**Examples of components of habitat condition per habitat group and their links with potential typical species elaborated for 2007-2012 reporting**

From Explanatory Notes & Guidelines for the period 2007-2012 Appendix 5: Structure and functions and selecting typical species

**General guidelines**

The following table indicates factors of structure and functions which should be considered during the assessment of each habitat group and when selecting typical species.

| **Habitat group** | **Factors of structure and functions to be considered when assessing the parameter** |
| --- | --- |
| **Coastal & halophytic habitats (1\*\*\*)** | This group includes a wide variety of habitat types, some of which cover an extremely wide range of inherent variability (eg 1170 Reefs). As such it is not possible to give meaningful guidance for the group as a whole. It should be noted that many of these habitats are related to their physical environment and that geomorphological processes such as sediment transport and deposition are important components of function. More detailed guidance is given for a small number of habitats os provided later. |
| **Coastal dunes (21\*\*, 22\*\*)** | **Structure** * Species composition (plant) (especially of dominant species, e.g. *Ammophila arenaria* in 2120, *Empetrum nigrum* in 2140))
* Age/height classes
* Proportion of old trees for forested dunes 2180, 2270
* Patch size/distance between patches
* Completeness of dunal zonation, habitat heterogeneity.
* Percentage of open ground

**Other characteristics**FragmentationDynamics of dune system (varies with dune type, esp important for e.g. 2110, 2120)Natural vegetation dynamicsFire (especially for Mediterranean dunes) - signs of fire, frequency of fire (linked to regeneration of many species)Hydrology (especially for 2190 Humid dune slacks (natural, disturbed).**Species (animal)**small mammals, ground beetles, *Hymenoptera* and other psammophytic invertebrates, reptiles, amphibians, birds.**Notes**Effects of grazing and eutrophication can be seen via other parameters (e.g. species composition, dune dynamics)Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species (e.g. *Rosa rugosa* in FI), or species which are not natural to the habitat (e.g. rabbits). |
| **Inland dunes (23\*\*)** | **Structure** * Species composition (plant) (especially of dominant species)
* Age/height classes
* Patch size/distance between patches

**Other characteristics**Dynamics (% open ground)FragmentationFire - signs of fire, frequency of fire (link to other species regeneration).**Species (animal)**Small mammals, ground beetles, , *Hymenoptera* and other psammophytic invertebrates reptiles, amphibians, birds **Notes**Effects of grazing and eutrophication can be seen via other parameters (e.g. species composition, dune dynamics)Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species or species not normally found in the habitat. |
| **Lakes (31\*\*)** | **Structure** * Species composition (plant) (especially of dominant species)
* % open ground/proportion of small vascular plants, reed or woody plants (for 3110/3130)

**Other characteristics**Naturalness of zonationWater quality (including eutrophication (link to critical loads) Hydrology (natural, disturbed°**Species (animal)**Small mammals, dragonflies, fish, reptiles, amphibians, birds , macroinvertebrates/ invertebrates groups with larvae living in the waterbody and at its margins(lakes naturally without fish have specific animal communities).**Notes**Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species or species not normally found in the habitat. |
| **Rivers (32\*\*)** | **Structure** * Species composition (plant) (especially of dominant species)

**Other characteristics**Hydrology (natural, disturbed) (water flow, sediment erosion / movement / deposition) (e.g. can fish migrate, dams)Hydromorphology (lining, canalisation)Water quality (including eutrophication (link to critical loads)Deadwood and other organic inputOxygen regime (especially for lowland, slow flowing rivers).Summer grazing in seasonal rivers**Species (animal)**Small mammals, dragonflies, fish, reptiles, amphibians, birds. **Notes**Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species or species not normally found in the habitat. |
| **Heaths & scrub (4\*\*\*, 51\*\*)** | **Structure** * Species composition (plant)
* Age/height classes
* Proportion of life forms (chamaephyts, shrubs, trees),
* Cover of tree layer (maximum %)
* Soils (natural, worked, ploughed, etc.)
* Patch size/distance between patches

