grey dunes)	Very high
R1604 Western pontic herbaceous vegetation with *Stipa borysthenica* and *Koeleria glauca*	B1.4B Pontic fixed dunes	2130 *Fixed coastal dunes with herbaceous vegetation (grey dunes)	Very high
R1607 Western pontic communities with *Schoenus nigricans*	B1.4B1 Western Pontic fixed dunes	6420 Mediterranean tall humid herb grasslands of the *Molinio-Holoschoenion*	Very high
R1609 Western pontic communities with *Scabiosa argentea* (*ucranica*)	B1.4B1 Western Pontic fixed dunes	2130 *Fixed coastal dunes with herbaceous vegetation (grey dunes)	High
R1610 Western pontic herbaceous vegetation with *Calamagrostis epigeios* and *Holoschoenus vulgaris*	B1.4B12 Northwestern Pontic fixed dunes	2130 *Fixed coastal dunes with herbaceous vegetation (grey dunes)	Moderate
R1611 Western pontic communities with *Petasites spurius*	B1.4B12 Northwestern Pontic fixed dunes	1210 Annual vegetation of drift lines	Moderate

Figure 7 *Ephedra distachia* (photo: Roxana Ion)

B1.6 Coastal dune scrub

This habitat includes the coastal dune vegetation characterized by the presence of shrub species.

Distribution: Danube Delta (Caraorman, Letea, Sulina), Moldova (Hanu Conachi, Galați County) but also reported on the continental sands from Ciuperceni-Desa (Gorj County) and Câmpia Careiului (Satu Mare County).

Habitat structure: The upper level includes species like *Salix rosmarinifolia, Holoschoenus vulgaris, Calamagrostis epigeios, Chrysopogon gryllus, Syrenia cana, Euphorbia sequierena* and the second level is made of species like *Apera maritima, Gypsophila paniculata, Asperula setulosa, Tragopogon floccosus, Secale sylvestre, Festuca beckeri, Koeleria glauca, Minuartia viscosa*.

Dominant species:
Salix rosmarinifolia – Family: *Salicaceae*. Shrub with 0.5-1 m high, with alternately dark green leaves, 2-5 cm long and 2-8 cm wide. Blooms in February-April.

Correspondences:

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1606 Western pontic communities with *Salix rosmarinifolia* and *Holoschoenus vulgaris*	B1.61 Coastal dune thichets	2190 Humid dune slacks	Very high

Figure 8 ***Coastal dune scrub (photo: https://beta.info-delta.ro/delta-dunarii-17/sacalin-zatoane--110.html)***

B3.3 Rock cliffs, ledges and shores, with angiosperms

Distribution: The Black Sea littoral, from Capul Midia to Vama Veche.

Habitat structure: Sea-cliffs, or parts of sea-cliffs, and rocky shores colonized by disjunct assemblages of salt-tolerant crevice plants (chasmophytes) or by more or less closed salt-tolerant grasslands with associated terrestrial invertebrate and vertebrate faunal communities.
This type of habitat characterizes the vegetation of limestone and loess deposits across the Black Sea littoral. The plant species of phytocoenose form a 35-40 cm high upper level with *Scolymus hispanicus, Centaurea diffusa, Atriplex hastata, Lolium perenne, Xanthium spinosum.* The lower level is made up of creeping plant species like *Ecballium elaterinum, Galium humifusum, Convolvulus arvensis, Lolium perenne.* Other species are: *Galium humifusum, Atriplex hastata, Cynodon dactylon, Marrubium vulgare, Convolvulus arvensis, Medicago lupulina, Lactuca saligna, Centaurea diffusa.*

Dominant species:
Scolymus hispanicus **–** Family: *Asteraceae*. Herbaceous biennial plant, latex-producing, 40-80 cm high with Plană ierboasă, bisanuală, secretă latex, înaltă de 40-80 cm, ligated yellow flowers, blooms in July-August.
Ecballium elaterium (squirting cucumber or exploding cucumber) **–** Family: *Cucurbitaceae*. Herbaceous annual-perennial plant without herbs, actinomorphic flowers on type 5, united sepals and yellow petals. As the popular name calls it, the fruit is dehiscentrly explosive throwing the seeds away.

Correspondences:

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1201Western Pontic communities with *Scolymus hispanicus* and *Ecballium elaterium*	B3.323 Western Pontic low cliff communities	-	Moderate

Figure 9 Habitat B3.3 – 2 Mai, Constanța County (photo: http://www.floraofromania.transsilvanica.net/flora%20of%20romania/ac%20VI%20501-600/Copy%20%2831%29%20of%20species.htm)

C1.1 Permanent oligotrophic lakes, ponds and pools

Distribution: Permanent waterbodies across the Danube River, Dobrogea and Danube Delta.

Habitat structure:
This habitat is represented by the submerged vegetation dominated by *Characeae* family species which developes in stagnant or flowing waterbodies. It has a 40-60% coverage of which more representative are: *Nitella gracilis, Chara brauni, Tolypella syncarpa, Lychnothamnus barbatus, Chara aspera, C. tomentosa, C. fragilis, C. vulgaris.* The species developed on the water surface are a few native unfixed individuals like *Lemna minor, L. trisulca, Spirodela polyrhiza, Salvinia natans, Azolla caroliniana.* In shallow waterbodies species like *Eleocharis palustris, Schoenoplectus palustris, Alisma plantago-aquatica, Butomus umbellatus, Phragmites australis* occurres. Floristic composition: edifying species: *Chara braunii, C. canescens, C. tomentosa, C. fragilis, Nitella gracilis, Tolypella syncarpa.* Caracteristic species: *Chara braunii, C. fragilis, Nitella gracilis, Tolypella prolifera.* Other important species: *Tolypella syncarpa, Lychnothamnus barbatus, Lemna minor, L. trisulca, Spirodela polyrhiza, Salvinia natans, Azolla caroliniana, Myriophyllum spicatum, Ceratophyllum demersum, Najas minor, N. maritima, Potamogeton pectinatus, Utricularia vulgaris, Ranunculus trichophyllus.*

Dominant species:
Nitella gracilis, Chara brauni (with *Chara aspera, C. tomentosa, C. fragilis, C. vulgaris*), *Tolypella syncarpa* and *Lychnothamnus barbatus* – from *Characeae* family (freshwater green algae). The stem is branched and can reach up to 120 cm. It is made up of a linear structure with node branches, very similar to *Equisetum*.

Correspondences:

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R2201 Danubian communities with *Chara tomentosa, Nitella gracilis, Nitellopsis obtusa* and *Lychnothamnus barbatus.*	C1.141 *Chara* carpets; C1.142 *Nitella* carpets	3140 Hard oligomesotrophic waters with benthic vegetation of *Chara* spp.	Moderate

Figure 10 *Chara spp*.– Baziaș, Caraș-Severin County (photo: Roxana Ion)

C1.2 Lacuri permanente mezotrofe (Permanent mesotrophic lakes, ponds and pools)

Distribution: stagnant waters (swamps, ponds, dead arms of the rivers) from Crișana, Banat, Oltenia, Muntenia, Dobrogea, Danube Delta; shallow waters, from Plain of Munteniea, Danube Everglade and Delta, Western Plain (Timiș – Bega, Criș); obtrusted canals from Muntenia Plain (Comana, Mogoșoaia, Căldărușani), in permanent waters, water basins with standing or flowing waters in the southwest of the country, Moldova, in meadows of Siret and Prut, the Stream Pețea, Bucharest, Snagov Lake.

Habitat structure: This type of habitat reunites phytocoenosis composed of floating species on the surface of the water and submerged, stagnant waters, shallow waters, some rich in organic substances.

The natante upper layer, is represented by species of *Lemna minor, L. trisulca, Spirodela polyrhiza, Wolffia arrhiza, Riccia fluitans, Ricciocarpus natans, Hydrocharis morsus-ranae, Stratiotes aloides, Utricularia vulgaris,* numerous species of *Potamogeton (P. lucens, P. perfoliatus, P. gramineus, P. natans), Salvinia natans, Marsilea quadrifolia, Azolla caroliniana, Nymphaea alba, Trapa natans, Nymphoides peltata.* The submerged layer includes species such as *Myriophyllum spicatum, Elodea canadensis, Ceratophyllum demersum.* Alte specii importante: *Lemna gibba, Aldrovanda vesiculosa, Salvinia natans, Azolla caroliniana, A. filiculoides, Myriophyllum spicatum, Ceratophyllum demersum, Nymphoides peltata, Nuphar luteum, Vallisneria spiralis, Najas minor, Potamogeton pectinatus, P. crispus.* Of the helofile species we mention : *Phragmites australis, Typha angustifolia, T. latifolia, Sagittaria sagittifolia, Alisma plantago-aquatica, Butomus umbellatus, Alisma plantago-aqautica, Polygonum amphibium, Oenanthe aquatica, Sparganium erectum.* The habitat gets a very high conservative value with the presence of the species *Aldrovanda vesiculosa* și *Marsilea quadrifolia* (DH2). A particular type of habitat is the built thermophilic cenosis *Nymphaea lotus* var. *thermalis* as a dominant species alongside *Ceratophyllum demersum, Sparganium erectum* ssp. *neglectum, Butomus umbellatus, Alisma plantago-aquatica, Phragmites australis*. At present this habitat present only at Băile Felix - Pețea Stream is critically endangered on the verge of extinction. At Snagov and in Bucharest there is a particular habitat with *Myriophyllum brasiliense*, *Pistia stratiotes*, *Nelumbo nucifera* (acclimated).

Dominant species:

Lemna minor, L. trisulca(lesser duckweed) – Family: *Lemnaceae*. Small, straight or branched planters, not exceeding 5 mm.

Wolffia arrhiza – Family: *Lemnaceae*. A tiny aquatic plant that measures 1mm in diameter, the body has a circular shape.

Riccia fluitans, Ricciocarpus natans – Family: *Ricciaceae.* Natante moss.

Hydrocharis morsus-ranae(frog grass) –Family: *Hydrocharitaceae.* The leaves are reniform, the flowers are white with 3 petals.

Stratiotes aloides (water soldiers, water pineapple) – Family *Hydrocharitaceae*. Dioica species, leaves are long, serrated and arranged in rosette, white flowers.
Potamogeton perfoliatus, P. gramineus, P. lucens (perfoliate pondweed) –Family: *Potamogetonaceae*. Aquatic plants, fixed, submerged or with natante, alternate leaves.
Nymphaea lotus* var. *thermalis (white lotus) – Family: *Nymphaceae*. Aquatic plant, herbaceous, orbicular leaves, solitary flowers, white corolla.

Correspondences:

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R2202 Danubian communities with *Lemna minor, L. trisulca, Spirodela polyrhiza* and *Wolffia arrhiza*	C1.221 Duckweed covers	3150 Natural eutrophic lakes with *Magnopotamition* or *Hydrocharition* – type vegetation	Moderate and high in *Aldrovanda vesiculosa* habitats (DH2)
R2203 Danubian communities with *Salvinia natans, Marsilea quadrifolia, Azolla caroliniana* and *A. filiculoides*	C1.225 Flooating *Salvinia natans* mats	3150 Natural eutrophic lakes with *Magnopotamition* or *Hydrocharition* – type vegetation	High and very high in *Marsilea quadrifolia* habitats (DH2)
R2204 Danubian communities with *Riccia fluitans* and *Ricciocarpus natans*	C1.22 Free floating vegetation of mesotrophic waterbodies	3150 Natural eutrophic lakes with *Magnopotamition* or *Hydrocharition* – type vegetation	High
R2205 Danubian communities with *Hydrocharis morsus-ranae, Stratiotes aloides* and *Utricularia vulgaris*	C1.222 Floating *Hydrocharis morsus-ranae* rafts	3150 Natural eutrophic lakes with *Magnopotamition* or *Hydrocharition* – type vegetation	Moderate
R2206 Danubian communities with *Potamogeton perfoliatus, P. gramineus, P. lucens, Elodea canadensis* and *Najas marina*	C1.231 Large pondweed beds	3150 Natural eutrophic lakes with Magnopotamition or Hydrocharition – type vegetation	Moderate
R2207 Danubian communities with *Nymphaea alba, Trapa natans, Nuphar luteum* and *Potamogeton natans*	C1.24 Rooted floating vegetation of mesotrophic waterbodies	3160 Natural dystrophic lakes and ponds	High

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R2209 Tertiary relict communities with *Nymphaea lotus* var. *thermalis*	C1.24113 Transylvanian hot spring lotus beds	31A0* Transylvanian hot-spring lotus beds; 31B0 * Sacred lotus beds	Very high

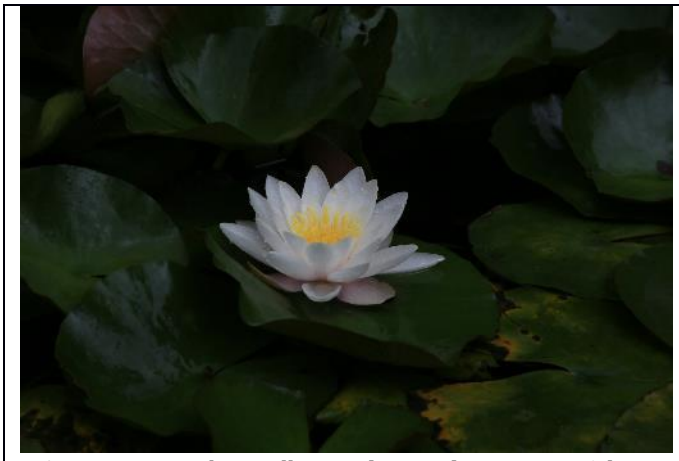


Figure 11 *Nymphaea alba* – Sulina, Tulcea County (photo: Roxana Ion)

Figure 12 *Potamogeton natans* - Bâtca Doamnei, Neamț County (photo: Roxana Ion)

Figure 13 *Trapa natans, Salvinia natans* – Sulina, Tulcea County (photo: Roxana Ion)

Figure 14 *Nymphoides peltata* - Sfântu Gheorghe, Tulcea County (photo: Roxana Ion)

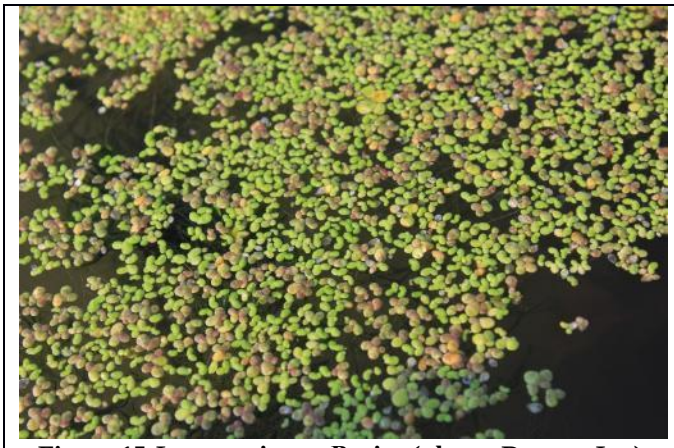


Figure 15 ***Lemna minor*** **– Baziaș (photo: Roxana Ion)**

Figure 16 *Marsilea quadrifolia* – Moldova Nouă Island (photo: Roxana Ion)

Figure 17 *Hydrocharis morsus-ranae* – Danube Delta - Sfântu Gheorghe (photo: Roxana Ion)

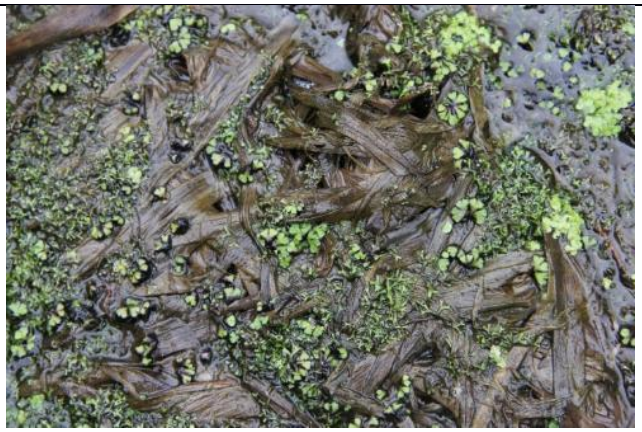


Figure 18 *Riccia sp.* - Mestecănișul de la Reci (photo: Roxana Ion)

Figure 19 *Utricularia vulgaris* - Mestecănișul de la Reci (photo: Roxana Ion)

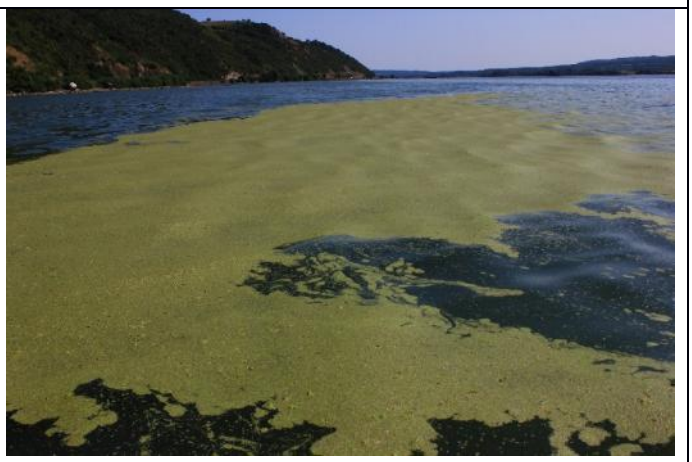


Figure 20 Habitat C1.2 - Divici, Caraș-Severin County (photo: Roxana Ion)

Figure 21 Habitat C1.2 - Mestecănișul de la Reci (photo: Roxana Ion)

Figure 22 Habitat C1.2 - Mestecănișul de la Reci (photo: Roxana Ion)

Figure 23 Habitat C1.2 – Ciuperceni-Desa, Dolj County (photo: Roxana Ion)

Figure 24 Habitat C1.2 – Bâtca Doamnei, Neamț County (photo: Roxana Ion)

Figure 25 Habitat C1.2 – Sfântu Gheorghe, Tulcea County (photo: Roxana Ion)

Figure 26 Habitat C1.2 – Pângărați, Neamț County (photo: Roxana Ion)

C1.3 Permanent eutrophic lakes, ponds and pools

Distribution: Crişana, Banat, Danube Everglade and Delta, Southern Moldova.

Habitat structure: The vegetation is made up of submerged aquatic species, of which more representative are: *Ranunculus aquatilis, Hottonia palustris, Myriophyllum verticillatum, Ceratophyllum demersum*. At the surface of the water, the species that develop the natate layer of phytocoenoses with: *Lemna minor, L. trisulca, Hydrocharis morsuranae, Wolffia arrhiza, Salvinia natans, Spirodela polyrhiza.* Floral composition: *Ranunculus aquatilis, Hottonia palustris, Polygonum amphibium, Ranunculus aquatilis, Hottonia palustris, Potamogeton natans, Ranunculus trichophyllus, Myriophyllum verticillatum, M. spicatum, Ceratophyllum demersum, Lemna minor, L. trisulca, Spirodela polyrhiza, Typha angustifolia, Phragmites australis.*

Dominant species:
Ranunculus aquatilis – Family: *Ranunculaceae*. Aquatic plant with submerged leaves in capillary segments, round, lobed, white corolla
Hottonia palustris – Family: *Primulaceae*. The leaves are highly divided, completely submerged, having the appearance of a combination of teeth arranged on both sides. The stem is high up to 80 cm. Flowers with 5 pink petals.

Correspondences:

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R2208 Danubian communities with *Ranunculus aquatilis* and *Hottonia palustris*	C1.3411*Ranunculus* communities in shallow *waters*	3260 Water courses of plain to montane levels with the *Ranunculion fluitantis and Callitricho-Batrachio* vegetation	High

C1.5 Permanent inland saline and brackish lakes, ponds and pools

Distribution: Dobrogea, Danube Delta, Black Sea Coast (Midia–Năvodari), Agigea, Mangalia, Transilvania, (Someșeni-Cluj, Turda, Ocna Sibiului, Băile Sărate Turda), Banat (interfluve Timiș-Bega), Oltenia (Slatina), Moldova (Barlad Valley), Crișana (Crișuri Plain), Muntenian Plain.

Habitat structure: This habitat is developed in shallow brackish waters, microdepressions along the littoral with a substrate composed of fine sands mixed with clays, salted water basins.The dominant species are hidrophilic, submerged: *Ruppia maritima, Zannichellia palustris, Potamogeton pusillus, Zostera nolti, Z. pedicellata, Potamogeton trichodes, Najas minor, Myriophyllum spicatum, Potamogeton pectinatum, P. pusillus, Ranunculus trichophyllus.* Others species present: P*otamogeton pectinatus Ceratophyllum demersum, Myriophyllum verticillatum, Potamogeton crispus, P. pectinatus.* Among the most important natante species : *Lemna minor, L. trisulca, Salvinia natans, Spirodela polyrhiza.* The more frequent palustre species are: *Phragmites australis, Butomus umbellatus, Typha latifolia, Sparganium erectum, Alisma plantago-aquatica, A. lanceolatum, Oenanthe aquatica* rarely specimens of *Bolboschoenus maritimus, Heleocharis uniglumis.*

Dominant species:

Ruppia maritima (beaked tasselweed) – Family: *Rupiaceae*. Aquatic plants, submerged, perennial, linear, alternate leaves, pedunculum of inflorescence under 5 cm and does not become spiral in flowering.

Zannichellia palustris* şi *Z. pedicellata (horned pondweed) – Familiy: *Zannichelliaceae*. Aquatic plants, submerged, perennial, linear leaves, whole apparently, 2-3 axillary flowers. *Z. palustris* with 3-6 fruit almost sessile, *Z. pedicellata* usually with 2 pedicellate fruits.

Najas marina (spiny water nymph) – Family: *Najadaceae*. Aquatic plants, submersibles, annuals, opposite, linear leaves with denticulated edges, stem with internodes, sinuate-denate, dioicous plant.

Correspondences:

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R2301 Western-Pontic communities with *Maritime Ruppia*	C1.5211 Athalassic tasselweed communities	1150 * Costal lagoons;	Very high
R2302 Ponto-panonic communities with *Zannichellia palustris* and *Z. pedicellata*	C1.5211 Athalassic tasselweed communities	-	High
R2303 Ponto-sarmatic communities with *Najas marina*	C1.5211 Athalassic tasselweed communities	1160 Large shallow inlets and bays	High

Figure 27 ***Najas marina*** **– Baziaș, Caraș-Severin County (foto: Roxana Ion)**

Figure 28 Habitat C1.5 Baziaș, Caraș-Severin County (foto: Roxana Ion)

C2.1 Springs, spring brooks and geysers

Distribution: Eastern Romanian Carpathians: Rodnei Mountains, Maramureș Mountains, Bistrița Mountains, Obcinile Mestecănișului, Bistrița Aurie,Călimani Mountains, Harghitei Mountains, Govora Mountain, Defileul Mureșului, Gurghiului Valle, Siriu Mountains Southern Romanian Carpathians: Iezer-Păpușa Mountains, Făgăraș Mountains, Cindrelului Mountins, Retezat Mountains, Țarcu Mountains, Godeanu Mountains, Bucegi Mountains, Piatra Craiului Mountains, Azuga Valley, Cheile Dâmbovicioarei– Brusturet Lunca Berhinii, Parâng Mountains, Cibinului Mountains,. ; Western Romanian Carpathians: Apuseni Mountains, Bihor Mountains, Curcubăta Mare, Meseșului Mountains, Vlădeasa Mountain, Plopiș Mountains, Sebeșului Mountains. In the mountain region, in the lower apline and subalpine floors.

Habitat structure: These communities, developed in mountain valleys (up to the apline) on a basic or limestone substrate, is separated according to the mineral content (mainly calcium) of the water. The most richest in calcium are represented by communities of bryophytes of which *Cratoneuron commutatum* and *C. filicinum* are dominant, and from the species that contribute to the geographic distribution of phytocoenoses in the Romanian Carpathians we mention: *Chrysoplenium alpinum, Achillea schurii, Silene pusilla*. In the habitats on the edge of the streams flowing through scress and slabs of limestone *Saxifraga aizoides* and *Doronicum carpaticum*. Those with a low mineral content form habitats near the springs and streams in the subalpine with *Cardamine opizii* or *Philonotis seriata* and *Caltha laeta*, or *Chrysosplenium alpinum* and *Saxifraga stellaris*; from the floor of the beech and from the spruce forests dominated by species *Cardamine amara* ans *Chrysosplenium alternifolium* or by *Alchemilla mollis, Glyceria nemoralis;* lengthways
Carex remota cu *Caltha palustris*. Mosses have a very large coverage, reaching 50%. Characteristic and edifying plants can have a coverage of up to 35% and 20-25cm high.Other important species: *Saxifraga stellaris, Chrysosplenium alpinum, Caltha laeta, Cardamine opizii, Chrysosplenium alternifolium, Cardamine amara, Saxifraga aizoides, Silene pusilla, Epilobium nutans, Epilobium alsinifolium, Bryum pseudotriquetrum, Brachythecium rivulare, Saxifraga heucherifolia, Scapania undulata, Deschampsia caespitosa, Chaerophyllum hirsutum, Stellaria nemorum, Viola biflora, Veratrum album, Aconitum tauricum, Juncus triglumis, Swertia punctata, Cochlearia pyrenaica, Pinguicula vulgaris, Saxifraga aizoides, Epilobium nutans, Epilobium alsinifolium, Bryum pseudotriquetrum, Achillea schurii, Philonotis seriata, Glyceria nemoralis, Angelica sylvestris, Veronica beccabunga, Chaerophyllum hirsutum, Stellaria nemorum, Viola biflora, Veratrum album, Saxifraga heucherifolia, Impatiens noli-tangere, Tozzia alpina, Alchemilla mollis, Rumex obtusifolius, Brachythecium rivulare*.

Dominant species:
Cratoneuron commutatum – Species of leaf moss. The leaves are green-brown, of 4-6 cm long, pinnate, feather-like.
Cardamine opizii – Family: *Brassicaceae*. Presents rhizome and numerous stolons, pinnately compound leaves.

Caltha laeta – Familiy: *Ranunculaceae*. The basal leaves are simple with full edges, with 5 yellow tepals. High plant of 15-30cm

Chrysosplenium alpinum – Family: *Saxifragaceae*. The leaves are round, lobed, opposite. Small, yellow flowers with 4 petals produced in small cavities at the top of the stem. High plant of 3-15 cm. ***Glyceria nemoralis –*** Family: *Poaceae.* Herbaceous, perennial plant, high 40-100 cm, stems 5-7 mm thick, sheaths of compressed leaves, spikelets of approx. 10 mm long, smooth lemma.

Correspondences

Romanian habitas	EUNIS habitas	Natura 2000 habitats	Conservative value
R5416 Southeast Carpathian communities of springs and streams with *Saxifraga stellaris, Chrysosplenium alpinum* and *Philonotis seriata*	C2.11 Soft water springs	-	Low
R5417 Southeast Carpathian fontinale communities with *Cratoneuron commutatum* and *C. filicinum*	C2.12 Hard water springs	*7220 Petrifying springs with tufa formations (*Cratoneurion*)	Very high priority habitat
R5418 Southeast Carpathian fontinale communities with *Philonotis seriata* and *Caltha laeta*	C2.11 Soft water springs	-	Low
R5419 Southeast Carpathian communities of springs and streams with *Doronicum carpaticum, Saxifraga aizoides, Chrysosplenium alpinum* and *Achillea schurii*	C2.12 Hard water springs	*7220 Petrifying springs with tufa formations (*Cratoneurion*)	Very large, priority habitat, endemic in South-Eastern Carpathians
R5420 Southeast Carpathian fontinale communities with *Cardamine opizii*	C2.11 Soft water springs	-	Low
R5421 Southeast Carpathian communities of springs and streams with *Chrysosplenium alternifolium* and *Cardamine amara*	C2.11 Soft water springs	-	Moderate

Romanian habitas	EUNIS habitas	Natura 2000 habitats	Conservative value
R5422 Southeast Carpathian communities of springs and streams with *Glyceria nemoralis*	C2.11 Soft water springs	-	Low
R5423 Southeast Carpathian communities of springs and streams with *Carex remota* and *Caltha laeta*	C2.11 Soft water springs	-	Moderate and high in the habitats where is present the species *Lingularia sibirica* (DH2).

Figure 29 *Caltha palustris* Retezat Mountain (foto: Roxana Ion)

Figure 30 *Saxifraga stellaris*- Rodnei Mountain (foto: Roxana Ion)

Figure 31 General aspect of the habitat C2.1 in Retezat Mountains on Șteviei Valley (foto: Roxana Ion)

Figure 32 General aspect of the habitat C2.1 in Fagaraș Mountains at Podragu Lake (foto: Roxana Ion)

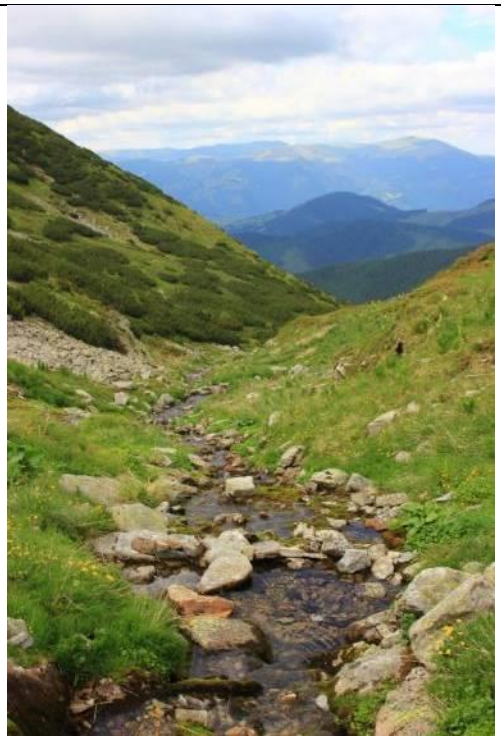


Figure 33 General aspect of the habitat C2.1 in Parâng Mountains at Mija Lake (foto: Roxana Ion)

Figure 34 General aspect of the habitat C2.1 at Boserc, Curie Source (foto: Roxana Ion)

C3.2 Water-fringing reedbeds and tall helophytes other than canes

Distribution: The plain and hilly area of Transylvania, Banat, Muntenia, Moldova, Dobrogea and the meadow of the internal rivers in the plain and the Danube Delta, Câmpia Crișurilor, interfluve Timiș – Bega, Romanian Plain (in basins with permanent waters), Moldova (Bașeului Basins), Muntenia Plain, the inner rivers all over the country, Oltenia, the lakes around Bucharest.

Habitat structure: This habitat is represented by communities of hydrophilic plants, the existence of which is conditioned by the presence of non-evolved soils, the substrate is represented by alluvial deposits with organic material. The dominant species that make up the upper floor of the vegetation are 80-150 cm high, but can also can reach 200 cm (communities of *Glyceria fluitans*) and achieves a 70-100% coverage. At realization of the high floor participate species like *Phragmites australis* in association with *Thelypteris palustris* or *Schoenoplectus* or *Phragmites australis* ssp. *humilis* with *Aster tripolium* (in Danube Delta); *Glyceria fluitans;* communities of *Typha latifolia* with *T. angustifolia* or *T. laxmanii* dominant*; Bolboschoenus maritimus* with *Schoenoplectus tabernaemontani;* communities of *Carex riparia, C. acutiformis, C. gracilis, C. elata, C. rostrata, C. paniculata; Oenanthe aquatica* with *Rorippa amphibia; Glyceria plicata, Leersia oryzoides, Iris pseudacorus, Schoenoplectus lacustris, Phalaris arundinacea, Stachys palustris, Lythrum salicaria, Juncus effusus, Rumex crispus, Sparganium erectum, Bolboschoenus maritimus, Eleocharis palustris, Epilobium hirsutum, E. parviflorum, S. triqueter, Carex riparia, Alisma plantago-aquatica, Stachys palustris, Butomus umbellatus, Glyceria maxima, Rorippa amphibia, Ranunculus sceleratus, Aster tripolium.* The middle floor is also well represented by the species like *Catabrosa aquatica, Berula erecta, Sparganium neglectum, Mentha aquatica, Veronica anagalis-aquatica, Agrostis stolonifera, Bidens tripartita, Sparganium erectum, Galium palustre, Lycopus europaeus, Alisma plantago-aquatica, Eleocharis palustris, Carex vulpina, Phalaris arundinacea, Carex acutiformis, Lythrum salicaria, Lysimachia vulgaris, Ranunculus repens, Juncus gerardi, Eleocharis palustris, Galium palustre, Myosotis scorpioides, Polygonum lapathifolium, Cicuta virosa, Rumex hydrolapathum, Cladium mariscus.* The presence of small species leads to the formation of a lower level, sometimes well represented by species : *Galium palustre, Ranunculus repens, Potentilla reptans, Lysimachia nummularia, Trifolium repens; ;* In the salty areas the presence of halophytic species is highlighted *Suaeda splendens, Spergularia maritima, Aeluropus littoralis, Crypsis aculeata, Eleocharis uniglumis, Carex distans.* There are also natante species like *Spirodela polyrhiza, Marsilea quadrifolia, Myriophyllum spicatum, Ceratophyllum demersum, Vallisneria spiralis, Najas marina, Lemna minor, L. trisulca.*

Dominant species:

Typha latifolia, T. angustifolia, T. laxmani – Family: *Typhaceae*. Perennial plants, over 1 m high, with simple stem, linear, long leaves. The flowers are scapiform grouped, the males above, the women underneath.

Schoenoplectus lacustris – Family: Cyperaceae. Perennial plant, of 1-3 m high, cylindrical stem, 15 mm thick. Flowers are grouped in multifloral spikelets.

Glyceria fluitans – Family: Poaceae. Perennial plant, high 40-120 cm. Long, rough, floating leaves. Flowers grouped in spikelets, 1.5-2.5 cm anthers, purple petals.

Phragmites australis – Family: *Poaceae*. Perennial plant, high over 2m. Linear leaves. Inflorescence is panicle of 10-40 cm.

Carex riparia, C. acutiformis, C. gracilis, C. elata, C. rostrata, C. paniculata (greater pond sedge) – Family: *Cyperaceae*: Herbaceous plants, over 70-120 cm high. The stem is sharply triunghiular in section, unisexed flowers. They differ according to the size and shape of the utricle.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R2210 Danubian communities with *Bolboschoenus maritimus* and *Schoenoplectus tabernaemontani*	C3.27 Halophil (*Scirpus*) *Bolboschoenus* and *Schoenoplectus* beds	-	Low
R5301 Marsh communities with *Glyceria fluitans, Catabrosa aquatica* şi *Leersia oryzoides*	C3.26 *Phalaris arundinacea* beds	-	Low
R5303 Danubian communities with *Oenanthe aquatica* and *Rorippa amphibia*	C3.246 Water drapword-great yelloweress communites	-	Moderate
R5304 Danubian communities with *Sparganium erectum, Berula erecta* and *Sium latifolium*	C3.243 Erect bur-reed communities	3150 Natural eutrophic lakes with *Magnopotamition* or *Hydrocharition* – type vegetation	Moderate
R5305 Danubian communities with *Typha angustifolia* and *Typha latifolia*	C3.231/232*Typha latifolia/T. angustifolia* beds	-	Low

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R5306 Danubian communities with *Typha laxmannii* and *Epilobium hirsutum*	C3.23 Reedmace (*Typha*) beds	-	Moderate
R5307 Daco-Danubian communities with *Glyceria maxima* and *Schoenoplectus palustris*	C3.251 Swetgrass beds	-	Moderate
R5308 Danubian communities with *Phragmites australis* and *Thelypteris palustris*	C3.211 Flooted *Phragmites* beds	-	Moderate
R5309 Danubian communities with *Phragmites australis* and *Schoenoplectus lacustris*	C3.21 *Phragmites australis* beds	-	Moderate
R5310 Danubian communities with *Carex elata*, *C. rostrata*, *C. riparia* and *C. acutiformis*	C3.29 Water-fringing large sedge communities	-	Moderate
R5311 Danubian communities with *Phragmites australis* ssp. *humilis* and *Aster tripolium*	C3.2112 Inland saline water (*Phragmites*) beds	-	Moderate

Figure 35 *Schoenoplectus spp.*– Baziaș (foto: Roxana Ion)

Figure 36 *Phragmites australis* – Baziaș (foto: Roxana Ion)

Figure 37 *Typha angustifolia* – Pângărați Lake, Neamț County (foto: Roxana Ion)

Figure 38 *Sparganium erectum*– Mestecănișul de la Reci (foto: Roxana Ion)

Figure 39 *Sparganium erectum*– Cuejdel, Neamț County (foto: Roxana Ion)

Figure 40 *Phragmites australis* – Sulina, Tulcea County (foto: Roxana Ion)

Figure 41 Habitat C3.2 with *Phragmites australis* – Razim-Enisala Lake, Tulcea County (foto: Roxana Ion)

Figure 42 Habitat C3.2 with *Schoenoplectus spp.*– Moldova New Island (foto: Roxana Ion)

Figure 43 Habitat with C3.2 *Schoenoplectus spp.*– Bâtca Doamnei Lake (foto: Roxana Ion)

Figure 44 Habitat C3.2 – Vaduri Lake, Neamț (foto: Roxana Ion)

Figure 45 Habitat C3.2 with *Phragmites australis*– Baziaș (foto: Roxana Ion)

Figure 46 Habitat C3.2 with *Typha angustifolia*– Lacul Bâtca Doamnei, Neamț County (foto: Roxana Ion)

Figure 47 Habitat C3.2 with *Phragmites australis*– Fundeni, Călărași County (foto: Roxana Ion)

C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation

Distribuție: Crișurilor Plain , Timiș-Bega, Muntenia, Siretului Everglade, Danube Delta.

Habitat structure: This type of habitat occupies restricted areas around water basins, temporarily flooded (3-4 months per year). The dominant species is *Eleocharis acicularis*, with which it develops: *Juncus bulbosus, Hypericum humifusum, Eleocharis carniolica, Ranunculus flammul*a, and in places with permanent water appears in an appreciable amount, *Marsilea quadrifolia*. In the Danube Delta the phytocoenosis is composed with species like: *Mentha pulegium, Gnaphalium uliginosum, Cyperus fuscus, Potentilla supina, Pulicaria vulgaris, Potentilla reptan*s. Other important species: *Peplis portula, Elatine alsinastrum, Lindernia procumbens, Cyperus hamulosus, Junucus bufonius, Lythrum hyssopifolium, Mentha pulegium.*

Dominant species:
Eleocharis acicularis – Family: *Cyperaceae*. High plant of 2-20 cm, stem with 4 edges. The leaves are reduced to 2-3 sheaths present at the base of the stem. Flowers arranged in a compact spikelet.

Correspondences

Romanian habitats	EUNIS habitas	Natura 2000 habitats	Conservative value
R2213 Danubian communities with *Eleocharis acicularis* and *Littorella uniflora*	C3.44 *Eleocharis acicularis* beds	3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*	High and very high in the habitats where is present the species *Marsilea quadrifolia* (DH2)

C3.5 Periodically inundated shores with pioneer and ephemeral vegetation

Distibution: Banat, Muntenia, Danube Everglade and Delta, Banat Plain, Romanian Plain, Everglade rivers, periodically flooded, microdepresion where water pours all year long, in the plain area of Transylvania, Banat, Oltenia, Moldova. The shore of aquatic basins with accumulations of organic material, around the springs used for animal feeding during grazing, from Banat, Transylvania, Danube Plain, Dobrogea.

Habitat structure: This type of habitat is represented in Romania by 4 types of vegetal communities. R2211 and R2212 have a unilateral structure and are composed of small plants, the majority of them are annuals: *Cyperus fuscus, C. flavescens, Gnaphalium uliginosum, Isolepis supina, Lindernia procumbens, Elatine triandra, Juncus bufonius, Limosella aquatica, Lythrum hyssopifolium, Cyperus michelianus, Gypsophila muralis, Radiola linoides, Centaurium pulchellum, Juncus bufonius, Ranunculus lateriflorus, Eleocharis carniolica, Isolepis supina, Lindernia procumbens, Pulicaria vulgaris, Heleochloa alopecuroides, Elatine alsinastrum, Peplis portula.* R5302 and R5312 are plant communities with a bi- or tri-structured structure, the upper vegetation floor reaching 45-50 cm and is composed of species such as: *Echinochloa crus-gallis,Bidens tripartita, B. frondosa, Chenopodium polyspermum, P. hydropiper, P.lapathifolium, Rorippaaustriaca, Symphytum officinale, Chlorocyperus glomeratus, Rumex palustris, Phalaris arundinacea, Carex riparia, Oenanthe silaifolia, Phragmites australis, Lythrum salicaria, Poa trivialis, Glyceria fluitans, G. plicata, Butomus umbellatus, Bolboschoenus maritimus, Alopecurus pratensis.* Smaller plants, such as: *Alopecurus aequalis, Mentha arvensis, Chenopodium botrys, Ranunculus sceleratus* realizes the lower floor, which is less represented. The middle floor contain *Equisetum palustre, Galium palustre, Lysimachia nummularia, Alisma plantago-aquatica, Myosotis scorpioides, Carex hirta, Alopecurus aequalis, Ranunculus sceleratus.* And among the small plants that participate in the lower floor, we mention: *Potentilla reptans, Ranunculus repens, Medicago lupulina, Trifolium repens, T. fragiferum.*

Dominant species:

***Cyperus* sp.** – Family: *Cyperaceae*. Annual plants, short, - 30 cm. The flowers in spikelets are grouped lax in umbel.

Eleocharis palustris – Family: *Cyperaceae*. High plant of 10-60 cm, fine stalk with more than 20 veins. Leaves are reduced to 2-3 dots present at the base of the stalk. The flowers are arranged in a compact spikelet.

Bidens tripartita –Annual plant from *Asteraceae* family. Pinnatisect leaves, yellow flowers. High plant of 20-60 cm. high.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R2211 Danubian communities with *Cyperus fuscus* and *C. flavescens*	C3.51 Euro-Siberian dwarf annual amphibians swards	3130 Oligotrophic to meso-trophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*	Moderate
R2212 Danubian communities with *Ranunculus lateriflorus, Radiola linoides, Lindernia procumbens*	C3.51 Euro-Siberian dwarf annual amphibians swards	3130 Oligotrophic to meso-trophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*	High and very high in the habitats where is present the species *Caldesia parnasifolia*
R5302 Danubian meso-hygrophic communities with *Eleocharis palustris*	C3.511 Freshwater dwarf (*Eleocharis*) communities	-	Moderate
R5312 Danubian communities with *Bidens tripartita, Echinochloa crus-galli* and *Polygonum hidropiper*	C3.52 *Bidens* communities	3270 Rivers with muddy banks with *Chenopodium rubri* pp and *Bidention* vegetation	Moderate

Figure 48 *Cyperus spp.* – Moldova Nouă Island (foto: Roxana Ion)

Figure 49 *Cyperus spp.* – Moldova Nouă Island (foto: Roxana Ion)

Figure 50 General aspect of the habitat C3.5 – Pângărați Lake (foto: Roxana Ion)

Figure 51 General aspect of the habitat C3.5 - Mraconia (foto: Roxana Ion)

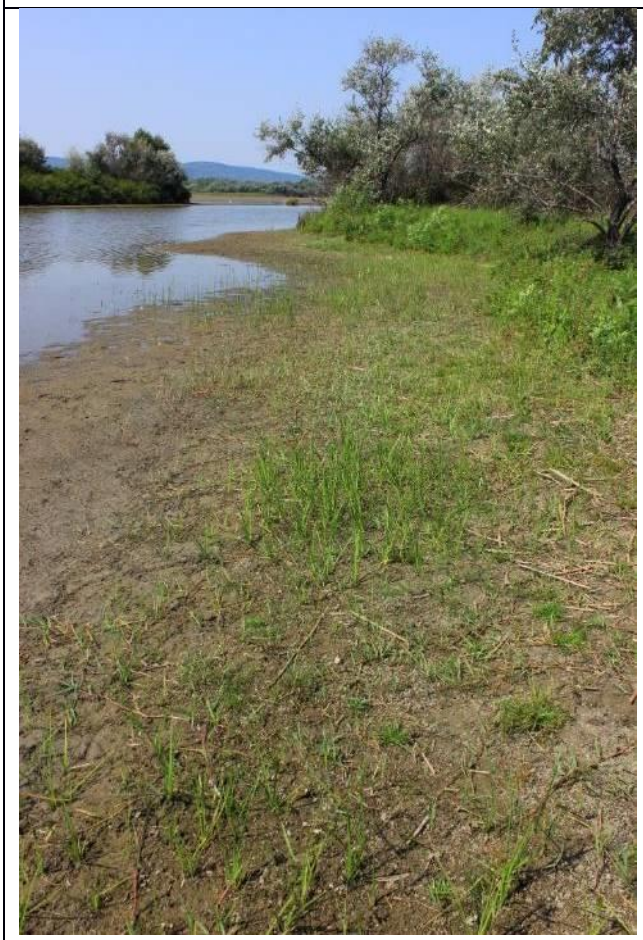


Figure 52 General aspect of the habitat C3 on Moldova Nouă Island (foto: Roxana Ion)

Figure 53 General aspect of the habitat C3.5 at Eselnița, Mehedinți County (foto: Roxana Ion)

D1.1 Raised bogs

Distribution: This bogs are found in the mountainous region and subapline floor of the Carpahians. In the Eastern Carpathians: Rodnei Mountains (Puzdra Mare, Puzdra Mică, Piciorul Galațiului, Căldarea Galați – Izvorul Fântânii), Harghitei Mountains, Bodoc, Comandău, Neagra Broștenilor, Siriu Mountain, Negru Lake (Vrancea County) Gutâi Mountains, Bistriței Mountains ,Izvoarele Bog, molhașul Căpățâna, Luci, Stampei Poiana, Mohoș, Vrancei Mountains. In the Southern Carpathians: Parâng Mountains, Țarcu Mountains, Godeanu Mountains, Retezat Mountains, Valea Sadului. Western Carpathians: Blăjoaia, Stâna de Vale, Frumos – Mosoroasa Lake; Apuseni Mountains: Gilău, Bihor, Izbucul Mare.