**Other characteristics**Hydrology (natural, disturbed)FragmentationFire - signs of fire, frequency of fire (link to other species regeneration)Mowing, turf cutting, etc.**Species (animal)** Small mammals, ground beetles (tenebrionids) ) pollinators (*Hymenoptera*, *Syrphidae* u.a.), xerophytic and psammophytic insect groups,Fungi (saprotrophic, mycorhizal)Birds. **Notes**Effects of grazing and eutrophication can be seen via other parameters (e.g. species composition, dune dynamics)Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species (e.g. *Rosa rugosa* in FI), or species which are not natural to the habitat (e.g. rabbits). |
| **Matorral, scrub, etc (52\*\*, 53\*\*, 54\*\*)** | **Structure** * Species composition (plant) (esp of dominant species)
* Age/height classes
* Patch size/distance between patches
* % open ground

**Other characteristics**Fragmentation Hydrology (natural, disturbed)Fire - signs of fire, frequency of fire (link to other species regeneration).**Species (animal)** small mammals, ground beetles (tenebrionids), pollinators and indicators of habitat mosaic (e.g. *Hymenoptera*, *Syrphidae*, *Lepidoptera*), spiders, reptiles, birds. **Notes**Effects of grazing and eutrophication can be seen via other parameters (e.g. species composition, dune dynamics)Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species or species which are not natural to the habitat.  |
| **Grasslands (6\*\*\*)** | **Structure** (often structure is related to one or few species for a given habitat - e.g. *Brachypodium pinnatum* for 6210, *Nardus sticta* for 6230)* Species composition (plant)
* Soils (natural, worked, ploughed, etc)
* Patch size/distance between patches
* Shrub (often present, at low cover may be considered as a natural component of the habitat but at high cover is a sign of habitat degradation)
* Proportion of grass/herb/clover/shrub.

**Other characteristics**FragmentationFire - signs of fire, frequency of fire (especially in Boreal and Mediterranean regions) (link to other species regeneration)Hydrology (natural, disturbed).**Species (animal)** small mammals (e.g. sisliks), ground beetles (e.g. teneobrionids), pollinators and indicators of habitat mosaic (e.g. *Hymenoptera*, *Syrphidae*, *Lepidoptera*),*Fungi* (saprotrophic, mycorhizal)Birds.**Notes**Effects of grazing and eutrophication can be seen via other parameters (e.g. species composition, dune dynamics)Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species or species which are not natural to the habitat.  |
| **Bogs, mires, etc (7\*\*\*)** | **Structure** Species composition (plant) (especially of dominant species)Morphology (hummock, ridge, pool, lawn) peat body (disturbance) (ice for Palsa mires)Proportion of life forms (bryophyts, herbs, shrubs)**Other characteristics**Hydrology (natural, disturbed) Water quality**Species (animal)** small mammals, butterflies, amphibians, birds **Notes**Effects of drainage, eutrophication and changes due to lack of management (cutting, grazing) can be seen via other parameters (e.g. species composition,)Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species or species which are not natural to the habitat.  |
| **Rocks, etc (8\*\*\*)** | **Structure** * species composition (plant) (esp of dominant species) (linked to exposition & substrate)
* pavements, etc (8230, 8240) need to be kept open (butterflies)
* % cover of vegetation

**Other characteristics**Dynamics (especially for screes) **Species (animal)** small mammals, reptiles, Birds, pollinators and indicators of habitat mosaic (e.g. *Hymenoptera*, *Syrphidae*, *Lepidoptera*)**Notes**Glaciers and caves, etc. need to be treated individuallyEffects of drainage, eutrophication and changes due to lack of management (cutting, grazing) can be seen via other parameters (e.g. species composition,)Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species or species which are not natural to the habitat.  |
| **Forest (9\*\*\*)** | **Structure*** Species composition (naturalness of tree species: presence and proportion)
* Canopy (height –esp for Mediterranean)
* spp composition
* Epiphytes & lianes/creepers
* Shrub
* Age classes

**Other characteristics**Dead wood (standing and fallen)* quantity
* quality (diversity, age, origin, size)

Holes in living trees Soils (natural, worked, ploughed, etc.)Fragmentation (patch size/distance between patches)Fire (signs of fire, frequency of fire) (especially for Boreal and Mediterranean types) (link to other species and tree regeneration).Hydrology (natural, disturbed) (especially for riparian forests such as 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) or mire woodlands (eg 91D0 Bog woodland).**Species (other)** * Saproxylic groups (e.g. beetles, ants, hoverflies)
* pollinators and indicators of habitat mosaic (e.g*. Hymenoptera, Syrphidae, Lepidoptera*)
* Fungi (saprotrophic, mycorhizal)
* Birds

**Notes**Effects of eutrophication can be seen via other parameters (e.g. species composition,)Extreme climatic events (drought, etc.) considered as threat /pressuresNegative indicators may be useful such as alien species or species which are not natural to the habitat.  |

**Structure, function and typical species for a selection of marine habitat types**

The following table indicates factors of structure and functions which should be considered during the assessment of selected marine habitat types and when selecting typical species.

| **Habitat type** | **Factors of structure and functions to be considered when assessing the parameter** |
| --- | --- |
| **1110 Sandbanks which are slightly covered** **by seawater all the time** | **Structure*** Elevation and topographic contour of the habitat feature
* Species composition animal and vegetal: density of dominant species, general biodiversity index

**Species**Fish: *Ammodytes* spp., *Callionymus* spp., *Pomatoschistus* spp, birds (e.g. seaducks, gannets, puffins) and marine mammals, invertebrates: polychaetes, bivalves, crustaceans, Macrophytes: free living *Corallinacea*, *Zostera* spp**Functional aspects*** Spawning and nursery area for fish
* Sediment movement

**Notes**Negative interaction resulting from the effects of trawling on the habitat can be seen from habitat survey results indicating physical alterations to the seabottom communities and lower biodiversity index values |
| **1120 Posidonia beds (Posidonion oceanicae)** | **Structure*** Typology of meadow lower limit: progressive (meadow lower limit distribution is influenced only by decreasing light levels), sharp, erosive, regressive.
* Conservation index % live Posidonia: dead matter)
* Conservation status (defined on the basis of leaf density according to depth. Note: taking into account variations known to occur in subregions)
* Rhizome growth (orthotropic and plagiotropic)

**Species**Posidonia oceanica**Functional aspects*** Protection from coastal erosion processes
* Source of primary productivity to the benefit of species living within the habitat as well as distal from it. Spawning and nursery area for fish
* Biodiversity hotspot
* Maintenance of water quality and transparency to the benefit of tourist activities
* Source of water oxygenation

**Notes**Negative interaction resulting from the effects of human activities on the habitat can be seen from habitat survey results indicating the presence of sharp lower limits or of meadow lower limit change from progressive to sharp. Negative effects from illegal trawling can be detected collecting data on the presence of traces of these gears on the meadow (i.e. sidescan sonar).Negative interaction resulting from the effects of anchoring can be seen from habitat fragmentation and patchiness, or in extreme cases the presence of sharp lower limits. Negative interaction resulting from the presence of invasive species can be determined by the evaluation on the presence of *Caulerpa* spp.Negative interaction resulting from the effects of altered sedimentary regimes can be determined by the presence of erosive and regressive lower limits and conspicuous quantity of dead matter. |
| **1170 Reefs** | **Structure*** Conservation evaluation based on vitality of the platforms (percentage of dead organisms),
* Erosion / abrasion /damage signs,
* Patchiness (patch size/distance between patches)
* Density of specimens (stratified at selected sampling stations).

Species:* *Dendropoma*, vermetid & *Lythophyllum* rims: *Dendropoma petraeum*, Neogoniolithon brassica – florida, *Lithophyllum byssoides, Corallina elongata, Lithophyllum papillosum, Rissoella verruculosa, Nemalion helminthoides*
* Structuring algal infralittoral associations: *Cystoseira amentacea, C. tamariscifolia, C. brachycarpa, C. crinita, C. crinitophylla, C. sauvageauana, C. spinosa, C. compressa, Sargassum vulgare*
* Coralligenous communities: *Lithophyllum stictaeforme, Peyssonnelia rosa – marina, Mesophyllum* lichenoides, Gorgonians, Briozoans and sponges
* Corals: *Lophelia pertusa, Dendrophyllia* spp., *Madrepora oculata*
* Mussel beds: *Ostrea edulis, Modiolus modiolus, Mytilus edulis*
* Encrusting communities: *Sabellaria spinosula.*

**Functional aspects*** Biodiversity hotspot (often to the benefit of landscape value and tourism activities).

**Notes**Negative interaction resulting from the effects of trampling, abrasion from mechanical damage due to recreative and non recreative activities can be measured from habitat survey results indicating the presence of broken thalli, split branches of arborescent forms, broken shells etc.Negative interaction resulting from the effects of temperature variations due to climate change are noticed by the presence of mucilage over the communities or of dead vegetal/animal specimens. |