Habitat structure:
It occupies tens of hectares in central parts of the Carpathian peatlands (total about 1900 ha), at altitudes between 900-2050 m, on flat land.. Climate: T = 5,5– -3,50 C; P = 950–1400 mm. They have peat substrates of 1-6 m, very high content in organic matter (98.5%), low content of mineral substances (1-1.5%) and a strongly acidic reaction (pH = 4.5-4 8). Soils: histosols.
The habitat structure varies depending on the presence of nutrients and altitude. Thus, the oligotrophic bogs are found at altitudes up to 1600m, characterized by the massive presence of mushroom species *Sphagnum fuscum* and *Sphagnum magellanicum.*Herbaceous layer reaches up to 30 cm, with the following rare species present in the habitat: A*ndromeda polifolia, Drosera rotundifolia, Empetrum nigrum.* The layer of the tree can contain *Pinus sylvestris.* Meso-oligotrophic habitats reach up to 2050m, presenting aciodophilic phytocoenoses realised by *Eriophorum vaginatum* together with various species of *Sphagnum*:*Sphagnum fallax și Sphagnum magellanicum.* The layer of the tree can contain *Pynus mugo.*The characteristic species: *Sphagnum fallax, Sphagnum subsecundum, Sphagnum fuscum, Sphagnum capilifolium, Sphagnum rubellum, Pinus mugo, Pinus sylvestris.* Other important species: *Carex nigra ssp. dacica, Plantago gentianoides, Carex pauciflora, Andromeda polifolia, Drosera rotundifolia, Empetrum nigrum, Oxycoccus palustris, Oxycoccus microcarpus, Carex echinata, Carex canescens, Carex rostrata, Luzula sudetica, Juncus filiformis.*

Dominant species:
For meso-oligotrophic bogs are edified by *Eriophorum vaginatum, Sphagnum fallax*, and for oligotrophs *Sphagnum magellanicum, Sphagnum fuscum.*
Eriophorum vaginatum is a pernnial herbaceous plant with a soft terminal spikelet, with rhizome, complete stem, alternative leaves, closed sheath and linear limb. Short stools and stem with 3 edges of 30-50 cm high. Belongs to the *Cyperaceae* family.
The genus Sphagnum is the only genus of the *Sphagnaceae* family. It is an avascular or bryophyte plant that can form very thick layers in bogs called peatlands. It may contain a very large volume of water, both in the living parts (exposed to light) and the dead parts, which can extend a few meters in the depths of the bogs, taking the place of the soil.
The body of the plant has a central stem from whence it radiates beams. Peak contains compact agglomerations of young beams.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Consrvative value
R5101 Southeast Carpathian peatlands, mezoligotrophic, acidic with *Eriophorum vaginatum* and *Sphagnum recurvum*	D1.11125 (*Eriophorum-Sphagnum*) recurvum lown	*7110 Active raised bogs	Very high priority habitat.
R5102 Southeast Carpathian peatlands oligotrophs with *Sphagnum magellanicum*	D1.11111 (*Sphagnum magelanicum*) hummocks	*7110 Active raised bogs	Very high priority habitat

Figure 54 General aspect of the habitat D1.1 to Mohoș Bog(foto: Roxana Ion)

Habitat D1.1 – Tinovul Mohoş (Covasna) (foto: Roxana Ion)

Habitat D1.1 – Tinovul Apa Roşie (Covasna) (foto: Roxana Ion)

Habitat D1.1 – Câlcescu Lake (Parâng Mountains) (foto: Roxana Ion)

Habitat D1.1 – Tinovul Mohoş (Covasna County) (foto: Roxana Ion)

Figure 55 General aspect of the habitat D1.1 (foto: Roxana Ion)

Drosera obovata– Tinovul Mohoș, Covasna County (foto: Roxana Ion)

Eriophorum vaginatum – Tinovul Apa Roșie, Covasna County (foto: Roxana Ion)

Neottia cordata (foto: Roxana Ion)

Andromeda polifolia(foto: Roxana Ion)

Figure 56 Species of habitat composition D1.1 (foto: Roxana Ion)

D2.2 Poor fens and soft-water spring mires

Distribution: On the subalpine and alpine floor in the Carpathian Mountains. In the Eastern Carpathians: Rodna Mountains, Gutâi Mountains, Călimani Mountains, Dorna Depression, Blejoaia Bog, Bistrita Mountains, Harghita Mountains, Giurgiu Depression, Comandău, Black Lake (Vrancea County), Baraolt Mountains and Harghita Mountains. Southern Carpathians: Bucegi Mountains, Făgăraş Mountains, Parâng Mountains, Retezat Mountains, Ţarcu Mountains, Godeanu Mountains, Gilău Mountains.

Habitat structure:
Bogs lying between 700-2300m altitude on flat or slightly slopings surfaces dominating the moss layer. Are two types of bogs areas, depending on the dominant layer of moss: those dominated by *Drepanocladus* species, when is present is in shallow quantity; and those dominated by *Sphagnum* species. The first are acidic bogs, with a grassy layer of 10-30 cm, dominated by *Eriophorum, Epilobium* and *Carex* species. The latest are found between 700 and 1500 m, and may be small areas, larger areas of marshes, or hygrophilic meadows which, through a continuous process of înmlăştinire, creates conditions favorable to habitat development with *Carex nigra* ssp. *nigra* (*C. fusca*). They have a well-developed grassy layer, 10-20 cm tall, and a layer of mosses dominated by *Sphagnum* species. Carex species can reach 75% coverage. Representative soil is histosol, generally rich in organic material (over 80%), generally acidic, with pH below 5.5-6. Characteristic species: *Carex rostrata, Carex diandra, Carex echinata, Carex nigra ssp. Dacica, Juncus conglomeratus, Juncus effusus, Eriophorum scheuchzeri, Carex echinata*. Alte specii importante: *Pedicularis limnogena, Stellaria uliginosa, Cardamine amara, Drepanocladus fluitans, Carex canescens, Agrostis canina, Juncus filiformis, Sphagnum subsecundum, Sphagnum warnstorfii, Eriophorum angustifolium, Menyanthes trifoliata, Calliergon stramineum, Stellaria palustris, Veronica scutellata, Dicranum bonjeanii, Camptothecium nitens, Carex magellanica, Comarum palustre, Juncus alpinus, Juncus articulatus, Pedicularis sceptrum-carolinum, Ligularia sibirica, Calla palustris, Pedicularis palustris, Triglochin palustre.*

The edifying species:
The species *Carex* and *Eriophorum* belongs to the *Cyperaceae* family, which includes herbaceous plants, usually perennial, with rhizomes, with stem full with marrow, alternate leaves, closed sheath and linear limb.
The *Carex* genus is characterized by unisexual flowers without a floral wrap, composed of a bract named glume, grouped in spikelets, witch enters in the composition of a spike or racemes.
Carex nigra ssp. dacica is a grassy, perennial species, with a height of 10-60 cm, with basal brown sheaths.
Carex diandra is a herbaceous, perennial species, 20-60 cm high, with short rhizomes and utricle with veins at the base, narrowed in a rostrum. Contrary to her name, the flower has 3 stamens.
Carex echinata is a grassy, perennial species, with a height of 10-20 cm, leaves of 1-2 mm width, utricule with bifid rostrum.
Eriophorum scheuchzeri Is a herbaceous, perennial plant with a soft terminal spikelet, short stools and a 10-35 cm cylindrical stem.

***Juncus conglomeratus* –** Familiy: *Juncaceae* it is a perennial species, with a nearly smooth strain of 40-80cm, with 30-70 fine strips and a continuous marrow.
Juncus effusus – Family: *Juncaceae* . It is a perennial species, with a stem of 30-80 cm, with a continuous marrow.
Plantago gentianoides is a small, herbaceous alpine plant belonging to the family *Plantaginaceae*, perennial, with simple, ovate or elliptical leaves, without stipules, grouped in basal rosettes, 5-20 cm high, with short spikes.
Sphagnum recurvum belongs to the genre *Sphagnum*, the only gender of family *Sphagnaceae*. It is an avascular or bryophyte plant, which can form very thick layers in bogs called peat bogs. It may contain a very large volume of water, both in the livings parts (exposed to light) and the dead parts, which can extend a few meters in the depths of the bogs, taking the place of the soil. The body of the plant has a central stem from which it radiates beams. The peak contains compact agglomerations of young beams.
***Drepanocladus exannulatus* –** Familiy: *Amblystegiaceae*, is a species of moss with leaves arranged in bundles on one side and on other central stems. The leaves are smooth, without ridges and sharp.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Consecutive value
R5401 Southeast Carpathian eumesotrophic peatlands *Carex nigra ssp. dacica* and *Plantago gentianoides*	D2.22 *Carex nigra, Carex canescens, Carex echinata* fens	-	High, endemic habitat in the South-Eastern Carpathians.
R 5402 Southeast Carpathian eumesotrophic bogs with *Eriophorum scheuchzeri*	D2.211 Alpide cottonsedge lake girdles	-	High, endemic habitat in the South-Eastern Carpathians
R 5403 Southeast Carpathian meso-oligotrophic peatlands with *Carex rostrata* and *Sphagnum recurvum*	D2.22 *Carex nigra, Carex canescens, Carex echinata* fens	7240*Alpine pioneer formations of *Caricion bicoloris* – atrofuscae	Very high in habitats where is present *Ligularia Sibirica* species
R 5410 Southeast Carpathian mesotrophic bogs with *Carex echinata* and *Sphagnum recurvum*	D2.22 *Carex nigra, Carex canescens, Carex echinata* fens.	-	Very high in habitats where is present *Ligularia Sibirica* species

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Consecutive value
R5411 Southeast Carpathian eumesotrophic bogs with *arex nigra ssp. nigra, Juncus glaucus* and *J. effusus*	D2.22 *Carex nigra, Carex canescens, Carex echinata* fens.	-	Very high in habitats where Ligularia is present *Ligularia sibirica*

Figure 57 *Carex sp.* – Podragu, Făgăras Mountains (foto: Roxana Ion)

Figure 58 General aspect of the habitat D2.2 at Dumbrava Harghitei Bog, Harghita County (foto: Roxana Ion)

Habitat D2.2 – Bog from Căldarea Puha (Făgăraș Mountains) (foto: Roxana Ion)

Habitat D2.2 – Podragu (Făgăraș Mountains) (foto: Roxana Ion)

Habitat D2.2 – Valea Rea Bog (Retezat Mountains) (foto: Roxana Ion)

Habitat D2.2 – Bog from Căldarea Mataniei (Țarcu Mountains)(foto: Roxana Ion)

Figure 59 General aspect of the habitat D2.2 (foto: Roxana Ion)

D2.3 Transition mires andquaking bogs

Distribution: Carpathian Mountains, in the mountainous area and the subalpine floor, at altitudes of 1500-1700m or 500-1000m, on the mountain piemont. Oriental Carpathians: Rodna Mountains, Călimani Mountains, Mureş Gorge; Negru Lake (Vrancea County), Gutâi Mountains, Maramureş Mountains, Baraolt Mountains, Harghita Mountains, Dornelor Depression. Southern Carpathians: Bucegi Mountains, Făgăraş Basin. Western Carpathians: Valea Iadului, Bihor Mountains (Izbuc), Izvoarele, Gilau Mountains.

Habitat structure:
The habitat is represented by monuntains and subalpine wetlands, or with temporary or permanent floods, from mesotrops to oligotrophs, with basic or acidic histosols, to strongly acidic. In all Romanian habitats, the moss layer is well represented or even dominant, generally represented by *Sphagnum* species, more rarely by *Cratoneuron*. Mosses can have a 30-75% coverage. Besides the oligotrophic marshes of the spruce area with *Carex limosa*, which has a poorly developed herb layer, the other types of bogs in the habitat have a developed herb layer 10-30 cm high, dominated by *Carex limosa*, which may have a coverage of up to 40% or less *C. lasiocarpa*, but also of carnivorous plants, such as *Drosera*. We mention the presence of rare species: *Drosera anglica, Carex dioica, Pedicularis sceptrum-carolinum* and the *Saxifraga hirculus* glacial relict. Characteristic and important species: *Carex chordorrhiza, Carex lasiocarpa, Carex serotina, Carex pauciflora, Carex diandra, Carex nigra, Rhynchospora alba* (relict glaciar), *Swertia perennis, Sphagnum warnstorfii, Sphagnum cuspidatum, Sphagnum contortum, Allium schoenoprasum, Eriophorum angustifolium, Eriophorum vaginatum, Eriophorum gracile, Ligularia sibirica, Menyanthes trifoliata, Parnassia palustris, Pedicularis palustris, Dactylorhiza incarnata.*

The edifying species:
The genus *Carex* and *Rhynchospora* belong to the family *Cyperaceae*, which includes herbaceous plants, usually perennial, with rhizomes, the stem full of marrow, alternate leaves, closed sheath and linear limb. It is characterized by unisexual flowers without a floral wrap, made up of bracts named glume, gropued in spikelets witch enters in the composition of some spikes or racemes.
Carex limosa is a perennial species, 20-30 cm tall, with a male spikelet at the top and female spikelets down. It has leaves of 1-1.5 mm wide.
Carex chordorrhiza is a herbaceous, perennial species, 15-30 cm high, with a left down stem, densely ovoid-globular inflorescence of 0.7-1.5 cm long.
Carex lasiocarpa is a herbaceous, perennial species, with a height of 30-60 cm, leaves 1-1,5 mm convolute, glabrous, flower with 3 stigmas,
Carex diandra is a herbaceous, perennial species, 20-60 cm high, with short rhizomes and utricula nervous at base, narrowed in a rostrum. Contrary to name, the flower has 3 stamens.
Rhynchospora alba is a perennial herbaceous species 15-40 cm high, foliage spiculețe cu 1-3 flori, grupate în inflorescență laxă, terminală, albă la înflorire.

Familia *Gentianaceae* includes herbaceous plants, glabra, with opposite leaves, whole, usually sessile and concreted at the base, without stipules, with actinomorphic flowers, hermaphrodite, on type 4-5.

Swertia perennis is a perennial plant, 15-20 cm high, with flower on type 5, dark-purple corolla, coalescent only at the base, without rosette of basal leaves.

Sphagnum is, the only genus of the *Sphagnaceae* family. It is an avascular or bryophyte plant that can form very thick layers in bogs called peatlands. It may contain a very large volume of water, both in the living parts (light exposed) and the dead parts, which can extend a few meters in the depths of the bogs, taking the place of the soil. The body of the plant has a central stem from which it radiates beams. The peak contains compact agglomerations of young beams.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R5404 Southeast Carpathian meso-oligotrophic bogs with *Carex chordorrhiza* and *Swertia punctata*	D2.35 *Carex chordorrhiza* swards	7140 Transition mires and quaking bogs	Very large, EMERALD priority habitat, endemic in the South-Eastern Carpathians
R5407 Southeast Carpathian mesotrophic bogs with *Carex lasiocarpa*	D2.31 C*arex lasiocarpa* swards	7140 Transition mires and quaking bogs	Very large, EMERALD priority habitat
R5408 Southeast Carpathian oligotrophic bogs with *Carex limosa*	D2.34 Mud sedge (*Carex limosa*) swards	7140 Transition mires and quaking bogs	Very large, EMERALD priority habitat
R5409 Southeast Carpathian oligotrophic bogs with *Rhynchospora alba* and *Sphagnum cuspidatum*	D2.3H Wet, open, acid peat and sands, with *Rhynchospora alba* and *Drosera*	7150 Depressions of peat substrates of the *Rhynchosporion*	Very large, priority habitat.
R5412 Southeast Carpathian mesotrophs bogs with *Carex diandra*	D2.32 *Carex diandra* quaking mires	7140 Transition mires and quaking bogs	Very high in habitats where endemic species are present and / or *Ligularia sibirica* and *Saxifraga hirculus* (DH2), priority habitat EMERALD.

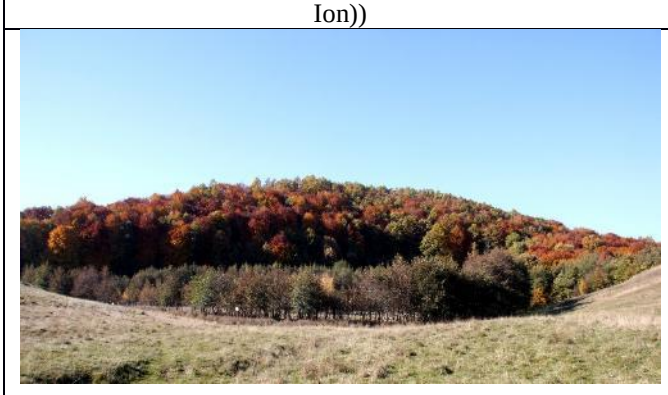
Figure 60 General aspect of the habitat D2.3 in Covasna County, Borşaroş Bog (foto: Roxana Ion)

Habitat D2.3 – Mlaca Tătarilor (Arpaș- Sibiu County) (foto: Roxana Ion)

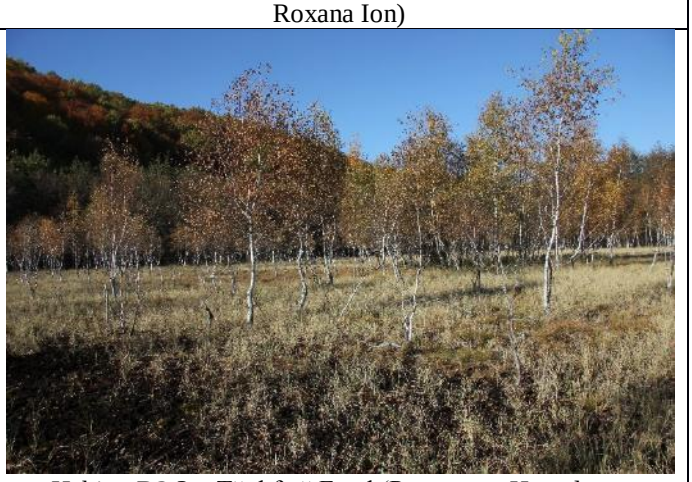
Habitat D2.3 – Laptici (Bucegi Mountains) (foto: Roxana Ion)

Habitat D2.3 – Laptici (Bucegi Mountains) (foto: Roxana Ion))

Habitat D2.3 – Tinovul Mohoș (Covasna County) (foto: Roxana Ion)



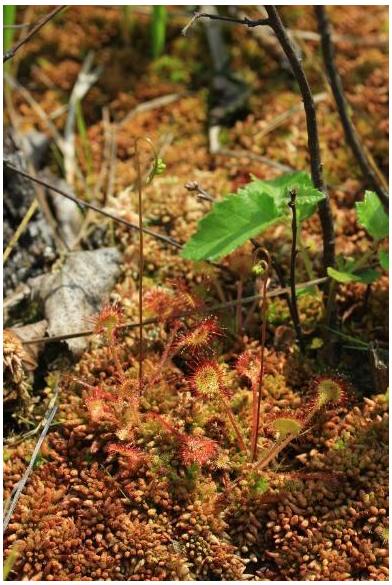
Habitat D2.3 – Tăul fară Fund (Pește ana – Hunedoara County) (foto: Roxana Ion)



Habitat D2.3 – Tăul fară Fund (Pește ana – Hunedoara County) (foto: Roxana Ion)

Figure 61 General aspect of the habitat D2.3 (foto: Roxana Ion)

Sphagnum sp. and Menyanthes trifoliata



Drosera rotundifolia

Figure 62 Species from habitat composition D2.3 (foto: Roxana Ion)

D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks

Distribution: In the Carpathian Mountains, on the subalpine floor, the mountainous region, the hillsides and the intramontane depression. Oriental Carpathians: Rodna Mountains, Ceahlău Mountains, Rarău Mountains, Bistrita Mountains, Călimani Mountains, Bistrita Aurie Mountains, Baraolt Mountains, Gilau Mountains, Giurgeu Depression, Bilbor Depression, Defileul Mureşului, Valea Gurghiului, Valea Runcu, Harghita County. Southern Carpathians: The whole of Valea Morii, Gilău Mountains (Valea Runcului), Mănăstireni, Feneş, Vâlcelele, Mănăstirea, Făneşti, Valea Râmnicului, Munţii Bucegi, Târnava Mare, Plopi Mountain, Valea Remeţului, Plopiş Mountains, Trascău Depression, Perşani, Valea Iadului, Iara depresssion , Vâlcelele.

Habitat structure: The eutrophic bogs are located in flat spaces, between 460 - 1750 m, having a substrat of base to neutral or weak acid, rich in organic substances and calcium carbonate, with glelic soils. The moss layer is well represented, with *Bryum pseudotriquetru, Campylium stellatum, Camptothecium niten, Philonotis calcarea, Drepanocladus revolvens.* The grassy layer can be represented by *Mentha longifolia, Juncus effusus, Gymnadenia conopsea,* însoțite de *Equisetum palustre, Succisa pratensis, Deschampsia caespitosa, Lychnis floscuculi,* or by different *Carex* species together with *Blysmus compressus*. Meso-eutrophic bogs are found between 500-650 m, on flat lands or small depressions, with a basic or moderately basic gleiosolic substrate with reduced or varied content of organic matter, rich in calcium carbonate. The moss layer can be dense an dis represented by *Amblystegium saxatile, Acrocladium cuspidatum, Campylium stellatum, Bryum pseudotriquetrum. The grassy layer*is 15 to 30 cm high, dominated by *Sesleria uliginosa* and *Carex species*, beside we meet mesophile species such as *Primula farinosa, Molinia caerulea, Valeriana simplicifolia, Briza media, Festuca pratensis, Agrostis stolonifera, Trifolium pratense, Trifolium repens, Lotus corniculatus, Lotus siliquosus, Medicago lupulina,* or a significant number of orchids and rare species: *Dactylorhiza maculata, Epipactys palustris, Gymnadenia conopsea, Liparis loeselii, Drosera anglica, Ligularia sibirica*.

The edifying species:

The genre *Carex, Blysmus, Schoenus* and *Eriophorum* belongs to the *Cyperaceae* family,which includes herbaceous plants, usually perennial, with rhizomes, the stem full of marrow, altenative leaves, closed sheath and linear limb. The Carex genus is characterized by unisexual flowers without a floral wrap, consisting of a bract called glume, grouped into spikelets which are composed of composed spikes or racemes

Carex flava is a perennial species, with a stem of 20-50 cm, leaves of 3-5 mm wide, the glumes of female flowers are yellowish.

Carex davalliana is a perennial species, dioicous, with a stem of 10-30 cm, with a terminal cu tulpina de 10-30 cm, with a terminal spikelet, growing in bushes, without creeping rhizomes, flowers with two stigmas.

Eriophorum latifolium is a perennial, cespitous species with a 20-60 cm strain with with three edges, with a terminal spikelet covered with short and stiff bristles peduncle, with flat leaves of 3-8mm

Blysmus compressus is a perennial species, with a stem of 10-40 cm, with a terminal inflorescence, dark brownish, of 5-10 spikelets with all the leaves arranged basal.

Schoenus nigricans is a perennial species, with a stem of 15-50 cm, with a terminal spikelet of about 3 cm.

The *Poaceae* family includes annual or perennial herbaceous plants with rhizomes and stolons. The aerial stem is articulated and can be full or emty with spongy tissue, cylindrical, with internodes and nodes. The leaves are alternate, distinct, made of cylindrical sheath with free edges and linear limb with parallel ribs. The base of the limb presents ears (sometimes missing) and lingule. Flowers are usually hermaphrodite, grouped in spice.

Sesleria caerulea is a perennial, cespitous plant with multifloral spikelets, leaves are not pruinose, with 17-19 veins, the main vein and secondary vein are slightly pronounced.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R5405 Southeast Carpathian eutrophic bogs with C*arex flava* and *Eriophorum latifolium*	D4.153 Middle European yellow sedge fens	7230 Alcaline fens	High, priority habitat EMERALD
R5406 Southeast Carpathian eutrophic bogs with *Carex flava* and *Blysmus compressus*	D4.1F Middle European flat sedge *Blysmus compressus* fens	7230 Alcaline fens	Very high in habitats where *Ligularia sibirica* (DH2) is present; priority habitat EMERALD.
R5413 South-eastern Carpathian meso-eutrophic bogs with *Carex davalliana*	D4.134 Carpathian Davall sedge fens	7230 Alcaline fens	Very high, priority habitat Emerald, in the habitats where the species *Liparis loeselii* (DH2) is present.
R5414 Southeast Carpathian eutrophic bogs with *Schoenus nigricans*	D4.11 *Schoenus nigricans fens*	7230 Alcaline fens	Very high, priority habitat Emerald, in the habitats where the species *Liparis loeselii* and *Ligularia sibirica* is present. (DH2).
R5415 South-eastern Carpathian meso-eutrophic bogs with *Sesleria uliginosa*	D4.1K *Sesleria caerulea* fens	7120 Degraded raised bogs still capable of natural regeneration	Very high, priority habitat EMERALD

Figure 63 Habitat D4.1 at Dobreanu Bog (Bilbor- Harghita County) (foto: Roxana Ion)

	
Habitat D4.1 – Hărman (Braşov County)	Habitat D4.1 – Hărman (Braşov County)

Habitat D4.1 – Mlaştina Nădaş (Tuşnad, Harghita County)

Habitat D4.1 – Mlaştina Beneş (Harghita County)

Habitat D4.1 – Borsaroş Bog (Sâncrăieni-Harghita County)

Habitat D4.1 – Dumbrava Harghitei (Lueta- Harghita County)

Figure 64 General aspect of the habitat D4.1 (foto: Roxana Ion)

Armeria alpina– Hărman (Braşov County)

Dianthus superbus

Polemonium coeruleum

Pedicularis palustris

Ligularia sibirica

Epipactis palustris

Figure 65 Species from habitat composition D4.1 (foto: Roxana Ion)

E1.1 Inland sand and rock with open vegetation

Distribution: The hills of Transylvania, Banat, Oltenia, Muntenia and Moldova.

Habitat structure: Habitats of this type appear on slopes from weak to strongly inclined, with boulders and shallow soils. Depending on the resort, there are three layers, the upper layer, where the stony elements predominate, is 15-20 cm tall and is dominated by grasses, but there also appear other annual or perennial herbaceous plants. More important representatives:V*ulpia myuros, Trifolium arvense, Scleranthus annuus, Sedum acre, Aira elegans, Filago arvensis, Sagina procumbens, Poa bulbosa, Alyssum petraeum, Petrorhagia saxifraga.* In the richest meadows, this layer is 35-40 cm high and consists of: *Festuca pallens, Stipa pulcherrima, Melica ciliata, Vincetoxicum hirundinacea, Linum tenuifolium, Artemisia campestris, Jurinea mollis, Erysimum odoratum, Galium album, Genista januensis* var. *spathulata*. Poorer meadows also have a lower floor, represented by S*edum hispanicum, S. acre, Veronica verna, Thymus pulegioides, Erophila verna, Syntrichia ruralis, Racomitrium canescens,* while the richest contain a middle and a lower one. The middle floor of 10-15 cm height is made by: *Teucrium montanum, Acinos arvensis, Teucrium chamaedrys, Cruciata glabra, Cystopteris fragilis*.The lower one does not exceed 10 cm in height and consists of: *Asplenium ruta-muraria, A. septentrionale, A. trichomanes, Moehringia muscosa, Sedum hispanicum, Thymus comosus.* Other important species: *Stipa joannis, Melica ciliata, Phleum montanum, Seseli gracile Ferula sadleriana, Helianthemum nummularium, Cardaminopsis arenosa, Stachys recta, Jurinea mollis, Veronica austriaca ssp. Jacquinii, Peucedanum oreoselinum, Vincetoxicum hirundinaria, Poa pannonica ssp. Scabra, Genista januensis var. spatulata, Festuca rupicola, Cystopteris fragilis, Sedum hispanicum, Acinos arvensis, Veronica bachofenii.*

Dominant species:

***Festuca pallens* –** Family: *Poaceae*. Herbaceous, perennial plants, 30-40 cm, pruinosus, smooth. The branches of panicle are glabrous. Awn longer than half of the lemma lenght .

***Melica ciliata* –** Family: *Poaceae*. Herbaceous, perennial plants, 20-60 cm, hairy lemma.

Petrorhagia saxifraga (Kohlrauschia saxifraga) is a perennial herbaceous plant of 10-30 cm high, from *Caryophyllaceae* family, with simple, opposed leaves, actinomorphic flowers, on type 5, hermaphrodite, white-pink, pedicellate by 2 pairs of scvame involucrale, the calyx tube with membranous ribs.

Alyssum petraeum is a perennial herbaceous plant from *Brassicaceae* family, of 25-50 cm high, with large basal leaves, 4-5 mm petals, yellow, deep emarginate, strongly branched inflorescence, compound racemes, glabrous silicula, swollen vesiculus, seed of 1.5-1.8 mm, very narrow wing, 0.1-0.2 mm. The rosette of basal leaves disappears during flowering.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3403 Daco-getic meadows of *Festuca pallens* and *Melica ciliata*	E1.111 Midle European stone crop swards	6190 Rupicolous pannonic grasslands	Moderate, generally and high in the habitats where the species is present *Ferula sadleriana* (DH2)
R3503 Daco-getic communities of *Sedum acre*, *S. sexangulare* and *Petrorhagia saxifraga*	E1.1133 *Melica ciliata* rock debris swards	8230 Siliceous rock with pioneer vegetation of the *Sedo-Scleranthion* or of the *Sedo albi-Veronicion dillenii*	Moderate

E1.2 Perennial calcareous grassland and basic steppes

Distribution: Moldova, Muntenia, Dobrogea, Oltenia, Banat and Transylvania, Plateau Tarnavelor, the hilly area of western Oltenia, Banat, Apuseni Mountains, Barsa Mountains, Danube Clisura, Arad Plain; steppe and steppe grassland pastures and hills in the oak forest area, Dobrogea, Muntenia and southern Moldova; Bărăgan, Dobrogea, southern Moldova; flat terrain, but also sloping slopes; western continental sands: Crişana, Banat, Continental Sands, South and East of Oltenia: Pisculeț, Izvoarele, Green Balt, Dăbuleni, Calafat, Dobrogea (Danube Delta) and Galati County (Hanu Conachi).

Habitat structure: The meadows that make up this habitat can be grouped into three major types: the limestone cliffs, the pannonian, pontic and balkan steppe meadows with medium dense vegetation and the dune meadows with a discontinuous vegetation that can vary with changing the hydrological conditions during the year. Meadows of limestone rocks are made up of saxophilous species that it develop in cliffs, shelves, limestone fields. The main component species are: *Sesleria heufleriana, Alyssum petraeum, Athamantha turbith ssp. hungarica, Helictotrichon decorum, Campanula divergens, Dianthus spiculifolius, Seseli libanotis, Minuartia setacea ssp. banatica, Poa nemoralis, Peucedanum austriacum, Thymus comosus*. The vast majority of species are of medium size 30-45 cm and form a single floor. The few creeping species, as they: *Alyssum repens ssp. transsilvanicum, Thymus comosus, Euphrasia salisburgenis, Draba lasiocarpa*, are rare and do not build a floor. We also encounter rare species such as: *Saponaria bellidifolia, Dracocephalum austriacum*. Another category of rocky meadows are dominated by *Festuca valesiaca, Festuca callieri, Agropyron cristatum*, which make up a top floor 35-45 cm high and coverage up to 95%. In this category is also participating *Stipa capillata, Botriochloa ischaemum, Koeleria macrantha, Melica ciliata, Phleum phleoides, Medicago falcata, Astragalus onobrychis, A. ponticus, Coronilla varia, Achillea setacea, Seseli tortuosum, Asperula cynanchica, Artemisia austriaca, Poa angustifolia, Stachys angustifolia, Potentilla bornmuelleri, Silene compacta, Chrysopogon gryllus, Achillea ochroleuca, A. coarctata, Linaria genistifolia, Inula oculus-christi, Orlaya grandiflora, Allium saxatile, Ranunculus illyricus.* The shorter species such as: *Alyssum desertorum, A. alyssoides, Potentilla arenaria, Medicago minima, Trifolium arvense, Arenaria serpyllifolia, Scleranthus annuus, Taraxacum serotinum, Minuartia glomerata, Dianthus nardiformis, Psilurus aristatus, Iris pumila, Muscari racemosum, Herniaria glabra, Scleranthus perennis, Trifolium arvense, Bombycilaena erecta, Cruciata pedemontana, Ranunculus illyricus, Kochia prostrata, Ceratocarpus arenarius, Coronilla varia, Galium humifusum, Alyssum desertorum, Taraxacum serotinum, Teucrium polium, Seseli tortuosum*, is the lower level of these meadows, with small but well personalized coverage.
In northern Dobrogea there are unmanaged meadows with ponto-balkan and taurice species that populate the hilly rokys of this province. The most common species are: *Koeleria lobata, Agropyron brandzae, Euphorbia nicaensis ssp. glareosa, Dianthus pseudarmeria, Potentilla bornmuelleri, Pimpinella tragium ssp. lithophila, Satureja caerulea, Scorzonera mollis.* They are accompanied by species who grows or lives among cliffs or rocks: *Allium saxatile, A.*

moschatum, Dianthus nardiformis, Euphorbia myrsinites, Silene compacta, Campanula romanica, Bupleurum apiculatum, Paeonia tenuifolia, Bufonia tenuifolia, Gypsophila glomerata, Achillea leptophylla. Shoter species (of 5–10 cm) usually grow through the cracks of the rocks and do not form a vegetation floor. Among these we mention *Moehringia jankae, M. grisebachii, Paronychia cephalotes, Minuartia glomerata, Scleranthus perennis ssp. dichotomus, Ornithogalum amphibolum, Scutellaria orientalis var. pinnatifida, Crocus chrysanthus*.

Well defined rocky meadows with annual and perennial grass vegetation, denotes an evolved degree of understanding. The main species are: *Trifolium incarnatum ssp. molinerii, Ventenata dubia, Xeranthemum cylindraceum, Dasypyrum villosum, Aegilops cylindrica, Poa compressa, Festuca valesiaca, F. ovina, Hypericum perforatum, Scleranthus perennis, Trifolium arvense, Erysimum cuspidatum*, plants that make up the upper layer of vegetation. The shorter species, which make up the second layer, are: *Sedum acre, S. annuum, Scleranthus annuus, Thymus comosus, Vulpia myuros, Aira capillaris*.

In steppe meadows, most dominant species are medium sized plants, 35-100 cm high. They form a dense top floor that can cover over 80% of the surface. The plants specific to this type of vegetation are: *Festuca rupicola, F. valesiaca, Cleistogene serotina, Stipa capillata, S. lessingiana, S. stenophylla, Botriochloa ischaemum, Bromus hordeaceus, Cynosurus cristatus, Brachypodium pinnatum, Agropyron repens, A. cristatum, A. intermedium, Luzula campestris, Medicago falcata, Onobrychis viciifolia, Vicia angustifolia, V. cracca, Trifolium montanum, Euphorbia cyparissias, Potentilla argentea, Eryngium campestre, Leontodon hispidus, Dorycnium herbaceum, Chrysopogon gryllus, Lathyrus nissolia, Achillea setacea, Artemisia austriaca, Hypericum perforatum, Adonis vernalis, Chamaecytisus austriacus, Veronica orchidea, Echium vulgare, Dianthus armeria, Asperula cynanchica, Chondrilla juncea, Astragalus onobrychis, Astragalus onobrychis, Nepeta nuda, Campanula sibirica.*

Small plants form the lower floor: *Medicago minima, M. lupulina, Trifolium campestre T. arvense, Prunella vulgaris, P. laciniata, Alyssum desertorum, Viola arvensis, Scleranthus annuus, Fragaria viridis, Thymus pannonicus, T. zygoides, Medicago minima, Potentilla argentea, Teucrium polium, Trigonella monspeliaca, Medicago minima, M. lupulina, Galium humifusum, Minuartia viscosa, Bombycilaena erecta, Ceratocarpus arenarius, Androsace maxima.*

In case of the meadows dominated by *Bromus erectus, Festuca rupicola* şi *Koeleria macrantha* the number of plant components is relatively low, but the density of the species is high, achieving the coverage of 90-95%. Dominant species are: *Bromus erectus, Asperula cynanchica, Coronilla varia, Carlina vulgaris, Medicago lupulina, Onobrychis viciifolia, Pimpinella saxifraga, Linum tenuifolium, Trinia glauca, Knautia arvensis, Leucanthemum vulgare, Rhinanthus rumelicus, Trifolium pratense*. All these species, with a height of up to 45-60 cm, make the upper floor of *Bromus erectus* phytocoenoses. The lower floor, less represented, consists of: *Thymus pulegioides, Stellaria graminea, Medicago lupulina, Euphrasia rostkoviana, E. stricta, Hornungia petraea*.

In the meadows of *Stipa* are numerous large-scale plants such as: *Stipa pennata, Stipa ucrainica, S. capillata, S. lessingiana, S. pulcherrima, S. eriocaulis, Brachypodium pinnatum, Cephalaria uralensis, Salvia transsilvanica, Nepeta ucranica, Salvia austriaca, S. pratensis, Galium*

glaucum, Jurinea mollis, Onobrychis viciifolia, Erysimum comatum, Stachys nites, Astragalus onobrychis var. banaticum, Festuca pseudodalmatica, Melica ciliata, Centaurea orientalis, Dactylis glomerata, Chrysopogon gryllus, Botriochloa ischaemum, Phlomis tuberosa, Ferulago meoides, Salvia aethiopis, Agropyron intermedium, Dianthus pallens. They make up the top floor with a height of about 100 cm, covering up to 75%.. The middle floor is made by species with a size of 40-50 cm, of which we mention: *Festuca rupicola, F. valesiaca, Agropyron cristatum, Koeleria macrantha, Danthonia alpina, Adonis vernalis, Potentilla argentea, Stachys recta, Veronica austriaca ssp. jacquinii, Astragalus austriacus, Trifolium pratense, Inula ensifolia, Phleum phleoides, Euphorbia nicaeensis, Inula ensifolia, Marrubium peregrinum, Salvia nemorosa ssp. tesquicola, Inula salicina, Jurinea mollis.* The lower floor consists of taxons that do not exceed 20-25 cm, of which we mention: *Alyssum pulvinare, Gypsophila glomerata, Fumana procumbens, Cerastium banaticum, Thymus pannonicus, Dorycnium herbaceum, Sedum album, S. hispanicum, Arenaria serpyllifolia, Medicago minima, Trifolium campestre, Teucrium chamaedrys, Alyssum desertorum, A. alyssoides, Polygala major, Fragaria viridis, Thymus marschallianus, Teucrium polium, T. chamaedrys, Linosyris villosa, Polygala major, Koeleria macrantha, Adonis vernalis.*

In steppe meadows, the *Poa bulbosa* phytocoenoses differ in structure due to the more xerophytic nature. They form a discontinuous, slender celeriac and have maximum spring growth when the soil has enough moisture to develop vegetation. At the beginning of summer, the characteristic species comes to rest and appears, massively *Artemisia austriaca*, xerophilic plant, which lasts until the autumn. Among these two characteristic and dominant plants there are:*Cynodon dactylon, Festuca pseudovaina, F. valesiaca, Agropyron cristatum, Lolium perenne, Bromus tectorum, Medicago lupulina, M. minima, Poa angustifolia*. The accompanying plants are numerous and belong to the original vegetation that existed on these lands.

In case of dune meadows, the vegetation is poorly terminated due to the fact that the sands are periodically swept by the wind. The most frecvent species are: *Corynephorus canescens, Festuca vaginata, F. beckeri, Koeleria glauca, Onosma arenarium, Anthemis ruthenica, Scabiosa argentea, Erysimum diffusum, Carex supina, Mollugo cerviana, Dianthus pontederae, Alyssum montanum, Secale sylvestre, Stipa botrysthenica, Scabiosa argentea, Euphorbia seguierana, Achillea ochroleuca, Bromus tectorum, Apera maritima, Medicago falcata, Gypsophila perfoliata, Polygonum arenarium, Silene conica, Veronica praecox, Helichrysum arenarium, Kochia laniflora, Astragalus virgatus, Tribulus terrestis, Syrenia cana, Plantago arenaria, Kochia laniflora, Viola kitaibeliana , Achillea ochroleuca, Corispermum nitidum, Scabiosa ochroleuca.*

Dominant species:

Festuca rupicola is a perennial herbaceous plant from *Poaceae* family , 25-70 cm high, with leaves of 0.6-0.8mm thickness, covered with short and stiff bristles all over or just to the top, with 5-7 ribs, with panicle over 8 cm and lemma over 5mm.

Festuca valesiaca is a perennial herbaceous plant from *Poaceae* family, 25-40 cm high, with leaves of 0.3-0.5mm thickness, closed sheaths up to half, panicle of 3-7 cm.

Festuca vaginata is a perennial glabrous herbaceous plant from *Poaceae* family, 30-60 cm high, with leaves of 0.6-1.2mm thickness, with pruinose and violet sheaths.
Festuca beckeri ssp. Arenicola is a perennial herbaceous plant from *Poaceae* family, 20-60 cm high, with lanceolate lemma, glabrous stem, panicle with scabrid branches, spikelets of 5-6mm, whitish to pale brown stheaths, 7-11 veins, 5-7 ribs.
Sesleria heufleriana is a perennial herbaceous plant from *Poaceae* family, 30-70 cm high, with lanceolate glumes of 3,5-4,5 mm, glabrous sheaths.
Poa bulbosa is a perennial herbaceous plant, from *Poaceae* family, 15-30 cm high, with the base of the stem bulbiform thickened, with spikelets up to 5 mm, with 3-7 flowers, sometimes transformed into foliar buds, the ligule leaf of the stem over 3mm .
Bromus erectus is a perennial poacee of 30-100 cm,c espitose, with glabrous leaves and sheaths with rare, long bristles, lemma of 10-15 mm, glabrous, sometimes with bristles, with subterminal arista, with the branches of panicle and erect spikelets.
Stipa pennata is a perennial grasses plant of 60-100 cm with glabrous leaves on the external face,of 0.5-1.5 mm in diameter, lemma of 18mm long, the ventral and longitudinal line of the bristles of the lemma ends with 2-4 mm under the peak of lemma, with the awn formed of a twisted inferior segment, named column and a straight superior segment , named seta.
Artemisia austriaca is a perennial plant from the *Asteraceae* family, gray-white tomentoase leaves, with small calathid, very short pedunculate, with pubescent involucre, corolla with hairy lobes, leaves of 2-3 times pinnate, with narrower segments, without basal rosette. The receptacle is glabrous until pubescent, the external flowers are female, the internal ones are hermaphrodite flowers.
Plantaginaceae family contains herbaceous plants, with simple, unstipeled leaves, grouped in basal rosettes, actinomorphic flowers on type 4, gamosepale and gamopetale.
Plantago arenaria herbaceous species, annual, 10-40 cm high, with hermaphrodite flowers, grouped in spike.
Trifolium incarnatum ssp. molinerii is an annual herbaceous species of *Fabaceae* family, of 20-50 cm high, flowers of 5-7 mm, with red, rare white corola equal or slightly longer than the calyx, with small inflorescences of about 1 cm in diameter, pedunculate capitula.

Correspondences

Romanian habitas	EUNIS habitats	Natura 2000 habitats	Conservative value
R3402 South-eastern Carpathian meadows of *Helictotrichon decorum*	E1.2912 East Carpathian (*Sesleria rigida*) grassland	6170 Alpine and subalpine calcareous grassland	High, endemic habitat

Romanian habitas	EUNIS habitats	Natura 2000 habitats	Conservative value
R3404 Ponto-panonic meadows of *Festuca rupicola* and *Koeleria macrantha*	E1.2C1 Pannonic loess steppes	6250 Pannonic loess steppes	Reduced in general and high in the habitats where they are present: *Potentilla emilii-popii, Dracocephalum austriacum, Pulsatilla patens* and *Thesium ebracteatum*
R3405 Southeast carpathian meadows with *Sesleria heuflerana* and *Helianthemum canum*	E1.2912 East Carpathian *Sesleria rigida* grasslands	6190 Rupicolous pannonic grasslands	Moderate
R3407 Ponto-panonic meadows of *Stipa stenophylla* (*S. tirsa*) and *Danthonia* (*provincialis*) *alpina*	E1.22 Arid subcontinental stepic grass	6290* Ponto-Sarmatic steppes	Moderate
R3408 Dacian meadows of *Bromus erectus, Festuca rupicola* and *Koeleria macrantha*	E1.22 Arid subcontinental stepic grass	-	Moderate
R3409 Pontic meadows of *Stipa lessingiana, S. pulcherrima* and *S. joannis*	E1.2D2 Sarmatic steppes	6290* Ponto-Sarmatic steppes	Moderate in general, and high in the habitats with *Astragalus peterfii*
R3412 Carpathian-balkan meadows *of Festuca pseudodalmatica* and *Aethionema saxatilis*	E1.29323 Transylvanian (*Festuca pseudodalmatica*) rock grassland	6190 Rupicolous pannonic grasslands (Stipo-Festucetalia pallentis)	Moderate and high in the habitats where the species *Stipa danubialis* is present

Romanian habitas	EUNIS habitats	Natura 2000 habitats	Conservative value
R3413 Pannonian- balkan meadows of *Festuca rupicola* and *Cleistogene serotina*	E1.2C1 Pannonic loess steppes	6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	Moderate in generally buthigh, in the phytocoenoses of the Clisura Dunării where *Tulipa hungarica* is present.
R3414 Ponto- panonnian meadows of *Festuca valesiaca*	E1.221 Moesio – Carpathian feathergrass-fescue steppes	6250 *Pannonic loess steppic grasslands	Reduced in general and high in habitats where the species *Galium moldavicum* and *Iris humilis ssp. Arenaria* are present
R3415 Ponto-balkan meadows of *Botriochloa ischaemum* and *Festuca valesiaca*	E1.222 Moesio-Carpathian andropogonid steppes	-	Low
R3416 Balkan meadows of *Festuca callieri, Sedum sartorianum* ssp. *hillebrandtii* and *Thymus zygoides*	E1.2D1 Western Pontic steppes	-	Moderate
R3417 Balkan meadows of *Thymus zygoides* and *Agropyron brandzae*	E1.2D1 Western Pontic steppes	-	moderate and high in the habitats where the species: *Moehringia jankae*, *Campanula romanica* and *Paeonia tenuitolia* are present
R3418 Ponto-panonic of *Agropyron cristatum* and *Kochia prostrata*	E1.2 Perennial calcareous grassland and basic steppes	6250 *Pannonic loess steppic grasslands	High
R3419 Western-pontic meadows of *Stipa Ukrainian* and *Stipa dasyphilla*	E1.2D2 Sarmatic steppes	6290* Ponto-Sarmatic steppes	High

Romanian habitas	EUNIS habitats	Natura 2000 habitats	Conservative value
R3420 Western-pontic meadows of *Poa bulbosa, Artemisia austriaca, Cynodon dactylon* and *Poa angustifolia*	E1.2D1 Western Pontic steppes	-6290* Ponto-Sarmatic steppes	Low
R3421 Ponto-balkan meadows of *Artemisia lerchiana, Koeleria lobata* and *Agropyron brandzae*	E1.22 Arid subcontinental stepic grass	6290* Ponto-Sarmatic steppes	High
R3502 Daco-balkan meadows with *Dasypyrum villosum, Trifolium incarnatum* ssp. *molinerii* and *Ventenata dubia*	E1.222 Moesio Carpathians steppes	6110 * Rupicolous calcareous or basophilic grasslands of the *Alysso-Sedionalbi*	Moderate
R6401 Pannonian meadows of *Corynephorum canescens* and *Festuca vaginata*	E1.2F22 Pannonic acidophile sand fescue steppes	2340* Pannonic inland dunes	Very high, the phytocoenoses from Banat (Ostrovul Moldovei Veche) and Oltenia, have in their structure the species *Colchicum arenarium* (DH2)
R6402 Ponto-sarmatic meadows of *beckeri* and *Dianthus polymorphus*	E1.2G Ponto-sarmatic sand steppes	2340* Pannonic inland dunes	Moderate
R6403 Ponto-sarmatic meadows on the continental dunes unfixed with *Mollugo cerviana*	E1.2G Ponto-sarmatic sand steppes	2340* Pannonic inland dunes	High
R6404 Ponto-sarmatic meadows on the continental dunes unfixed with *Plantago arenaria*	E1.2G Ponto-sarmatic sand steppes	2340* Pannonic inland dunes	Very high
R6405 Ponto-panonic meadows on continental dunes unfixed with *Bromus tectorum*	E1.2F22 Pannonic acidophile sand fescue steppes	2340* Pannonic inland dunes	High

Figure 66 *Salsola kali* – Pisculeț (Dolj County) (foto: Roxana Ion)

Figure 67 *Polygonum arenarium* - Pisculeț (Dolj County) (foto: Roxana Ion)

Figure 68 *Tragus racemosus* – Pisculeț (Dolj County) (foto: Roxana Ion)

Figure 69 *Xanthium strumarium* –Moldova Nouă Island (foto: Roxana Ion)

Habitat E1.2 at Pisculeț (Dolj County)

Habitat E1.2 at Pisculeț (Dolj County)

Habitat E1.2 on Moldova Nouă Island

Habitat E1.2 on Moldova Nouă Island

Habitat E1.2 Moldova Nouă Island

Habitat E1.2 Carei Plain

Figure 70 General aspect of the habitat E1.2 (foto: Roxana Ion)

Figure 71 Ecosystem services inside the E1.2 habitat in the Carei Plain (vineyard) (foto: Roxana Ion)

Figure 72 Ecosystem services inside the habitat E1.2 Letea (human settlements) (foto: Roxana Ion)

Figure 73 Ecosystem services inside the habitat E1.2 Letea (tourism) (foto: Roxana Ion)

E1.5 Mediterranean-montane grassland

Distribution: Muntenia, Moldova (Central Moldavian Plateau), Dobrogea (Babadag Plateau), Transilvania (Târnavelor Plateau), Hills of Olteniea, Mehedinți Plateau, Banat.

Habitat structure: These phytocoenosis are characterized by high vegetation and the presence of the species *Chrysopogon gryllus.* There are two types: those from Banat and West Oltenia, due the lack of the illicit species and the presence of numerous pontic elements: *Dianthus giganteus, Ferulago sylvatica, Onobrychis alba, Stachys recta, Cephalaria uralensis, Festuca rupicola, Lotus corniculatus, Polygala major* and Chyrysopogon from Banat which comprise many thermophilic, balkanic and illicic species, favored by the milder climate in the region. The habitat is formed from three layers, the upper one formed by species exceeding 1 m in height: *Chrysopogon gryllus* along or together with *Centaurea biebersteinii* species, *Onobrychis viciifolia, Chondrilla juncea, Stachys recta, Bromus intermedia, Artemisia campestris, Silene otites, Jurinea mollis, Salvia nutans, Cephalaria uralensis, Knautia arvensis, Botriochloa ischaemum, Ferulago sylvatica, Dianthus giganteus, Verbascum phoeniceum, Campanula rapunculoides, Crupina vulgaris.* The middle floor is represented by the species: *Festuca valesiaca, Eryngium campestre, Leontodon asper, Lotus corniculatus, Linum flavum, Thesium linophyllon, Festuca rupicola, Campanula sibirica, Dorycnium herbaceum, Polygala major, Danthonia alpina, Cleistogene serotina, Achillea crithmifolia, Bromus riparius, Veronica austriaca* ssp. *jacquinii, Koeleria macrantha, Asperula cynanchica, Stachys recta, Medicago falcata, Filipendula vulgaris, Anthylis vulneraria, Briza media, Orlaya grandiflora, Convolvulus cantabrica, Verbascum lychnitis.* The lower level includes smaller species but plays an important role in the cover process: *Thymus pannonicus, Lotus corniculatus, Potentilla arenaria, Vicia lathyroides, Viola arvensis, Cruciata pedemontana,Vinca herbacea, Carex humilis, Trifolium campestre, T. arvense, Aira caryophyllea, Petrorhagia illirica ssp.haynaldiana, Thymus jankae, Valerianella pumila, Siderites montana, Fragaria viridis, Arenaria serpyllifolia, Alyssum alyssoides, Crepis sancta.* Other species*: Thymus pannonicus, Chrysopogon gryllus, Onobrychis viciifolia*.Rare species: *Thymus jankae, Petrorhagia illirica* ssp. *haynaldiana.*

Dominant species:

Chrysopogon gryllu *-Poaceae* Family: Herbaceous, perennial plant, high 50-150 cm. Inflorescence is a panicle with thin, whorls branches, finished with 3 spikelets.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3411 Daco-balkan meadows of *Chrysopogon gryllus* and *Festuca rupicola*	E1.551 Lowland – savory –*Chrysopogon* dry grasslands	62A0 Eastern sub-mediteranean dry grasslands (*Scorzoneratalia villosae*)	Low
R3501 Balkan meadows with *Chrysopogon gryllus* and *Danthonia alpina*	E1.5532 Spurge *Chrysopogon* grasslands	62A0 Eastern sub-mediteranean dry grasslands (*Scorzoneratalia villosae*)	Moderate

E1.7 Closed non-Mediterranean dry acid and neutral grassland

Distribution: Dorna Depression, Obcinele Moldovei, Subcarpathians of Moldova, Subcarpathian Hills, Mehedinți Plateau, Transilvaniei Plateau.

Habitat structure: Phytocoenosis with *Agrostis capillaris* produces the most extensive meadows in the hilly and mountainous areas. A high coverage of 90-95% is given by the numerous species organized on 2 levels of vegetation. The upper floor is made of *Agrostis capillaris, Festuca rubra, Anthoxanthum odoratum, Poa pratensis, Rumex acetosella, Campanula patula, Leucanthemum vulgare, Pimpinella saxifraga, Hypochoeris radicata, Knautia arvensis, Cynosurus cristatus, Phleum pratense, Campanula patula, Leucanthemum vulgare, Dactylis glomerata, Daucus carota, Pimpinella saxifraga, Trisetum flavescens, Lotus corniculatus. Lolium perenne, Luzula campestris*. The lower layer is represented by smaller species: *Carlina acaulis, Trifolium campestre, Luzula campestris, Carum carvi, Lotus corniculatus, Achillea millefolium, Carex ovalis, Trifolium repens, Medicago lupulina, Trifolium repens, T. dubium, Euphorbia stricta, Pimpinella saxifraga, Cerastium fontanum, Polygala vulgaris, Rhinanthus minor, Trifolium campestre.* Other important species: *Cerastium holosteoides, Holcus lanatus, Trifolium pratense, Briza media, Carex pallescens, Heracleum sphondylium, Knautia arvensis, Galium mollugo, Pastinaca sativa, Achillea millefolium, Festuca pratensis, Stellaria graminea, Filipendula vulgaris, Linum catharticum, Trifolium pratense.*

Dominant species:

Agrostis capillaris – *Poaceae* Family:. Perennial herbaceous species, 20-50 cm tall. Inflorescence is a lax panicle, leaves of 2-4 mm.

Festuca rubra – *Poaceae* Family: Perennial herbaceous species, 30-90 cm, caespitosus lax. Leaves with continuously screnchyma, the basal ones are longitudinally folded into two superimposed halves, with 7 ribs.

Anthoxanthum odoratum – *Poaceae* Family: Perennial herbaceous species, 15-30 cm tall. Inflorescence is a spiciform panicle, leaves of 3-7 mm wide, with hairy edges.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3803 South-eastern carpathian meadows of *Agrostis capillaris* and *Festuca rubra*	E1.721 Nemoral *Agrostis –Festuca* grasslands	NATURA 2000: 6510 Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*)	Low

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3804 Daco-getic meadows of *Agrostis capillaris* and *Anthoxanthum odoratum*	E1.721 Nemoral *Agrostis – Festuca* grasslands	NATURA 2000: 6510 Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*)	Moderate

E1.D Unmanaged xeric grassland

Distribution: Transylvania, on the limestone in the Apuseni Mountains, Cheile Turzii, Bistrița Hills, The hill of Cetății-Lempeș (Brașov), Râpa Roșie (Alba), Sibiu Hills.

Habitat structure: The habitat is found on the slopes low and medium inclined with southern, southeastern exopsing, with fixed limestone and calcareous screes. Dominant species, *Brachypodium pinnatum* makes the top floor of phytocoenoses, along with few accompanying plants, of which more representative are: *Stipa joannis, Salvia nutans, Centaurea atropurpurea, Salvia transsilvanica, Leucanthemum vulgare, Briza media, Koeleria macrantha, Salvia pratensis*. The middle floor is richer in species and consists of: *Festuca valesiaca, Trifolium montanum, Danthonia alpina, Dorycnium pentaphyllum ssp. herbaceum, Lotus corniculatus, Astragalus monspessulanus, Linum flavum, Polygala major, Achillea millefolium, A. pannonica.* The lower floor is present, but few plants enter in its composition, of which we mention: *Trifolium campestre, Potentilla arenaria, Chamaespartium sagittale, Thymus glabrescens and Carex humilis*, which becomes dominant within the floor it belongs to.

Dominant species:

Carex humilis **–** Fam.*Cyperaceae* Perennial herbaceous species, 2-10 cm high., with all the spikelets placed at the top of the stem. Female spikelets with 2-4 2-4 flowers, the female spikelet reaches with the top at the base of the male spikelet, long peduncle.

Brachypodium pinnatum – Fam. *Poaceae.* Herbaceous, perennial plant with a height of 50-100 cm, caespitose with rigid leaves, with lower epidermis with a sequence of sharp bristles on the point on the top of lamina. It has rhizome and underground shoots.

Stipa joannis - Fam. *Poaceae.* Herbaceous, perennial plant with a height of more than 50 cm, with glabrous leaves on the outer face, with a diameter of 0.5-1.5 mm, with sheaths leaves and smooth stem, lemma 15-18 mm long, with 7 lines of bristles

Corespondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3406 Daco-sarmatic meadows of *Carex humilis*, *Stipa joannis* and *Brachypodium pinnatu*	E1.D2 Ponto-Sarmatic steppes	6290* Ponto-Sarmatic steppes	Moderate

Figure 74 *Jurinea mollis* – Viteluș Hill, Covasna County (foto: Roxana Ion)

Figure 75 *Stipa* sp. - VitelușHill, Covasna County (foto: Roxana Ion)

Figure 56 *Stipa* sp. – Zackel Hill (Sibiu County) (foto: Roxana Ion)

Figure 76 *Dictamnus albus* – Viteluș Hill, Covasna County (foto: Roxana Ion)

Figure 77 *Echium russicum* – Cojocna (Cluj County) (foto: Roxana Ion)

Figure 78 *Linum* sp. - Suatu (Cluj County) (foto: Roxana Ion)

Habitat E1.D – Vițelus Hill, Covasna County.

Habitat E1.D – Zackel Hill, Slimnic - Sibiu

Habitat E1.D – Suatu, Cluj County

Habitat E1.D – Boju, Cluj County

Habitat E1.D la Suatu, Cluj County

Figure 79 General aspect of the habitat E1.D (foto: Roxana Ion)

E2.2 Low and medium altitude hay meadows

Distribution: the mountainous, hilly and plain area of Transylvania Oltenia, Muntenia and Moldova, Banat, Dobrogea, wet meadows from Transylvania, Banat, Oltenia, Muntenia, Dobrogea, Moldova, the lower and middle mountain ranges of the Carpathians.

Habitat structure: This habitat brings together the vegetal communities of wet meadows or mesophiles from the plain area to the mountain area. Are structured on two levels of vegetation. In the areas of wet meadow, sandy soils, alluvial soils, dry meadows have in the top layer *Deschampsia caespitosa* with *Agrostis stolonifera, Alopecurus pratensis, Juncus inflexus, J. conglomeratus, Briza media, Dactylis glomerata, Festuca pratensis, Poa trivialis; Agrostis stolonifera* together with *Alopecurus pratensis, Poa pratensis, Daucus carota, Poa trivialis* or *Poa pratensis* together with *Festuca pratensis, Dactylis glomerata, Agropyron repens, Agrostis stolonifera, Alopecurus pratensis, Juncus effusus, Trifolium pratense.* The lower layer is well developed and composed of the following species: *Juncus articulatus, Equisetum palustre, Trifolium hybridum, Myosotis scorpioides, Luzula campestris, Lathyrus pratensis, Trifolium pratense, T. repens, Stellaria graminea, Rhinanthus angustifolius, Taraxacum officinale, Carum carvi, Medicago lupulina, Trifolium fragiferum, T. repens, Potentilla reptans, Lotus corniculatus, Ranunculus repens, Lysimachia nummularia, Rorippa sylvestris, Lotus corniculatus, R. acris, Carex hirta, Lysimachia nummularia, Galium palustre,Alopecurus (ventricosus) arundinaceus.*
Phytocoenoses developed on wet soils with a rich content in organic matter, are composed of many large species, with over 70% coverage. The dominant species from the upper floor are *Trisetum flavescens* together with *Agrostis capillaris, Phleum montanum, Cynosurus cristatus, Festuca pratensis, Arrhenatherum elatius, Onobrychis viciifolia, Leucanthemum vulgaris, Knautia arvensis, Campanula glomerata* or the association between *Arrhenatherum elatius* with *Dactylis glomerata, Festuca pratensis, Salvia nemorosa, Onobrychis viciifolia, Trifolium pratense, Alopecurus pratense.* The lower floor it's made of plants of 20-35 cm tall: *Trifolium pratense, Anthyllis vulneraria, Lotus corniculatus, Luzula campestris, Gymnadenia conopsea, Carum carvi, Trifolium campestre, T. montanum, Cerastium holosteoides, Medicago lupulina, Agrostis stolonifera, Trifolium repens, Lotus corniculatus, Campanula patula, Moenchia mantica*

Dominant species: Herbaceous, perennial species included in the *Poaceae* family.
Deschampsia caespitosa (tussock grass) – is a perennial tufted plant, high of 20-100 cm. furrows leaves, of 1-4 mm width, the upper surface of the leaf blade which feels rough and can cut in one direction, but is smooth in the opposite direction, fruit with a straight arista, glossy glume.
Agrostis stolonifera (creeping bentgrass) – Plant with ascending creeping stems, membranous ligule of 3-7 mm long, inflorescene panicle that is gathering after flowering.
Poa pratensis (smooth meadow-grass) – Cespitous lax plant, of intense green color, flat leaves of 2-5 mm wide, short ligule of 1mm, decurrent on the edge of the sheath.

Trisetum flavescens (yellow oatgrass) – High plant of 30-110 cm, inflorescence is a long and narrow panicle which becomes golden at maturity, geniculate arista.
Arrhenatherum elatius (tall oat-grass) – High plant can reach up to 150 cm, flat and rough leaves, ligule of 3 mm lenght, slightly with three edges, long panicule of 30 cm, flowers of the male inflorescence with dorsal geniculate arista.

Corespondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3712 Dacian communities with *Deschampsia caespitosa* and *Agrostis stolonifera*	E2.233 Carpathian submontane hay meadows	-	Low
R3715 Danube-Panonic meadows of *Agrostis stolonifera*	E2.251 Ponto-Pannonic mesophille hay	-	Low, high only in the habitats where the species *Cypripedium calceolus* (Suceava) is present
R3716 Danubiano-Pontic meadows of *Poa pratensis*, *Festuca pratensis* and *Alopecurus pratensis*	E2.251 Ponto-Pannonic mesophille hay	6440 Alluvial meadows of river valleys of the *Cnidion dubii*	Moderate
R3801 South-eastern carpathian meadows of *Trisetum flavescens* and *Alchemilla vulgaris*	E2.2333 Eastern Carpathian yellow oatgrass meadows	6520 Mountain hay meadows	Low
R3802 Daco-getic meadows of *Arrhenatherum elatius*	E2.233 Carpathian submontane hay meadows	6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)	Moderate

Habitat E2.2 – Durău (Neamț County) (foto: Roxana Ion)

Habitat E2.2 – Poiana Stânii (Bucegi Mountains)(foto: Roxana Ion)

Habitat E2.2 – Apold (Mureș County)

Habitat E2.2 – Bilbor (Harghita County)

Habitat E2.2 – Cheile Vârghișului (Harghita County)

Habitat E2.2 – Criț (Brașov County)

Habitat E2.2 - Daia (Mureș County)

Habitat E2.2 – Meșendorf (Brașov County) Ecosystem services

Habitat E2.2 – Meșendorf (Brașov County)

Habitat E2.2 – Viscri (Brașov County)

Habitat E2.2 – Noul Săsesc (Sibiu County)

Habitat E2.2 – Lăzarea (Harghita County)

Habitat E2.2 – Richiș (Sibiu County)

Habitat E2.2 – Vulcan (Brașov County)

Figure 80 General aspect of the habitat E2.2 in Romania (foto: Roxana Ion)

Gymnadenia conopsea – Durău (Neamț County)

Gentiana lutea – Poiana Stânii (Bucegi Mountains)

 *Stachys germanica*	 *Teucrium chamaedrys*
 *Muscari comosum*	 *Echium vulgare*

 *Salvia transsilvanica*	 *Cytisus nigricans*
 *Filago arvensis*	 *Dianthus armeria*

Linaria vulgaris

*Dorycnium pentaphyl*lum

Gentiana cruciata

Figure 81 Species from habitat composition E2.2 (foto: Roxana Ion)

E3.4 Moist or wet eutrophic and mesotrophic grassland

Distribution: The hilly area across the country, in places with excess humidity and periodically flooded, river meadows and their terraces, on flat or very slightly inclined terrains from Transylvania, Muntenia, Moldova.

Habitat structure: The phytocoenoses that make up this habitat develop either in plateau areas or slightly concave where organic material accumulates here being dominate on the upper vegetation floor communities of *Juncus inflexus* with *J. effusus* together with *Mentha longifolia, Alopecurus pratensis, Carex vulpina, Agrostis canina, Deschampsia caespitosa,* either in the river meadows or their terrace, areas with excess humidity where the vegetation is dominated by *Juncus tenuis, Juncus inflexus, Ranunculus repens, Rumex crispus, Centaurium erythrea, Alopecurus aequalis.* Coverage is relatively high 70-80%. The lower floor is made up of smaller species: *Agrostis stolonifera, Lotus corniculatus, Gratiola officinale, Galium palustre, Potentilla reptans, Ranunculus repens, Medicago lupulina, Carex hirta, Prunella vulgaris, Trifolium repens, Potentilla anserina,Prunella vulgaris, Juncus bufonius, Taraxacum officinale, Plantago major.*

Dominant species:
Juncus effusus, J. inflexus, J. tenuis (rush) – Family *Juncaceae*. Herbaceous species, perennial, alternate leaves, glabrous, 20-80 cm high. *J. tenuis* have leaves almost as long as the stem, long obtuse and whitish auricles. *J. effusus* has a smooth strain or with 30-70 fine strips, continuous marrow, 3 stamens; *J. inflexus* has a strain with interruped marrow and 6 stamens,.
Agrostis canina(velvety bentgrass) – Familiy *Poaceae*. Herbaceous, perennial plant, 20-60 cm high, lax cespitose, flat leaves of 1-2 mm wide, very small palea, arista leave from the half of lemma.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3709 Danubian communities with *Juncus effusus, J. inflexus* and *Agrostis canina*	E3.4624 Eastern Carpathian raft rush meadows	-	Low
R3713 Anthropic meadows of *Juncus tenuis* and *Trifolium repens*	E3.462 Peri-Pannonic humid meadows	-	Low

E3.5 Moist or wet oligotrophic grassland

Distribuție: Banat (Caransebeș), Transylvania (Hațeg, Poiana Rusacă, Făgăraș, Brașov, Vad Depression), Intra-mountain depressions in the Olt superior basin, Giurgeului Basin, Moldova, Maramureș.

Habitat structure: Occupiess slopes very slightly inclined, on land with high nutrient content and excess moisture. Are present in large numbers, plants of high height exceeding 1 m in height: *Molinia caerulea, Serratula tinctoria, Juncus conglomeratus, Angelica sylvestris, Cirsium rivulare,* and in the bogs of Sâncrăieni (Harghita County), Lozna Dersca (Botoșani County) andVad (Brașov County) appears in mass *Salix rosmarinifolia.*The middle floor is represented by: *Succisa pratensis, Trolius europaeus, Lychnis flos-cuculi, Dianthus superbus, Carex ova*lis, *Lathyrus pratensis, Parnassia palustris, Galium uliginosum, Juncus articulatus*.
In the Danube Delta, at Letea, *Molinia caerulea ssp. euxina* realize phytocenoses on surfaces of 300-500 m^2, with a floral composition different from that of the *Molina* species from the country. The species that have been reported in these phytocoenes are: *Molinia caerulea ssp. euxina, Vicia biennis, Cirsium alatum, Holoschoenus vulgaris, Saccharum strictum (Erianthus appressus)*, the latter being a rare species in Romania's flora.
In the case of the meadows with *Nardus* strict from Maramures and Vad Depression, the upper floor has only 35-40 cm, being represented by: *Nardus stricta, Festuca rubra, Carex pallescens, C. ovalis, Stachys officinalis, Agrostis capillaris, A. stolonifera, Molinia coerulea, Gentiana pneumonathe, Achillea ptarmica, Juncus conglomeratus.* The lower floor is realised by: H*ypericum maculatum, Potentilla erecta, Lysimachia nummularia.* The moss layer is present through numerous specimens of *Polytrichum commune*.

Dominant species:
Molinia caerulea (purple moor-grass), is an herbaceous perennial plant with strain with knots piled at the base and just one above the base, ligule replaced by a string of bristles, unaristed lemma, spikelets with 2-5 flowers, the lower one hermaphrodite, glume shorter than spikelets.
Nardus stricta (mat-grass), is a poaceae of 10-40 cm high, with unilateral spice with spikelets with a flower, without involucral sete at the base, the lower glume is very small and the upper one is absent, setaceous convolute leaves, rigide,epetiolate, non-articulated with sheaths.
Juncus conglomeratus is a perennial herbaceous plant of *Juncaceae* family, with a height of 30-80cm, stem with continous marrow, with 10-30 ribs under inflorescence, the inferior bracts that continue the stem at most a quarter of the length of the stem, cylindrical leaves, alternate, hermaphrodite flowers, actinomorphs on type 3 in cymose inflorescences with sepaloid perianth 3+3, emerginated and mucronate capsule.
Serratula tinctoria is a herbaceous plant of 20-100 cm high from *Asteraceae* Family, with small calathid, of -8mm in diameter, cylindrical, numerous, grouped corimbiform, multifloral, with gray pappus, short pedunculate or subssesile.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservtive value
R3710 Dacian meadows of *Molinia caerulea*	E3.511 Calcidine purple moorgross meadows	6410 *Molinia* meadows on calcareous, peaty or clayey-siltladen soils (*Molinion caeruleae*)	Moderate
R3711 Dacian meadows of *Nardus stricta* and *Molinia caerulea*	E3.512 Acidoclin purple moorgrass meadows	6410 *Molinia* meadows on calcareous, peaty or clayey-siltladen soils (*Molinion caeruleae*)	Moderate

Figure 82 *Gentiana pneumonante* – Iapa – Maramureș (foto: Roxana Ion)

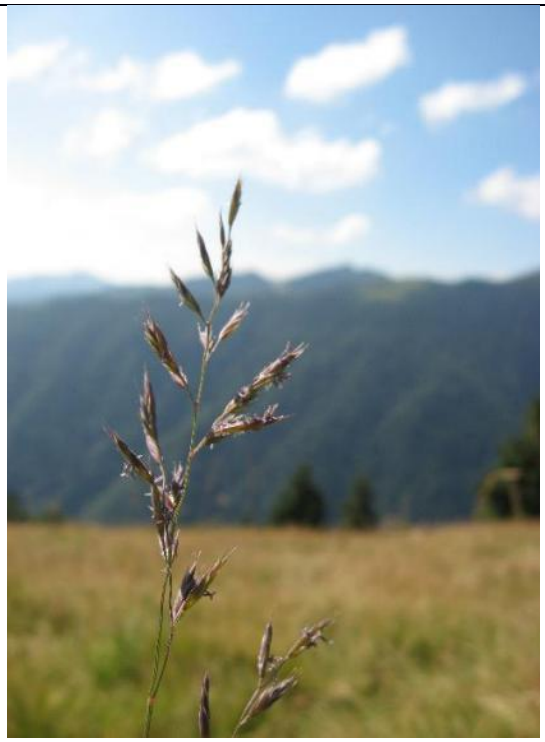


Figure 83 *Molinia coerulea* - Iapa – Maramureș (foto: Roxana Ion)

Figure 84 *Gladiolus imbricatus* – Iapa – Maramureș (foto: Roxana Ion)

Figure 85 Habitat E3.5 – Iapa, Maramureș County (foto: Roxana Ion)

E4.1 Vegetated snow-patch

Distribution: Oriental Carpathians: Rodnei Mountains (Gărgălău Peak, Șaua Cișa-Omul, Piatra Albă, Pietrosul Mare, Buhăescu Mic, Momaia, Căldarea Bila, Pietrosul, Ineu, Rebra, Anieș, Piciorul Galațiului, Căldarea Gărgălăului, Corongiș, Corongiș, Rebra); Southern Carpathians: Retezat Mountains (Custura, Peleaga, Gruniu, Păpușa, Bucura peaks, Galeș Lake, Bucura, Valea Slăveiului, Zănoaga Lake, Pietrele Valley, Obârșia Radeșului, Mt. Buta, Zănoaga, Tăul Negru, Albele, Drăgășanu, Piule), Sadului Valley; Făgăraș Mountains (Șerbotei Valley, Suru, Căldarea Sărată, Ciortea, Negoiu), Țarcu – Godeanu Mountains, Bucegi Mountains, Iezer-Păpușa Mountains.

Habitat structure: This type of habitat represents the vegetation of snow-patch, and includes pioneer phytocoenoses from the alpine and subalpine floors of the Carpathians, developed in areas with medium slopes, in glacial cirque, with crushed rocks, or near the glacial lakes, where the snow persists for a long time. Depending on the area where it is born, the nature of the rock, the slope, in the grassy layer dominate some species in various vegetal associations, among which we mention: *Arenaria biflora* together with *Gnaphalium supinum, Luzula alpino-pilosa, Poa alpina, Nardus stricta, Polytrichum sexangulare; Salix herbacea, Gnaphalium supinum* and *Arenaria biflora,* with a very diverse moss layer composed of *Polytrichum sexangulare, Kiaeria starkei, Kiaeria falcata, Pholia commutata, Pholia cucullata, Polytrichum juniperinum; Ranunculus crenatus* with *Soldanella pusilla, Poa alpina, Festuca picta, Poa deylii* and *Festuca supina, Polytrichum sexangulare, Kiaeria starkei, Kiaeria falcata*, and the edifying species *Luzula alpino-pilosa*ca; *Ranunculus crenatus* dominant alongside of *Geum montanum, Ligusticum mutellina, Plantago gentianoides, Soldanella hungarica ssp. hungarica* (in Rodnei Mountains), *Polytrichum sexangulare, Kiaeria falcata, Anthelia juratzkana; Potentilla ternata* with *Gnaphalium supinum,* in the first phase of development, followed by the dominance of *Nardus stricta*, in moss layer: *Polytrichum sexangulare, Anthelia juratzkana, Kiaeria starkei; Cerastium cerastoides* and *Poa supina,* together with *Gnaphalium supinum, Sedum alpestre, Veronica alpina, Polytrichum sexangulare, Kiaeria starkei, Oligotrichum hercynicum*

Dominant species:

Arenaria biflora (sandwort)– Familiy: *Caryophyllaceae*. Perennial herbaceous plant with creeping stem, high of – 20 cm, sepals with very narrow white-membrane edge, elliptic leaves, flowers grouped by two.

Polytrichum sexangulare – Family: *Polytrichales*, briophyte, 1-8 cm high, leaves 7 mm long, dark green-brown, cylindrical capsule.

Luzula alpino-pilosa (wood rush) – Familiy: *Juncaceae*, herbaceous plant, perennial, 10-25 cm, glabrous leaves, flowers grouped in clusters .

Ranunculus crenatus -Familiy: *Ranunculaceae*, perennial, herbaceous plant, 5-12 cm, crenate serrate basal leaves, white flowers.

Soldanella pusilla (sea bindweed) -Familiy: *Primulaceae*, herbaceous, perennial plant, 3-8 cm, the lamina of the leaf of 5-8 mm wide, unifloral scape, petiole, scape and pedicel with sessile glands, style closed in the corolla.
Gnaphalium supinum – Family: *Asteraceae*, herbaceous, perennial plant, short of 2-12 cm, with unbranched stem, calathids grouped along the stem, about 2-10.
Poa supina(annual meadow grass) - Family: *Poaceae*, herbaceous, perennial plant, 5-15 cm tall, spikelets arranged at the top of panicle branches, with ciliated palea on keel.

Corespondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R6301 Southeast Carpathian chionophile communities with *Arenaria biflora*	E4.11 Boreo-alpine acidocline snow-patch grassland and herb habitats	6150 Siliceous alpine and boreal grasslands	Low
R6302 Southeast carpathian chionophile communities with *Polytricum sexangularis*	E4.112 Alpic acid cudweed snow-patch communities	6150 Siliceous alpine and boreal grasslands	Low
R6303 Southeast carpathian chionophile communities with *Luzula alpino-pilosa*	E4.113 *Luzula spadicea* snow patch communities	6150 Siliceous alpine and boreal grasslands	Low
R6304 Southeast carpathian chionophile communities with *Ranunculus crenatus* and *Soldanella pusilla*	E4.11 Boreo-alpine acidocline snow-patch grassland and herb habitats	6150 Siliceous alpine and boreal grasslands	Low
R6305 Southeast carpathian chionophile communities with *Gnaphalium supinum* and *Nardus stricta*	E4.112 Alpic acid cudweed snow-patch communities	6150 Siliceous alpine and boreal grasslands	Low
R6306 Southeast carpathian chionophile communities with *Poa supina* and *Cerastium cerastioides*	E4.11 Boreo-alpine acidocline snow-patch grassland and herb habitats	6150 Siliceous alpine and boreal grasslands	Moderate

Figure 86 Habitat E4.1 in Parâng Mountains (foto: Roxana Ion)

Figure 87Habitat E4.1 in Bucegi Mountains (foto: Roxana Ion)

Figure 88 *Ranunculus crenatus* – Parâng Mountains (foto: Roxana Ion)

Figure 89 *Soldanella pusila* – Parâng Mountains (foto: Roxana Ion)

E4.3 Acid alpine and subalpine grassland

Distribution: in all the Romanian Carpathians in the mountain region and in the subalpine, alpine and alpine floors as follows: Oriental Carpathians: Rodna Mountains, Călimani Mountains, Suhard Mountains, Giumalău Mountains, Ţibleş Mountains, Varfu Goru, Siriu Mountains, Maramureş Mountains, Rarău Mountains, Penteleu Mountain, Lăcăuţi, Putna Izvoarele. Southern Carpathians: Bucegi Mountains, Piatra Craiului Mountains, Iezer-Păpuşa Mountains, Făgăraş Mountains, Cibin Mountains, Parâng Mountains, Retezat Mountains, Ţarcu Mountains, Godeanu Mountains, Munţii Gârbova, Ciucaş Mountains, Cernai Mountains, Sadia Valley, Sebeşului Valley. Western Carpathians: Pietrele Albe, Feneşului Valley, Sebeşului Valley, Vlădeasa, Transylvania.

Habitat structure: The alpine and subalpine habitats of peaks, plateaus and high slopes have only dominant grassy layer, depending of the resort *Carex curvula* accompanied by *Primula minima, Oreochloa disticha* and/or *Juncus trifidus, Festuca supina.* After the excessive grazing, the meadows it degrades and begins to dominate *Nardus stricta*. The dominant plant usually has majority coverage, companions, even when they are abundant, having a small coverage. Meadows with *Carex* and *Oreochloa* are primary habitats, while the one with *Festuca*e is the most evolved stage of the alpine floor, being considered as a glacial relict. Species that are dominant in one of the 4 types listed above, appear in the other as companions. Besides these, depending on the habitat, other species also appear: *Agrostis rupestris, Avenula versicolor, Sesleria bielzii, Geum montanum, Ligusticum mutellina, Hieracium alpinum, Potentilla ternata, Armeria alpina* and *Dianthus glacialis ssp. gelidus.* The moss layer is represented by: *Polytrichum alpinum, Polytrichum juniperinum, Dicranum scoparium, Racomitrium lanuginosum.* The lichens layer is composed of *Cetraria islandica, Thamnolia vermicularis.*
In case of meadows that can support a shrub layer, this layer is dominated by *Vaccinium*: *Vaccinium myrtillus, Vaccinium vitis-idaea, Vaccinium uliginosum*. However, this layer is very reduced, the grassy one has a coverage of up to 95%, being dominated by Poaceae species, with a coverage of between 65 and 95%, accompanied by other characteristic herbaceous plants, in three possible types: *Festuca nigrescens* accompanied by *Scorzonera rosea* and *Campanula abietina, Nardus stricta* monodominant, *Poa media.* Like the above, the species dominated in a habitat appear as companions in others, not lacking.
The moss layer is reduced, represented by *Polytrichum commune, Polytrichum juniperinum, Dicranum scoparium, Pleurozium schreberi, Hylocomium splendens.*

Dominant species:
Carex curvula a perennial herbaceous plant, of 5-30 cm height, from Fam. *Cyperaceae*, with stem and curved leaves, with rhizomes, with the stem full of the marrow, alternate leaves with closed sheath and linear limb, inflorescence is a compound spike, ovoid, from 4-6 spikelets, with male flowers at the top of spikelets.
Juncus trifidus (highland rush) is a herbaceous plant from Fam. *Juncaceae*, perennial, of 10-30 cm high, with evident canaliculate leaves, glabrous, with open sheaths, with trifid auricles,

hermaphrodite flowers on type 3, cymose inflorescence with 1-3 flowers, capsule with long mucrone.

Oreochloa disticha is a perennial herbaceous plant from Fam. *Poaceae*, 10-20 cm high, spikelets placed distih, elongated ligule, of 3-5 mm.

Festuca supina (***F. aroides***) is a perennial plant from Fam. *Poaceae* of 10-30 cm high, with stem and scabrous leaves, leaves of 0.3-0.7 mm thick, with 5-7 veins, panicle with scabrous branches, sheaths closed quarter or third, long panicle of 2-4 cm, lanceolate, acute lemma.

Festuca nigrescensis a perennial plant of 30-90 cm high, with a glabrous stem in the superior part, cespitose dense, with flat stem leaves, the basal ones conduplicate, of 0,4-0,7 mm thickness, with at least 5 veins, sheaths with soft bristles, lanceolate lemma, with awn as long as half the lamina length.

Poa media is a perennial plant of 20-30 cm high with the base of the stem covered with thickened sheaths, leaves of 4-9 cm long and 1-1.5 mm wide, the ligule of the leaf of 1,5-2 mm length, spikelets with 3-7 flowers, narrow, ovoid, dense panicle.

Nardus stricta (doormat grass), is a plant of 10-40 cm high from *Poaceae* family, with unilateral spike with spikelets with a flower, without involucarl ste at the base, the inferior glume is small and the superior ones is absent, rigid, epetiolale, not articulated with sheaths.

Viola declinata is a herbaceous, perennial plant from *Violaceae* family, with the height of 10-40 cm, with stolons, elliptic-lanceolate middle leaves, the upper ones linear lanceolate, hermaphrodite, zigomorphic flowers, on type 5, free petals, the lower one with spurs, corolla obviously longer than the calyx, with aerial foliate stems.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3602 Southeast Carpathian meadows of (*Carex curvula*) and *Primula minima*	E4.34 Alpigenous acidophilous grassland	6150 Siliceous alpine and boreal grasslands	Low in general, high in the habitats where the species *Pedicularis exaltata* is present
R3603 Southeast Carpathian meadows of (*Juncus trifidus*) and *Oreochloa disticha*	E4.3463 Carpathian *Juncus trifidus* swards	6150 Siliceous alpine and boreal grasslands	Low
R3604 Southeast Carpathian meadows of (*Festuca supin*a) and *Potentilla ternata*	E4.3432 Carpathian *Festuca airoides* grasslands	6150 Siliceous alpine and boreal grasslands	High, endemic habitat

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3608 Southeast carpathian meadows of *Scorzonera rosea* and *Festuca nigrescens*	E4.31 Alpic *Nardus stricta* swards and related communities	6230 * Species-rich Nardus grasslands, in siliceous substrates in mountain areas (and submontain areas, in Continental Europe)	Moderate; Southeast carpathian endemic habitat and European priority; only in phytocoenoses where *Tozzia carpathica* is present
R3609 Southeast carpathian meadows (*Nardus stricta*) and *Viola declinata*	E4.31 Alpic *Nardus stricta* swards and related communities; E4.3172 Eastern Carpathian mat-grass swards	6230 * Species-rich Nardus grasslands, in siliceous substrates in mountain areas (and submontain areas, in Continental Europe)	Moderate; european priority habitat.
R3610 Southeast carpathian meadows of *Poa media*	E4.31 Alpic *Nardus stricta* swards and related communities	-	Moderate

Figure 90 Habitat E4.3 – eadows with (*Nardus stricta*) in Iapa (Maramureș County)(foto: Roxana Ion)

Figure 91*Nardus stricta* – Iapa (Marmaureș County) (foto: Roxana Ion)

Figure 92 *Scorzonera rosea* (foto: Roxana Ion)

E4.4 Calcareous alpine and subalpine grassland

Distribution: Oriental Carpathians: Rodnei Mountains, Rarău Mountains, Hășmașu Mare Mountains, Piatra Singuratică, Ciucului Mountains, Siriu Mountains, Maramureș Mountains, Ceahlău Mountain; Southern Carpathians: Postăvaru Mountain, Măgura Codlei, Leaota Mountains, Cheile Rudăriței, Cheile Dâmboviței, Bucegi Mountains, Piatra Craiului Mountains, Lotru Mountains, Valea Călinești, Țarcu-Godeanu Mountains, Cheile M. Retezat (Piule); Făgăraș Mountains, Retezat Mountains, Ciucaș Mountains, Vâlcanului Mountain, Jiului Valley, Cernei Mountain, Piatra Cloșani; Gârbova Mountains, Cibin Mountains, Parâng Mountains, Vâlcanului Mountains; Western Carpathians: Apuseni Mountains, Trascău Mountains, Cheile Ordâncușii, Cheile Crăciunești, Cheile Bulzești, Cheile Feneșului, Cheile Turului, Gilău, Metaliferi, Bihorului Mountains, Scărița-Belioara Mountains, Cheile Runcu, Someș Valley, Cernei (Cheia Prisăcinei) Mountains, Pietrele Albe (Vlădeasa), Cheile Râmețului, Colții Trascăului.

Habitat structure: On the mountain floor, on calcareous semi-shady rocks we encounter edified phytocoenosis of species *Sesleria rigida* ssp. *rigida* with *Asperula capitata* alongside *Alyssum repens, Saponaria bellidifolia, Centaurea triumfetii, Anthericum ramosum, Pedicularis comosa* ssp. *campestris, Helictotrichon decorum, Festuca xanthina, Saxifraga marginata, Bupleurum falcatum, Centaurea atropurpurea, Stipa eriocaulis, Dianthus petraeus, Edrainthus graminifolius, Conioselinum tataricum, Cnidium silaifolium, Seseli gracile, Seseli rigidum, Primula columnae, Aconitum anthora, Viola jooi;* in the alpine areas of the Southern Carpathians, in the peak areas, where strong winds establish species-dominated vegetation of: *Festuca supina, Festuca glacialis, Silene acaulis, Primula minima, Polygonum viviparum, Dryas octopetala, Agrostis rupestris, Festuca versicolor, Salix reticulata, Helianthemum alpestre, Pedicularis verticillata.* Also in the alpine area, but in sunny and sheltered resorts there are phytocoenosis edified *by Festuca versicolor, Sesleria rigida* and ssp. *haynaldiana* together with *Helianthemum alpestre, Alyssum repens, Cerastium transsilvanicum, Dianthus tenuifolius, Oxytropis carpatica, Calamintha alpina* ssp. *baumgateni, Carex sempervirens, Festuca saxatilis; Festuca saxatilis* dominant, together with *Dianthus tenuifolius, Carex sempervirens, Polygonum viviparum, Sesleria rigida* ssp. *haynaldiana, Cruciata glabra, Scabiosa lucida*; phytocoenoses with *Festuca amethystina* with *Dianthus tenuifolius, Poa violacea, Poa nemoralis, Scorzonera rosea, Polygonum viviparum, Trifolium repens, Potentilla ternata, Bartsia alpina, Aster alpinus, Calamintha alpina, Festuca airoides, Agrostis rupestris.* Also in high areas, on limestone substrate, on the slopes inclined with various exhibitions the following phytocoenosis are found: *Sesleria rigida ssp. haynaldiana* and *Carex sempervirens,* alongside of *Saxifraga marginata și Sesleria heufleriana. Geranium coeruleatum, Astragalus frigidus, Centaurea pinnatifida; Carex sempervirens* and *Sesleria bielzii,* with *Astragalus alpinus, Sausurea alpina, Cerastium transsilvanicum, Androsace chamaejasme, Astragalus frigidus, Bartschia alpina, Hedysarum hedysaroides, Biscutella laevigata;* meso-xerophilous meadows of *Festuca carpatica* cu*Carduus kerneri, Trisetum fuscum, Sesleria bielzii, Festuca saxatilis, Alyssum repens, Festuca amethystina, Sesleria rigida ssp. haynaldiana, Primula elatior ssp. carpatica, Centaurea*

kotschyana, Bupleurum diversifolium, Poa rehmanii, Bartsia alpina, Carex sempervirens, Galium anisophyllon, Phyteuma orbiculare, Polygonum viviparum, Ranunculus oreophilus, Myososti alpestris, Pedicularis verticillata, Biscutella laevigata, Cerastium transsilvanicum, Linum perenne ssp. extraaxilare, Thymus pulcherrimus; meadows on the limestone substrate from the mountainous and subalpine floor of *Festuca xanthina* cu *Asperula capitata, Alyssum repens, Sesleria rigida, Seseli gracile, Seseli rigidum, Saxifraga marginata, Primula veris ssp. columnae, Dianthus petraeus, Erysimum witmannii, Athamantha turbith ssp. hungarica, Draba lasiocarpa, Scrophularia heterophylla ssp. laciniata, Phyteuma orbiculare, Aster alpinus, Ranunculus oreophilus, Carduus glaucus, Centaurea pinnatifida, Minuartia verna, Biscutella laevigata, Myosotis alpestris. Specii endemice: Thymus comosus, Viola jooi.*

Dominant species:

Asperula capitata – Family: *Rubiaceae*. Perennial, herbaceous plants, of 10-20 cm, verticillate leaves, capituliform inflorescence , flowers on type 4.

Kobresia myosuroides *(Elyna myosuroides)* – Family: *Cyperaceae*. Herbaceous, perennial plant, stem with three edges, high of 5-20 cm, compound spike inflorescence composed of 10-20 spikelets with 2 flowers, unisexuated flowers, ovary and free fruits.

Festuca carpatica, Festuca xanthina, Festuca versicolor, Festuca amethystina *–Poaceae* Family. Herbaceous, perennial species, 10-70 cm tall, leaves narrower than 5 mm, inflorescence is a panicle. *F. carpatica* presents rhizomes and stolons, very short, ciliate ligule, unaristed spikelets, panicule of 6-20 mm, nutant. *F. xanthina* prezintă lăstari nefloriferi intravaginali, ligule up to 2 mm, lăstari sterili câte 4-6 într-o teacă, spikelets of 10-15mm. *F. versicolor* has the smooth strain under the panicle, spikelets up to 10 mm, purple colored. F. amesthystina has all of the leaves conduplicate, lemma short aristate.

Sesleria rigida, S. rigida **var.** ***haynaldiana***(coada iepurelui) – Family: *Poaceae*. Perennial; caespitose plants, of 10-30 cm high, multifloral spikelets, ovat-lanceolate lemma, the awn of the middle tooth is short 0,5-1 mm. The typical species has the basal leaves convolute and rigid, var. *haynaldiana* has flat and soft basal leaves.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservtive value
R3401 South-eastern carpathian meadows of *Asperula capitata* and *Sesleria rigida*	E4.4392 East Carpathian calciphile stepped grasslands	6170 Alpine and subalpine calcareous grasslands	High, endemic habitat.
R3601 South-eastern carpathian meadows of (*Kobresia myosuroides*) and *Oxytropis carpatica*	E4.42 Wind edge (*Kobresia myosuroides*) swards	6170 Alpine and subalpine calcareous grasslands	High, endemic habitat

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservtive value
R3605 South-eastern carpathian meadows of (*Festuca versicolor*) and *Sesleria rigida* ssp. *haynaldiana*	E4.4392 East Carpathian calciphile stepped grasslands	6170 Alpine and subalpine calcareous grasslands	High, endemic habitat
R3606 South-eastern carpathian meadows of (*Festuca saxatilis*)	E4.4 Calcareous alpine and subalpine grassland	6170 Alpine and subalpine calcareous grasslands	High, endemic habitat
R3607 South-eastern carpathian meadows of *Festuca amethystina* and *Dianthus tenuifolius*	E4.4392 East Carpathian calciphile stepped grasslands	6170 Alpine and subalpine calcareous grasslands	High, endemic habitat
R3611 Pajişti sud-est carpatice de coada iepurelui (*Sesleria rigida* ssp. *haynaldiana*), (*Carex sempervirens*)	E4.4392 East Carpathian calciphile stepped grasslands	6170 Alpine and subalpine calcareous grasslands	High, endemic habitat
R3612 South-eastern carpathian meadows of (*Carex sempervirens*) and (*Sesleria bielzii*)	E4.4392 East Carpathian calciphile stepped grasslands	6170 Alpine and subalpine calcareous grasslands	High, endemic habitat
R3613 South-eastern carpathian meadows of *Carduus kerneri, Festuca carpatica* and *Trisetum fuscum*	E4.4 Calcareous alpine and subalpine grassland	6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	High, endemic habitat
R3614 South-eastern carpathian meadows of *Festuca xanthina*	E4.4 Calcareous alpine and subalpine grassland	6190 Rupicolous pannonic grasslands (*Stipo-Festucetalia pallentis*)	High, endemic habitat.
R6101 South-eastern carpathian communities of siliceous gravels with *Silene acaulis* and *Minuartia sedoides*	E4.425 Carpathian naked-rush swards H2.31 Alpine siliceous screes	8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsetalia ladani)*	

Figure 93 Habitat E4.4 in Bucegi Mountains (foto: Roxana Ion)

Figure 94 Habitat E4.4 in Bucegi Mountains (foto: Roxana Ion)

Figure 95 Habitat E4.4 in Bucegi Mountains, Caraiman (foto: Roxana Ion)

Figure 96 Habitat E4.4 in Buila-Vânturarița (foto: Roxana Ion)

Figure 97– *Armeria alpina* – Bucegi Mountains (foto: Roxana Ion)

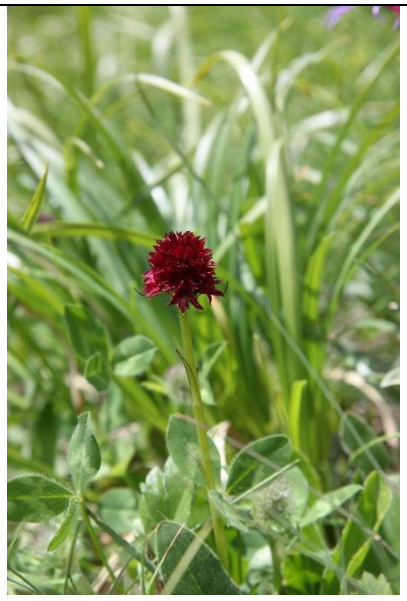


Figure 98 *Nigritella rubra* Bucegi Mountains (foto: Roxana Ion)

E5.4 Moist or wet tall-herb and fern fringes and meadows

Distribution: wetlands, along the hillsides and lower mountain ranges, from Transylvania, Muntenia, Moldova, with siliceous rocks, marls and boulders brought by torrents and soils rich in moisture and nutrients.

Habitat structure: The characteristic and dominant species is *Filipendula ulmaria*, is a tall plant that reaches 1.5-2 m. This species make the upper floor in mixtures with: *Lythrum salicaria, Valeriana officinalis, Telekia speciosa, Chaerophyllum hirsutum, Epilobium parviflorum.* The lower floor is made of short plants, such as: *Mentha longifolia, Crepis paludosa, Scirpus sylvaticus, Geranium palustre, Equisetum palustre, Caltha palustris, Myosotis scorpioides*. Alte specii: *Geranium palustre, Cirsium canum, C. oleraceum, Deschampsia caespitosa, Impatiens noli-tangere, Agrostis stolonifera, Equisetum palustre, Lychnis flos-cuculi, Lysimachia vulgaris.*

The edifying species:
***Filipendula ulmaria* –** Family: *Rosaceae.* Herbaceous plant, perennial with a height of 50-200 cm, foliate stem, with basal leaves with 3-5 pairs of large foliole, with a rich inflorescence – paniculiform cyme with small and dense flowers, 2-5 mm petals, spirally twisted achene, glabrous.
***Chaerophyllum hirsutum* –** Family: *Apiaceae*este. Perennial herbaceous plant, of 30-80 cm tall, with hermaphrodite flowers, with ciliate petals, white or pink-purple.
***Telekia speciosa* –** Family: *Asteraceae.* It is a herbaceous, perennial plant of 60-120 cm tall with solitary calathid, axillary, long pedunculate, 5-6 cm in diameter, with yellow ligulate flowers with ligules over 1 cm long and only 1mm wide, ovate, cordate, strong serrated dentate.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3714 Daco-getic communities with *Filipendula ulmaria*, *Geranium palustre* and *Chaerophyllum hirsutum*	E5.414 Continental river bank tallberb communities dominated by (*Filipendula*)	6430 Hydrophilous tall herb fringes communities	Low

Figure 99 *Telekia speciosa* – Bucegi Mountains (foto: Roxana Ion)

E5.5 Subalpine moist or wet tall-herb and fern stands

Distribution: In all the mountainous areas of the country on the subalpine and alpine, mountainous, middle mountain, lower mountain floors, hill region**:** Eastern Carpathians: Rodnei Mountains ,Bistrița Aurie, Ceahlău Mountains, Coza Mountain (Vrancei Mountains), Siriu Mountain, Baraolt Mounatins, Mureșului Defile, Gurghiului Valley, Timiș- Bega, Maramureș, Bistrița Basin, Mraconiei Valley, Harghita Mountains(Pârâul), Chirui Valley, Harghita Băi, Mădăraș Chalet, Mohoș, Hoghiz Forest, Cheile Tișiței, Tazlăului Basin. Southern Carpathians: Bucegi Mountains, Piatra Craiului Mountains, Postăvaru Mountain, Gârbova Mountain, Iezer-Păpușa Mountains, Retezat Mountains, Godeanu Mountains, Țarcu Mountains, Făgăraș Mountains, Oltețului Valley, Oltului Valley. Western Carpathians: Semenic Mountains, Sebeșului Valley; Zârnei–Valea Drăganului Valley, Galbenă-Padiș Valley, Iadului Valley, Stâna de Vale, Crișului Repede Defile, Sebișelului Valley, Feneșului Valley.

Habitate structure: The habitat, in all its variants, is represented by meadows from mountains areas from alpine to inferior mountain, characterized by a high nitrogen intake, usually from pasture, and by a sufficient intake of moisture. When there is a one shrub layer, being represented by *Alnus viridis* and *Salix silesiaca.* The grassy layer is dominant and is defined by one or two dominant species together with other accompanying species *Aconitum tauricum* and *Saxifraga heucherifolia* grow together with many species of *Adenostylion* and *Adenostiletalia alliariae. Doronicum austriacum* appears along with many carpathian and dacian elements: *Heracleum carpaticum, Heracleum sphondylium ssp. transsilvanicum* (may also appear as a dominant species), *Poa delyii, Phyteuma vagneri, Achillea distans*. *Petasites kablikianus* sometimes achieves a coverage of 70-90% (Rodnei Mountains), being accompanied by hygrophilic species: *Stellaria nemorum, Carduus personata, Chaerophyllum hirsutum*. Meadows heavily fattened by sheepfold during many years, where vegetation is destroyed by ironing and stacking of manure, are invaded by *Rumex alpinus* or *Rumex obtusifolia* and *Urtica dioica*, up to 65-85% coverage accompanied by *Poa supina, Thlaspi bursa pastoris, Galeopsis speciosa. Telekia speciosa*, which forms constant clusters, is accompanied by *Filipendula ulmaria, Petasites albus, Chaerophyllum hirsutum, Cardamine amara, Stellaria nemorum, Cirsium oleraceum, Caltha laeta*. On the Mountain valleys, are formed meadows with a dense top floor, which exceed 1 m height, formed by C*irsium oleraceum, Angelica sylvestris, Cirsium rivularis, Filipendula ulmaria,* and a lower floor formed by small species: *Caltha laeta, Geranium palustre, Crepis paludosa, Myosotis scorpioides, Mentha longifolia, Scirpus sylvaticus, Equisetum palustre, Ranunculus acris, R. repens, Lychnis flos-cuculi*.
The moss layer is reduced, the more common is *Polytrichum commune*.

Dominat species:
Aconitum tauricum is a perennial herbaceous species from *Ranunculaceae* family, of 60 cm high, with blue flowers with the superior tepal with high helmet shape tall 12-20 mm, whole bracteole.

Doronicum austriacum (austrian leopard's bane) is a perennial herbaceous plant from *Asteraceae* family, high 50-150 cm, with stem with whole green leaf, yellow radial flowers, inflorescence with 4-12 calathids, hipsofile equal involucral in 2-3 series, flowers with stems narrow in the middle.

Telekia speciosa is a perennial herbaceous plant from *Asteraceae* family, high of 60-150 cm, with solitary calathids, axillary, pedunculate, of 5-6 cm in diameter, yellow ligulate flowers, ligules over 1 cm long and 1 mm wide, ovate, cordate, strong serrate dentate.

Petasites kablikianus is a perennial herbaceous plant from *Asteraceae* family, high of 10-50 cm, with leaves with full petiole, canaliculate, without wingsneariрat, weak tomentoase on the back, the basal ones are large and green, with numerous calathids grouped terminal in racemes and panicles.

Heracleum sphondylium is a perennial biannual herbaceous plant, from *Apiaceae* family, high of 50-150 cm, with a stem over 4mm in diameter,pinnate leaves, strong dorso-ventral compressed with lateral ribs evident with wings, the sheath of the stem leaves is slightly swollen, with rough-hairiness or glabrous, grows up to 25 cm in diameter

Angelica sylvestris is a monocarpic perennial biannual herbaceous plant of *Apiaceae* family, high of 50-150 cm, robust,with leaves 2-3 pinnatisect, the last segments, large, ovate, with well developed, swollen sheath.

Rumex alpinus (alpine dock) is a perennial herbaceous plant from Asteraceae family, high of 10-50 cm, with basal leaves ovat rounde deeply cordate base, rounded tip, no more than 1.5 times longer than wide, with most hermaphrodite flowers.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3701 South-eastern carpathian tall herb fringe communities with *Aconitum tauricum*	E5.5143 Carpathian monk shoad communities	6430 Hydrophilous tall herb fringe communities of plain and of the montane to alpine levels	Low
R3702 South-eastern carpathian tall herb fringe communities with *Adenostyles alliaria* and *Doronicum austriacum*	E5.5141 Carpathian *Adenostyles* communities	6430 Hydrophilous tall herb fringe communities of plain and of the montane to alpine levels	Low

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3703 South-eastern carpathian tall herb fringe communities with *Cirsium waldsteinii and Heracleum sphondylium* ssp. *transilvanicum Cirsium waldsteinii and Heracleum sphondylium* ssp. *transilvanicum*	E5.514 Carpathian tall herb communities	6430 Hydrophilous tall herb fringe communities of plain and of the montane to alpine levels	Low
R3704 South-eastern carpathian tall herb fringe communities with *Senecio subalpinus* and *Rumex alpinus*	E5.58 Alpine *Rumex* communities	6430 Hydrophilous tall herb fringe communities of plain and of the montane to alpine levels	Low
R3705 South-eastern carpathian tall herb fringe communities with *Rumex obtusifolia* and *Urtica dioica*	E5.58 Alpine *Rumex* communities	6430 Hydrophilous tall herb fringe communities of plain and of the montane to alpine levels	Low
R3706 South-eastern carpathian tall herb fringe communities with *Petasites kablikianus*	E5.5144 Carpathian butterbur communities	6430 Hydrophilous tall herb fringe communities of plain and of the montane to alpine levels	Low
R3707 South-eastern carpathian tall herb fringe communities with *Telekia speciosa* and *Petasites hybridus*	E5.5144 Carpathian butterbur communities	6430 Hydrophilous tall herb fringe communities of plain and of the montane to alpine levels	Low
R3708 Daco-getic Communities with *Angelica sylvestris, Crepis paludosa* and *Scirpus sylvaticus*	E5.5143 Carpathian monk shoad communities	6430 Hydrophilous tall herb fringe communities of plain and of the montane to alpine levels	Low, high only in habitats where Ligularia sibirica is present

Figure 100 Habitat E5.5 Tăul Negru (RetezatMountains) (foto: Roxana Ion)

Figure 101*Adenostyles alliariae* - Tăul Negru (Retezat Mountains) (foto: Roxana Ion)

Figure 102*Aconitum tauricum* - Podragu Lake (Făgăraș Mountains)(foto: Roxana Ion)

E6.2 Continental inland salt steppes

Distribution: the maritime sands of Dobrogea and Danube Delta, the Black Sea littoral; salt lands from Oltenia, Banat, Muntenia, Moldova, Dobrogea, Danube Delta; on weak salty terrain, microdepression, floodplains flooded in spring and dry in summer, Muntenia Plain,Dobrogea, Moldova, in floodplain; maritime and continental sands, strongly slated, salt lands from terenuri Romanian Plain and Moldova.

Habitat structure: This habitat combines the phytocoenoses developed on lands with varying degrees of salinity, on maritime and continental sands or in foodplains.. They are usually structured on 2 floors of vegetation. On the maritime and continental sands of Dobrogea and in salt lands of Bărăgan we meet diverse communities out of which we mention:

- *Juncus littoralis* and *J. maritimus* with *Carex distans, Festuca arundinacea, Agrostis pontica* in the upper layer and *Spergularia marina, Juncus gerardii, Aeluropus littoralis, Polypogon monspeliensis* in the lower layer;
- *Halocnemum strobilaceum* with *Limonium bellidifolium, Petrosimonia oppositifolia, Limonium gmelinii, Suaeda maritima, Salicornia europaea, Aeluropus littoralis, Plantago maritima, Lotus tenuis, Halimione verrucifera, Spergularia maritima, Frankenia hirsuta, F. pulverulenta, Halimione pedunculata;*
- *Aeluropus littoralis* and *Puccinellia limosa, Limonium gmelini, Plantago maritima, Rumex maritimus* and a series of halophilic species, shorter such as : *Spergularia maritima, S. salina, Limonium bellidifolium*;
- *Limonium meyeri* with *Aeluropus littoralis, Limonium gmelini, Puccinellia limosa, Aster tripolium, Halimione verrucifera, Juncus maritimus, Artemisia santonicum, Juncus gerardi, Rumex maritimus, Suaeda maritima, Salicornia europaea, Spergularia salina, S. maritima, Centaurium pulchellum;*
- communities of *Agropyron elongatum, Agrostis pontica, Limonium vulgare, Juncus littoralis, Daucus guttatus ssp. zahariadi, Carex distans, Artemisia santonicum* and short plants from the second floor such as: *Cynodon dactylon, Aeluropus littoralis, Plantago arenaria, Spergularia maritima, Halimione verrucifera, Plantago maritima, Lotus tenuis, Samolus valerandi, Plantago coronopus, Salicornia prostrata, Spergularia maritima, Suaeda maritima;*
- *Festuca arundinacea* ssp. *orientalis* and *Carex distans* are dominant on the upper floor and *Juncus littoralis, Holoschoenus vulgaris, Sonchus arvensis, Orchis laxiflora ssp. elegans, Juncus gerardi, Trifolium fragiferum, Taraxacum bessarabicum, Hordeum marinum, Centaurium spicatum, Teucrium scordium;*
- *Carex distans* is a dominant species together with *Puccinellia limosa, Agropyron elongatum, Juncus gerardi, Aster tripolium ssp. pannonicum;*
- meadows of *Polypogon monspeliensis,* species less widespread in Romania, which forms cenosis on small surfaces and has as accompanying species: *Puccinellia distans, Chenopodium glaucum, Atriplex hastata, Aster tripolium, Spergularia media, Trifolium fragiferum, Cynodon dactylon*.

On the continental sands, but also on salt lands from all over the country, appear vegetal communties edifieds by species:

- communities edifieds by *Camphorosma annua* with *Puccinellia limosa, Juncus gerardi, Plantago maritima, P. tenuiflora, Taraxacum bessarabicum, Suaeda maritima, Spergularia maritima, Crypsis aculeatus, Artemisia santonicum.*
- *Petrosimonia triandra*, on the upper floor, about 35 cm high, along with: *Artemisia santonicum, Puccinellia distans, Limonium gmelini, Atriplex littoralis, Bassia sedoides* and *Halimione verrucifera, Lepidium ruderale, Spergularia maritima, Myosurus minimus în etajul inferior.*
- pe solonețuri și solonceacuri, cu sărături sulfatice sau carbonatice, la marginea sărăturilor puternice unde solul este permanent umed se dezvoltă pajiști de *Limonium gmelini* în zonele cu exces de umiditate cu *Artemisisa santonicum* ssp. *patens*, pe terenuri cu umiditate mai redusă, alături de *Puccinellia limosa, Aeluropus littoralis, Atriplex hastata, Aster tripolium, Spergularia marina, S. salina, Juncus gerardi.*
- communities edifieds by *Crypsis aculeatus, Heleochloa schoenoides, Spergularia maritima* cu *Aster tripolium* ssp. *pannonicus, Dianthus guttatus, Artemisia santonicum, Juncus gerardi, Cynodon dactylon, Taraxacum bessarabicum, Trifolium fragiferum, Spergularia maritima.*
- communities edifieds by *Nitraria schoberi, Artemisia (maritima) santonicum, Festuca pseudovina* cu *Halimione verrucifera, Taraxacum bessarabicum, Carex distans, Camphorosma annua, Puccinellia limosa, Lepidium latifolium, Bupleurum tenuissimum, Aster tripolium, Limonium gmelini, Scorzonera cana, Spergularia maritima, S. salina, Trifolium angulatum, Lepidium ruderale.*
- meadows dominante by *Beckmannia eruciformis* with *Oenanthe silaifolia, Alisma lanceolatum, Mentha pulegium, Gratiola officinalis, Eleocharis palustris, Carex praecox, Lysimachia nummularia, Agrostis stolonifera, Alopecurus geniculatus, Ranunculus lateriflorus*.
- communities edifieds by *Cynodon dactylon, Ranunculus sardous, Trifolium fragiferum* with *Lolium perenne, Juncus gerardii, Puccinellia limosa, Aster tripolium, Gypsophila muralis, Ranunculus sardous, Consolida regalis, Atriplex hastata, Anthemis austriaca, Spergularia maritima, Taraxacum bessarabicum, Polygonum aviculare, Spergularia rubra, Trifolium arvense, Plantago major.*
- communities edifieds by *Heleochloa schoenoides, H. alopecuroides* and *Artemisisa santonicum* with: *Spergularia maritima,, Aeluropus littoralis, Lepidium ruderale, Lotus tenuis, Taraxacum bessarabicum, Cerastium dubium, Puccinellia distans, Limonium gmelini, Aster tripolium, Juncus gerardi, Atriplex littoralis, Aster sedifolius, Bupleurum tenuissimum.*
- communities edifieds by *Pholiurus pannonicus* și *Plantago tenuiflora, cu Hordeum marinum, Myosurus minimus, Cerastium dubium, Gypsophila muralis, Zingeria pisidica,Puccinellia distans, Alopecurus pratensis, Artemisia santonicum, Limonium gmelini, Juncus gerardi, Beckmannia eruciformis.*
- communities edifieds by *Agropyron elongatum, Puccinellia distans* și *Artemisia santonicum* cu *Juncus gerardi, Agropyron repens, Atriplex littoralis, Camphorosma annua, Halimione verrucifera, Bupleurum tenuissimum, Salicornia prostrata, Suaeda maritima, Taraxacum bessarabicum, Heleochloa alopecuroides, Spergularia maritima, Trifolium fragiferum.*

- communities developed on soils rich in salt and edificateds by *Salicornia prostrata, Suaeda maritima, Bassia hirsuta,* with *Aster tripolium ssp. pannonicus, Salsola soda, Puccinellia limosa, Halimione (Obione) pedunculata, Spergularia salina, S. maritima, Cryspis aculeatus, Aeluropus littoralis.*
- communities edifieds by *Halimione verrucifera, Artemisia santonicum, Puccinellia limosa,* together with *Camphorosma annua, Petrosimonia triandra, Aster tripolium, Limonium gmelini, Juncus gerardi, Achillea setacea.*
- communities edifieds by *Lepidium crassifolium* and *Puccinellia limosa,* with species: *Camphorosma annua, Agropyron elongatum, Dianthus guttatus, Juncus gerardii, Kochia prostrata, Erysimum repandum, Spergularia maritima, S. salina, Lotus tenuis, Pholiurus pannonicus, Plantago tenuiflora, Trifolium fragiferum, Halimione pedunculata, Hordeum hystrix, Cynodon dactylon, Centaurium pulchellum.*
- communities edifieds by *Puccinellia limosa* și *Plantago maritima* together with *P. convoluta, Aeluropus littoralis, Halimione pedunculata, Taraxacum bessarabicum, Carex distans, Atriplex littoralis, Spergularia salina, S. maritima, Cryspis aculeatus, Scorzonera parviflora.*
- *Agropyron elongatum, Bolboschoenus maritimus, Puccinellia limosa, P. convoluta, Aster tripolium, Artemisia santonicum, Limonium gmelini, L. meyeri.* The middle layer is dominated by *Aeluropus littoralis, Halimione pedunculata, Plantago maritima, Scorzonera parviflora,* at *Sulina* and *Sf. Gheorghe* is growing abundantly *Plantago coronopus.* At the soil level the species are spread *: Spergularia maritima, S. salina, Salicornia prostrata etc.*
- communities that have characteristic species on *Leuzea altaica* and *Scorzonera austriaca var. mucronata* together with *Lepidium latifolium, Peucedanum latifolium, Aster tripolium ssp. pannonicum, Oenanthe silaifolia, Puccinellia limosa, Agropyron elongatum, Carex distans, Juncus gerardi, Festuca pseudovina,, Taraxacum bessarabicum, Hordeum histrix, Scorzonera cana, Plantago schwarzenbergiana, Lotus tenuis.*
- communities edifieds by *Iris halofila, Scorzonera cana* and *Taraxacum bessarabicum* together with *Puccinellia limosa, Camphorosma annua, Limonium gmelini, Artemisia santonicum, Daucus carota, Achillea setacea, Carex extensa, Plantago tenuiflora, Bassia sedoides, Trifolium fragiferum, Cerastium dubium,, Poa pratensis, Plantago media, Lamium amplexicaule, Bromus commutatus, Dactylis glomerata, Rorippa sylvestris, Festuca pratensis, Agrostis stolonifera.*
- meadows *Juncus gerardi* and *Puccinellia distans* as dominant species together with *J. compressus, Crypsis aculeata, Suaeda maritima, Carex distans, C. divisa, Cyperus (Acorellus) pannonicus, Hordeum marinum, Crypsis aculeata, Spergularia salina, S. maritima, Taraxacum bessarabicum, Lotus tenuis, Trifolium fragiferum.*
- *Triglochin pannonicus and Aster tripolium ssp. Pannonicum* as dominant species with, *Artemisia santonicum, Acorellus pannonicus, Puccinellia distans, P. limosa, Camphorosma annua, Juncus gerardi, Scorzonera parviflora, Spergularia maritima, Suaeda maritima, Taraxacum bessarabicum, Trifolium fragiferum.*
- communities edifieds by *Acorellus pannonicus* and *Crypsis aculeata* with *Chenopodium glaucum, Salicornia europaea* (glasswort), *Sueda maritima, Bassia sedoides, Bolboschoenus maritimus, Rumex maritimus, Polygonum amphibium,* and *Eleocharis parvula*, rare species in the flora of the country. – meadows of *Hordeum marinum* as dominant species with: *Taraxacum*

bessarabicum, Pholiurus pannonicus, Myosurus minimus, Lotus tenuis, Plantago tenuiflora, Cerastium dubium, Trifolium ornithopodioides, Spergularia maritima, Trifolium fragiferum, T. retusum, Artemisia santonicum, Carex distans, Puccinellia distans, P. limosa, Atriplex littoralis, Aster tripolium, Limonium gmelini, Scorzonera cana, Juncus gerardi, Festuca pseudovina, Alopecurus pratensis, Cynodon dactylon, Poa bulbosa, Atriplex tatarica.

- meadows edifieds by *Hordeum hystrix* with *Puccinelia limosa* together with *Pholiurus pannonicus, Cerastium dubium, Gypsophila muralis, Scleranthus annuus, Trifolium parviflorum, Camomilla recutita, Scorzonera cana, Plantago tenuiflora, Lepidium ruderale, Trifolium retusum, Alopecurus pratensis, Lolium perenne, Limonium gmelini, Bromus hordeaceus, Achillea collina.*
- halophilic meadows edifieds by *Festuca pseudovina, Peucedanum officinale, Artemisia santonicum ssp. patens, Achillea setacea, Limonium gmelini* together with *Ranunculus pedatus, Lotus angustissimus, Trifolium striatum, Bupleurum tenuissimum, Trifolium angulatum, Plantago schwerzenbergiana, Rorippa kerneri, Trifolium fragiferum, Hordeum hystrix, Taraxacum bessarabicum.*
- meadows edified by *Festuca pseudovina, Achillea setaceea* and *Artemisia santonicum*, (on pastures between Braila and Galati, *Artemisia pontica* dominates), *Achillea collina, Trifolium strictum, Puccinellia limosa, Scorzonera cana, Petrosimonia triandra, Gypsophila muralis, Arenaria serpyllifolia, Lotus tenuis, Erodium cicutarium, Nitraria schoberi* (only to Muddy Volcanoes-Berca), *Plantago schwarzenbergiana, P. cornuti.*
- meadows edifieds by *Aster sedifolius, Peucedanum officinale* and *Festuca pseudovina* together with *Aster linosyris, Scorzonera cana, Bupleurum tenuissimum,, Achillea collina.*

Dominant species are numerous and have been mentioned in the description of habitats. Among the most common in this type of habitat are the following:

Acorellus pannonicus – Family: *Cyperaceae*. Perennial herbaceous plant, of 10-30 cm long, lamina without ligule, of 1-3 mm wide, lax spikelets over 5 mm long, 2 stigmas

Artemisia santonicum – Family: *Asteraceae*. Perennial herbaceous plant, of 20-60 cm, with stems and leaves almost glabrous at flowering, stem divided leaves with lobes up to 8 mm long, calathids grouped peniculiforma, all flowers are hermaphrodite and fertile.

Camphorosma anuua – Family: *Chenopodiaceae*. Annual plant, with camphor smell, of 5-40 cm with linear-subulbate leaves.

Carex divisa, Carex distans – Family:*Cyperaceae*. Herbaceous, perennial plants, of 20-60 cm, *C. divisa* – plant with long creeping rhizomes, nerved utricle over the whole length, suddenly narrowed into a long rostrum. *C. distans* – densely cespitous plant, the female flowers glumes with a very narrow, membranous edge, a brown-green utricle

Festuca pulchra (F. pseudovina)- Family: *Poaceae*., Herbaceous, perennial plants, of 20-35 cm with leaves of 0,3-0,6 mm thickness, panicule of2-4 cm, spikelets of 4,5-5,5 mm length,with 4-5 flowers, lemma ovate-lanceolate, awn up to one-third of the length of the lemma.

Halimione verrucifera – Family: *Chenopodiaceae*. Subshrub, of 20-80 cm, glabrous plant, sessile fruits covered by bracteoles of approx. 2 mm, suborbicular and verrucous.

Hordeum marinum, Hordeum geniculatum (H. hystrix) are annual herbaceous plants from *Poaceae* family, of 10-40 cm high. *H. marinum* has the sheaths of the inferior leaves glabrous or with very short, and glumes of the lateral spikelets different like shape, and *H. geniculatum* has the sheaths of the inferior leaves with bristles of 0.5- 1mm and the glumes of the lateral spikelets conforme, subulat aristiforme.

Juncus littoralis, Juncus maritimus, Juncus gerardi are perennial herbaceous plants from *Juncaceae* family, with alternate leaves, formed from the sheath and the limb, glabrous leaves, open sheaths, hermaphrodite flowers, actinomorphs, on type 3, grouped in cymoese inflorescences, capuse ith numerous seeds. *J. gerardi* has 10-30 cm high, cylindrical stem, tepals almost as long as the length of the capsule. *J. maritimus* has 50-80 cm high, with creeping rhizom , stem of 1.5-2 mm in diameter, with leaves only at the base, cylindrical leaves, leaves and bractee with very rigid tip, pungent, unequal tepals, shorter interior ones, , elliptic, obtuse, the outer ones acute. *J. littoralish* has 60-100 cm high, frequently cepitoase, stem of 2-4 mm in diameter, longer interior tepals.

Limonium meyeri, L. gmelini – Family: *Plumbaginaceae*. Herbaceous, perennial plants, of 20-60 cm, leaves in basal rosettes, filiform stigmate, pennate leaves, glabrous *L. meyeri* presents lax spikelets with 1-2 flowers that barely touching. *L. gmelini* spikelets with dense flowers grouped by 2 superimposed spikelets.

Plantago maritima – Family: *Plantaginaceae*. Herbaceous, perennial plants, of 15-45 cm, scapiform stem, unbranched, rosettes of basal leaves, whole, hermaphrodite flowers grouped in spike, hairy corolla tube, ovate, short, setulos ciliate.

Puccinellia limosa, Puccinellia distans – Family: *Poaceae*. Herbaceous, perennial plants, of 15-50 cm, Pyramidal multilateral panic with horizontal branches at flowering, hairy lemma at base. *P. distans* presente flat leaves of 1-3 mm wide, spikelets with 3-6 flowers. *P. limosa* has leaves conduplicate convolute of 0,5-0,8 mm wide, spikelets with 5-7 flowers.

Salicornia prostrata – Family: *Chenopodiaceae*. Herbaceous, annual plants, of 10-40 cm, stems and articulated branches, rudimentary leaves, the branches finished in inflorescence, the plant produces anthocyanins and becomes reddish in fructification.

Spergularia maritima – Family: *Caryophyllaceae*. Perennial herbaceous plants, of 5-40 cm, subulbate linear leaves, capsule of 7-9 mm, longer than calyx, winged seeds.

Triglochin maritima – Family: *Juncaginaceae*. Perennial plants, of 10-60 cm, rizom nestolonifer, basal leaves, alternante, linear, sepaloid perianth with 6 free tepals.

Correspondeces

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1501 Western-Pontic communities with *Juncus and J. littoralis*	E6.222 Western Pontic saline meadows	1410 Mediterranean salt meadows (Juncetalia maritimi)	High

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1502 Western-Pontic communities with *Halocnemum strobilaceum* and *Frankenia hirsuta*	E6.225 Western Pontic salt scrubs	1530 * Pannonic salt steppes and salt marshes	High
R1503 Western-Pontic meadows of *Aeluropus littoralis* and *Puccinellia limosa*	E6.2231 Western Pontic (*Puccinellia*) solonetz swards	1530 * Pannonic salt steppes and salt marshes	Moderate
R1504 Western-Pontic meadows of *Limonium meyeri, Aeluropus littoralis* and *Limonium gmelini*	E6.222 Western Pontic saline meadows	1530 * Pannonic salt steppes and salt marshes	High
R1505 Western-Pontic meadows of *Carex divisa*	E6.2225 Western Pontic divided sedge saline meadows	1530 * Pannonic salt steppes and salt marshes	Moderate
R1506 Western-Pontic meadows of *Festuca arundinacea* ssp. *orientalis* and *Carex distans*	E6.2275 Sarmatic (*Carex distans*) saline meadows	1530 * Pannonic salt steppes and salt marshes	Moderate
R1507 Ponto-Sarmatic meadows of *Carex distans, Taraxacum bessarabicum* and *Aster tripolium* ssp. *pannonicum*	E6.2275 Sarmatic (*Carex distans*) saline meadows	1530 * Pannonic salt steppes and salt marshes	Moderate
R1508 Western-Pontic meadows of *Camphorosma annua* and *Kochia laniflora*	E6.2232 Western Pontic (*Camphorosma annua*) hollows	1530 * Pannonic salt steppes and salt marshes	High
R1509 Western-Pontic meadows with *Petrosimonia triandra* and *Artemisia santonicum*	E6.2213 (*Petrosimonia*) – (*Artemisia*) salt steppes	1530 * Pannonic salt steppes and salt marshes	High
R1510 Western-Pontic meadows with *Limonium gmelini* and *Artemisia santonicum*	E6.2215 Western Pontic (*Limonium*)-(*Artemisia*) salt steppes	1530 * Pannonic salt steppes and salt marshes	High

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1511 Western-Pontic meadows with *Crypsis aculeata*	E6.23 Central Eurasian solonchak grassland dominated by *Crypsis*	1310 Salicornia and other annuals colonising mud and sand	Moderate
R1512 Western-Pontic meadows with *Nitraria schoberi* and *Artemisia santonicum*	E6.225 Western Pontic salt scrubs	1530 * Pannonic salt steppes and salt marshes	Very high
R1513 Western-Pontic meadows of *Beckmannia eruciformis* and *Zingeria pisidica*	E6.2271 Sarmatic *Beckmannia eruciformis* saline meadows	1530 * Pannonic salt steppes and salt marshes	High
R1514 Western-Pontic meadows with *Trifolium fragiferum, Cynodon dactylon* and *Ranunculus sardous*	E6.222 Western Pontic saline meadows	1530 * Pannonic salt steppes and salt marshes	Low
R1515 Western-Pontic meadows with *Heleochloa schoenoides*	E6.2 Continental inland salt steppes	1310 Salicornia and other annuals colonising mud and sand	Moderate
R1516 Western-Pontic meadows with *Pholiurus pannonicus* and *Plantago tenuiflora*	E6.2234 West Pontic *Pholiurus-Plantago* hollows	1530 * Pannonic salt steppes and salt marshes	High
R1517 Western-Pontic meadows of *Agropyron elongatum*	E6.222 Western Pontic saline meadows	1530 * Pannonic salt steppes and salt marshes	Moderate-High
R1518 Ponto-Sarmatic meadows with *Salicornia* (*europaea*) *prostrata* and *Suaeda maritima*	E6.224 Western Pontic solonchak communities	1310 Salicornia and other annuals colonising mud and sand	High
R1519 Ponto-Sarmatic meadows with *Halimione* (*Obione*) *verrucifera*	E6.225 Western Pontic salt scrubs	1530 * Pannonic salt steppes and salt marshes	High

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1520 Ponto-Sarmatic meadows with *Lepidium crassifolium* and *Puccinellia limosa*	E6.2231 Western Pontic (*Puccinellia*) solonetz swards	1530 * Pannonic salt steppes and salt marshes	High
R1521 Ponto-sarmatic meadows with *Puccinellia limosa* and *Plantago maritima*	E6.2231 Western Pontic (*Puccinellia*) solonetz swards	1530 * Pannonic salt steppes and salt marshes	High
R1522 Ponto-sarmatic meadows with *Plantago maritima* and *Limonium gmelini*	E6.222 Western Pontic saline meadows	1530 * Pannonic salt steppes and salt marshes	High
R1523 Ponto-sarmatic meadows with *Leuzea* (*salina*) *altaica, Scorzonera austriaca* var. *mucronata* and *Lepidium latifolium*	E6.2272 Sarmatic *Leuzeaaltaica* saline meadows	1530 * Pannonic salt steppes and salt marshes	High
R1524 Ponto-sarmatic meadows with *Iris halofila*	E6.2273 Sarmatic *Iris halophila* saline meadows	1530 * Pannonic salt steppes and salt marshes	High
R1525 Ponto-Sarmatic meadows of *Juncus gerardii*	E6.2274 Sarmatic *Juncus gerardii* saline meadows	1530 * Pannonic salt steppes and salt marshes	High
R1526 Ponto-Sarmatic meadows with *Triglochin maritima, Aster tripolium* ssp. *pannonicum, Scorzonera parviflora* and *Peucedanum latifolium*	E6.2225 Western Pontic divided sedge saline meadows	1530 * Pannonic salt steppes and salt marshes	High
R1527 Ponto-pannonic communities with *Acorellus pannonicus*	E6.231 Ponto-Pannonic *Acorellus* communities	1310 Salicornia and other annuals colonising mud and sand	Moderate
R1528 Pontic meadows of *Hordeum marinum*	E6.222 Western Pontic saline meadows	1310 Salicornia and other annuals colonising mud and sand	Moderate

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R1529 Ponto-pannoniac meadows of *Hordeum hystrix*	E6.2235 Western Pontic *Hordeum hystrix* swards	1530 * Pannonic salt steppes and salt marshes	Moderate
R1530 Ponto-pannoniac meadows of *Festuca pseudovina, Peucedanum officinale* and *Artemisia santonicum* ssp. *patens*	E6.2211 Western Pontic *Achillea-Festuca* steppes	1530 * Pannonic salt steppes and salt marshes	Moderate
R1531 Ponto-pannoniac meadows of *Festuca pseudovina* and *Achillea collina*	E6.2211 Western Pontic *Achillea-Festuca* steppes	1530 * Pannonic salt steppes and salt marshes	High
R1532 Dacian communities poorly halophilic with *Aster sedifolius* and *Peucedanum officinale*	E6.2214 Western Pontic *Peucedanum-Festuca* salt steppes	1530 * Pannonic salt steppes and salt marshes	High
R1533 Ponto-Mediterranean meadows of *Polypogon monspeliensis*	E6.222 Western Pontic saline meadows	-	High

Figure 103 *Halimione verrucifera*– Amara Pond (Buzău County) (foto: Roxana Ion)

Figure 104 *Centaurium* sp. - Amara Pond (Buzău County) (foto: Roxana Ion)

Figure 105 *Salicornia europaea* - Amara Pond (Buzău County) (foto: Roxana Ion)

Figure 106 *Halimione verrucifera, Camphorosma annua*– Strachina Lake (Ialomița County) (foto: Roxana Ion)

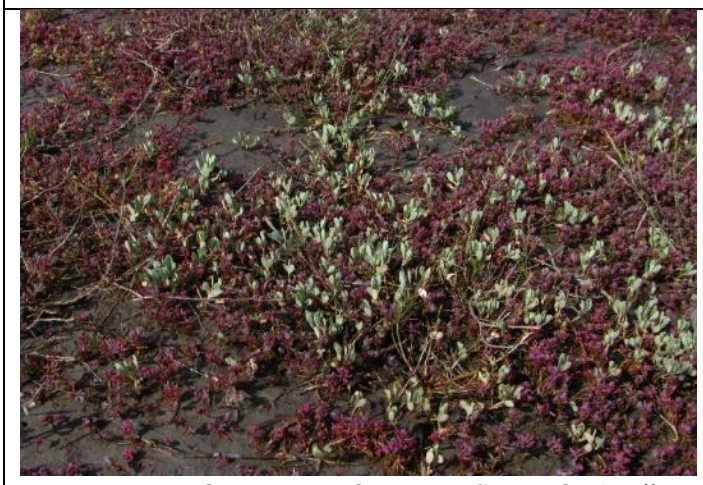


Figure 107 *Halimione Camphorosma* – Sărat Lake (Brăila County) (foto: Roxana Ion)

Figure 108 *Camphorosma annua* – Sărat Lake (Brăila County) (foto: Roxana Ion)

Figure 109 *Limonium gmelinii, Artemisia santonicum* – Movila Miresii (Brăila County) (foto: Roxana Ion)

Figure 111 *Halimione verrucifera, Artemisia santonicum* – Mud volcanoes (Buzău County) (foto: Roxana Ion)

Figure 110 *Nitraria schoberi* - Mud volcanoes (Buzău County) (foto: Roxana Ion)

Figure 112 *Limonium gmelinii* - Mud volcanoes (Buzău County) (foto: Roxana Ion)

Figure *113 Sueda maritima* – Vadu (Constanța County)

Figure 114 *Salicornia europaea* - Vadu (Constanța County)

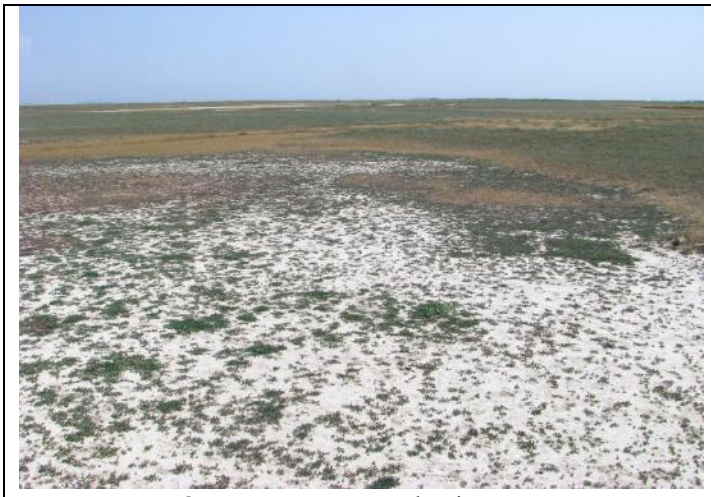
Figure 115*Limonium* sp. - Grădiceri (Arad County)

Habitat E6.2 – Amara Pond, Buzău County

Habitat E6.2 – Strachina Lake, Ialomița County

Habitat E6.2 – Gura Ialomiței, Ialomița County

Habitat E6.2 – Luciu, Ialomița County



Habitat E6.2 – Luciu, Ialomița County

Habitat E6.2 – Lutul Alb Lake, Brăila County

Habitat E6.2 – Sărat Lake, Brăila County

Habitat E6.2 – Mud Volcanoes Buzău County

Habitat E6.2 – Grăniceri, Arad County

Habitat E6.2 – Vadu,Constanța County

Figure 116 General aspect of the habitat E6.2 (foto: Roxana Ion)

F2.1 Subarctic and alpine dwarf willow scrub

Distribution: Eastern Carpathians, Southern Carpathians, on the alpine floor.

Habitat structure: This type of habitat is characterized by the presence of arcto-alpine and circumpolar species, chino-hygrophiles in areas where the snow is staying for a longer period of time. Edifieds species are represented by small, creeping willow species (*Salix herbacea, S. retusa, S. reticulata, S. kitaibeliana*). The accompanying species are not many in number, have a height of maximum 20 cm and provide a coverage of 40 to 100%. *Salixkitaibeliana* is an endemic species in Carpathians, and in association with *Soldanella hungarica* and *Soldanella pusilla* form an endemic ensemble, the first in Rodnei Mountains, the second in the Southern Carpathians. Characteristic species: *Salix herbacea, S. retusa, S. reticulata,Saxifraga oppositifolia, Achillea schurii, Soldanella pusilla,Soldanella hungarica.* Floral composition: *Juncus trifidus, Festuca supina, Agrostis rupestris*. Other important species: *Polytrichum sexangulare, Poa supina, Luzula alpinopilosa, Gnaphalium supinum, Ranunculus crenatus, Kiaeria starkei, Plantago gentianoides, Chrysanthemum alpinum, Sedum alpestre, Cerastium cerastoides, Veronica alpina, Primula minima, Kobresia myosuroides, Minuartia sedoides, Lophozia wentzelii, Carex curvula,Sesleria rigida ssp. haynaldiana, Bartsia alpina, Anemone narcissiflora, Carex sempervirens, Festuca supina, Polygonum viviparum, Armeria alpina, Silene acaulis, Saxifraga aizoides, Saxifraga androsacea, Saxifraga paniculata, Rhododendron myrtifolium, Pedicularis oederi, Viola alpina, Dryas octopetala, Anemone narcissiflora, Lloydia serotina, Sedum alpestre, Draba fladnitzensis, Sesleria rigida ssp. haynaldiana, Carex sempervirens, Oreochloa disticha, Avenula versicolor, Carex atrata, Campanula alpina, Rhodiola rosea, Saxifraga androsacea, Silene nivalis, Doronicum clusii, Veronica baumgartenii, Saxifraga carpathica, Saxifraga pedemontana ssp. cymosa, Anthemis carpatica, Avenula versicolor, Campanula alpina, Ranunculus oreophilus, Myosotis alpestris, Carex atrata, Polytrichum alpinum, Rhitidiadelphus triquetrus.*
The habitat structure also has a large number of endemic species: *Salix kitaibeliana, Soldanella hungarica ssp. hungarica, Poa granitica* ssp. *disparilis, Silene nivalis, Achillea schurii, Cerastium transsilvanicum, Dianthus gelidus.*

Dominant species:
The Species of dwarf willow that make up this type of habitat are part of *Salicaceae* family. They are perennial, subshrubs species up to 30 cm high.
Salix herbacea. is a dwarf shrub (2-5 cm) with most of the stems buried below the ground. The leaves are elliptical-suborbicular, with a rounded base.
S. retusa has short stems and branches, creeping, leaves are elliptical with emarginate tip.
S. reticulata presents elliptical-suborbicular leaves, the tip and the base are rounded, the upper face is dark green, rough, the lower bluish-green with prominent veins.
S. kitaibeliana has ascending stems, the leaves are inversely ovate, acute and serrated to the top.
Soldanella hungarica, Soldanella pusilla are part of *Primulaceae family*. They are perennial species that differ on the basis of the leaf characters, scape, capsule, etc.

S. pusilla prezintă scape uniflor, narrow leaf lamina (5-8 mm), stil closed in the corolla , capsule with 5 teeth. ***S. hungarica*** has lamina over 15 mm wide, multiflor scape, petioles with glandular bristles.

Correspondences

Romanian habitats	EUNIS Habitats	Natura 2000 habitats	Conservative value
R3615 Southeast Carpathian dwarfs bushes of alpine willows (*Salix herbacea*)	F2.111 Alpic acid dwarf willow snow patch communities	6150 Siliceous alpine and boreal grasslands	High
R3616 Dwarfs bushes of alpine willows (*Salix retusa, S. reticulata*)	F2.12111 Alpide (Salix reticulata-retusa)snowbed communities	6170 Alpine and subalpine calcareous grasslands	High
R3618 Southeast Carpathian dwarfs bushes of endemic willows (*Salix kitaibeliana*) with (*Soldanella hungarica*)	F2.12112 Carpathian (*Salix kitaibeliana*) snowbed communities	6170 Alpine and subalpine calcareous grasslands	Very high
R3619 Southeast Carpathian dwarfs bushes of endemic willows (*Salix kitaibeliana*) with (*Soldanella pusilla*)	F2.1211 Alpic espalier willow snowbed communities	6170 Alpine and subalpine calcareous grasslands	Very high

Figure 117 *Salix* sp. – Bucegi Mountains (foto: Roxana Ion)

Figure 118 *Salix retusa* – Bucegi Mountains (foto: Roxana Ion)

Figure 119 *Salix reticulata* – Făgăraș Mountains (foto: Roxana Ion)

Figure 120 *Salix retusa* – Făgăraș Mountains (foto: Roxana Ion)

Figure 121 *Salix reticulata* – Făgăraș Mountains (foto: Roxana Ion)

Figure 122 General aspect of the habitat F2.1 in Făgăraș Mountains (foto: Roxana Ion)

Figure 123 General aspect of the habitat F2.1 – Retezat Mountains (foto: Roxana Ion)

Figure 124 General aspect of the habitat– Parâng Mountains (foto: Roxana Ion**)**

F2.2 Evergreen alpine and subalpine heath and scrub

Distribution: Eastern Carpathians (Maramureșului Mountains, Rodnei Mountains, Călimani Mountains, Bistriței Mountains, Piatra Mare Mountains, Postăvarul Mountain) and Southern Carpathians (Piatra Craiului Mountains, Bucegi Mountains, Sebeșului Mountains, Retezat Mountains, Făgăraș Mountains, Parâng Mountains, Iezer-Păpușa Mountains, Căpățânii Mountains, Oltețului Valley, Țarcu Moutains, Godeanu Mountains, Cernei Mountains, Semenic Mountains), in alpine and subalpine floor. The Western Carpathians appear in the Trascau Mountains, the Great Mountain, Scariţa-Belioara, Râmeţ.

Habitat structure: The habitat represents dwafs thickets. These are from oligoterms to mezoterms and from acidophiles to chalcophile. The common factor of all Romanian habitat types falling within this EUNIS habitat is the dominance of shorter alpine and subalpine thickets.
It can be noticed two main categories of habitats: those represented by alpine, circumpolar and boreal species generally oligoterms and oligotrophs and those represented by Eurasian and European species, mesotherms. The first category includes the following types of habitats:
Alpine dwarfs bushes (over 1700 m), represented by oligoterm, xerophilic, oligotrophic, acidophilic species (dominated by azalee *Loiseleuria procumbens*) or chalcophile (dominated by mountain avens-*Dryas octopetala*.The main layer is reduced to about 10 cm, the dominant species stretching near the soil or the cliffs. The layer of herbs rises above it to 10-15 cm, being dominated by *Festuca supina, Nardus stricta, Agrostis rupestris, Sesleria coerulans, Poa molinerii ssp. glacialis.* Also appear *Potentilla ternata, Campanula alpina, Phyteuma confusum, Hieracium alpinum, Geum montanum, Ligusticum mutellina, Primula minima Achillea schurii, Polygonum viviparum, Leontodon montanus ssp. pseudotaraxacii, Pedicularis verticillata, Ranunculus oreophilus, Saxifraga aizoides*. The layer of moss and lichens is dominated by *Cetraria islandica* and *Thamnolia vermicularis* which rises to 5 cm. Phytocenosis coverage is variable, between 35-85%.
Southeast carpathian dwarfs bushes of (*Rhododendron myrtifolium*) are expanding as secondary vegetation in deforested spruce and pine forests and degraded alpine meadows consisting of alpine, circumpolar and boreal species, ecological being oligoterms, meso-xerophiles, moderate to strongly acidophilic. The subshrub layer is dominated by *Rhododendron myrtifolium* (Rh. kotschy), *Vaccinium myrtillus, Vaccinium vitis-idaea, Vaccinium gaultherioides*. The height of the layer is 20-40 cm. Coverage 80-100%. The layer of the herbs is not distinct, intertwines with the subshrub layer being dominat by species *Nardus stricta, Anthoxanthum odoratum, Luzula luzuloides.* The moss layer rises to 5 cm high, being represented by species *Dicranum scoparium, Hylocomyum splendens, Polytrichum juniperinum*. At this level there are also some of dicotyledonous species, such as: *Potentilla ternata, Homogyne alpina, Geum montanum*. *Loiseleuria procumbens* appears only as a companion species.
Thickets of spike heath (*Bruckenthalia spiculifolia*) and juniper (*Juniperus sibirica*) may be dominated by one of the two species, depending on the resort, although both species are always present. Phytocoenosis is edified by arcto-alpine and circumpolar species to a large extent, with ecological requirements. The shrub layer has a majority coverage of over 80%.*Bruckenthalia,*

being heliophilous, dominates the southern part of the thickets formed by *Juniperus sibirica* and is missing from the shady areas. The *Juniperus* layer rises to 50 cm while the *Bruckenthalia* remains at 15-20 cm. Can appear sporadically and *Pinus mugo, Alnus viridis, Betula pendula, Pinus cembra, Picea abies*. Other dominant species are *Vaccinium myrtillus, Vaccinium vitis-idaea.* In the grassy layer appears *Nardus stricta, Geum montanum,eschampsia caespitosa, Luzula sylvatica, Luzula luzuloides, Festuca supina.* The presence of alpine species is noted (*Vaccinium gaultherioides, Festuca supina, Potentilla ternata*). The moss layer is made up of: *Dicranum scoparium, Hylocomium splendens, Polytrichum juniperinum, Pleurozium schreberii.*
Another type of habitat is represented by thickets of bilberry (*Vaccinium gaultherioides, asociată cu Vaccinium myrtillus, Vaccinium vitis-idaea*), which can be associated with **crowberry** (*Empetrum hermaphroditum*), that appears in wet places. It is represented by oligoterm, acidophilic species. A shrub layer with poorly spread of Juniperus sibirica can also may appear . Characteristic thickets layer, with *Vaccinium gaultherioides, Vaccinium myrtillus, Vaccinium vitis-idaea, Rhododendron myrtifolium* and eventually *Empetrum*, rises to 25-30 cm. *Vaccinium myrtillus* can sometimes be monodominant at the lower altitude limit of some resorts. In this layer may also appear Oreochloa disticha herbs,*Oreochloa disticha, Festuca supina, Agrostis rupestris, Juncus trifidus, Deschampsia flexuosa, Nardus stricta, Luzula luzuloides*. herbs. The lower layer, of 5-10 cm high presents moss species: *Polytrichum alpinum, Polytrichum juniperinum, Dicranum scoparium, Pleurozium schreberii, Hylocomium splendens*, lichens: *Cetraria islandica, Thamnolia vermicularis*, and superior small plants: *Primula minima, Antennaria dioica, Potentilla ternata, Geum montanum.*
In the second category we have habitats dominated by juniperus sabina, which are found at lower altitudes, with the participation of the trees. Are represented by Eurasian species, more numerous southern, with xero-mesophilic elements, thermophilic mezoterms, calcicole-neutrophils. The layer of shrubs is dominated by *Juniperus sabina*, with a coverage of 60-80%. A significant participation also includes *Rhamnus catharticus, Fraxinus ornus, Juniperus communis* and sporadically apper *Picea abies, Larix decidua*. The herb layer is very diverse, dominated by saxic vegetation: *Teucrium chamaedrys, Cytisus nigricans, Carex humilis, Vincetoxicum hirundinaria, Cardaminopsis arenosa, Thymus comosus, Helictotrichon decorum, Sesleria rigida, Asplenium ruta-muraria, Teucrium montanum*.

Dominant species:

Juniperus sibirica is a gimnosperm shrub, dioecious, from *Cupressaceae* family. It is about 50 cm tall with creeping branches, acicular leaves,of 4-8 mm, bent to the spring in whorl of 1-3 mm with unisexual flowers, bluish, spherical cones formed usually of three (occasionally six) fleshy fused scales, each scale with a single seed.

Juniperus sabina is a gymnosperm shrub, dioecious, from *Cupressaceae* family similar to *J. sibirica*, distinguished through the lying stem of up to 3 m in height , scaly leaves, obtuse, about 1 mm long, in whorl of three elements.

Loiseleuria procumbens is a creeping shrub from *Ericaceae* family, of 5-30 cm in height, with whole leaves, simple, without stipels opposite, actinomorphic flowers on type 5, 4-6 mm, with 5 stamens

Rhododendron myrtifolium is a short shrub of 10-50 cm height from *Ericaceae* family, with whole leaves, simple, without stipels alternate, 1-2 cm long and 5-11 mm wide, zigomorphic, large, pink flowers of about 15 mm.

Bruckenthalia spiculifolia is a subshrub from *Ericaceae* family, of 5-30 cm height, with linear, whole, simple leaves, unstipelated, whorls or partially alternante, flower on type 4 persistent, with unified sepals.

***Vaccinium gaultherioides*(*uliginosum*)** is a short shrub of 30-60 cm height from *Ericaceae* family, with whole leaves, simple, unstipelated, with whole edges, obovate, of 15-25 mm, branches without edges, dark blue purple berry.

Vaccinium vitis-idaea is a subshrub of the *Ericaceae* family, of 5-30 cm height, with whole leaves, simple, unstipelated , with whole edges, revolute, with gamopetal corolla, campanulata-urceolata, red berry.

Vaccinium myrtillus is a short shrub (15-50 cm) from *Ericaceae* family, with whole leaves, simple, unstipelated, with serrate edges. It has edge branches and flowers with gamopetal corolla, dark blue – purple berry.

Empetrum hermaphroditum is a dwarf shrub from Familia *Empetraceae*, with persistent leaves, alternate, unstipelated, dense, forming apparent whorls. Small, actinomorphic flowers on type 3, with free hermaphrodite petals and sepals.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3101 Southeast carpathian dwarfs bushes of azalea (*Loiseleuria procumbens*)	F2.211 Alpide dwarf azalea heaths	4060 Alpine and Boreal heaths	High
R3104 Southeast carpathian dwarfs bushes of (*Rhododendron myrtifolium*) with billberry (*Vaccinium myrtillus*)	F2.224 Carpathian *Rhododendron kotschyi* heaths	4060 Alpine and Boreal heaths	High
R3107 Southeast Carpathian carpatice bushes of (*Bruckenthalia spiculifolia*) and (*Juniperus sibirica*)	F2.2632 Carpathian *Bruckenthalia* heaths	4060 Alpine and Boreal heaths	High
R3108 Southeast Carpathian carpatice bushes of (*Juniperus sibirica*)	F2.231 Mountain *Juniperus nana* scrub	4060 Alpine and Boreal heaths	High
R3109 Southeast Carpathian carpatice bushes of (*Empetrum nigrum* ssp. *hermaphroditum*) with (*Vaccinium gaultherioides*)	F2.24 Alpigenic high mountain(Empetrum-Vaccinium) heaths	4060 Alpine and Boreal heaths	Very high

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3111 Southeast Carpathian bushes of billberry (*Vaccinium myrtillus*)	F2.2122 Carpathian dwarf (*Vaccinium*) wind heaths	4060 Alpine and Boreal heaths	Low
R3115 Southeast Carpathian carpatice bushes of (*Juniperus sabina*)	F2.2325 Carpatho – Balkanic *Juniperus sabina* scrub	-	High
R3617 Dwarf bushes (*Dryas octopetala*)	F2.29152 Southeastern Carpathian (*Dryas*) mats	-	High

Figure 125 *Rhododendron myrtifolium* – Piatra Mare Mountains (foto: Roxana Ion)

Figure 126 *Dryas octopelata* –Piatra Mare Mountains (foto: Roxana Ion)

Figure 127 *Rhododendron myrtifolium* –Ciucaș Mountains (foto: Roxana Ion)

Figure 128 *Dryas octopelata* – Ciucaș Mountains (foto: Roxana Ion)

Figure 129*Vaccinium myrtillus* – Ciucaș Mountains (foto: Roxana Ion)

Figure *130Brukentalia spiculifolia*– Ciucaș Mountains (foto: Roxana Ion)

Figure *131Vaccinium myrtillus* – Făgăraș Mountains (foto: Roxana Ion)

Figure 132*Loiseleuria procumbens*– Retezat Mountains (foto: Roxana Ion)

Habitat F2.2 – Ciucaș Mountains (foto: Roxana Ion)

Habitat F2.2 – Ciucaș Mountains(foto: Roxana Ion)

Habitat F2.2 – Ciucaș Mountains (foto: Roxana Ion)

Habitat F2.2 –Făgăraș Mountains (foto: Roxana Ion)

Habitat F2.2 – Scărița-Belioara (Alba-Iulia)(foto: Roxana Ion)

Habitat F2.2 – Parâng Mountains (foto: Roxana Ion)

Figure 133 General aspect of the habitat F2.2 (foto: Roxana Ion)

Habitat F2.2 – Parâng Mountains (foto: Roxana Ion)

Habitat F2.2 – Retezat Mountains (foto: Roxana Ion)

Habitat F2.2 – Retezat Mountains (foto: Roxana Ion)

Habitat F2.2 – Ocolaș (Ceahlău Mountains) (foto: Roxana Ion)

Habitat F2.2 – Ocolaș (Ceahlău Mountains) (foto: Roxana Ion)

Habitat F2.2 – Ocolaș (Ceahlău Mountains) (foto: Roxana Ion)

Figure 134 Habitat F2.2 (foto: Roxana Ion)

Figure 135Habitat F2.2 – Bucegi Mountains (foto: Roxana Ion)

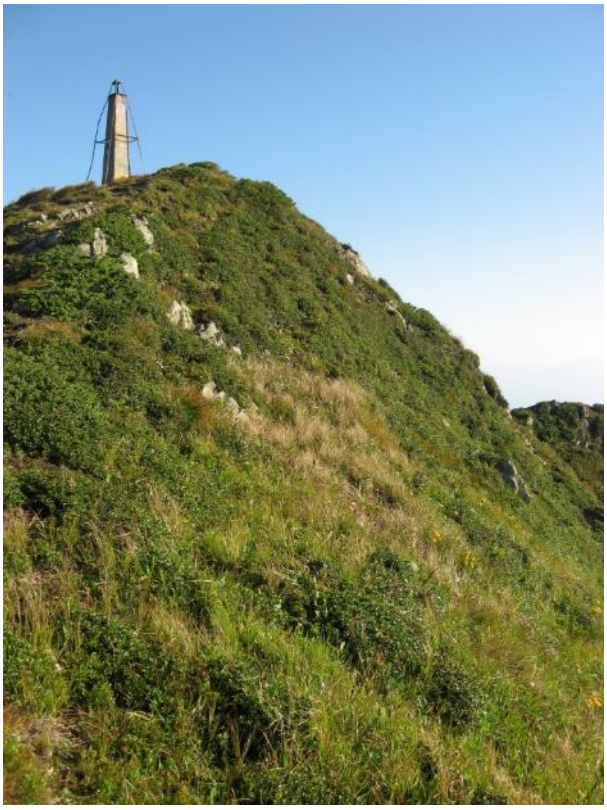


Figure 136 General aspect of the habitat F2.2 –Pop-Ivan Peak, Maramureș County (foto: Roxana Ion**)**

F2.3 Subalpine deciduous scrub

Distribution: Eastern Carpathians, Southern Carpathians (Parâng Mountains, Sebeşului Valley, Tărtărău, Oaşa), Harghita Mountains (Mohoş, Luci).

Habitat structure: This type of habitat is characterized by the dominance of arbustic species as *Salix hastata, S. bicolor, Alnus viridis* and trees like *Betula pubescens*, which make up the upper layer of vegetation in mountain and subalpine areas, along water courses, bogs, lagging areas of peatlands. In habitats with *S. hastata* the upper layer coverage is 80-100% and the second layer is made of *Trisetum fuscum, Nardus stricta, Festuca supina, Festuca picta* or *Calamagrostis villosa;* in oligotrophic bogs the dominant species *Salix bicolor* is a relic species, rare in the Romanian Carpathians and forms a thicket in the swamp with a much smaller and sporadic participation of *Salix cinerea*, with a coverage of 60-85% in the lower layer dominates *Agrostis canina, Deschampsia caespitosa, Carex echinata, Nardus stricta, Valeriana simplicifolia* și *Filipendula ulmaria, Scirpus sylvaticus, Cardamine pratensis, Cirsium rivulare, Geum rivale.*, Phytocoenosis with *Alnus viridis* are distributed along mountain brooks and have in the upper layer composition
alongside *A. viridis*, on *Salix silesiaca;* The herb layer is well developed and dominated by high weeds like *Adenostyles alliariae, Doronicum austriacum, Heracleum palmatum, Leucanthemum waldsteinii, Luzula luzuloides, Rubus idaeus, Deschampsia caespitosa, Poa nemoralis, Chaerophyllum hirsutum, Rumex alpestris.* The bogs of hairy birch (*Betula pubescens*) conserve a large number of glacial relics. The edifying and dominant species, *Betula pubescens* is often accompanied by *Pinus sylvestris* both reaching a maximum of 6-9 m in height. The subshrub and grassy layer is dominated by *Vaccinium myrtillus, Vaccinium vitis-idaea, Eriophorum vaginatum* together with *Carex canescens, Agrostis canina, Carex rostrata, Juncus effusus, Luzula sylvatica*). The moss layer is dominated by *Polytrichum commune, Polytrichum strictum, Sphagnum centrale, Sphagnum capillifolium, Sphagnum magellanicum*. Other important species: *Calamagrostis villosa, Campanula abietina, Hypericum richeri ssp. grisebachii, Festuca picta, Adenostyles alliariae, Heracleum palmatum, Aconitum tauricum, Achillea distans, Leucanthemum waldsteinii, Rumex alpestris, Veratrum album, Chaerophyllum hirsutum, Senecio subalpinus, Geranium sylvaticum, Viola biflora, Nardus stricta, Festuca supina. Specii endemice: Trisetum fuscum, Heracleum carpaticum, Agrostis canina, Eriophorum vaginatum, Luzula sudetica, Sphagnum magellanicum, Valeriana simplicifolia, Pedicularis palustris, Geum rivale, Scirpus sylvaticus, Juncus conglomeratus, Caltha palustris, Polygonum bistorta, Cardamine impatiens, Myosotis scorpioides, Filipendula ulmaria, Galium palustre, Carex rostrata, Epilobium nutans, Cardamine pratensis, Rumex arifolius, Aconitum tauricum, Rosa pendulina, Phleum alpinum, Achillea distans, Leucanthemum waldsteinii, Festuca pratensis ssp. apennina, Aconitum toxicum, Saxifraga heucherifolia, Carduus personatus, Senecio subalpinus, Cirsium waldsteinii, Rumex alpestris, Veratrum album, Senecio nemorensis, Doronicum austriacum, Calamagrostis villosa, Viola biflora, Ranunculus platanifolius, Deschampsia caespitosa, Myosotis sylvatica, Valeriana sambucifolia, Cicerbita alpina, Empetrum nigrum, Luzula sylvatica, Carex rostrata, Cystopteris montana, Dryopteris carthusiana, Juncus effusus,*

Peucedanum palustre, Oxalis acetosella, Sphagnum russowii, Dicranum scoparium, Lepidozia reptans, Tetraphis pellucida.

Dominant species:

Salix hastata – Family: *Salicaceae*. Is a shrub, 50-150 cm high. Has elliptical leaves, with fine serrated edges, unshining branches and leaves.

Salix bicolor – Family: *Salicaceae*. Is a shrub, 50-120 cm high, very similar to *Salix hastata*. It differs from this through the branches and the shiny leaves, elliptical as shape, silky hairy on both sides to youth, then glabrous .

Alnus viridis – Family*: Betulaceae*. High tree about maximun 4 m. The male aments appear with the leaves on shoots of last year, sessile buds.

Betula pubescens – Family*: Betulaceae*. High tree of 2-8 m. Carpathian endemic. Leaves with sharp tip, long over 3 cm, shoots are glabrous at maturity. The wing of the fruit only a little wider than the fruit.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3102 Southeast Carpathian bushes of *Salix hastata*	F2.3215 Hercynio-Carpathian willow brush	4080 Sub-Arctic Salix spp. scrub	High
R3103 Southeast Carpathian bushes of *Salix bicolor*	F2.3215 Hercynio-Carpathian wilow brush	4080 Sub-Arctic Salix spp. scrub	High
R3110 Southeast Carpathian bushes of *Alnus viridis*	F2.3112 Carpathian green alder scrub	4080 Sub-Arctic Salix spp. scrub	
R4414 Southeast Carpathian bushes of *Betula pubescens*	F2.332-Subalpine birch brush	91D0* Bog woodland	Very high

Figure 137*Salix bicolor*– Parâng Mountains (foto: Roxana Ion)

Figure 138*Salix bicolor*– Parâng Mountains (foto: Roxana Ion)

Figure 139 Habitat F2.3 *Salix bicolor* – Câlcesc Lake (Parâng Mountains) (foto: Roxana Ion)

F2.4 Conifer scrub close to the tree limit

Distribution: in all the Carpathians, in the subalpine floor.

Habitat structure: Phytocoenosis with Pinus mugo have a very large spread in all the Romanian Carpathians in the altitude interval 1600-2000 m. The dominant species of the *Pinus mugo* shrub layer has a very high density and coverage of 90-100% with *Alnus viridis, Salix silesiaca, Ribes petraeum, Juniperus sibirica*, which appear sporadically.The lower layeris edified by *Rhododendron myrtifolium*, along of *Vaccinium myrtillus, Deschampsia flexuosa, Homogyne alpina, Luzula luzuloides, Luzula sylvatica, Oxalis acetosella, Calamagrostis villosa,* and provides a coverage of 30-60%, the moss layer is well represented, has a 30-80% coverage and is mainly made of species like *Pleurozium schreberi , Hylocomium splendens, Polytrichum juniperinum, Dicranum scoparium*. Other important species: *Juniperus sibirica, Campanula abietina, Pinus cembra, Salix silesiaca, Ribes petraeum, Vaccinium vitis-idaea, Vaccinium myrtillus, Silene nivalis, Hieracium alpinum, Poa media, Leucanthemum waldsteinii, Cicerbita alpina, Dryopteris carthusiana ssp. dilatata, Melampyrum sylvaticum, Alnus viridis, Picea abies, Sorbus aucuparia, Deschampsia flexuosa, Homogyne alpina, Luzula luzuloides, Luzula sylvatica, Oxalis acetosella, Pleurozium schreberi, Hylocomium splendens, Polytrichum juniperinum, Dicranum scoparium.* Endemic species: *Silene nivalis*

Dominant species:
Pinus mugo (creeping pine) **–** Family: *Pinaceae.* Shrub, up to 3 m high, with numerous creeping stalks and ascending peak. Leaves grouped by 2.
Rhododendron myrtifolium – Family: *Ericaceae*. Shrub, of 10-50 cm high. Alternate leaves. Zigomorphic flowers, large, of intense pink color. Stamens 10.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3105 Southeast Carpathian bushes of creping pine (*Pinus mugo*) with (*Rhododendron myrtifolium*)	F2.46 Carpathian *Pinus mugo* scrub: (-F2.461 Carpathian dwarf subalpine mountain pine scrub; F2.462 Carpathian alpenrose mountain pine scrub)	4070* Bushes with *Pinus mugo* and *Rhododendron myrtifolium*	High

Figure 140*Pinus mugo* – Fagăraș Mountains

Figure 141*Pinus mugo* – Piatra Craiului Mountains

Habitat F2.4 – Bucegi Mountains

Habitat F2.4 – Bucegi Mountains

Habitat F2.4 – Bucegi Mountains

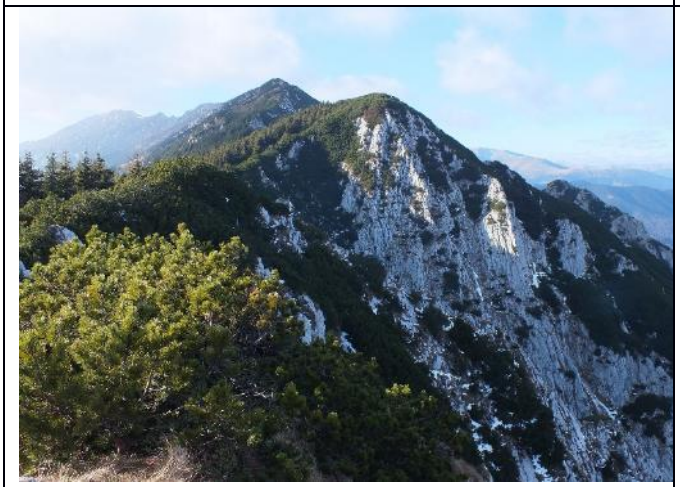
Habitat F2.4 – Prelucele (Retezat Mountains)

Habitat F2.4 – Stănuleți (Retezat Mountains)

Habitat F2.4 – Stănuleți (Retezat Mountains)

Habitat F2.4 – Stănuleți (Retezat Mountains)

Habitat F2.4 – Piule (Retezat Mountains)



Habitat F2.4 – Mica (Piatra Craiului)

Habitat F2.4 – Mija (Parâng Mountains)

Habitat F2.4 – Mija (Parâng Mountains)

Habitat F2.4 – Lala (Rodnei Mountains)

Figure 142 General aspect of the habitat F2.4 (foto: Roxana Ion)

F3.1 Temperate thickets and scrub

Distribution: Eastern Carpathians, Western Carpathians (Cionca - Gilău Mountains, Vlădeasa Mountains), Trascău Mountains- Piatra Pleșoii, beech floor, Bihor Mountains, Muntele Mare, Metaliferi Mountains on the nemoral floor of the beech, Meridional Carpathians, Subcarpathians and Moldavian Plateau, Muntenia , Plateau and Depressions of Transylvania (Țara Oașului), Citadel Hill - Lempeş (Braşov County).

Habitat structure: The habitat is composed of sciafile, heliophilous, saxic, forest, xero-mesophilic species, after the biotop. Is made of two layers, the upper being dominated by arbustic species in various vegetal associations: *Spiraea chamaedryfolia* together of *Lonicera xylosteum, Lonicera nigra, Rosa pendulina, Salix silesiaca, Salix caprea, Corylus avellana* and juveniles from *Betula pendula, Fagus sylvatica, Picea abies;* In the areas where the forest was grubbed is installing *Corylus avellana* dominant accompanied of *Spiraea chamaedryfolia, Fraxinus excelsior, Tilia cordata, Ribes uva-crispa, Rosa pendulina; Corylus avellana dominant* together of *Crataegus monogyna, Rosa canina, Prunus spinosa, Frangula alnus, Alnus glutinosa, Alnus incana, Populus tremula* or *Crataegus monogyna* together with *Rosa canina, Cornus sanguinea, Evonymus verrucosus, Ligustrum vulgare, Viburnum lantana. Prunus spinosa.* On calcareous screes is developed an endemic habitat of a very high conservative value which has a dominant species *Sorbus dacica*, also an endemic, subtermophilic, xerophilic, calciphal species. This is codominat with *Corylus avellana*, but sporadically also can appear individuals like *Fagus sylvatica, Sorbus aucuparia, Acer pseudoplatanus, Atragene alpina.* Thicket heigth reaches up to 5-6 m, and a coverage of 70-100%. The layer of herbs is dominated by *Calamagrostis arundinacea, Poa nemoralis, Angelica sylvestris, Lunaria rediviva, Campanula rapunculoides, Dryopteris robertiana, Polystichum setiferum, Athyrium filix-femina, Dryopteris filix mas, Poa nemoralis, Calamagrostis arundinacea, Festuca rupicola ssp. saxatilis, Brachypodium pinnatum, Asplenium trichomanes* on cliffs, *Athyrium filix-femina, Dryopteris filix-mas, Pulmonaria rubra, Mercurialis perennis, Geranium robertianum, Urtica dioica.* In the deforested areas we meet forest species like *Brachypodium sylvaticum, Poa nemoralis, Melampyrum bihariense, Mellitis grandiflora, Digitalis grandiflora, Salvia glutinosa, Cynanchum vincetoxicum, Aegopodium podagraria*. *Festuca rubra, Agrostis capillaris, Vulpia myuros, Pteridium aquilinum* sometimes with massive development *Rubus idaeus* and *Rubus hirtus*. On calcareous screes with *Sorbus dacica* the grassy layer is dominated by *Carex humilis* together with *Carex digitata, Sesleria rigida, Coronilla varia, Campanula rapunculoides, Iris ruthenica, Valeriana tripteris,Aquilegia nigricans* ssp.*subscaposa, Helictotrichon decorum, Viola joói, Thymus comosus, Sesleria rigida, Aconitum moldavicum, Melampyrum bihariense*. The vegetation cover varies depending on the development of the upper layer and the availability of the habitat 60-100%.

Dominant species:

Spiraea chamaedryfolia (germander meadowsweet) is a shrub from the Rosaceae family. Reaches 2 m high. It has alternate, stipulated leaves, r-elliptic, serrated or dentate, pedunculate,

laterl, simple inflorescence, white flowers, hermaphrodite, petals of 4-6 mm long, gynoecium of multiple carpels, the fruit is a multiple polyachenes.

Corylus avellana (hazel) is a shrub up to 6 m high in the Corylaceae family, with alternate, simple leaves and falling stipellae, unisexual flowers, the males onesin simple amets, the womens one in compound amets, achene fruit accompanied by involucre, ovoid, obtuse buds.

Sorbus dacica is a 2-8 m high shrub tree from *Rosaceae* family, pinnatifid up to pinnatisect leaves, white or gray-tomentose on the interior face, pedicellate flowers, inflorescence is a compound corymb, the inner part of the cartilaginous carpels to fructification.

Corespondences

Romanian habitats	EUNIS habitats	Habitate Natura 2000	Valoare conservativă
R3116 Southeast Carpathian bushes of germander meadowsweet (*Spiraea chamaedryfolia*)	F3.17 *Corylus* thickets	40A0 * Subcontinental peri-Pannonic scrub	Moderate
R3117 Southeast Carpathian bushes of hazel (*Corylus avellana*) with (*Spiraea chamaedryfolia*)	F3.174 Subcontinental hazel thickets	-	High
R3119 Bushes of hazel (*Corylus avellana*)	F3.174 Subcontinental hazel thickets	-	Low
R3121 Ponto-panonic bushes of (*Prunus spinosa*) and (*Evonymus europaeus*)	F3.112 Blackthorn-privet scrub; F3.2472 Ponto- Sarmatic pre-steppe thorn tickets	40A0 * Subcontinental peri-Pannonic scrub	Low
R3125 Southeast Carpathian bushes of *Sorbus dacica*	F3.17 *Corylus* thickets	40A0 * Subcontinental peri-Pannonic scrub	Very high

Figure 143 Prunus spinosa, ***species characteristic of the habitat F3.1 (foto Roxana Ion)***

F3.2 Submediterranean deciduous thickets and brushes

Distribution: Țara Oașului; Plain and Plateaus in Northern and Southern Moldova, Central Moldavian Plateau - (Vaslui-Mânjeşti, Ştefan cel Mare, Tanacu, Crasna); Moldavian Plain - (Iasi-Valea Lungă, Holboca); Subcarpathians of Moldavia Humuleşti (Neamţ County); Suceava Plateau - Campulung Moldovenesc, Rădăuţi Depression. The Moldavian Plateau; Southern Carpathians (Hill of Lempeş Citadel, Valea Prahovei Piciorul Pietrei Arse, on the nemoral floor), Southern Subcarpathian, Transylvanian Plain and Plateau, Transylvania Plateau and intramontan depressions (Ciuc, Covasna, Braşov), Plain and Subcarpathians of Transylvania, Făgăraş Depression, Brasov Depression, Sibiu Depression, in the silvicultural area and the oak forests; North and South Dobrogea Plateau, Casimcea Plateau, South Dobrogea, in the forest steppe, in North Dobrogea, the Babadag Plateau, in the glade of forests of the *Quercus pubescens*, Megidia, Mehedinţi Plateau, Piatra Cloşanilor, in the beech floor, The Arad Plain, Burnaz Plain, in the forest steppe. The Plain of Banat, Arad, in the forest steppe and steppe, The Romanian Plain, in the forest steppe, in areas of oak forest, Găvanu-Burdea Plain, Bărăganul Mostiştei, Western Carpathians on the border between the floor of the oak / beech. Danube Gorge, Olteţ Piedmont, Buzăului Buzăului – Galbenu Plain-; Covurlui Plateau - Murgeni, Zapodeni.

Habitat structure: This habitat comprises various phytocoenosis, mostly made of arbustic species, and of great conservative importance between these:
- phytocoenosis dominated by *Sambucus nigra*; reaches at 6 m high and achieves a 90% coverage The grassy layer is made up of: *Galium odoratum, Helleborus purpurascens, Viola mirabilis, Aegopodium podagraria, Galeopsis tetrahit, Stachys sylvatica, Ballota nigra, Urtica dioica*, with a stratification on a height of 25-60 cm.
- phytocoenosis in which the layer of shrubs is dominated by the species *Prunus spinosa* and *Crataegus monogyna*, installed on the deforested sites, even in the forest steppe, instead of oak forests. Their density is very high, forming an impenetrable thicket with a 100% coverage. Among the accompanying species present: *Jasminum fruticans, Amygdalus nana, Prunus fruticosa, together with Prunus spinosa var. dasyphylla, Evonymus verrucosus, Evonymus europaea, Rosa canina, Cornus sanguinea sau Cornus mas, Rhammus cathartica sau Ligustrum vulgare. Vicia tenuifolia,Bromus inermis, Origanum vulgare, Asparagus verticillata, Festuca valesiaca, Poa angustifolia, Poa bulbosa, Dactylis glomerata, Agropyron repens, Agrimonia eupatoria, Phleum phleoides, Teucrium chamaedrys, Calamintha clinopodium.*
- phytocoenosis edified by *Syringa vulgaris, Fraxinus ornus, Carpinus orientalis, Cotinus coggygria*, in the arbustic layer may also can appear *Cotinus coggyria, Cotoneaster nebrodensis, Sorbus borbasii, Sorbus aria, Sorbus cretica, Viburnum lantana, Crataegus monogyna, Juniperus communis* with rare specimens of *Corylus colurna, Tilia tomentosa, Quercus dalechampii, Junglans regia* and from subshrubs of 20-40 cm: G*enista radiata, Daphne blagayana, D. mezereum, Teucrium montanum, T. chamaedrys.* The layer of herbs is very diverse, made up of many species: *Draba lasiocarpa, Silene saxifraga, Cerastium banaticum, Geranium macrorrhizum, Ceterach officinarum, Sesleria filifolia, Cephalaria laevigata, Helianthemum canum, Stipa pulcherrima, Bromus fibrosus, Festuca xanthina, Helleborus odorus, Melittis*

melissophyllum, Lithospermum purpureocaeruleum, Satureja kitaibelii, Physocaulis nodosa, Festuca valesiaca, Brachypodium pinnatum, Galium erectum.

- Phytocenosis is edified and dominated by the mediterranean tertiary relict *Fraxinus ornus*, and the other species are Eurasian, European, with many southern species (26.6%), thermophilic, meso-xerophilic. The upper layer, high of 5-8 may, includes species like *Cornus sanguinea*, sporadic *Crataegus monogyna, Rosa canina, Evonymus verrucosus*. The layer of herbs is rich in species, the coverage is variable between 15-65% m and is composed of: *Asplenium trichomanes, Phyllitis scolopendrium,Polypodium vulgare, Fagopyrum convolvulus, Arabis turrita, Cardaminopsis arenosa, Sedum maximum,Lathyrus venetus, Geranium robertianum.*
- the shrub layer of phytocoenosis is made up of *Paliurus spina-christi* together with *Cerasus mahaleb, Ligustrum vulgare, Pyrus pyraster, Ulmus minor* sau *Cornus mas*, reaching at 1.5-2 m high. The grassy species are especially those of steppe meadows, more rare forest glades but edifier species are *Bothriochloa ischaemum, Koeleria gracilis, Satureja caerulea, Teucrium chamaedrys, Teucrium polium;* Characteristic are the bushes of *Asphodeline lutea* and *Paeonia peregrina.*
- phytocoenosis edified by *Jasminum fruticans* reaching at heights of 1.5-3 m, are accompanied by *Crataegus monogyna, Rhamnus cathartica, Cornus mas, Rosa canina*, more rare *Fraxinus ornus, Carpinus orientalis*. The layer of grasses is dominated by the steppe graminee species but also by the cliffs and forest species (*Chrysopogon gryllus, Asparagus verticillatus, Lithospermum purpurocaeruleum*)
- the shrub layer has a large coverage and is dominated by *Prunus fruticosa, Prunus spinosa* var. *dasyphylla* and accompanied to a lesser measure by *Crataegus monogyna, Rosa canina*. The grass layer consists of various graminee species, the best represented best represented quantitatively being *Elymus repens, E. hispida, Dactylis glomerata, Bromus inermis*, but also of *Teucrium chamaedrys, Inula britannica, Vicia cracca, Asparagus tenuifolius.*
- phytocoenosis edified and dominated by *Amygdalus nana* southern species, thermophilic, xerophilous. And accompanied of *Prunus spinosa, Crataegus monogyna*. Coverage with vegetation reaches 90-100% with *Bromus inermis, Elymus repens, Elymus hispidus, Festuca valesiaca, Teucrium chamaedrys, Medicago falcata, Dactylis glomerata* in the grass layer.
- phytocoenosis edified by *Caragana frutex*, xerotermal, thermophilic, continental shrub species. The height of the shrubs reaches up to one meter.

Dominant species:

Sambucus nigra (black elder) – Family: *Caprifoliaceae* Tree of 3-7 m high, compound, imparipinnate leaves, whitish marrow, inflorescence is a umbeliform and corymbiform cyme, white corolla.

Syringa vulgaris (lilac) – Family: *Oleaceae.* Tree of 2-4 m high, purple corolla, ovate leaves with subcordate base.

Fraxinus ornus (manna ash) – Family: *Oleaceae*. Tree up to 10 m high, imparipinnate leaves, compound. Gray buds, white corolla.

Paliurus spina-christi (christ's thorn) -Family: *Rhamnaceae*. Tree up to 3 m high, with stipellae transformed in spines, the fruit is a dry woody nutlet centred in a circular wing 2–3.5 cm diameter.
Jasminum fruticans (jasmine) – Family: *Oleaceae*. Small Tree of 1-3 m, compound leaves, 3-foliate, alternate, persistent, yellow flowers.
Cerasus fruticosa (ground cherry) – Family: *Rosaceae*. Dwarf shrub (-1.5 m), lanceolate leaves, simple serrate, glabrous, flowers are grouped in 2-6 umbelliform beams.
Amygdalus nana (dwarf almond) – Family: *Rosaceae*. Dwarf shrub (-1.5 m), stoloniferous, lanceolate leaves, simple serrate, glabrous, tubular receptacle.
Caragana frutex –Family: *Fabaceae*. Dwarf shrub (-1 m), paripinnate leaves, compound, with 2 pairs of leaflets, the rachis is not evident, yellow flowers, solitaire.

Correspondences

Romanian habitats	EUNIS Habitats	Natura 2000 habitats	Conservative value
R3120 Thickets of black elder (*Sambucus nigra*)	F3.24 Subcontinental and continental deciduous thickets	-	Low
R3122 Ponto- Pannonic thickets of (*Prunus spinosa*) and (*Crataegus monogyna*)	F3.24125 Danubian hawthorn scrub	40A0* Subcontinental peri-Pannonic scrub	Moderate
R3123 Southeast Carpathian thickets of lilac (*Syringa vulgaris*) with *Genista radiata*	F3.24322 Danubian lilac thickets	40A0* Subcontinental peri-Pannonic scrub	Very high
R3124 Southeast Carpathian thickets of lilac (*Syringa vulgaris*) with *Asplenium-ruta-muraria*	F3.24322 Danubian lilac thickets	40A0* Subcontinental peri-Pannonic scrub	High
R3126 Southeast Carpathian thickets of manna ash (*Fraxinus ornus*)	F3.24313 Peri - Carpathian manna ash oriental hornbeams thickets	40A0* Subcontinental peri-Pannonic scrub	High
R3127 Southeast Carpathian thickets of lilac (*Syringa vulgaris*) and manna ash (*Fraxinus ornus*)	F3.2431 Moesian oriental hornbeam thickets	40A0* Subcontinental peri-Pannonic scrub	High

Romanian habitats	EUNIS Habitats	Natura 2000 habitats	Conservative value
R3128 Balkan thickets of christ's thorn (*Paliurus spina-christi*)	F3.24731 Western Pontic jasmine christ's thorn scrub	40C0* Ponto-Sarmatic deciduous thickets (p.) 40D0 Ponto-Sarmatic wooded steppes (p.)	High
R3129 Balkan thickets of jasmine (*Jasminum fruticans*)	F3.24731 Western Pontic jasmine christ's thorn scrub	40C0* Ponto-Sarmatic deciduous thickets (p.) 40D0 Ponto-Sarmatic wooded steppes (p.)	High
R3130 Ponto-Pannonic thickets of ground cherry (*Cerasus fruticosa*)	F3.24121 Peri – Pannonic ground cherry scrub	40A0* Subcontinental peri-Pannonic scrub	High
R3131 Ponto-Pannonic thickets of dwarf almond (*Amygdalus nana*)	F3.24122 Peri – Pannonic dwarf almond scrub dar si F3.2475 Ponto-Sarmatic pod thickets	40A0* Subcontinental peri-Pannonic scrub	High
R3132 Ponto-Sarmatic thickets of *Caragana frutex*	F3.2471 Ponto-Sarmatic steppe brush	40C0 Ponto-Sarmatic deciduous thickets	Very high

Figure *144 Prunus spinosa*– Arieşului Valley (foto: Roxana Ion)

Figure 145*Crataegus monogyna*– Roşia Montana (foto: Roxana Ion)

Figure 146*Jasminum fructicans* – Băneasa (Constanța County) (foto: Roxana Ion)

Figure 147*Asphodeline lutea* - Băneasa (Constanța County) (foto: Roxana Ion)

Characteristic habitat species F3.2

Figure 148 Habitat F3.2 – Cheia (Prahova County) (foto: Roxana Ion)

Figure 149 Habitat F3.2 - Cheile Borzești (Alba-Iulia County) (foto: Roxana Ion)

Figure 150 Habitat F3.2 - Parscov (Buzău County) (foto: Roxana Ion)

F4.2 Dry heaths

Distribution: Western Carpathians, rare in Oriental Carpathians, on the floor of beech and spruce

Habitat structure: The habitat is represented by oligo-mesothermic, xeromezophilic, oligotrophic, acidophilic species.The edifying species *Calluna vulgaris* is usually a pioneer, achieves a variable coverage of 35-75% and reaches a height of 20-100 cm. Is associated in the Carpathians, alongside *Vaccinium myrtillus* and *Vaccinium vitis-idaea*, with carpathian-balkan species (*Bruckenthalia spiculifolia, Campanula abietina, Campanula serrata, Scorzonera rosea* and *Viola declinata*). Floral composition: Edifying species:*Calluna vulgaris, Vaccinium myrtillus, Vaccinium vitis-idaea*. Characteristic species: *Vaccinium myrtillus, Vaccinium vitis-idaea, Bruckenthalia spiculifolia, Campanula abietina, Campanula serrata, Scorzonera rosea, Viola declinata*. Other important species: *Gentiana kochiana, Leucorchis albida, Hypochaeris uniflora, Genistella (Genista) sagittalis, Cytisus nigricans, Lycopodium clavatum, Nardus stricta, Antennaria dioica, Carex ovalis, Euphrasia stricta, Hieracium pilosella, Potentilla erecta, Thymus pulegioides, Alchemilla glaucescens*.

Dominant species:
Both dominant species are part of the *Ericaceae* family being shrubs of small size.
Vaccinium myrtillus is a short shrub (15-50 cm) with whole leaves, simple, exstipellate, with serrated edges. It has edges branches and flowers with gamopetalous corolla, greenish pink.
Calluna vulgaris is a shrub from Subfam. *Ericoideae*, about 20 cm high, with opposite solsiform leaves and pink flowers grouped in rich inflorescences at the tip of the stems.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3112 Southeast Carpathian thickets of billberry (*Vaccinium myrtillus)* with ling heaths (*Calluna vulgaris*)	F4.2162 Montane eastern Carpathian bilberry-ling heaths	4030 European dry heaths	Moderate

F9.1 Riverine scrub

Distribution: Eastern Carpathians, Subcarpathians of Moldova, Southern Carpathians, Western Carpathians, on the nemoral floor of the oak and beech; intrazonal, along the rivers in the Plain and Plateaus of Moldova (Bistrița Valley, Bahlui Valley, Bârlad, Siret), Romanian and Oltenia Plains, Southern Subcarpathians (Sadului Valley– Olt, Argeșului Valley), Prahova, Buzău, in the Danube everglade (Orșova – Eșelnița, Dubova, Moldova Veche, Pojejena), Oltului Everglade, Subcarpathians and the Transylvanian Plain (Gurghiului Valley, Someșului Valley), Moldovia and Muntenia Plain ,along the rivers, Danube Delta, Subcarpathians of Moldovia and Muntenia (between Olt and Bistrita).

Habitat structure: This type of habitat develops on alluvial soils, with excess humidity and variable trophic regime depending on the amount of deposits that occur after the floods. Are Emerald protected habitats along the watercourses, which also include rare, vulnerable species such as *Angelica palustris*. It is usually composed of two layers, the upper layer is dominated by arbustic species in various associations: *Myricaria germanica* with *Salix purpurea* and juveniles of *Alnus glutinosa, Alnus incana, Fagus sylvatica;* various species of *Salix*, the dominant is *Salix triandra,* codominant with *Salix viminalis* in the plain area, or at higher altitudes with *Salix purpurea, Salix fragilis, Salix alba*, or *Alnus incana; Hippophaë rhamnoides* with *Salix eleagnos* codominant in alluvial hill areas, and *Tamarix ramosissima* in Danube Delta; *Salix purpurea* with *S. viminalis, triandra, alba, fragilis, Alnus incana, Alnus glutinosa*. The height of the layer reaches 2-4 m and the coverage is variable, between 30-80%. The lower layer of herbs can reach high heights of over 1 m and a great development during the wet periods of the year. The component species are hydrophilic, mesohigrophilic, and have a variable coverage of 30-80%. Of the most common we mention: *Agrostis stolonifera, Festuca pratensis* and *Dactylis glomerata, Trifolium pratense, Lysimachia nummularia, Lycopus europaeus, Tussilago farfara, Aegopodium podagraria, Glechoma hederacea, Cirsium oleraceum, Epilobium dodonaei, Carex digitata, Sanguisorba minor, Teucrium chamaedrys, Bupleurum falcatum, Asperula cynanchica, Euphorbia seguieriana, Convolvulus persicus, Gypsophila trichotoma, Teucrium scordium, Dianthus polymorphus, Calamagrostis pseudophragmites, Aegopodium podagraria, Mentha longifolia, Potentilla anserina, Lycopus europaeus, Symphytum officinale, Saponaria officinalis*. Other important species: *Humulus lupulus, Calystegia sepium, Festuca pratensis, Dactylis glomerata, Trifolium pratense, Myosoton aquaticum, Angelica sylvestris, Urtica dioica, Arctium tomentosum, Cirsium arvense, Artemisia vulgaris, Artemisia absinthium, Rubus caesius, Populus nigra, Morus alba, Humulus lupulus, Amorpha fruticosa, Angelica palustris, Myosoton aquaticum, Galeopsis speciosa, Echinocystis lobata, Rudbekia laciniata, Chaerophyllum bulbosum, Helianthus decapetalus, Cucubalus baccifer, Reynoutria japonica, Heracleum sphondylium, Petasites hybridus, Angelica sylvestris, Urtica dioica, Arctium tomentosum, Cirsium arvense, Ligustrum vulgare, Berberis vulgaris, Clematis vitalba, Rosa canina, Salvia nemorosa, Pimpinella saxifraga, Asperula cynachica, Galium verum, Thymus pulegioides, Bupleurum falcatum, Euphorbia seguieriana, Convolvulus persicus,*

Separated from these habitats, phytocoenosis with *Hippophaë rhamnoides* installed after the deforestation of beech forests, sessile oak or mixtures. The layer of shrubs is dominated by *Hippophaë rhamnoides*, dominant and characteristic species, alongside of *Crataegus monogyna* and *Rosa canina, Frangula alnus, Rhamnus tinctoria, Cornus sanguinea, Evonymus verrucosus*. Coverage of the layer is high 75-100% and reaches a height of 3.5 m. The layer of grasses has a greater coverage and is dominated by some forest species remaining on the soil, but also of those from the hill meadows,

Poa angustifolia, Festuca rupicola, Carex humilis, Bothriochloa ischaemum, Dorycnium herbaceum, Elymus repens, Origanum vulgare, Euphorbia amygdaloides, Tussilago farfara, Cytisus nigricans. Other important species: *Prunus spinosa, Crataegus monogyna, Rosa canina, Origanum vulgare, Ligustrum vulgare, Rhamnus cathartica, Clematis vitalba, Calamintha clinopodium, Coronilla varia, Quercus petraea, Acer campestre, Brachypodium pinnatum, Carex humilis, Lithospermum purpureocaeruleum, Evonymus verrucosus, Festuca rupicola,Bothriochloa ischaemum, Dorycnium herbaceum, Elymus repens, Euphorbia amygdaloides, Poa angustifolia, Rhamnus tinctoria.*

Dominant species:

Myricaria germanica (german tamarisk) – Family: *Tamaricaceae*. Shrub with simple, small acicular leaves. Pink flowers, grouped in spiciform racemes .

Salix triandra – Family: *Salicaceae*. Shrub-tree, of 2-7 m high. Leaves oblong lanceolate, slightly shiny on the face, petioles with 1-3 glands.

Salix eleagnos (hoary willow) – Familiy: *Salicaceae*. Shrub of 2-6 m, linear lanceolate leaves, of 4-11 cm long, white-tomentoase on the back, unshining.

Salix purpurea (purple willow) - Familiy: *Salicaceae*. Shrub high up to 5 m long, oblong-lanceolate leaves, petiole without glands, shoots and young yellow-red branches.

Hippophaë rhamnoides (sea buckthorn) – Familiy *Eleagnaceae*. Spiny shrub, of 1-5 m, whole leaves, axillary flowers, unisexual- dioecy.

Correspondence

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4415 Dacian thickets of german tamarisk (*Myricaria germanica*)	F9.111 Pre-Alpine willow-tamarisk brush	3230 Alpine rivers and their ligneous vegetation with *Myricaria germanica*	High
R4416 Willow thickets of (*Salix triandra*)	F9.1282 Ponto – Sarmatic riverine willow scrub	-	High

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4417 Danubian thickets of sea buckthorn (*Hippophaë rhamnoides* and hoary willow (*Salix eleagnos*)	F9.112 Pre-Alpine willow and sea-buckthorn brush	3240 Alpine rivers and their ligneous vegetation with Salix eleagnos ; 2160 Dunes with Hippophaë rhamnoides	High
R4418 Thickets of purple willow (*Salix purpurea*)	F9.12 82 Ponto – Sarmatic riverine wilow scrub	-	High
R3133 Thickets of sea buckthorn (*Hippophaë rhamnoides*)	F9.14 Gravel bank thickets; G5.85 Shrubby clearing		Low

Figure 151 General aspect of the habitat F91.1 – *Hippophae rhamnoides* (Sfântu Gheorghe) (foto: Roxana Ion)

F9.2 Willow carr and fen scrub

Distribution: Intra-mountain depressions and valleys in the Oriental and Western Carpathians, the north-western sector, in intra-mountainous depressions in the Oriental and Southern Carpathians (Nirului Plain, Siriu, the terrace of river Sadu, Voşlobeni), on the nemoral floor, along the waters in the North of the country (Oaş), the Romanian Plain (Neajlov), the Danube Delta.

Habitat structurfe: Most of the species that make up the habitat are hygrophile and acidophilic species. The layer of shrubs is defined by *Salix cinerea* but, according to the resort we also meet species like: S*piraea salicifolia, Evonymus nanus, Betula pubescens, Ribes nigrum, Frangula alnus, Viburnum opulus, Juniperus communis* and *Lonicera nigra* or *Salix triandra, Salix fragilis, Populus tremula, Picea abies* or P*runus spinosa, Crataegus monogyna, Crataegus rhipidophylla, Cornus sanguinea* şi *Rubus caesius.* In some resorts exist an layer of *Alnus incana.* The shrub layer usually has a large cover, in some cases over 90% forming thickets that are difficult to penetrate, with a height of 2-5 m.
The layer of herbs consists of species with a high port, over 1 m high: *Deschampsia caespitosa, Poa trivialis, Filipendula ulmaria, Lysimachia vulgaris, Angelica sylvestris, Urtica dioica, Scirpus sylvaticus, Carex elongata, Carex riparia, Carex acutiformis, Galium palustre, Myosotis palustris, Molinia caerulea, Eriophorum gracile, Chamaenerion dodonei, Equisetum fluviatile, Phragmites australis, Berula erecta, Carex contigua, Galium mollugo,* distributed in function of Some resorts also contain relict species, like *Spiraea salicifolia, Evonymus nanus*.
Depending on the humidity conditions, there may be a significant layer of moss dominated by *Sphagnum*, or of floating and submerged hydrophilic species, *Hydrocharis morsus-ranae, Stratiotes aloides, Ceratophyllum demersum, Rorippa amphibia*, in years with excess of water.

Dominant species:
Salix cinerea (grey wilow), is a shrub of 1.5 - 6 m high with simple leaves, alternate, stipelate oboval-lanceolate, with trichomes, 5-10 cm long, shoots and branches of 2 years gray tomentoase. Dioecious flowers, bare, grouped in typically erect aments.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4419 Southeast carpathian thickest of grey wilow (*Salix cinerea*) with *Calamagrostis canescens*	F9.213 Intra-Carpathian grey wilow-carrs	-	High

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4420 Thickest of grey willow (*Salix cinerea*) with peat moss	F9.22 *Sphagnum* willow - carrs	-	Moderate
R4421 Thickets of grey willow (*Salix cinerea*) with European dewberry (*Rubus caesius*)	F9.21 Grey willow carrs	-	Low

F9.3Southern riparian galleries and thickets

Distribution: Olteniei Plain, Romanian Plain, Danube Delta, Black Sea Coast, Siret Plain, Pod. Covurluiului, Lunca Buzaului, intrazonal, along rivers, alluvial, intrazonal, along the Danube to the Delta and, in invasive extension, along the rivers and streams of the Romanian Plain, Oltenia, Transylvania.

Habitat structure: The corresponding Romanian habitats are divided into two types: those with *Tamarix ramosissima* and those with *Amorpha fruticosa*.
The one with *Tamarix ramosissima* is a pioneer, placed on strips that can extend in lengths of hundreds of meters but not more than 20-50 m along water channels, being reprsented by meso-hygrophilic species up to hygrophiles and to oligotrophs at nitrofile. The shrub layer has a major dominance of *Tamarix ramosissima* (90%), with the participation of *Hippophaë rhamnoides, Rosa canina, Cornus sanguinea* and sporadically trees species, especially *Populus alba*.
Coverage increases by age, reaching up to 100%, and height varies depending on the anthropic impact (harvesting of wood material), from 1 to 6m. Herb layer is extremely low under bushes, *Urtica dioica* being the most abundantly developed, and in rare thickets the coverage can be 70-80% with a high degree of dominance of - *Cynodon dactylon, Agrostis stolonifera* and *Elymus repens*. The diversity of the grassy layer is very large and variable from one year to the next; with the exception of species of Gramineae family; are constantly encountered, *Mentha longifolia, Lappula squarrosa, Solanum dulcamara, Polygonum avicular, Stellaria palustris, Althea officinalis.* In the case of Amorpha fruticosa habitat, it dominates the layer of shrubs, but the codoominant remain the species of the association it replaces, the Salix triandra, Salix purpurea, remain the same. The layer has variable height (1-3 m, exceptionally 6 m) and coverage of 60-70%.
The layer of herbs and subshrubs is made up of *Rubus caesius, Stachys sylvatica, Saponaria officinalis, Polygonum lapathifolium, Lithrum salicaria, Cucubalus baccifer*, with a great wealth of accompanying species. Other important species: *Rubus caesius, Stachys sylvatica, Saponaria officinalis, Polygonum lapathifolium, Symphytum officinale, Cirsium arvense.*

Dominant species:
Tamarix ramosissimae is a shrub of 1-3 m high, belonging to the *Tamaricaceae* family, with small leaves, solzoase, alternante, unstipelated. Flowers are actinomorphs, pentamers, hermaphrodites, grouped in spiciform racemes. Corolla is persistent, even at fructification.
Amorpha fruticosa (false indigo-bush) is a tree of 1-3m, with leaves imparipennatie-compound, with foliole fine glandular dotted inside out, corolla with one single petals, the inflorescence is a dense raceme, spiciform, erect, indehiscent pod. Is part of the *Fabaceae* family, having pods and zygomorphic flowers.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4422 Danubian thickets of saltcedar (*Tamarix ramosissima*)	F9.3141 Pontic tamarisk stands: F9.31411 Western Pontic fresh water (*Tamarix smyrnensis*) stands; F9.31411 Western Pontic coastal (*Tamarix smyrnensis*) stands	92D0 Southern riparian galleries and thickets (*Nerio - Tamaricetea* and *Securinegion tinctoriae*)	High
R4423 Thikets of false indigo-bush (*Amorpha fruticosa*)	F9.35 Riparian stands of invasiv shrubs	-	Low

G1.1 Riparian and gallery woodland, with dominant [Alnus], [Betula], [Populus] or [Salix]

Distribution : This type of habitat brings together riparian forests dominated by willow species (*Salix* sp.), alder (*Alnus* sp.) or birch (*Betula* sp.) distinct from those of the Mediterranean type characterized by the presence of other species such as ash (*Fraxinus* sp.), planes (*Platanus* sp.) or elm (*Ulmus* sp.).

Habitat structure: The edified phytocoenosis of nemoral and boreal European species. The layer of trees, composed exclusively of willow (*Salix alba*) or white alder (*Alnus incana*) or mixed with other species. In generally has a high coverage of over 70% and reaches heights of over 20 m to 100 years. The tree layer is made of *Cornus sanguinea, Frangula alnus, Viburnum opulus, Rubus caesius.* The grassy layer contains: G*alium aparine, Agrostis stolonifera, Bidens tripartita, Calystegia sepium, Equisetum arvense, Glechoma hederacea, Lysimachia nummularia, L. vulgaris, Lycopus europaeus, Polygonum hydropiper, Solanum dulcamara, Scutellaria galericulata, Telekia speciosa, Angelica sylvestris, Aegopodium podagraria, Athyrium filix-femina, Carex remota, Cardamine impatiens, Chaerophyllum hirsutum, Circaea lutetiana, Cirsium oleraceum, Dryopteris filix-mas, Glechoma hederacea, Geranium phaeum, Festuca gigantea, Impatiens noli-tangere, Mentha longifolia, Myosotis sylvatica, Matteuccia struthiopteris, Oxalis acetosella, Petasites hybridus, P. kablikianus, Ranunculus repens, Salvia glutinosa, Stachys sylvatica, Stellaria nemorum, Tussilago farfara* etc.

Dominant species:

Alnus incana shrub, or tree up to 15-20m, with buds and young glabrous branches. Sharp oval leaves, unshining, double dentate , of 5-11 cm x 4-8 cm, argintii până la roșcat și fin pubescente pe partea inferioară. Aments appear in spring, before leaves, male of 5-10 cm long, and of female 1.5 cm.The fruit, the light-brown pentagonal samara, surrounded by the well-developed wing.

Salix alba robust tree, which can reach a height of up to 25-30 m, with a crown of irregular shape, with branches with increasing ascending growth. Gray bark with thick cracks in olders trees. Lanceolate leaves,of 5-8 cm, green-gray on the superior part and almost white on the inferior part with twisted tip, short petiole and toothed edges. The young leaves have silky hair, then become glabrous. Blooms in April. The male aments of 5-8 cm, light-yellow, the female of 3-6 cm , green, become white to the maturity of the fruit**.** He prefers moist soil, especially on the water's edge**.**

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4401 Southeast carpathian forests of grey alder (*Alnus incana*) with *Telekia speciosa*	G1.1214 Eastern Carpathian grey alder galleries	91E0*Alluvial forest with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	Very high
R4407 Danubian forest with white willow (*Salix alba*) with *Rubus caesius*	G1.1142 Ponto-sarmatic steppe willow galleries	92A0 *Salix alba* and *Populus alba* galleries	High
R4408 Danubian forest with white willow (*Salix alba*) with *Lycopus exaltatus*	G1.1142-Ponto-Sarmatic- steppe willow galleries /G1.11421-Lower Danube willow galleries	92A0 *Salix alba* and *Populus alba* galleries	

Figure 152 General aspect of the habitat G1.1, Vaduri Lake, Neamț County (foto: Roxana Ion)

G1.2 Mixed riparian floodplain and gallery woodland

Distribution: This type of habitat combines riparian forests dominated by a single species or mixed. The dominant tree species are alder (*Alnus* sp.), birch (*Betula* sp.), plopar (*Populus* sp.) or willow (*Salix* sp.) along with the ash (*Fraxinus* sp.), elm (*Ulmus* sp.) or oak (*Quercus* sp.). Are habitats rich in species, sometimes having a complex structure.

Habitat structure: The habitats accompany the hydrographic network in the river beds in the peri- and intracarpal hills up to the oak forests. The phytocoenosis are edified by European nemoral and boreal species. In the high areas of (200-700 m) the tree layer is exclusive coumpoud of black alder (*Alnus glutinosa*) or in combination with *Fraxinus angustifolia, Populus alba, P. nigra, Salix fragilis, S. alba*. At altitudes up to 150 m in the meadows of the great rivers the habitat is made of pedunculate oak (*Quercus robur*), ash (*F. angustifolia, F. pallisae*), elms (*Ulmus laevis, U. minor*), sometimes linden (*Tilia* sp.), *Salix alba, Pyrus pyraster, Malus sylvestris, Morus alba*. The coverage is variable, over 70%, the maximum height may exceed 20 m per 100 years.In the shrubs layer *Frangula alnus, Cornus sanguinea, Sambucus nigra, Corylus avellana, Viburnum opulus, Crataegus monogyna, Humulus lupulus, Prunus spinosa,Lygustrum vulgare, Sambucus ebulus, Prunus cerasifera, Rhamnus catharctica.* The grasses and the subshrubs layer: *Rubus caesius, Aegopodium podagraria, Stellaria nemorum, Ficaria verna, Agrostis stolonifera, Bidens tripartita, Brachypodium sylvaticum, Carex remota, Circaea lutetiana, Eupatorium canabinum, Galium aparine, Glecoma hederacea, Geranium robertianum, Impatiens noli-tangere, Lamium galebdolon, Matteucia struthiopteris, Mentha longifolia, Myosotis palustris, Petasites albus, Ranunculus repens, Salvia glutinosa, Tussilago farfara, Carex pilosa, Dactylis polygama, Festuca gigantea, Geranium phaeum, Glechoma hirsuta, Geum urbanum, Impatiens noli-tangere, Lysimachia nummularia, Physalis alkekengi, Polygonatum latifolium, Salvia glutinosa, Solanum dulcamara, Viola odorata, V. reichenbachiana ș.a.*

Dominat species:

Quercus robur

Large tree with irregular crown, conical at young trees. Gray bark with deep fissure. Leaves of 10-12cm x 7-8 cm, obovate, with 5-7 lobes, the base with a pair of auricles. Petiole of 0,4-1cm. The male flowers are long, and the females are small and spherical. Acorns in groupsof 1-4, with a shallow cup, flat and slightly fluffy scales.

Monoecious trees that can reach large sizes, with pinnately compound leaves. Flowers are small, without calyx and corolla, arranged in bouquets. The fruits are samare, grouped in bunches. The bark is of gray color, fissured.

Ulmus sp.

Tall trees with irregular crown. Dentate leaves, ovale, with cu short petiole and the uneven halves of the limb. Small flowers, with calyx with 4-8 lobes, grouped in beams. The fruit is a samara in form of disc.

Alnus glutinosa

Tree up to 20m with irregular crown or conic. The bark is brown and fissured, often with young branches. Round leaves, dentate, often indented at the top, with long, sticky petioles, rimmed at the edges. The male aments of 2-3 cm long, purple color, in a group of 2-3, the female ones are of 1cm high, green, purple green, then green. Ovoid cones with long peduncles, almost pentagonal samara, with a bark wing.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4402 Geto-Dacian forests of wet meadows flood hills of black alder (*Alnus glutinosa*) with *Stellaria nemorum*	G1.2123 Pre-Carpathian stream ash – alder woods	91E0*Alluvial forest with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	Very high
R4404 Danubian-panonic mixed wet meadow forests of pedunculate oak (*Quercus robur*), ash (*Fraxinus* sp.) and elms (*Ulmus* sp.) with *Festuca gigantea*	G1.2234. Getic oak-elm-ash fores	91F0 Riparian mixed forests of *Quercus robur Ulmus laevis, U. minor, Fraxinus excelsior* or *F. angustifolia* along the great rivers (*Ulmenion minoris*)	Moderate
R4409 Danubian wet meadows forests of oak (*Quercus robur*) and (*Q. pedunculiflora*) with *Fraxinus pallisae*	G1.2234-Getic oak-elm-ash forests / G1.223-Sotuheast European *Fraxinus - Quercus-Alnus* forests	92A0 *Salix alba* and *Populus alba* galleries	Very high

Figure 153 General aspect of the habitat G1.2– *Alnus glutinosa* (foto: Roxana Ion)

Figure 154*Alnus glutinosa* (foto: Roxana Ion)

G1.3 Mediterranean riparian woodland

This type of habitat brings together the riparian forests dominate by the ash species (*Fraxinus* sp.), planes (*Platanus* sp.) or elm (*Ulmus* sp.). This habitats is characteristic to the mediterranean climate.

Distribution: the meadows of rivers from the plain, hill and the Danube everglade, in Danube Delta, in the sandy islands of Letea and Carorman.

Habitat structure: The tree layer is made of poplar species (*Populus alba, P. nigra*), and in the herb layer is predominant dewberry. (*Rubus caesius*) in the case of habitats distributed in the meadows of the rivers in the plain, hill and in the Danue Everglade. The phytocoenosis of the Danube Delta in the Letea and Carorman islands are built by European and Caucasian species. The layer of the trees is composed of pedunculate oak and fern (*Quercus robur, Q. pedunculiflora*) *Fraxinus angustifolia, F. pallisae*, poplar *(Populus alba, P. tremula, P. canescens).* The coverage is variable, over 70%, the maximum height may exceed 20 m per 100 years. In the layer of shrubs: *Malus sylvestris, Pyrus pyraster, Crataegus monogyna, Cornus sanguinea, Frangula alnus, Rhamnus catharticus, Berberis vulgaris, Ligustrum vulgare*. Lians: *Periploca graeca, Hedera helix, Clematis vitalba, Humulus lupulus, Vitis sylvestris.* Layer of grasses and subshrubs: *Rubus caesius, Brachypodium sylvaticum, Althaea officinalis, Asparagus officinalis, A. tenuifolius, Calystegia, sepium, Carex michelii, C. tomentosa, Convallaria majalis, Galium rubioides, Glechoma hederaceea, Symphytum officinalis, Vincetoxicum hirundinaria, Carex acutiformis, Eupatorium cannabinum, Iris pseudacorus, Leonurus cardiaca, Lysimachia vulgaris, Phragmites australis, Coronilla varia, Galium rubioides, Glechoma hederacea,Heracleum sphondylium, Lysimachia nummularia, Symphytum officinale, Stachys palustris, Scutellaria galericulata.*

Dominant species

Populus alba

High tree with rhombic craked bark at maturity gray whitish in the superior part. Robust, columnar crown. Green leaves on the superior face, fluffy white on the interior face. Leaves on long branches are lobed, and those on short branches are dentate. Petiole of 3-4 cm, plate and covered with white fluff. Aments of 4-8 cm, the male ones are gray, the female ones are green, doubles its length in fruit.

Populus nigra

High tree up to 30m, with longitudinal craked bark. Leaves oval, rhombic, dentate, 5-10 cm long, green on the underside. Male males are gray at first, becoming purple. The females are green, 6-7 cm, doubling their length in the fruit.

Alnus glutinosa

Tree up to 20m with irregular crown or conic. The bark is brown and fissured, often with young branches. Round leaves, dentate, often indented at the top, with long, sticky petioles, rimmed at the edges. The male aments of 2-3 cm long, purple color, in a group of 2-3, the female ones are of

1cm high, green, purple green, then green. Ovoid cones with long peduncles, almost pentagonal samara, with a bark wing.

Quercus sp.

Tree with falling leaveas, of high dimension up to shrubs. The leaves are usually dentate or lobed. The bark is cracked longitudinally. They have at maturity, the spherical or irregular crown, with very thick and long main sinuous branches. The masculine flowers are grouped in aments with many flowers. The fruit is an acorn.

Fraxinus sp.

Monoecious trees that can reach large sizes, with pinnately compound leaves. Flowers are small, without calyx and corolla, arranged in bouquets. The fruits are samare, grouped in bunches. The bark is gray, fissured.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4405 Geto- Dacian forests of black poplar (*Populus nigra*) with *Rubus caesius*	G1.365 Central European poplar galleries	91E0*Alluvial forest with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	Very high
R4406 Danubian- pannonian forests of white poplar (*Populus alba*) with *Rubus caesius*	G1.365 Central European poplar galleries	92A0 Salix alba and *Populus alba* galleries	Very high
R4410 Danubian mixed deltaic forests of oaks (*Quercus* sp.) and ash (*Fraxinus* sp.) with *Galium rubioides*	G1.3621 Danube Delta Periploca-poplar-oak-ash galleries	-	Very high
R4411 Danubian mixed deltaic forests of oaks (*Quercus* sp.), ash (*Fraxinus* sp.) and black alder (*Alnus glutinosa*) with *Galium rubioides*	G1.3621 Danube Delta Periploca-poplar-oak-ash galleries	-	Very high

Figure 155 Habitat G1.3, Letea forest , Danube Delta (foto: Roxana Ion)

Figure 156*Quercus* sp. (foto: Roxana Ion)

G1.4 Broadleaved swamp woodland not on acid peat

The type of habitat is represented by deciduous forest from bogs areas on the non-acide substrate

Distribution: in the bogs areas of the meadows of the rivers in the area of the oak forests, more developed in southern Romania (Jiu, Calensteasa, etc.)

Structura habitatului: This habitat occupies small areas. The layer of trees composed exclusively of black-eyed species (*Alnus glutinosa*), with rare specimens of ash (*Fraxinus angustifolia*). The coverage is variable, over 60-80%, the maximum height can exceed 20 m per 100 years. In the layer of shrubs: *Frangula alnus, Cornus sanguinea, Viburnum opulus, Sambucus nigra, Salix cinerea, Corylus avellana, Evonymus europaeus*. Layer of grasses and subshrubs: *Carex (C. acutiformis, C. riparia, C. elongata, C. paniculata), Iris pseudacorus, Thelypteris palustris, Alisma plantago, Caltha palustris, Galium palustre, Hottonia palustris, Polygonum hydropiper, P. mite, Peucedanum palustre, Stellaria aquatica,Galium aparine, Galeopsis speciosa, Ranunculus repens, Symphytum officinalis, Solanum dulcamara.*

Dominant species

Alnus glutinosa

Shrub up to 20 m high with irregular or conical crown. The bark brown snd fissured, often with young branches. Leaves rounded, dentate, often indented at the top, with long petiole, stinky, undulate at the edges. The male aments of 2-3 cm, purple color,in a group of 2-3, the females 1 cm long, green, purple green, then green. Ovoid cones with long peduncles, almost pentagonal samara, with a bark wing.

Iris pseudacorus

Herbaceous, perennial plant with stem 100 - 150 cm, straight leaves, linear, up to 90 cm long and about 1.5-3 cm wide, basal. Yellow flowers, hermaphrodite, with radial symmetry, gametes with three tepals. Big petaloide stigmas.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4403 Danube- Pannonian forests of black alder (*Alnus glutinosa*) with *Iris pseudacorus*	G1.4115 Eastern Carpathian *Alnus glutinosa* swamp woods	-	Very high

G1.6 [Fagus] woodland

This type of habitat is dominated by beech forests (*Fagus sylvatica*).

Distribution in all the Romanian Carpathians on the nemoral floor, the high hill area, in Banat on the nemoral floor and in the subetajul of the sessile oak forests, in the Jiu Defile, Oltului, Mount Cozia on the nemoral floor**.**

Habitat structure: The layer of the trees consists exclusively of beech (*Fagus sylvatica*) or mixed with hornbeam (*Carpinus betulus*), turkish hazelnut (*Corylus colurna*), sessile oak (*Quercus petraea*), more rarely with fir (*Abies alba*), with ash specimens (*Fraxinus angustifolia),* sycamore *(Acer pseudoplatanus),* checker tree (*Sorbus torminalis*). The layer of shrubs variable developed and composed of specimens of dogwood (*Cornus sanguinea*), *Crategus monogyna, Ligustrum vulgare, Euonumus europaeus, Rosa pendulina etc.* The coverage is high, over 80%, the maximum height can exceed 25 m per 100 years. The grassy layer is generally rich in mulberry species (*Asarum europaeus, Galium odoratum, Stellaria holostea, Lamium galeobdolon, Dentaria bulbifera, Melica uniflora etc.*) along with species specific to each type of habitat (*Symphytum cordatum, Festuca drymeia, Cephalanthera damassonium, Aremonia agrimonioides, Helleborus odorus, Carex pilosa, Knautia drymeia, Galium kitaibelianum*).

Dominant species

Fagus sylvatica

Monoecious trees of large dimensions (up to 40m), with smooth (or slightly rough) bark and gray.The main branches are numerous and powerful. When is growing in the forest, the trunk becomes very straight and tall, with branches just on the top. The leaves are oval-elliptic, with smooth and undulate edges, with bristles when are young, with a petiole of 1-1,5 cm. The male flowers are found in terminal inflorescences, with the long peduncle and the divided perianth. Female flowers are usually grouped in pairs on a short peduncle. The fruit is 1-2 cm long, with 3 edges, usually in pair in a dehiscent spiny cup.

Corylus colurna (for R4121 identification)

Monoecious trees or shrubs with fall leaves, alternate, simple, cordate at base, sharp at the top, dentate, almost lobate. Horizontal, sinuous branches. Yellow male aments, over 10 cm long the, female are small, compounds, surrounded by bracts, with pink stigmas. Involucre much longer than hazelnut which is slightly higher than that of *C. avellana*.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4109 Southeast Carpathian beech forests (*Fagus sylvatica*) with *Symphytum cordatum*	G1.6D21. Dacian *Symphytum* beech forest	91V0 Dacian beech forests (*Symphyto – Fagion*)	High
R4110 Southeast Carpathian beech forests (*Fagus sylvatica*) with *Festuca drymeia*	G1.6D54 South Carpathian *Festuca drymeia* beech forest	9110 *Luzulo-Fagetum* beech forest	Low
R4111 Southeast Carpathian beech (*Fagus sylvatica*) forests and European silver fir (*Abies alba*) with *Cephalanthera damassonium*	G1.6D4 East Carpathian calciphile beech forest	9150 Medio-European limestone beech forest of the Cephalanthero-Fagion	Moderate
R4112 Balkan beech forests (*Fagus sylvatica*) with *Aremonia agrimonioides*	G1.6D51 South Carpathian *Aremonia* beech forest	91K0 Illyrian *Fagus sylvatica* forest (Aremonio-Fagion)	High
R4113 Balkan beech forests (*Fagus sylvatica*) with *Helleborus odorus*	G1.6D53 South Carpathian *Heleborus odorus* beech forest	91K0 Illyrian *Fagus sylvatica* forest (*Aremonio-Fagion*)	Very high
R4119 Dacian beech (*Fagus sylvatica*) forests and hornbeam (*Carpinus betulus*) with *Carex pilosa*	G1.6D22. Dacian hairy sedge beech/hornbeam	91V0 Dacian beech forests (*Symphyto – Fagion*)	Low
R4121 Balkan beech (*Fagus sylvatica*) forests and turkish hazel (Corylus colurna) with *Knautia drymeia*	G1.6D52. South Carpathian *Corylus colurna* beech forest	91K0 Illyrian *Fagus sylvatica* forest (*Aremonio-Fagion*)	Very high
R4122 Southern Carpathian oak (*Fagus sylvatica*) forests and durmast oak (*Quercus petraea*) with *Galium kitaibelianum*	G1.6D12. Dacian *Galium kitaibelianum* beech forest	-	Very high

Figure 157 Habitat G1.6, Cozia Mountain (foto: Roxana Ion)

Figure 158*Fagus sylvatica* (foto: Roxana Ion)

G1.7 Thermophilous deciduous woodland

This type of habitat combines deciduous forests dominated by oak species, subcontinental thermo xerophiles of turkey oak, sessile oak, hungarin oak.

Distribution: in the southern area especially in Dobrogea, Oltenia, Banat, Crișana, in northeastern Romania, in the Jijia depression – Bahlui, in forests steppe with mesophilic oaks, , in the high plains from the south and west of the country, Danube Defile and fragmentary in Oltenia and Muntenia, in the high plains in southern Romania (Gătanu-Burdea, Boian, Romanați, Bălăciței Plateau), Danube Plain, southern Moldova, in the southern part of the Mehedinti Plateau and in the Danube Defile; the low hills in southern Banat, in the oak forest area, the sub-area of the thermophilous oaks forests, the sub-area of the thermophilous oaks forests; insular in the hills and the low mountains from west and central Romania (Apuseni Mountains, Târnavelor Plateau, Secașelor Plateau), in the nemoral floor.

Habitat structure: The tree layer is predominantly made of oak (*Quercus petraea* ssp. *dalechampii, Q. petraea, Q. cerris, Q. frainetto, Q. pedunculiflora, Q. pubescens, Q. virgiliana*) with linden (*Tilia tomentosa, T. platyphyllos*), ash (*Fraxinus excelsior, F. coriariaefolia, F. ornus*), oriental hornbeam (*Carpinus orientalis*), or walnut (*Juglans regia*) with honeyberry, (*Celtis australis*), *Fagus sylvativa* subsp. *moesica*. Other tree species in the upper layer are *Sorbus torminalis*, field maple (*Acer campestre*), *Acer tataricum* cherry (*Prunus avium*), hornbeam(*Carpinus betulus*), apple and wild pear (*Malus sylvestris, Pyrus pyraster*), turkish cherry (*Prunus mahaleb*), *Sorbus torminalis*. Coverage is variable, over 50% and heights over 15m at 100 years. The layer of shrubs is well developed and composed of *Cornus mas, Evonymus verrucosus, E. europaeus, Viburnum lantana, Rosa canina, Sambucus nigra, Cotinus coggygria* (in some dominant habitats), *Prunus spinosa, P. fruticosa, P. tenella, Crategus monogyna, C. pentagyna, Rhamnus tinctoria, Sorbus cretica, S. dacica.* In the herb layer it can be encountered frequently: *Nectaroscordum siculum, Mercurialis ovata, Lithospermum purpuro-coeruleum, Piptatherum virescens, Geum urbanum, Glechoma hirsuta, Arum orientale, Brachypodium sylvaticum, Carex praecox, Poa angustifolia, Festuca heterophylla, F. valesiaca, Stipa capillata, Chrisopogon gryllus, Tanacetum corymbosum, Myrroides nodosa, Paeonia peregrina, Ornithogalum fimbriatum Pulmonaria obscura, Viola reichenbachiana, Stipa pennata, Phlomis tuberosa, Campanula sibirica, Tulipa bibersteiniana, Carex humillis, Veratrum nigrum, Asparagus verticillatus, Galium dasypodum, Carex michelii, Echinops banaticus, Acanthus longifolius.*

Dominant species

Quercus petraea

Tree with falling leaves and crown in form of a dome and straight trunk. Gray bark with fine vertical fissures. Leaves with lobes less pronounced than at *Q. robur*, of 8-12 cm long, with cuneate and poorly cordate, petiole nearly of 2 cm. The female flowers in group of 2-6 . to the top

of the branches from the same year, and the male on the peduncle, on branches of the previous year. Acorns, in group up to 6, have no peduncle, the cup has oval, fluffy scales.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4136 Western-Pontic mixed durmast oak (*Quercus petraea*) forests, silver lime (*Tilia tomentosa*) and oriental hornbeam (*Carpinus orientalis*) with *Nectaroscordum siculum*	G1.7683 Dobrogean oriental hornbeam-lime-oak forest	91Z0 Moesian silver lime woods	Very high
R4140 Dacian-Balkanic durmast oak (*Quercus petraea*) forests, turkey oak (*Q. cerris*) and tesilver lime (*Tilia tomentosa*) with *Lychnis coronaria*	G1.7686 Pre-arpathian Quercus cerris-Q. petraea forest	91M0 Pannonian – Balkanic turkey oak – sessile oak forest	High
R4146 Moldave glades-forests of pedunculate oak (*Quercus robur)* and wild cherry (*Prunus avium*) with *Acer tataricum*	G1.7A12 Tartar maple steppe oak woods	91I0*Euro-Siberian steppic woods with *Quercus* sp.	High
R4150 Danubian-Balkanic turkey oak (*Quercus cerris*) forests with *Festuca heterophylla*	G1.7691 Getic white cinquefoil Q. cerris forest	91M0 Pannonian-Balkanic turkey oak-sessile oak woods	Moderate
R4151 Balkan mixed turkey oak (*Quercus cerris*) forests with *Lithospermum purpurocoeruleum*	G1.7682 Moesio-Danubian orientalis hornbeam-durmast oak forest	91M0 Pannonian-Balkanic turkey oak-sessile oak forests	High
R4153 Danubian-Balkanic turkey oak (*Quercus cerris)* forests and hungarian oak *(Quercus. frainetto*) with *Crocus flavus*	G1.7693 Getic Crocus Q. frainetto-Q. cerris forest	9280 *Quercus frainetto* woods	Moderate
R4154 Danubian-Balkanic hungarian oak (*Quercus*	G1.76813-Moesio-Danubian mixed oak	91M0 Pannonian-Balkanic turkey oak-	High

frainetto) forests with *Festuca heterophylla*	*Q. Frainetto*f orests --	sessile oak forests	
R4155 Danubian-Balkanic hungarian oak (*Quercus frainetto*) forests and turkey oak (*Quercuscerris*) with *Carexpraecox*	G1.7692 Getic early sedge Q. frainetto forest	9280 *Quercus frainetto* woods	High
R4156 Danubian-Balkanic grayish oak (*Quercus pedunculiflora*), turkey oak (*Q. cerris*), hungarian oak (*Q. frainetto*) and downy oak (*Q. pubescens*) with *Acer tataricum*	G1.7A1223-Pontic *Acer tataricum-Q.cerris-Q.pedunculiflora* steppe woods--	91I0 *Euro-Siberian steppic woods with Quercus spp.	Very high
R4157 Danubian West-Pontic glades grayish oak (*Quercus pedunculiflora*) forests with *Acer tataricum*	G1.7A12 Tartar maple steppe oak woods G1.7A12 Tartar maple steppe oak woods	91I0*Euro-Siberian steppic woods with Quercus spp.	High
R4158 Danubian West-Pontic mixed grayish oak (*Quercus pedunculiflora*) forests and silver lime (*Tilia tomentosa*) with *Viola jordanii*	G1.76833-Dobrogean *Q.pedunculiflora*-lime-oriental hornbeam forests --	91DA Dobrogean oriental hornbeam-lime-oak forests	Very high
R4159 Danubian grayish oak (*Quercus pedunculiflora*) glades and forests and pedunculate oak (*Quercus robur*) with *Tulipa bibersteinniana*	G17A1221-Pontic Acer tataricum-*Q.pedunculiflora* steppe woods --	91I0 *Euro-Siberian steppic woods with Quercus spp.	Very high
R4160 Dacian downy oak (*Quercus pubescens*) glades and forests with *Lithospermum purpurocaeruleum*	G17A1222-Pontic *Acer tataricum-Q. pubescens* steppe woods --	91H0 *Pannonian woods with Quercus pubescens	Very high
R4161 West-pontic downy oak (*Quercus pubescens*) glades and forests with *Galium dasypodium*	G1.73724-Moesian *Galium dasypodium*-white oak woods --	91AA Eastern white oak woods; 40D0 Ponto-Sarmatic wooded steppes	Very high
R4162 West-Pontic mixed downy oak (*Quercus pubescens)* forests with *Paeonia*	G1.73723-Moesian *Paeonia peregrina*-white oak woods --	91AA Eastern white oak woods	Very high

peregrina			
R4163 Balkan downy oak (*Quercus pubescens*) glades-forests with *Echinops banaticus*	G1.73726-Moesian *Echinops*-whaite oak woods --	91AA Eastern white oak woods	Very high
R4164 Balkan walnut (*Juglans regia*) forests and mediterranean hackberry (*Celtis australis*) with *Scutellaria pichleri*	G1.7C5 *Celtis australis* woods	-	Very high

Figure 159 Habitat G1.7 (foto: Roxana Ion)

Figure 160*Quercus* sp. (foto: Roxana Ion)

G1.8 Acidophilous [Quercus]-dominated woodland

This type of habitat reunites deciduous forests on oligotroph substrate, dominated by oak species (*Quercus* sp.), where birch is present but never dominant and associated with acidophilic species.

Distribution: in the hill area all over the country, on the nemoral floor, in the hills all over the country, on the nemoral floor**,** the subetajul of the oak forests and the mixture with the oak, more often in the south and west of Romania**.**

Habitat structure: The tree layer is made exclusiv of sessile oak forests (*Quercus petraea* ssp. *dalechampii, ssp. petraea* or with a little beech blend (*Fagus sylvatica ssp.moesiaca*), rare, hornbeam (*Carpinus betulus*), checker tree (*Sorbus tominalis*), cherry (*Prunus avium*); have a coverage of 70–90% and and heights of 20–25 m to 100 years. The shrub layer, usually is poorly developed, composed of *Crataegus monogyna, Cornus mas, C. sanguinea, Ligustrum vulgare* ș.a. The herb and subshrubs layer, is dominated by *Festuca drymeia*, in patchs, and of acidophilic species such as *Luzula luzuloides, Calamagrostis arundinacea, Lathyrus vernus,* sometimes *Vaccinium myrtillus*.

Dominat species

Quercus petraea

Tree with falling leaves and crown in form of a dome and straight trunk. Gray bark with fine vertical fissures. Leaves with lobes less pronounced than at Q. robur, of 8-12 cm long, with cuneate and poorly cordate, petiole nearly of 2 cm. The female flowers in group of 2-6 . to the top of the branches from the same year, and the male on the peduncle, on branches of the previous year. Acorns, in group up to 6, have no peduncle, the cup has oval, fluffy scales.

Fagus sylvatica

Monoecious trees of large dimensions (up to 40m), with smooth (or slightly rough) bark and gray.The main branches are numerous and powerful. When is growing in the forest, the trunk becomes very straight and tall, with branches just on the top. The leaves are oval-elliptic, with smooth and undulate edges, with bristles when are young, with a petiole of 1-1,5 cm. The male flowers are found in terminal inflorescences, with the long peduncle and the divided perianth. Female flowers are usually grouped in pairs on a short peduncle. The fruit is 1-2 cm long, with 3 edges, usually in pair in a dehiscent spiny cup.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4129 Dacian forest of sessile oak(*Quercus petraea*) and beech (*Fagus sylvatica*) with *Festuca drymeia*	G1.8713. Pre-Carpathian beech-sessile oak forest	-	Moderate

G1.A Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland

Distribution: in all the Carpathians of Romania, in keys, in ravines and narrow valleys from the inferior part of the mountains, on the nemoral floor, sublevel of beech forests and the mixture of beech; on all Pericarpathian and Intracarpathian hills from the west, the center, south and east of the country, on the nemoral floor, the sublevel of the oak forests and the sublevel mixed with the oak ; the eastern Romanian plateaus and the Subcarpathians of Curvature in the nemoral floor, the sublevel of the oak forests and the mixture with the oak tree in the southern and western hills, on the immoral floor, the sublevel of the oak forests and the mixture with the oak; Danube Plain, Central Moldavian Plateau in the low plains and hills in southern Moldova and eastern Munteniain the forests steppe, sub-areas of the forest steppe with thermophilic oaks, insular in the hills and low mountains in the west and the center of Romania (Apuseni Mountains, Tarnavelor Plateau, Secaşelor Plateau), in the nemoral floor, both sublevels.

Habitate structure: This type of habitat includes various types of phytocoenosis depending on the resort where it develops.
Thus, in the mountainous area, on the shady valleys and in the key area, there are present phytocoenosis edified by European immoral species. The layer of the trees is made up of *Acer pseudoplatanus, Ulmus glabra, Fraxinus excelsior* with few copies of *Fagus sylvatica*, less often *Abies alba, Picea abies*, and on the lower floor few copies of *Acer campestre, Carpinus betulus, Alnus glutinosa*. Shrub layer, is well developed, composed of *Sambucus nigra, Cornus sanguinea, Corylus avellana, Crataegus monogyna, Evonymus europaeus.* Layer of grasses and subshrub, dominated by *Lunaria rediviva*, with many ferns and mull species.
On the nemoral floor, on flat or slightly inclined terrains, are developed phytocoenosis edified by European nemoral species, european, balkan or caucasian, depending on the resort. The layer of the trees is composed, on the upper floor, of the oak (*Quercus petraea*, ssp. *petraea*, ssp. *polycarpa*, ssp. *dalechampii*) mixed with pedunculate oak (*Quercus robur*) beech (*Fagus sylvatica* ssp. *sylvatica, moesiaca*), with specimens of pedunculate oak (*Quercus robur*), cherry (*Prunus avium*), linden (*Tilia cordata, T. platyphyllos, T.tomentosa*), elms (*Ulmus glabra, U. minor*) ash (*Fraxinus excelsior, F. coriariaefolia*), maples (*Acer platanoides, A. pseudoplatanus*) or peduncuate oak (*Quercus robur*) or/and turkey oak *(Quercus cerris*) and ash of meadow or common ash (*Fraxinus angustifolia, F. excelsior*). On the lower floor we meet the hornbeam (*Carpinus betulus*), field maple (*Acer campestre*); checker tree (*Sorbus torminalis*), appele tree (*Malus sylvestris*), pear (*Pyrus pyraster*), tatarian maple (*Acer tataricum*); has coverage of 80-90% and heights of 20-30 m at 100 years. The layer of shrubs is developed variable, depending on the shade, composed of *Corylus avellana, Crataegus monogyna, Evonymus europaeus, E. verrucosus, Cornus mas, C. sanguinea, Ligustrum vulgare, Staphylea pinnata, Sambucus nigra, Rosa canina.* The layer of herbs and ssubshrubs edified by *Carex pilosa, C. brevicolis, Lathyrus hallersteinii, Erytronium dens-canis, Scutellaria altissima* with elements of the mull flora

(*Galium odoratum, Asarum europaeum, Stellaria holostea)*. Lianas: *Hedera helix, Clematis vitalba*.

In the forests steppe of Muntenia and Moldova, but also in the mountains with small altitudes in the west and the center of the country, there are developed phytocoenosis edified in the upper floor of pedunculate oak and common oak(*Quercus robur, Q. pedunculiflora*), or pubescent oak (especially *Quercus pubescens*, but sometimes *Q. virgiliana* and on the lower floor, a mixture of sessile oak (*Q. petraea* ssp. *polycarpa*), tatarian maple (*Acer tataricum*), turkey oak *(Q. cerris*), elm (*Ulmus minor, U. procera*), european wild pear (*Pyrus pyraster*),field maple(*Acer campestre*); has variable coverage, 20-40% glades, in the forest 60-80% and heights of 6-18 m at 100 years. Well - developed shrub layer, composed of *Crataegus monogyna, Prunus spinosa, Rhamnus cathartica, Evonymus europaeus, E. verrucosus, Ligustrum vulgare, Sambucus nigra, Cornus mas, Corylus avellana, Ligustrum vulgare, Viburnum lantana,* local *Sorbus cretica, S. dacica, Rosa canina*. The layer of herbs and subshrubs, having under massive as frequent species *Glechoma hirsuta, Geum urbanum* and *Lithospermum purpurocoeruleum,* and in the glades patches of steppe meadows *Festuca valesiaca, Stipa sp., Phlomis tuberosa, Campanula sibirica, Carex humilis.*

Dominat species: ***Quercus petraea, Fagus sylvatica, Carpinus betulus*** have been described in previous habitats

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4117 Southeast Carpathian forests of ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*) and elm (*Ulmus glabra*) with *Lunaria rediviva*	G1.A464. Eastern Carpathian ravine forest	9180 *Tilio-Acerion* forests of slopes, screes and ravines	Very high
R4123 Dacian forests of durmast oak (*Quercus petraea)*, beech (*Fagus sylvatica*) and carpen (*Carpinus betulus*) with *Carex pilosa*	G1.A166.Carpathian hairy sedge oak-hornbeam forest	9170 *Galio-Carpinetum* oak-horbeam forests	Moderate
R4124 Dacian forests of durmast oak (*Quercus petraea*), beech (*Fagus sylvatica*) and hornbeam (*Carpinus betulus*) with *Lathyrus hallersteinii*	G1.A1C1 Dacian oak-hornbeam forest	91Y0 Dacian oak-hornbeam forests	Moderate
R4126 Moldave mixed forests	G1.A1C2.Moldo-	91Y0 Dacian oak-	Moderate

of durmast oak (*Quercus petraea*), beech (*Fagus sylvatica*) and silver lime (*Tilia tomentosa*) with*Carex brevicollis*	Muntenian oak-lime-hornbeam forest	hornbeam forests	
R4127 Dacian mixed forest of durmast oak (*Quercus petraea*), beech (*Fagus sylvatica*) and silver lime (*Tilia tomentosa*) with *Erythronium dens-canis*	G1.A164 Peri-Carpathian lime – oak – hornbeam forest	91L0 Illyrian oak-hornbeam forest (*Erytronio-Carpinion*)	Moderate
R4147 Danubian mixed forests of pedunculate oak (*Quercus robur*) and silver lime (*Tilia tomentosa*) with *Scutellaria altissima*	G1.A162 Mixed lime-oak-hornbeam forest	91Y0 Dacian oak-hornbeam forests	High
R4159 Danubian glades and forests of pedunculate oak (*Quercus pedunculiflora*) and pedunculate oak (*Quercus robur*) with *Tulipa bibersteinniana*	G17A1221-Pontic *Acer tataricum-Q.pedunculiflora* steppe woods --	91I0 *Euro-Siberian steppic woods with *Quercus* spp.	Very high
R4160 Dacian glades and forests of downy oak (*Quercus pubescens*) with *Lithospermum purpurocaeruleum*	G17A1222-Pontic *Acer tataricum-Q. pubescens* steppe woods --	91H0 *Pannonian woods with *Quercus pubescens*	Very high

Figure 161 Habitat G1.A – Prigoria, Gorj County (foto: Roxana Ion

G3.1 Fir and spruce woodland

Distribution: all the Romanian Carpathians, more often in the Oriental and Southern Carpathians, in the lower part of the subalpine floor, on the boreal floor, on the nemoral floor, the sublevel of beech forests and the mixture with beech.

Habitat structure: Depending on the altitude, this type of habitat has a different flora structure and composition. Thus, at lower altitudes 700-1400 there are phytocoenosis composed of beech (*Fagus sylvatica* ssp. *sylvatica*) exclusively or with a mixture of fir (*Abies alb*a), in different proportions, spruce (*Picea abies*), birch (*Betula pendula*), rowan (*Sorbus aucuparia)*, scots pine (*Pinus sylvestris*), with few specimens of mountain maple (*Acer pseudoplatanus*), mountain elm (*Ulmus glabra*), ash (*Fraxinus excelsior*), hornbeam (*Carpinus betulus*), even at lower altitudes even the oak (*Quercus petraea*). Coverage of the arboricol layer is high 70-100%. The layer of shrubs is less developed and consists of *Corylus avellana, Sambucus racemosa, S. nigra, Lonicera xylosteum, Daphne mezereum, Crataegus monogyna, Sorbus aucuparia*. The grassy layer consists of acidophilic species (*Calamagrostis arundinacea, Luzula luzuloides* and *Vaccinium* sp.) but also representatives of mull flora. The layer of muscles contain *Hylocomium splendens, Thuidium abietinum, Dicranum scoparium, Catharinea undulata* etc.
At higher altitudes, over 1400 m, on slopes with various exposures and inclinations, we encounter phytocoenosis dominated by conifer species: glades of spruce trees (*Picea abies*), less often swiss pine (*Pinus cembra*), rowan (*Sorbus aucuparia*); exclusive spruce (*Picea abie*s), or with a little mixture of rowan (*Sorbus aucuparia*), with mugo pine bushes (*Pinus mugo*) or juniper (*Juniperus communis*); exclusive spruce (*Picea abies*), or with rare specimens of fir (*Abies alba*), sycamore (*Acer pseudoplatanu*s), wych elm (*Ulmus glabra*), beech (*Fagus sylvatica*); exclusive spruce (*Picea abie*s) or at lower altitudes with fir mixture (*Abies alba*), rowan (*Sorbus aucuparia*); spruce (*Picea abies*), or with fir mixture (*Abies alb*a) and rare specimens of beech (*Fagus sylvatic*a), birch (*Betula pendul*a); exclusive spruce (*Picea abies*), or with fir mixture (*Abies alba*), rowan (*Sorbus aucuparia*); exclusive spruce (*Picea abie*s), or mixed with beech (*Fagus sylvatica* ssp. *sylvatica*), with rare specimens of grey alder (*Alnus incan*a), fir (*Abies alba*), scyamore (*Acer pseudoplatanu*s); spruce (*Picea abies*) and sometimes scots pine (*Pinus sylvestris*) with rare specimens of grey alder (*Alnus incana*), birch (*Betula pendula, B. pubescens*); fir (*Abies alba*) and spruce (*Picea abies*), in different proportions, and, in the mixture, beech (*Fagus sylvatica*), scyamore (*Acer pesudoplatanus*), wych elm (*Ulmus glabra*); spruce (*Picea abies*) and fir (*Abies alba*) or only fir with a little mixture of grey alder (*Alnus incana*), birch (*Betula pendula*), rare beech (*Fagus sylvatica* ssp. *sylvatica*); spruce (*Picea abies*), sometimes beech (*Fagus sylvatica* ssp. *sylvatica*), rare scyamore (*Acer pseudoplatanus*), sometimes larch (*Larix decidua*), fir (*Abies alba*), rowan (*Sorbus aucuparia*); spruce (*Picea abies*) and beech (*Fagus sylvatica*) in different proportions, and in the mixed, fir (*Abies alba*), rowan (*Sorbus aucupari*a). The layer of shrubs develops with varying amounts of available light. When it is very developed, it is made of mugo pine (*Pinus mugo*), dwarf juniper (*Juniperus sibirica*), S*alix silesiaca, Alnus viridis* (on moistened slopes), *Rhododendron myrtifollium*,

Lonicera caerulea, Alnus viridis (on moistened slopes), *Salix silesiaca, Ribes petraeum, Lonicera nigra, Rosa pendulina, Daphne mezereum, Rubus idaeus, Spiraea chamaedrifolia* and as subshrubs *Vaccinium myrtillus, V. vitis-idaea, Bruckenthalia spiculifolia*. The layer of herbs constituted of: *Campanula abietina, Dryopteris expansa, Deschampsia flexuosa, Huperzia sellago, Homogyne alpina, Soldanella hungarica, Luzula sylvatica, Calamagrostis villosa, Viola declinata, Oxalis acetosella, Dentaria glandulosa,* local with *Galium odoratum* or *Calamagrostis arundinacea, Leucanthemum waldsteinii, Myosotis sylvatica, Symphytum cordatum, Mercurialis perennis* etc. The moss layer is well developed with *Polytrichum* sp., *Hylocomium* sp., *Sphagnum* sp., *Ctenidium molluscum, Dicranum scoparium, Tortella tortuosa, Mnium undulatum.*

Dominant species

Fagus sylvatica ssp. *sylvatica, Abies alba, Picea abies, Pinus cembra, Larix decidua* have been described in the previous subchapters.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4104 Southeastern Carpathian forests of beech (*Fagus sylvatica*) and fir (*Abies alba*) with *Pulmonaria rubra*	G3.1123 Dacian neutrophile mountaine fir forest	91V0 Dacian beech forest (*Symphyto- Fagio*n)	Moderate
R4106 Southeastern Carpathian forests of beech (*Fagus sylvatica*) and fir (*Abies alba*) with *Hieracium rotundatum*	G3.1323 Dacian acidophile beech – fir forest	*9110* Luzulo – Fagetum beech forests	Moderate
R4201 Southeastern Carpathian subalpine glades of spruce (*Picea abies*) and swiss pine *(Pinus cembra)* with *Bruckenthalia spiculifolia*	G3.1B62 Eastern Carpathian subalpine spruce forest	9420 Alpine *Larix decidua* and/or *Pinus cembra* forests	Very high
R4202 Southeastern Carpathian subalpine glades of spruce (*Picea abies*) and swiss pine (*Pinus cembra*) with *Rhododendron myrtifolium*	G3.1B62 Eastern Carpathian subalpine spruce forest	9420 Alpine *Larix decidua* and/or *Pinus cembra* forests	Very high
R4203 Southeastern Carpathian pre-subalpine forests of spruce (*Picea abies*) with *Soldanella*	G3.1B62 Eastern Carpathian subalpine spruce forest --	9410 Acidophilous *Picea* forests of the montane to alpine levels	High

hungarica		(*Vaccinio-Piceetea*)	
R4205 Southeastern Carpathian forests of spruce (*Picea abies*) with *Oxalis acetosella*	G3.1B6-Eastern Carpathian subalpine spruce forests --	9410 Acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio-Piceetea*)	Moderate
R4206 Southeastern Carpathian forests of spruce (*Picea abies*) and fir (*Abies alba*) with *Hieracium rotundatum*	G3.1B1 Bilberry spruce forest	9410 Acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio-Piceetea*)	Moderate
R4207 Southeastern Carpathian forests of spruce (*Picea abies)* and fir (*Abies alba*) with *Hylocomium splendens*	G3.1B1 Bilberry spruce forest	9410 Acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio-Piceetea*)	Moderate
R4208 Southeastern Carpathian forests of spruce (*Picea abies*) and fir (*Abies alba*) with *Luzula sylvatica*	G3.1B1 Bilberry spruce forest	9410 Acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio-Piceetea*)	High
R 4209 Southeastern Carpathian forests of spruce (*Picea abies*) with *Leucanthemum waldsteinii*	G3.1B625 Carpathian Leucanthemum high montane spruce forests/G3.1B62Eastern Carpathian subalpine spruce forests --	-	Very high
R4210 Southeastern Carpathian forests of spruce (*Picea abies*) with *Sphagnum* spp.	G3.1B62Eastern Carpathian subalpine spruce forests --	9410 Acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio-Piceetea*)	Very high
R4211 Southeastern Carpathian forests of spruce (*Picea abies*) and fir (*Abies alba*) with *Pulmonaria rubra*	G3.114-East Carpathian high montane fir forests	-	Very high
R4212 Southeastern Carpathian forests of spruce *(Picea abies)* and fir (*Abies alba*) with *Pleurozium schreberi*	G3.1B624-Carpathian high montane Bazzania spruce forests/ G3.1B62-Eastern Carpathian subalpine spruce forests	-	Very high

R4213 Southeastern Carpathian forests of spruce (*Picea abies*) with *Doronicum columnae*	G3.1B62Eastern Carpathian subalpine spruce forests	-	Moderate
R4214 Southeastern Carpathian forests of spruce (*Picea abies*) and beech (*Fagus sylvatica*) with *Hieracium rotundatum*	G3.1F43 Dacian beech-spruce forest	9410 Acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio-Piceetea*)	High

Figure 162*Picea abies* (foto: Roxana Ion)

Figure 163 Habitat G3.1 (foto: Roxana Ion

G3.2 Alpine larch - Arolla woodland

Distribution: in the Oriental Carpathians (Ceahlau massif), Meridionali massifs (Ciucas, Bucegi, Lotru) and Ocidentali massifs (Vidolm)

Habitat structure: Phytocoenosis edified by mountain boreal species, oligoterms, mesophiles, oligotrophs. The layer of trees, compound of larch *(Larix decidua*) exclusively or with a mixture of spruce (*Picea abies*), swiss pine *(Pinus cembra*), rare, fir (*Abies alba*), beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*), coverage of 70-90% (forest) at altitudes up to 1600-1750 m, or small, 40-60% (glades) at high altitudes above 1750 m or on cliffs; Trees have heights of 20-28 m at 100 years. The shrub layer, well developed, composed of *Juniperus sibirica, Salix silesiaca, Ribes petraeum, Sorbus aucuparia,* less often *Pinus mugo.* The layer of herbs and subshrubs is composed of *Vaccinium myrtillus, V. vitis-idaea, Deschampsia flexuosa*, species of mountain weeds (*Adenostyles orientalis*) and species of mull flora (*Asperula odorata, Lamium galeobdolon).*

Dominant species

Larix decidua – Family *Pinaceae*. Resinous tree with acicular, soft, fall leaves, grouped 30-40 on short branches, with stripes of stomata, only on the lower face.

Saxifraga cuneifolia – Familiy Saxifragaceae. Perennial herbaceous plant, 10-20 cm tall, subrounded, cuneate, with long petioles.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4204 Forests and glades of larch (*Larix decidua*) with *Saxifraga cuneifolia*	G3.2531-Eastern Carpathian larch-orests	9420 Alpine Larix decidua and/or Pinus cembra forests	Very high

G3.4 [Pinus sylvestris] woodland south of the taiga

This type of habitat brings together the pine forests (*Pinus sylvestris*) from mountain areas.

Distribution: In Romania, 3 habitats have been identified in the limestone massifs in the Eastern Carpathians (Hășmaș Mountains), Southern Carpathians (Leaota) and Western Carpathians (Trascău Mountains), on the nemoral floor, the sublevel of beech forests and the mixture of beech (R4215); the Eastern Carpathians (especially in the Trotus Basin), in the Carpathians of Curvature (Vrancei Mountains) and, isolated in several massifs from Southern Carpathians, in the nemoral and boreal floors (R4216); Southern Carpathians (Cozia Mountain), on the nemoral floor, the sublevel of beech forests and the mixture of beech (R4217).

Habitat structure: The layer of trees, composed on the upper floor, scots pine (Pinus sylvestris), exclusively or disseminated beech (Fagus sylvatica), warty birch (*Betula pendula*), rowan (*Sorbus aucuparia*), sessile oak (*Quercus petraea*), sometimes spruce (*Picea abies*), fir (*Abies alba*).It has variable coverage of 30-70% and heights of 15-25 m at 100 years. The layer of shrubs usually is missing or represented by few specimens of *Juniperus communis, Cotoneaster integerima, Rosa pendulina, Corylus avellana, Rhamnus cathartica, Lonicera xylosteum, Spiraea chamedrifolia*, in the case of R4217 contains the characteristic species *Daphne blagayana*. Layer of herbs and subshrubs, dominated by *Sesleria rigida, Vaccinium myrtillus, Calluna vulgaris*. The layer of moss and lichens, with *Leucodon sciuroides*, *Leucobrium glaucum*, *Hypnum cupresiforme, Cladonia sp.*

Dominant species

Pinus sylvestris

Medium-sized conifer (25-30m), occasionally high, with long needles (5-8 cm), blue-green with finely-serrated edges, grouped by 2 in a sheath. The trunk is straight, the old trees are branched only at the top, resulting a flat crown. Present winter buds of 1 cm long. Thebark is thick, scaly dark grey-brown on the lower trunk, and thin, flaky and orange on the upper trunk and branches. Solitary cones or in a group of 2-3, woody, downwards, ovoid-conical, on short peduncles, open, of 3-8 cm.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4215 Southeast Carpathian forests of scots pine (*Pinus sylvestris*) with *Sesleria rigida*	EUNIS: G3.4C8 East Carpathian *Sesleria* Scots pine fores	-	Very high

R4216 Southeast Carpathian forests of scots pine (*Pinus sylvestris*) with *Leucobryum glaucum*	G3.4C9 East Carphathian bilbery Scots pine forest	-	Very high
R4217 Southeast Carpathian forests of scots pine (*Pinus sylvestris*) with *Daphne blagayana*	G3.4CA East Carpathian *Daphne* *blagayana* Scots pine forest	-	Very high

Figure 164*Pinus sylvestris* (foto: Roxana Ion)

G3.5 [Pinus nigra] woodland

This type of habitat brings together black pine forests (*Pinus nigra*) from the Mediterranean mountainous region on the dolomitic substrate in the Balkan Peninsula, Asia Minor and the Southern Alps.

Distribution: In Romania, a single habitat has been identified in the southwestern area of the Romanian Carpathians, on the limestone cliffs in the Domogled-Cerna Valley and the Iron Gates Natural Park at Tri-kule and the clifss from Trescovăţ.

Habitat structure: The layer of trees is composed on the upper floor of the endemic species *Pinus nigra* subsp. *banatica*. Alongside with which it appears manna ash (*Fraxinus ornus*), turkish hazelnut (*Corylus colurna*), linden (*Tilia platyphyllos*), sessile oak (*Quercus petraea*), oriental hornbeam (*Carpinus orientalis*). It has a coverage of 40-80% and heights of 20-25 m at 100 years. The layer of shrubs is missing or poorly developed, composed of *Cotoneaster integerrima, C. tomentosa, Cotinus coggygria, Cornus mas, Sorbus cretica, S. borbasii* (local endemic species), *Rhamnus saxatilis*, local *Syringa vulgaris, Juniperus communis*. The herbaceous layer is dominated by *Carex humilis, Rigid Sesleria, Genista radiata* - a characteristic species of this type of habitat in our country.

Dominat species

Pinus nigra* subsp. *banatica

Pinus nigra ssp. banatica Conifer with a maximum of 25 m, dark brown or dark brown bark and very cracked at maturity. The crown is first conical, flattening to the old trees. At trees exposed to the wind, such as those on cliffs peaks acquires a specific, flag-form. The needles are dark green, grow in pairs, grouped in 2-3-5 beams per branch, 8-14 cm long and very dense on the younger branches. Yellow-green shoots. Female flowers are pink, and yellow at male. Cones of 5-8 cm, yellow or yellow-green, solitary or in groups. The scales have a cross ridge at the top and a terminal spike

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4218 Southeast Carpathian glades and forests of scots pine (*Pinus nigra ssp. banatica*) with *Genista radiata*	G3.562 Banat pine forest	9530*Sub-mediterranean pine forest with endemic black pines	Very high

Figure 165 Habitat G3.5 in Domogled Mountain, Băile Herculane (foto: Roxana Ion)

G3.E Nemoral bog conifer woodland

Distribution: The Eastern Carpathians (Gutâi Mountains), the Western Carpathians (Gilău Mountains, Bihor Mountains), in the bogs of the boreal floor, representing the eastern limit in Europe, Tinovul Molhaşul Mare from Izbuc, in the oligotrophic bogs of Northern Moldova Moldavia (Poiana Stampei, Lucina etc.), the Parang Mountains, the Apuseni Mountains and other massifs.

Structura habitatului: Phytocoenosis edified by boreal species, oligoterms, mesohigrophites, oligotrophs and acidophiles. The top layer is made of *Pinus mugo* monodominant along with subshrubs species at 30-40 cm high, more abundant being *Vaccinium myrtillus, Vaccinium vitis-idaea*, and relict species *Oxycoccus microcarpus, Empetrum nigrum, Andromeda polyfolia, Oxycoccus palustris;* or from spruce glades (*Picea abies*) with scots spine (*Pinus sylvestris*), (*Betula pendula*) and white birch (*Betula pubescens, B. nana*); have a 10-20% coverage, sometimes even more, and heights up to 8-10 m at 100 years with the shrub dominated by *Vaccinium myrtillus*. The grassy layer is represented by *Eriophorum vaginatum, Carex pauciflora, Melampyrum silvaticum, Doronicum austriacum, Myosotis sylvatica, Calamagrostis arundinacea.* In the moss layer is common *Polytrichum strictum, Sphagnum (S. wulfianum, S. squarrosum, S. russowii, S. palustre, S. recurvum, S. quinquefolium, S. capillifolium)*.

Dominat species: ***Pinus mugo, Picea abies, Pinus sylvestris*** (have been described in the previous chapters)

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3106 Southeast Carpathian thickests of mugo pine (*Pinus mugo*) in oligotrophic bogs of *Sphagnum*	G3.E1 Dwarf mountain pine bog woods	91D0 * Bog woodland	High, rare habitats, including relict species
R4412 Southeast Carpathian glades of spruce (*Picea abies*) and / or scots pine (*Pinus sylvestris*) in oligotrophic bogs	G3.E51-Peri-Alpine peatmoss-spruce woods / G3.E5-Nemoral peatmoss Picea woods	91D0 * Bog woodland	Very high

G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland

Distribution: in all the Romanian Carpathians, in the nemoral floor

Habitat stucture Phytocoenosis edified by boreal, nemoral european species, oligomesoterme, mesohigrophites, oligomesotrophs. The trees layer is made of spruce (*Picea abies*), beech (*Fagus sylvatica* ssp. S*ylvatic*a), fir (*Abies alba*), often with specimens of mountain maple (*Acer pseudoplatanus*), mountain elm (*Ulmus glabra*), birch (*Betula pendula*), rowan (*Sorbus aucuparia*). The coverage is high 80-100% and heights of 20-35 m for spruce and fir, 18-30 for beech at 100 years. The layer of shrubs is poorly developed and composed of *Sambucus racemosa, Lonicera xylosteum, Ribes petraeum, R. uva-crispa, Daphne mezereum, Rosa pendulina, Lonicera nigra*. The layer of grasses and subshrubs: developed variable depending on the light consisting of species of mull flora (*Dentaria glandulosa, Galium odoratum, Rubus hirtus*), local and few acidophilic species (*Calamagrostis arundinacea, Luzula luzuloides, Vaccinium myrtillus*), specii higrofile de tipul *Myosotis–Leucanthemum.* The moss layer is represented by *Eurynchium striatum, Hylocomium splendens, Dicranum scoparium* etc.

Dominant species

Picea abies

A cone with conical crown, which can reach a height of 65m. Brown bark, smooth. Green, short (1-2.5 cm) needles, stinging, quadrangular in cross-section, grow on all sides of the branches. Small and yellow male cones, the females ones are downward, brown, 12-18 cm long, fusiform, with thin, rhombic scales and indented at the top.

Abies alba

Conifer with pyramidal crown. It can reach heights up to 50 m. Acicular leaves, with 2 whitish stripes on the inferior part and 2 rows on the young branches. Coaja netedă, cenușiu-maronie, fisurată în solzi. The female cones are brown, erect, 10-20x3-4cm, with scales finish with a small spike. The male cones are small and yellow.

Fagus sylvatica

Monoecious trees of large dimensions (up to 40m), with smooth (or slightly rough) bark and gray.The main branches are numerous and powerful. When is growing in the forest, the trunk becomes very straight and tall, with branches just on the top. The leaves are oval-elliptic, with smooth and undulate edges, with bristles when are young, with a petiole of 1-1,5 cm. The male flowers are found in terminal inflorescences, with the long peduncle and the divided perianth. Female flowers are usually grouped in pairs on a short peduncle. The fruit is 1-2 cm long, with 3 edges, usually in pair in a dehiscent spiny cup.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R4101 Southeast Carpathian forests of spruce (*Picea abies*), beech (*Fagus sylvatica*) and fir (*Abies alba*) with *Pulmonaria rubra*	G4.6. Mixed – Abies-Picea-Fagus-woodlands	91V0 Dacian beech forest (Symphylo-Fagion)	Moderate
R4102 Southeast Carpathian forests of spruce (*Picea abies*), beech (*Fagus sylvatica*) and fir (*Abies alba*) cu *Hieracium rotundatum*	G4.6. Mixed – Abies-Picea-Fagus-woodlands	9110 Luzulo-Fagetum beech forest	Moderate
R4103 Păduri sud-est carpatice de molid (*Picea abies*), fag (*Fagus sylvatica*) şi brad (*Abies alba)* with *Leucanthemum waldsteinii*	G4.6. Mixed – Abies-Picea-Fagus-woodlands	91V0 Dacian beech forest (Symphylo-Fagion)	Very high

Figure 166 Habitat G4.6 (foto: Roxana Ion)

Figure 167*Picea abies* (foto: Roxana Ion)

Figure 168 *Fagus sylvatica* (foto: Roxana Ion)

G5.8 Recently felled areas

Distribution: in all the Carpathians of Romania, on the nemoral floor of the beech forests

Habitat structure: This type of habitat is installed after the cutting of the beech forests but only after the incipient stages of succession, in which the decomposition of the wood remains on the ground. The shrub layer is dominated by *Sambucus racemosa*, accompanied by *Salix caprea* but sporadically appear *Sambucus nigra*, *Salix silesiaca*, *Betula pendula*, *Sorbus aucuparia*. The height of the layer is 4-5m. The coverage varies between 60-90% after the evolution stage. The layer of grasses and subshrubs preserves to a good extent the previous forest flora, *Senecio fuchsii* becoming characteristic of the association. With great dominance are present the species: *Calamagrostis arundinacea*, *Rubus hirtus*, *Rubus idaeus*, *Fragaria vesca*, *Urtica dioica*, *Impatiens noli-tangere*, *Luzula luzuloides* and numerous ferns.
Phytocenosis is installed instead of harvested forests and represents a stage of normal succession to the beech forest, no matter what forest species are planted. The phytocoenosis coverage is 100%, but its stratification is very different, after the age of the established community. The thickets of Robus has the highest domination and a 60-70% coverage, reaching 1-1.5 m high. At this height also come the dense clumps of *Chamaenerion angustifolium*. The woody species of *Sambucus*, *Salix caprea* are sporadic, but reach higher heights of over 2 m. The lower layer has the largest coverage, 80-90%, along with *Fragaria vesca*, located around stumps abounding the grasses: *Poa nemoralis*, *Calamagrostis arundinacea*, *Calamagrostis epigeios*, *Agrostis capillaris*, but and: *Luzula luzuloides*, *Carex sylvatica*.

Dominant species:
Sambucus racemosa(red elderberry) –*Caprifoliaceae* family. Shrub, 1-4 m, reddish brown marrow, imparipinnatie, compound, opposite, inflorescence is a ovoid panicle, yellow corolla, red fruit.
Rubus idaeus (red raspberry) –*Rosaceae* family. The woody stem without red sete, 1-2 m, thorned plants, compound leaves, white petals, erect, the mature fruit detaches from the conical receptacle.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R3113 Southeast Carpathian thickets red elderberry (*Sambucus racemosa*)	G5.85 Shrubby clearing	-	Low
R3114 Forests cuts with red raspberry (*Rubus idaeus*)	G5.85 Shrubby clearing	-	Low

H2.3 Temperate-montane acid siliceous screes

Siliceous screes at high altitudes and cold areas of the mountain ranges of the immoral area, including the Alps, the Pyrenees and the Caucasus.

Distribution: In Romania, 5 habitat types corresponding to H2.3 were reported in the Southern Carpathians**:** Bucegi Mountains (Caraiman, Coștila, Morarul, Bucșoiu, Omu, Obârșia, Scara,Țigănești peaks), Făgăraș Mountains; in the inferior alpine floor (R6101); Eastern Carpathians: Rodna Mountains (Zănoaga Mare-Pietrosul, Piatra Albă, Puzdra, Rebra, Pietrosul Mare, Anieșul Mic, Gărgălău, Galațiul peaks), Southern Carpathians: Fagaras Mountains (Scara, Călțun, Capra), Retezat Mountains, Buila-Vânturarița Mountains (Oslea Peak, Vioreanu Peak, Vânturarița Peak); in the subalpine and alpine floors (R6102); Eastern Carpathians: Rodna Mountains (peaks: Pietrosul Mare, Piatra Albă, Anieșul Mic, Puzdra, Anieșul Mare); in the alpine floor (R6103); Eastern Carpathians: Rodna Mountains (Ineu, Pietrosul, Omul, Momaia, Culmea Cișa, Piatra Albă). Southern Carpathians: Făgăraș Mountains (Scara, Călțun, Capra), Retezat Mountains (Custura Mountain), Țarcu Mountains, Godeanu Mountains, Cernei Mountains; in the subapline and alpine floors (R6104) Southern Carpathians: Retezat Mountains (peaks: Custura, Gruiul, Judele, Muchia Ascuțită, Bucura, Peleaga, Păpușa, Pietrele), in the alpine floor (R6105).

Habitat structure: Being habitats from the alpine or lower alpine habitats, most of the species constituting this habitat are of small stature (10-40 cm) and occupy unevenly the substrate. The edifying species for this type of habitat differs depending on the mobility of the scree thus: for communities of mobile or poorly fixed screes the characteristic species is *Oxyria digyna*, a species of mountain sorrel that vegetates along with *Saxifraga carpathica, Poa cenisia* subsp. *contracta, Veronica baumgarteni.* On the semifixed screes are remarkable the species *Silene acaulis, Minuartia sedoides, Androsace chamaejasme* which have a characteristic appearance, growing in in the cushions. Also in this category enter the crinonival communities who prefer shaded slopes of glacier circles or valleys, or the base of cliffs, where snow accumulates and persists for a longer period of time. The characteristic species that achieve greater coverage in such areas are *Festuca picta, Saxifraga carpathica, Saxifraga pedemontana* subsp. *cymosa, Saxifraga bryoides.* The habitat has a high conservative value due to the large number of endemic species *(Achillea schurii, Doronicum carpaticum, Lychnis nivalis, Festuca bucegiensis* and the presence of vulnerable or endangered species at european level (*Poa grantica* subsp. *disparilis*). Other species that colonize the siliceous screes : *Soldanella pusilla, Luzula spicata, Gentiana frigida, Luzula spicata, Senecio carniolicus, Doronicum carpaticum, Poa laxa, Saxifraga ascendens, Saxifraga hieraciifolia, Doronicum clusii, Cardamine resedifolia, Poa deylii, Saxifraga moschata, Cardaminopsis arenosa ssp. borbásii, Arabis alpina, Saxifraga bryoides, Cystopteris regia, Alchemilla hybrida, Trisetum fuscum, Luzula alpino-pilosa, Sedum alpestre, Soldanella pusilla, Gnaphalium supinum, Ranunculus crenatus, Chrysanthemum alpinum, Saxifraga oppositifolia, Cardamine resedifolia, Poa deylii, Saxifraga moschata, Cerastium alpinum ssp. lanatum, Erigeron uniflorus, Elyna myosuroides, Dryas octopetala, Minuartia gerardii, Potentilla crantzii, Armeria alpina, Carex curvula, Arenaria ciliata, Veronica*

bellidioides, Festuca supina, Hieracium alpinum, Juncus trifidus, Euphrasia minima, Potentilla ternata, Ligusticum mutellinoides, Carex fuliginosa.

Dominant species:

Oxyria digyna (mountain sorrel) is part of Fam. *Polygonaceae*, is a perennial plant. The whole plant is glabrous, reniform basal leaves. Blooms in July-August.

Silene acaulis (cushion pink) is part of Fam. *Caryophylaceae*. It is a small plant of 4 cm high; species well adapted at conditions from the alpine area, growing in cushions formed by many interweaved rosettes. Flowers are of pink color.

Minuartia sedoides is a perennial species from the *Caryophylaceae* family, very similar as habitus with *Silene acaulis*. Petals are missing or are very short.

Festuca picta is part of the *Poaceae* family. It is a herbaceous, perennial plant growing in compact bushes. The flower is a spikelet grouped in spiciform panicles stained with purple . The superior glume is ovate-lanceolate.

Saxifraga carpathica is part of the *Saxifragaceae* family. Leaves are small, rounded at the edge, basal leaves with bulbs. Flowers 1-5 with white, pink colored petals.

Saxifraga pedemontana subsp. Cymosa is part of the *Saxifragaceae* family, with leafless stem, leaves of rosette cuneate, 3-7 fidate. White petals.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R6101 Southeast Carpathian communities of siliceous screes with *Silene acaulis* and *Minuartia sedoides*	H2.31 Alpine siliceous screes	-	High
R6102 Southeast Carpathian communities of siliceous screes with *Festuca picta* and *Senecio carniolicus*	H2.31 Alpine siliceous screes	8110 Siliceous screes of the montane to snow level (*Androsacetalia Alpinae* and *Galeopsetalia ladani*)	High
R6103 Southeast Carpathian communities of semi-fixed siliceous screes with *Saxifraga pedemontana* ssp. *cymosa* and *Saxifraga carpathica*	H2.31 Alpine siliceous screes	8110 Siliceous screes of the montane to snow level (*Androsacetalia Alpinae* and *Galeopsetalia ladani*)	High
R6104 Southeast Carpathian communities of mobile or weak fixed siliceous screes with *Oxyria dygina*	H2.31 Alpine siliceous screes	8110 Siliceous screes of the montane to snow level (*Androsacetalia Alpinae* and *Galeopsetalia ladani*)	High

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R6105 Southeast Carpathian communities of semi-fixed siliceous screes with *Saxifraga bryoides, Silene acaulis* şi *Veronica baumgarteni*	H2.31 Alpine siliceous screes	8110 Siliceous screes of the montane to snow level (*Androsacetalia Alpinae* and *Galeopsetalia ladani*)	Mare

Figure 169*Achillea schurii* – Făgăraș Mountains (foto: Roxana Ion)

Figure 170*Minuartia sedoides* (foto: Roxana Ion)

Figure 171*Silene acaulis* (foto: Roxana Ion)

Habitat H2.3 – Făgăraș Mountains

Habitat H2.3 – Făgăraș Mountains

Habitat H2.3 –Făgăraș Mountains

Habitat H2.3 – Făgăraș Mountains

Figure 172 Aspect general al habitatului H2.3 – Făgăraș Mountains (foto: Roxana Ion)

H2.4 Temperate-montane calcareous and ultra-basic screes

Distribution: In Romania, 5 habitat types corresponding to H2.4 were reported in the Eastern Carpathians: Rodna Mountains **(**peaks: Ineu, Gărgălău, Anieș, Pietrosul, Negoiescu Mare), Hășmaș Mpuntains, Bicazului Keys, Rarău Mountains. Southern Carpathians: Făgăraș Mountains, Țărcu Mountains, Godeanu Mountains, Bucegi Mountains, Căpăţânei Mountains (Buila, Vânturariţa), Retezat Mountains, Piatra Craiului Mountains (Ascuțit Peak, Padina Popii Peak, La Zaplaz, Marele Grohotiș, Umerii Pietrei Craiului, Padina Lăncii, Piatra Craiului Mică).

Habitat structure: This habitat brings together the communities of plants growing on calcareous screes in high areas. Unfixed screes are pioneering habitats, open, with a small number of species in the floral composition and with poor cover. In the grassy layer, appears the species *Saxifraga moschata* with *Cerastium arvense* ssp. *calcicolum; Papaver alpinum* ssp. *corona-santi-stephani* and *Cardaminopsis neglecta* together with the saxic, sciafile, chinophil *Festuca violacea* or communities dominated by *Linaria alpina,P. alpinum ssp. corona sancti-stephani, Rumex scutatus,* with a role in the beginning of the fixation of the mobile calcareous screes. On the screes made up of smaller fragments and with accumulations of organic material, vegetation becomes richer by the appearance of other species such as: *Cerastium lerchenfeldianum, Anthemis carpatica, Senecio rupester, Saxifraga oppositifolia, Galium album*. Species more frequent found are *Arabis alpina, Doronicum columnae, Senecio rupestris, Aconitum hosteanum, Saxifraga heucherifolia, Poa alpina, Androsace lactea, Myosotis alpestris, Galium anisophyllum, Ranunculus oreophylus.* These pioneer species, through decomposed organic debris, contribute to the enrichment of the screes in nutrients, preparing the conditions for the installation of more demanding species toward the substrate. Mesotrophil habitats have in the grass layer *Saxifraga moschata* and *Saxifraga aizoides* an appreciable number of hygrophilic species like: *Silene pusilla, Saxifraga stellaris, Parnassia palustris, Viola biflora*,etc., and from the chionophile species *Soldanella pusilla, Gnaphalium supinum, Oxyria digyna, Saxifraga bryoides*,etc. By the acumulation of the screes, the association sometimes evolves to chionophile associates.. Snow accumulations which is achieved during the winter, ensures in the vegetation season an increase of humidity. The persistence of snow, until late spring, creates conditions for the installation of some chionophilous species such as: *Hutchinsia brevicaulis, Cerastium cerastoides, Acinos alpinus* and *Galium anisophyllon* and endemic species of *Achillea schurii, Doronicum carpaticum, Papaver corona-sancti-stephani, Thymus pulcherrimus.* Other species: *Luzula spicata, Saxifraga bryoides, Veronica baumgartenii, Saxifraga androsacea, Arabis alpina, Cardaminopsiss arenosa, Hutchinsia alpina ssp. brevicaulis, Saxifraga carpatica, Rhodiola rosea, Festuca nitida ssp. flaccida, Poa laxa, Saxifraga bryoides, Veronica baumagrtenii, Silene acaulis, Dianthus glacialis, Artemisia eriantha.*

Dominant species:

***Papaver alpinum* ssp. *corona-sancti-stephani* –** Family: *Papaveraceae*. Perennial herbaceous plant, of 5-20 cm. Scapiform stem, yellow flowers, the fruit is a capsule.

Doronicum carpaticum **–** Family: *Asteraceae*. Perennial plant, of 10-50 cm high. Basal leaves with a deep corded base and deep sinuate dentate edges. With Calathids 1-3, ligulate flowers with yellow petals.
Acinos alpinus – Family: *Lamiaceae*. Perennial plant of 10-30 cm high. Elliptical-suborbicular leaves, with rounded wide-cuneate, full edges. Flowers grouped in whorls of 2-6, of intense purple color.
Saxifraga moschata **–** Family: *Saxifragacea*e. Herbaceous plant, basal leaves form rosettes and are cunate, at the top 3-5 lobed or fidate. Flowers with yellow petals of 3-6 mm long.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R6106 Southeast Carpathian communities of screes and semi-fixed calcareous screes with *Cerastium arvense* ssp. *calcicolum, Saxifraga moschata* şi *Saxifraga aizoides*	H2.44 Carpathian calcareous screes	8120 Calcareous and calchist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)	High
R6107 Southeast Carpathian communities of mobile and semi-mobile calcareous crees with *Cardaminopsis neglecta, Papaver corona-sancti- stephani* and*Doronicum carpaticum*	H2.44 Carpathian calcareous screes	8120 Calcareous and calchist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)	High
R6108 Southeast Carpathian communities with reduced mobility and high humidity of *Rumex scutatus, Saxifraga moschata, Saxifraga aizoides* and *Doronicum columnae*	H2.44 Carpathian calcareous screes	8120 Calcareous and calchist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)	High
R6109 Southeast Carpathian communities of mobile and semi-mobile calcareous screes with *Papaver corona- sancti-stephani, Cerastium lerchenfeldianum* and *Cerastium transsilvanicum*	H2.44 Carpathian calcareous screes	8120 Calcareous and calchist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)	High

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R6110 Southeast Carpathian communities of mobile and semi-mobile calcareolus screes with *Acinos alpinus* and *Galium anisophyllon*	H2.44 Carpathian calcareous screes	8120 Calcareous and calchist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)	High
R6111 Southeast Carpathian communities of fixed screes with *Geranium macrrorhizum, Sedum fabaria* and *Geranium lucidum*	H2.44 Carpathian calcareous screes	-	
R6112 Southeast Carpathian mountain communities of mobile ori semi-fixed screes with *Thymus comosus, Galium album* and *Teucrium montanum*	H2.44 Carpathian calcareous screes	8120 Calcareous and calchist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)	
R6113 Southeast Carpathian of fixed screes with *Parietaria officinalis, Galium lucidum* and *Geranium lucidum*	H2.44 Carpathian calcareous screes	-	

Figure 173*Papaver alpinum* ssp. *corona-sancti-stephani*– Retezat Mountains (foto: Roxana Ion)

Figure 174 General aspect of the habitat H2.4 – Piatra Secuiului (Trascău Mountains, Alba-Iulia County) (foto: Roxana Ion)

Figure 175 General aspect of the habitat H2.4 in Retezat Mountains (foto: Roxana Ion)

H2.6 Calcareous and ultra-basic screes of warm exposures

Distribution : In Romania, 2 habitat types corresponding to H2.6 were reported in the Southern Carpathians: Leaota Mountains (Cheile Ghimbavului, Cheile Dâmboviței, Cheile Cheii), Țarcu Mounatains, Godeanu Mountains, Cernei Mountains. Western Carpathians: Vidra-Avram Iancu, Scărița-Belioara Mountains, Iadului Valley; in the mountain region, Southern Carpathians: Mountains Cernei (Cernei Valley); in the hill region.

Habitat structure: These communities brings together phytocoenoses that prefer limestone screes and dominated by herbaceous species with a variable coverage of up to 60%. The dominant and characteristic species are *Gymnocarpium robertianum, Achnatherum calamagrostis, Parietria officinalis, Thymus comosus*, but some mesophiles also appear such as: *Eupatorium cannabinum, Valeriana officinalis, Silene vulgaris, Galeopsis ladanum, Salvia glutinosa, Tussilago farfara*. On measure the substances accumulate in the substrate and screes becomes more stable, a significant number of species of meadow appears: *Agrostis tenuis, Festuca rubra,Thymus bihorensis*.Other important species: *Cardaminopsis arenosa* ssp. *borbásii,Teucrium montanum, Galium album, Melica ciliata, Origanum vulgare, Geranium robertianum, Lamium garganicum, Asplenium trichomanes, Poa nemoralis, Alyssum petraeum, Galium purpureum, Arabis procurrens, Cardaminopsis arenosa, Parietaria erecta, Melica ciliata* var. *flavescens, Festuca xanthina, Lamium bithynicum, Silene nutans* ssp. *dubia, Thymus comosus.*

Dominant species:
***Gymnocarpium robertianum* –** Family: *Aspleniaceae*. The leaf of 3-4 times pinnatisect, without idusium. Plant with glandular bristles.
Thymus comosus – Family: *Lamiaceae.* Perennial plants,of 5-15 cm high, stem with flowers ± cylindrical, around the pubs, sometimes two faces opposite each other, less hairy. the lower lip of corolla is bilobated, purple flowers.
Achnatherum calamagrostis – Familay: *Poaceae*. Perennial plants, of 60-100 cm. The flowers with pedunculate spikelets, grouped in lax panicles.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R6114 Southeast Carpthian communities of small or roughages unfixed screes with *Gymnocarpium robertianum* and *Thymus comosus*	2.61 Peri-Alpine thermophilous screes; H2. 6123 Limestone fern screes	8160*Medio-European calcareous scree of hill and montane levels	Low

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Conservative value
R6115 Dacian-Balkan pioneer communities of mobile screes with *Achnatherum calamagrostis*	H2.61 Peri-Alpine thermophilous screes	8160*Medio-European calcareous scree of hill and montane levels	Low

H3.1 Acid siliceous inland cliffs

Distribution: In Romania, 9 habitat types of H3.3 have been reported**,** spread in the Eastern Carpathians Cheile Nărujei (Vrancea County), Gutâi Mountains, Călimani Mountains, Cibinului Mountains; Southern Carpathians: Făgăraș Mountains (Șerbota Valley); in subalpine and apline floor. Retezat Mountains in subalpine floor, Parâng Mountains, Țarcu-Godeanu Mountains, Cibinului Mountains, Piatra Craiului Mountains (Cheile Dâmbovicioarei, Cheile Prăpăstiile Zărneștiului), in the hill region, Leaota Mountain, Oltului-Turnu Roșu Valley, Călimănești Valley, Sadului Valley, Cisnădioara; in the mountain region, Măgura-Tg.Ocna; Western Carpathians: Aninei Mountains (Beușnița-Cheile Nerei, Cheile Minișului),Apuseni Mountains (Iadului Valley, Drăganului Valley, Sebișelului Valley, Râmețului Valley, Sebeșului Valley);in the mounatin region, Detunata Goală, Codru-Moma Mountains, Gilău Mountains; Mraconia, Eșelnița, Crișului Repede Defile.

Structura habitatului: The habitat brings together the rupicolous phytocoenoses, some of them pioneers on siliceous cliffs.The herbaceous layer is variable developed, depending of the static conditions. Communities with *Silene dinarica* usually form monodominant plant groups or together with *Silene lerchenfeldiana* in which the grassy layer is well developed. In the habitats with *Silene lerchenfeldiana* as edifying species, average coverage of 5% and a maximum presence alongside of *Senecio glaberrimus,* characteristic and *Juncus trifidus*, but with few species. As edifying and characteristic species we also remark *Potentilla haynaldiana, Poa nemoralis* and *Asplenium trichomanes* ssp. *Bivalens* and numerous species of small-sized ferns: *Polypodium vulgare, Ceterach officinarum, Cystopteris fragilis, Asplenium viride, Asplenium ruta-muraria, Asplenium trichomanes, Woodsia ilvensis* and *Asplenium septentrionale, Polypodium vulgare* with *Hedera helix.* The moss and lichens layer is represented by: *Polytrichum formosum, Grimmnia apocarpa, Alectoria ochroleuca, Thamnolia vermiculari, Rhytidium rugosum, Rhytidiadelphus triquetrus, Ctenidium molluscum, Neckera besseri, Neckera complanata, Dicranum scoparium, Mnium longirostre, Isothecium myurum var. scabridum, Hedwigia ciliata, Oligotrichum hercynicum, Schistidium apocarpum, Madotheca platyphylla.* Other important species: *Huperzia selago, Festuca supina, Campanula alpina, Campanula kladniana, Agrostis rupestris, Solidago virgaurea ssp. minuta, Festuca supina, Symphyandra wanneri, Saxifraga pedemontana ssp. cymosa, Jovibarba heuffelii, Saxifraga cuneifolia, Poa nemoralis. Dianthus henteri, Veronica bachofenii, Silene dubia, Thymus comosus, Genista janensis, Jovibarba heuffelii, Silene nutans* ssp. *dubia, Veronica bachofenii, Cardaminopsis arenosa, Saxifraga paniculata, Moehringia muscosa, Sempervivum schlehanii, Geranium robertianum, Geranium lucidum, Valeriana tripteris, Sedum maximum, Campanula carpatica.*

Dominant species:

Silene dinarica **–** Family: *Caryophyllacea*e. Herbaceous, perennial species, of 5-8 cm height. Grows in cushions. Stem with flowers with 2-4 pairs of leaves. Flowers of intense pink color.

Silene lerchenfeldiana **–** Family: *Caryophyllacea*e. Perennial herbaceous species, of 10-20 cm high. Leaves lanceolate, spatulate, pale pink flowers, deep emerginate.

Senecio glaberrimus **-** Fam. *Asteraceae*. Herbaceous, perennial species, of 10- 30 cm height. Plants with denticulate leaves, with an elliptical elongated leaf, solitary calathid, flowers with ligule and yellow petals.

Polypodium vulgare **–** Fam. *Polypodiaceae.* Ferns with linear leaf, pinnatipartite. Yellow sori, without indusium.

Asplenium sp. **-** Fam. *Aspleniaceae*. Ferns with full, lanceolate leaf, and cordate base. Linear sori and coverd by idusium

Correspondences

Romanian habitats	**EUNIS habiats**	**Natura 2000 habitats**	**Conservative value**
R6201 Southeast Carpathian communities on siliceous cliffs with *Silene dinarica*	H3.151 Southern Carpathian campion siliceous cliffs	8220 Siliceous rocky slope with chasmophytic vegetation	High, carpathian endemic habitat
R6203 Southeast Carpathian communities on siliceous cliffs with *Silene lerchenfeldiana* and *Senecio glaberrimus*	H3.151 Southern Carpathian campion siliceous cliffs	8220 Siliceous rocky slope with chasmophytic vegetation	High, carpathian endemic habitat
R6205 Daco-Balkan Communities on siliceous cliffs with *Silene lerchenfeldiana* and *Potentilla haynaldiana*	H3.152 Carpatho-Balkano-Rhodopide campion siliceous cliffs	8220 Siliceous rocky slope with chasmophytic vegetation	Low
R6210 Southeast Carpathian communities on siliceous cliffs with *Asplenium trichomanes ssp. trichomanes* and *Poa nemoralis*	H3.1 Acid siliceous inland cliffs	-	Low
R6211 Daco-Balkan Communities on siliceous cliffs with *Polypodium vulgare, Ctenidium molluscum* and *Hypnum cupressiforme*	H3.1 Acid siliceous inland cliffs	-	Low
R6215 Southeast Carpathian communities on siliceous cliffs with *Asplenium septentrionale* and *Woodsia ilvense*	H3.1 Acid siliceous inland cliffs	-	Low

Romanian habitats	EUNIS habiats	Natura 2000 habitats	Conservative value
R6219 Dacian communities from siliceous rocky fissures with *Asplenium adiantum-nigrum, Asplenium septentrionale* and *Silene nutans* ssp. *dubia*	H3.1 Acid siliceous inland cliffs	8220 Siliceous rocky slope with chasmophytic vegetation	High
R6220 Southeast Carpathian communities on siliceous cliffs with *Jovibarba heuffelii* and *Veronica bachofenii*	H3.1 Acid siliceous inland cliffs	8220 Siliceous rocky slope with chasmophytic vegetation	High
R6221 Dacian communities from siliceous rocky fissures with *Polypodium vulgare, Ctenidium molluscum* and *Hypnum cupressiforme*	H3.1 Acid siliceous inland cliffs	-	Low

Silene dinarica

Artemisia eriantha

Saxifraga pedemontana

Rhodiola rosea

Campanula carpatica

Senecio glaberrimus

Silene pusilla

Figure 176 Characteristic species of the habitat H3.1 in Făgăraș Mountains (foto: Roxana Ion)

Figure 177 General aspect of the habitat H3.1 – Făgăraș Mountains (foto: Roxana Ion)

Figure 178 Habitat H3.1 - Retezat Mountains (foto: Roxana Ion)

Figure 179 Habitat H3.1 – Parâng Mountains (foto: Roxana Ion)

H3.2 Basic and ultra-basic inland cliffs

Distribution: In Romania, 10 habitat types corresponding to H3.2 were reported spread in Carpathians Mountains Rodnei Mountains Hasmas, Ceahlau Mountains, Maramures Mountains Rarau Mountains, Golden Bistrita Valley, Bicajel; Southern Carpathians: Bucegi Mountains, Piatra Craiului Mountains, Postavaru Mountains in subalpine and lower alpine floors, Făgăraş Mountains, Retezat Mountains (Piatra Iorgovanului), Cisnădioara-Sibiu; Western Carpathians: Valea Cernei, Cleaner Ilovei, Valea Tesnei, Cazanele Dunării, Piatra Cloşani, Băile Herculane and Crestele Ciucevelor (Cheile Bedinei, Cheia Prisăcinei, Ciuceava Frasinului), in the premontal area of Almăjului Mountains, Codru-Moma Mountains, Piatra Bulzului, Piatra Singuratică.

Habitat structure: The habitat brings together the phytocoenoses limestone cliffs. The floristic composition of this habitat differs depending on the vegetation floor and the stationary conditions. In the high areas, on the sunny cliffs there is a constant presence of some saxicole species, heliophile and a few herbs from meadows on small passage; on higher peaks, groups are depleted, the saxicole mesothermal species are absent. Instead, on the upper alpine floor interfere oligothermal species: *Saxifraga moschata, Eritrichium nanum* ssp. *jankae* and *Viola alpina*. In the lower part of the alpine area and in sheltered resorts, *Dianthus spiculifolius, Laserpitium latifolium, Erysimum witmannii ssp. transsilvanicum, Galium album.* In rupicolous hygro-ombrogenesis habitats we observe the presence of sciafile casmophite *Draba kotschyi* and *Lloydia serotina*, to which it is usually added *Saxifraga oppositifolia, Achillea schurii* and *Saxifraga moschata, Campanula cochleariifolia, Silene zawadzkii.* The coverage is 20-30. Other species present: *Gypsophila petraea, Sesleria rigida ssp. haynaldiana, Carex sempervirens, Helianthemum alpestre. Saxifraga mutata ssp. demissa, Saxifraga luteoviridis, Androsace lactaea, Saxifraga paniculata, Asplenium ruta-muraria, Campanula kladniana, Poa nemoralis, Androsace villosa* ssp. *arachnoidea, Draba haynaldii, Eritrichium nanum* ssp. *jankae, Saxifraga mutata* ssp. *demissa, Saxifraga marginata* ssp. *rocheliana* and *Gypsophila petraea, Edraianthus graminifolium, Leontopodium alpinum, Helianthemum alpestre, Kernera saxatilis.* On the hill land mountain floor, herbaceous layer is composed of phytocoenosis with *Ceterach officinarum;* they are rich in species of dacian and carpathian-balkan origin: *Draba lasiocarpa, Alyssum petraeum, Dianthus kitaibelii, Micromeria pulegium*, which confers the regional character of the habitat. Sometimes shrub species also appear like *Syringa vulgaris* and *Cotinus coggygria*. Among the dominant and characteristic species it is noted *Campanula crassipes*, that achieves a 5-15% coverage. The moss layer is represented by *Tortula muralis* and may have a coverage of between 15-20%. Other species: *Silene saxifraga* ssp. *petraea, Asplenium ruta-muraria, Athamantha turbith* ssp. *hungarica, Dianthus petraeus, Edraianthus graminifolius, Saxifraga paniculata, Sedum maximum, Sedum album, Poa nemoralis, Asplenium trichomanes, Asplenium septentrionale, Cystopteris fragilis, Sedum hispanicum, Alyssym petraeum, Seseli rigidum, Sesleria filifolia, Erysimum comatum.*

Dominant species:

Gypsophila petraea **–** Family: *Caryophyllaceae*. Perennial plant, high 5-15 cm. Unbranched stem, with one inflorescence. White-pink petals.

Saxifraga moschata **–** Family: *Saxifragacea*e. Herbaceous plant, the basal leaves form rosette and are cuneate, at the top 3-5 are lobate. Flowers with yellow petals of 3-6 mm long.

Campanula crassipes **–** Family: *Campanulaceae*. Herbaceous, perennial plants. Leaves are basal cordate, those that are found on the stem are linear lanceolate. Campanulate corolla, of purple color.

Asplenium trichomanes; Asplenium ruta-muraria **–** Family: *Aspleniaceae*. Full-leaf ferns, with lanceolate and cordate leaf. *Asplenium trichomanes* has double pinnate, double pinnatisect lamina and blackish rachis over the whole length. *Asplenium ruta-muraria* has lamina 2-4 pennate divided, with petiole longer than lamina.

Achillea schurii **–** Family: *Asteraceae*. Herbaceous, perennial plants, high of 0-20 cm. Strain with a single calathid. Elongated, eliptical lingules, of 6-9 mm.

Correspondences

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Consrvative value
R6202 Southeast Carpathian communities on calcareous cliffs with *Artemisia eriantha* and *Gypsophila petraea*	H3.25 Alpine and sub-Mediterranean calcareous cliffs	-	High, endemic habitat
R6204 Southeast Carpathian communities on calcareous cliffs with *Saxifraga moschata* and *Draba kotschyi*	H3.25 Alpine and sub-Mediterranean calcareous cliffs	-	High, endemic habitat
R6208 Southeast Carpathian communities on calcareous cliffs with *Achillea schurii* and *Campanula cochleariifolia*	H3.25 Alpine and sub-Mediterranean calcareous cliffs	-	High, endemic habitat
R6212 Southeast Carpathian communities on calcareous cliffs with *Saxifraga mutata* spp. *demissa* and *Gypsophila petraea*	H3.25 Alpine and sub-Mediterranean calcareous cliffs	-	High, endemic habitat

Romanian habitats	EUNIS habitats	Natura 2000 habitats	Consrvative value
R6213 Southeast Carpathian communities on calcareous cliffs with *Saxifraga luteoviridis* and *Silene zawadzkii*	H3.25 Alpine and sub-Mediterranean calcareous cliffs	-	High, endemic habitat
R6214 Southeast Carpathian communities on calcareous cliffs with *Saxifraga marginata* ssp. *rocheliana* şi *Gypsophila petraea*	H3.25 Alpine and sub-Mediterranean calcareous cliffs	-	High, endemic habitat
R6216 Daco-Balkan communities on calcareous cliffs with *Ceterach officinarum* and *Draba lasiocarpa*	H3.2 Basic and ultra-basic inland cliffs	8210 Calcareous rocky slopes with chasmophytic vegetation	High, endemic habitat
R6217 Daco-Balkan communities on calcareous cliffs with *Silene saxifraga* ssp. *petraea*, *Asplenium ruta-muraria* and *Asplenium trichomanes* ssp. *quadrivalens*	H3.2 Basic and ultra-basic inland cliffs	8210 Calcareous rocky slopes with chasmophytic vegetation	High, endemic habitat
R6218 Southeast Carpathian communities from calcareous rocky fissures with *Asplenium trichomanes* and *Asplenium ruta-muraria*	H3.2 Basic and ultra-basic inland cliffs	8210 Calcareous rocky slopes with chasmophytic vegetation	Low
R6222 Daco-Balkan communities on calcareous cliffs with *Campanula crassipes*	H3.2 Basic and ultra-basic inland cliffs	8210 Calcareous rocky slopes with chasmophytic vegetation	High, endemic habitat

Draba haynaldi – Piatra Mare Mountains	*Daphne blagayana* - Piatra Mare Mounatains
 *Saxifraga corymbosa* - Piatra Mare Mountains (foto: Roxana Ion)	 *Viola alpina* - Bucegi Mountains (foto: Roxana Ion)
 *Draba kotschyi, Saxifraga sp.* - Bucegi Mountains (foto: Roxana Ion)	 *Saxifraga oppositifolia* - Bucegi Mountains
 *Eritrichium nanum, Saxifraga corymbosa* - Bucegi	 Gypsophila petraea– Munții Mountains

Mountains	
 *Artemisia eriantha* - Bucegi Mountains	 *Dianthus spiculifolius* – Hăşmas-Cheile Bicazului

Figure 180 Characteristic species of the habitat H3.2 (foto: Roxana Ion)

 Habitat H3.2 – Piatra Mare Mountains	 Habitat H3.2 – Piatra Mare Mountains
 Habitat H3.2 – Piatra Mare Mountains	 Habitat H3.2 – Piatra Mare Mountains (foto: Roxana Ion)

Habitat H3.2 – Piatra Mare Mountains

Habitat H3.2 – Piatra Craiului Mountains

Habitat H3.2 – Bucegi Mountains

Habitat H3.2 – Bucegi Mountains

Habitat H3.2 – Ciucaș Mountains

Habitat H3.2 – Scărița-Belioara (Alba County)

Habitat H3.2 – Ciucaș Mountains

Habitat H3.2 – Făgăraș Mountains

Habitat H3.2 – Retezat Mountains

Habitat H3.2 – Sohodolului Keys

Habitat H3.2 – Piatra Craiului Mountains

Habitat H3.2 – Ceahlău Mountains

Habitat H3.2 – Ceahlău Mountains

Habitat H3.2 – Bucegi Mountains

Figure 181 General aspect of the habitat H3.2 (foto: Roxana Ion)

I1.1 Intensive unmixed crops

Cereals and other crops grown on large surfaces, uninterrupted surfaces in open field landscapes.

Figure 182 Wheat crop, Macin Mountains National Park's , Tulcea County (foto: Bodescu Florian)

Figure 183 Potatoes crop, Harghita County (foto: Bodescu Florian)

I1.2 Mixed crops of market gardens and horticulture

Intensive cultivation of vegetables, flowers, small fruits, usually in alternating bands of different crops. Includes small-scale parcels and gardens.

Figure 184 Crops in alternating bands, Harghita County (foto: Bodescu Florian)

Figure 185 Potatoes crop, Covasna County (foto: Bodescu Florian)

Figure 186 General aspect of the habitat I1.2 in Vâlcea County (foto: Bodescu Florian)

I1.3 Arable land with unmixed crops grown by low-intensity agricultural methods

Cultures traditionally and extensively cultivated especially cereals, sheltering a rich and threatened weed flora inclusive *Agrostemma githago, Centaurea cyanus, Legousia speculum-veneris, Chrysanthemum segetum, Calendula arvensis, Adonis spp., Consolida spp., Nigella spp., Papaver spp.*

Figure 187 General aspect of the habitat I1.3 in Covasna County (foto: Bodescu Florian)

I1.4 Inundated or inundatable croplands, including rice fields

Cultivated lands flood or flood plain used for rice cultivation (*Oryza sativa*). When they are not too hard treated they can produce substitution habitats for some wet fauna elements, especially birds, including ducks, corncrakes and herons.

Figure 188 General aspect of the habitat I1.4 in Macin Mountains National Park's, Tulcea County (foto: Bodescu Florian)

I1.5 Bare tilled, fallow or recently abandoned arable land

Fields abandoned or left to rest, and other interstitial spaces on disrupted terrain. Arable land set aside from the agricultural circuit or abandoned with planted weeds in order of soil protection, stabilization, fertilization or regeneration. The abandoned fields are colonized by many pioneer species, introduced or nitrofile plants. They sometimes provides habitats which can be used by animals from the open spaces.

Figure 189 General aspect of the habitatI1.5 in Covasna County (foto: Bodescu Florian)

Figure 190 General aspect of the habitat I1.5 in Covasna County (foto: Bodescu Florian)

I2.1 Large-scale ornamental garden areas

Areas cultivated by large-scale leisure gardens. Vegetation, usually composed mainly of species or varieties introduced, may include many native plants and supports a varied fauna when they are not intensely worked. Large gardens are treated as habitats complexes (X23).

Figure 191 ***General aspect of the habitat I2.1 in the Bucharest Botanical Garden***

I2.2 Small-scale ornamental and domestic garden areas

Cultivated areas of ornamental gardens and the small parks near the houses or squares of the city. Family gardens in the immediate vicinity of residential areas. Excludes garden parcels (I1.2). Small gardens are treated as habitat complexes (X22, X24, X25).

I2.3 Recently abandoned garden areas

Abandoned flowers areas and vegetable parcels from the gardens are quickly colonized by abundant weeds (E5.1).

J1.1 Residential buildings of city and town centres

Dwelling buildings in urban areas where buildings, roads and other waterproof surfaces, occupies at least 80% of the land area and continuously or almost continuously denatured buildings represented by houses, apartments or buildings occupied only for part of the day. The category includes city centers, high-density urban spaces, built-up areas and housing buildings. The ecosystem is made up of residential buildings (unifamiliale, collective) to which other types of uses are associated: socio-cultural ensembles, commercial spaces, etc.

Figure 192 ***Sighișoara City (foto Roxana Ion)***

J1.2 Residential buildings of villages and urban peripheries

Residential buildings located in the suburbs and periphery of urban space in communes influenced by the nearest city where buildings and other waterproof surfaces occupy between 30% and 80% of the land area. This category includes the center and periphery of communes, suburban environments, and averaged density spaces. The residential buildings are mostly single-family houses, to which other types of uses are associated: socio-cultural ensembles, commercial spaces, etc.

Figure 193 Borsec Town, Harghita County (foto: Iulia Miu)

J1.3 Urban and suburban public buildings

Buildings with public access such as hospitals, schools, churches, cinemas, government buildings, commercial complexes and other public stationary spaces. This category includes built-in spaces that cover a wide variety of services. The ecosystem is also specific to cities with county, regional or national coordination functions (may include the mayoralty, parliament headquarters, political party headquarters, embassies, etc.)

J1.4 Urban and suburban industrial and commercial sites still in active use

Buildings belonging to industrial or commercial assemblies with current activity. Includes office buildings, factories, large industrial units (more than 1 ha) greenhouse complexes, large livestock farms and other large agricultural units. The ecosystem includes industry and annexed constructions, deposits and other economic objectives, installations, special facilities and other facilities. The characteristics of the area are related to the surface, the sources of environmental degradation, the distance to the other ecosystems types. The shopping area is represented by product outlets, office areas, shops or large shopping centers.

Figure 194CET Govora, Vâlcea County (foto: Iulia Miu)

Figure 195 Complex salmonicol Brădișor, Vâlcea County (foto: Iulia Miu)

Figure 196 Industrial platform IMGB, Bucharest (foto: Iulia Miu)

J1.5 Disused constructions of cities, towns and villages

Buildings that are out of use such as factories, houses, offices or other buildings; Before it is out of use these structures were residential buildings in cities, including their center; residential buildings of communes and urban peripheries; public buildings in urban and suburban areas; active industrial and commercial sites in urban and suburban areas. Are considered spaces built with continuous spatial distribution.

Figure 197 Mătăsari Village, Gorj County (foto: Iulia Miu)

Figure 198 Mătăsari Village, Gorj Conty (foto: Iulia Miu)

Figure 199 ResortVidra, Vâlcea County (foto: Iulia Miu)

Figure 200 Asan's Mill, Bucharest (foto: Iulia Miu)

J1.6 Urban and suburban construction and demolition sites

Non-rural assemblies in which buildings are built or demolished. The area can be considered (before demolition or after construction) one of the following categories: buildings residential buildings from cities, including their center; residential buildings of municipalities and urban peripheries; public buildings in urban and suburban areas, active industrial and commercial sites in urban and suburban areas.

Figure 201 Demolished industrial site, Cozla, Caraș-Severin County (foto: Iulia Miu)

Figure 202 Chiajna Monastery, Bucharest (foto: Iulia Miu)

J1.7 High density temporary residential units

Housing spaces not intended to be used for more than 10 years. Classification may also include facilities for practicing sporting or recreational activities and caravan constructions. The ecosystem is made up of residential buildings (unifamiliale, collective) to which other types of uses are associated: shops, commercial spaces, etc.

J2.1 Scattered residential buildings

Houses and apartments in buildings with different height regimes, in areas where buildings, roads and other impermeable surfaces have a low density. The category is characterized by the type of dwelling (unifamiliale, collective) and by associations with other types of economic, social or industrial uses. It also includes raw lands in its perimeter.

J2.2 Rural public buildings

Buildings with public access from rural area, such as government buildings, schools, shops or places of worship (churches). The ecosystem includes all buildings and facilities related to the social and cultural anthropic environment.

Figure 203 ***Black Church, Brașov (foto Roxana Ion)***

Figure 204 ***Church in Sighisoara (foto Roxana Ion)***

J2.3 Rural industrial and commercial sites still in active use

Rural buildings used for industrial activities, commercial activities, offices, storage spaces, etc. Excludes spaces with high density of buildings with areas larger than 1 ha (J1.4). The ecosystem includes industry and adjoining buildings, deposits and other economic objectives, installations, special facilities and other facilities. The characteristics of the area are related to the surface, the sources of environmental degradation, the distance to the other ecosystems types. The commercial area is represented by sales outlets, office areas, shops or shopping centers.

J2.4 Agricultural constructions

Constructed structures dispersed in rural or natural surroundings and established for agricultural activities. Represent permanent or temporary residences, small-scale commercial premises, industrial activities, artisanal activities, leisure activities, research or environmental protection. These include isolated greenhouses, animal shelters, harvesting structures for fruit and vegetable drying, stables and warehouses, land and fencing pastures. Excludes spaces with high density of buildings with areas larger than 1 ha (J1.4). It may include non-irrigated arable land or buildings with dispersed distribution from rural areas.

J2.5 Constructed boundaries

Walls and fences that set boundaries between administrative units, protected areas, states. The category refers to the limits built in areas where buildings have a low density. The category also includes sea walls.

J2.6 Disused rural constructions

Buildings out of use. During use, the category could be represented by residential buildings with discontinuous space distribution; public buildings in the countryside, active industrial and commercial sites in rural areas; construction on farmland.

Figure 205 Hotel out of use, Băile Herculane, Caraş-Severin County (foto: Iulia Miu)

J2.7 Rural construction and demolition sites

Rural sites where buildings are built or demolished. The buildings were represented by living quarters - one-family houses, industrial and adjacent buildings, warehouses and other economic objectives, installations, special facilities and other facilities.

Figure 206 Vâlcele, Covasna County (foto: Iulia Miu)

J3.1 Active underground mines

The ecosystem is represented by of artificial underground spaces. These may be important substitution habitats for bats living in caves and for underground invertebrate species such as crustaceans, planarians. Disused mines are excluded (H1.7). The category includes active mines and underground communications passages. The characteristics of this category refer to the type of resource exploited, the distance to the living space, the associated risks.

J3.2 Active opencast mineral extraction sites, including quarries

Areas used for open-space mining and quarrying and currently in function. This category includes surface active mines, storage area and transport roads in the perimeter. The characteristics of this category refer to the type of resource exploited, the distance to the living space, the associated risks .

Figure 207 Mining exploitation in Mătăsari, Gorj County (foto: Iulia Miu)

Figure 208 Limestone Quarry in Bistrița, Vâlcea County (foto: Iulia Miu)

Figure 209 Dolomite Quarry from Voșlăbeni, Harghita County (foto: Bodescu Florian)

Figure 210 Sand exploatation on Râul Negru, Covasna County (foto: Bodescu Florian)

J3.3 Recently abandoned above-ground spaces of extractive industrial sites

Sites out of use that are former quarries or open mines like J3.2. The category is represented by underground decommissioned mines and and underground communications passages. The characteristics of this category refer to the type of distance to the living space, the associated risks, and the degree of re-integration of the space into the original landscape.

Figure 211 Travertine Quarry Borsec, Harghita County (foto: Iulia Miu)

Figure 212 Travertine Quarry Borsec, Harghita County (foto: Iulia Miu)

J4.1 Disused road, rail and other constructed hard-surfaced areas

Removed land, which during use was represented by: active road network, active railway networks, airport runways and thresholds, hard surfaces of bridges or pavements and recreation areas. Such land can be colonized by herbaceous vegetation with weeds (E5.1) or forest vegetation at an incipient succession (G5.6).

J4.2 Road networks

Road surfaces and car parks, along with the adjacent immediate environment, which may consist of banks on the edge or roadsides. The characteristics of the ecosystem are related to the category of road (local road, county road, national road, motorway), running surface, road annexes and other facilities (embankments, delays, etc.)

Figure 213 ***Transfăgărăşan at Balea Lake (foto Roxana Ion)***

J4.3 Rail networks

Railways, as well as the adjacent railway environment, which may consist of banks or four-foot way. The characteristics of the ecosystem are related to track gauge, type of railway (single or double), economic importance, intersections. The category includes, in addition to the actual railroad, elements such as bridges, walkways, viaducts or tunnels; traffic service buildings or other telecommunication installations.

Figure 214 Railways in Covasna County (foto: Bodescu Florian)

Figure 215 ***Railways Avrig, Sibiu County (foto Roxana Ion)***

J4.4 Airport runways and aprons

The hard supraface of airports, other than buildings, used for parking, landing and take-off of airplanes, luggage transport, etc.

J4.5 Hard-surfaced areas of ports

The hard surface of the ports without the inclusion of the buildings. The characteristics of the category are related to: the form of ownership of the port infrastructure, geographical location (martim or inland waterway), type of activity (commercial, recreational, military port).

J4.6 Pavements and recreation areas

Paved areas, squares and hilly recreation areas where traffic is on foot, or, if on wheels, then the area with rough surface is not used as a route. Includes pedestrian areas , sports and recreation collective

J4.7 Constructed parts of cemeteries

Areas with a tough surface in cemeteries made up of the road network and funerary monuments.

Figure 216 The Heroes Cemetery, Titești Village, Vâlcea County (foto: Bodescu Florian)

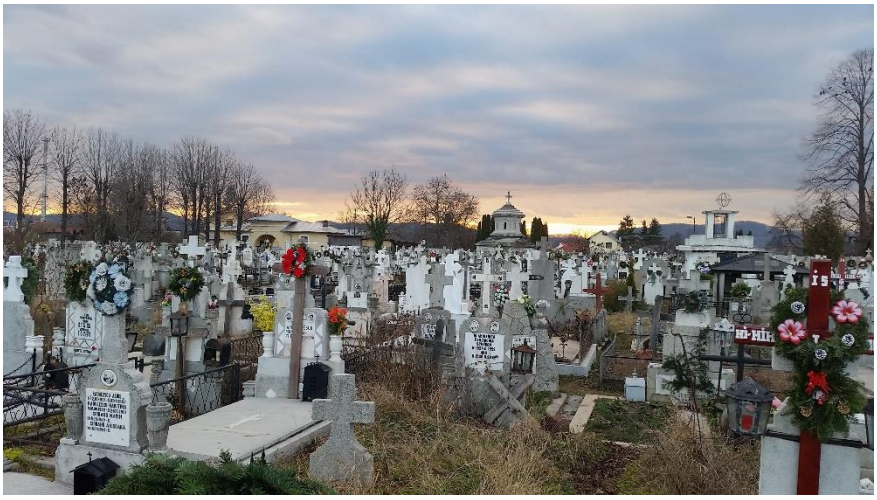


Figure 217 Bobalna Cemetery, Câmpina, Prahova County(foto: Iulia Miu)

J5.1 Highly artificial saline and brackish standing waters

Inland salt waters with high artificiality or brackish bodies waters with perceptible flow, together with the associated containers. Includes saline with active bains or recently abandoned by evaporation of the extraction salt. The characteristics of the habitat refers to the degree of water mineralization, the degree of salinity of the soil or the degree of tolerance of the organisms at saline concentrations.

Figure 218. Ocna sibiului (http://www.bunaziuafagaras.info/ocna-sibiului-si-a-deschis-portile-10-lei-intrarea/)

J5.2 Highly artificial saline and brackish running waters

Inland salt waters with high artificiality or brackish bodies waters with perceptible flow. The characteristics of the habitat refers to the degree of water mineralization, the degree of salinity of the soil or the degree of tolerance of the organisms at saline concentrations.

Figure 219 Borsec the round seat (http://www.hailabord.ro/2014/06/unde-sa-te-plimbi-borsec-grota-ursilor-pestera-gheata-aleea-indragostitilor.html)

J5.3 Highly artificial non-saline standing waters

Artificial water courses and basins together with associated containers, which have fresh water with no perceptible flow. Includes ponds and lakes with substrates made by humans, water storage tanks, intensively managed fish ponds, such as permanent bodies of water of the extractive industries. The characteristics of the habitat are surface-related, volume, served function (industrial, commercial, etc.), associated species.

Figure 220 Wastewater treatment, Buzău (foto: Iulia Miu)

J5.4 Highly artificial non-saline running waters

Artificial water courses and basins together with associated containers Cursurile de apă,. which transports fresh water with a perceptible flow. Includes sewage system, discharges running on extractive industrial sites, underground artificial water courses, and substrate channels made by humans. Exclude fountains and waterfalls. The characteristics of the habitat are surface-related, volume, served function (industrial, commercial, etc.), associated species.

Figure 221 Canal, Ploiești, Prahova County (foto: Iulia Miu)

Figure 222 Irrigation canal, Libertatea Village, Călărași County (foto: Iulia Miu)

J5.5 Highly artificial non-saline fountains and cascades

Artificial water courses and basins, together with the associated containers, with fresh water. witch seeps or splash. The fountains and waterfalls of the habitat have a predominantly decorative purpose or for the capture and recirculation of rainwater.

Figure 223 Artesian fountain in Braila (https://www.youtube.com/watch?v=aVa50wLESBM)

J6.1 Waste resulting from building construction or demolition

Landfills from constructions, with areas so large as to form a separate habitat. This habitat does not form part from constructions or demolition sites. This ecosystem is made up from waste resulting from such activities like construction of buildings and infrastructure objectives, construction and maintenance of roads, the total or partial demolition of buildings or infrastructure objectives. Characteristics of the habitat are related to the resulting materials, the associated risk level (dangerous and non-dangerous waste, the volume of deposits, etc.)

Figure 224 Wastes from demolitions (http://www.colectaredeseuri.com/salaj/deseuri-constructii)

J6.2 Household waste and landfill sites

Sites used to dispose of household waste, including landfills that can be used for several types of waste. The ecosystem includes waste from domestic activities, comercial spaces, hotels, restaurants, public institutions etc. The habitat is characterized by the volume of waste or deposits, location towards sensitive areas (residential areas), level of risk associated of waste (dangerous or non-dangerous), solutions taken for the protection water, soli or air.

Figure 225 Waste storage, Râmnicu Vâlcea, Vâlcea County (foto: Iulia Miu)

J6.3 Non-agricultural organic waste

Wastes from sewage installations or sweage residues. The habitat is represented by waste from facilities for the treatment of residues, from sewage treatment plants and from treatment of water for water supply and industrial use, waste from sewer cleaning, sludges from local wastewater treatment plants, and other sewage treatment plants with a composition similar to urban wastewater

Figure 226 Organic sewage sludge (http://gazetadebistrita.ro/probleme-grave-de-mediu-aquabis-depoziteaza-namolul-rezidual-de-la-statia-de-epurare-in-zavoaie/)

J6.4 Agricultural and horticultural waste

The habitat includes heaps of manure, leachate, straw in decomposition state, dumps of unwanted products, sludges from washing and cleaning, animal tissue waste, plant tissue waste, animal waste (fecal matter, urine, including straw residue) separately collected and treated outside the enclosure, forestry waste or agrochemical waste containing dangerous substances

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Figure 227 Storage of agricultural waste (http://energiaregenerabila.pagix.ro/page/deseuri)

J6.5 Industrial waste

The habitat includes heaps, ramps and mounds formed as secundary products of industrial activities. Includes slag heaps, mining waste, tailings dumps, mineral waste resulting from chemical processes, wastes from mining and quarries, from the physical and chemical treatment of minerals, waste from refining oil and natural gas purification, wastes from organic and inorganic chemical processes. Industrial waste can be hazardous industrial waste, but non-toxic, (asbestos), non-hazardous and non-toxic industrial wastes, inert waste,(associated with construction), toxic waste (medical, radioactive).

Figure 228 Industrial waste Moldova Nouă, Caraş-Severin County (foto: Iulia Miu)

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