C5.1b Small-helophyte bed

Summary

Small and amphibious helophyte-dominated freshwater vegetation is a widespread, very common but fragmented habitat throughout the European lowlands, occurring in the shallow littoral zones of lakes, ponds and rivers subject to periodic and repeated variation in water levels. It is characterised by amphibious plants and provides an important habitat for benthic invertebrates, fish, amphibians and several species of birds, by offering shelter and food. Like other wetland types, this habitat has suffered much from intensification of agricultural land-use, including drainage, modification of flooding and reclamation, and expansion of urban areas.

Synthesis

As most countries were not able to report data on the present area, the assessment is less certain than for many other habitats. There has been a strong decline in area, ranging from -20 to -85% in many countries, with only two countries reporting slightly positive trends. Without any corrections for the relative area (due to data gaps), the average European trend in area is -27%, and therefore the habitat is assessed as Near Threatened (NT) under criterion A1. Also the trend in quality has been calculated without weighting for area, leading to results close to the thresholds for Vulnerable, and therefore also resulting in the Near Threatened category.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Near Threatened	A1, C/D1	Near Threatened	A1, C/D1

Sub-habitat types that may require further examination

No specific sub-types in particular need to be distinguished for further analysis.

Habitat Type

Code and name

C5.1b Small-helophyte bed

Vegetation dominated by *Calla palustris* (*Calletum palustris*), Poleski National Park, Poland (Photo: Flavia Landucci).

Vegetation dominated by *Eleocharis palustris* (*Eleocharitetum palustris*), Rascino lake, Italy (Photo: Flavia Landucci).

Habitat description

This habitat is characterized by the dominance of small and amphibious helophytes in oligotrophic to eutrophic water bodies. It is represented by shallow littoral zones of lakes, ponds and rivers subjected during the year to periodical and repeated changes of the water level. In both standing and running waters the small and amphibious vegetation may survive for short periods (1 to few seasons) and decline rapidly due to either exceptional flooding or succession towards tall helophyte-dominated vegetation. However, water bodies with a natural dynamic usually maintain a balanced proportion of small and tall helophyte vegetation. This habitat type has an important function for fauna, by offering shelter to benthic invertebrates, fish and amphibians and food to several species of birds. The general productivity of this habitat is lower than that of habitat C5.1a. In warmer parts of Europe during late summer this habitat may dry out and form transitions towards the habitat types C3.5a and C3.5b. Some amphibious species such as *Alisma* spp., *Glyceria* spp., *Hippuris vulgaris*, *Sagittaria sagittifolia*, *Sparganium* spp., typically growing in this habitat, have developed a dimorphism of the leaves (floating and terrestrial leaves) as an adaptation to the water level fluctuation and the water current. Also some small and medium size *Cyperaceae*, such as *Eleocharis* spp. and *Bolboschoenus* spp., are typical of this habitat type in standing water. This habitat usually represents the shore component of aquatic habitats (types C1.1a, C1.1b, C1.2a, C1.2b and C1.4) and therefore is in contact with them. Vegetation of small helophytes of the alliance *Carici-Rumicion hydrolapathi*, with species like *Calla palustris*, *Comarum palustre*, *Menyanthes trifoliata*, usually grows on organic muddy sediments of dystrophic and mesotrophic water bodies with relatively stable water levels.

Indicators of good quality:

- Natural hydrology and chemistry of water and substrates
- Typical structure of vegetation (species poor stands)
- Anthropogenic impacts low in terms of construction activities, eutrophication and regulation of the water level.
- No or low occurrence of tall helophytes, and nitrophilous species (e.g. *Ranunculus sceleratus*, *Bidens* spp., *Chenopodium* spp., *Amaranthus* spp.)
- Low cover of species from drier habitats (e.g. Ranunculus repens, Potentilla reptans, Agrostis stolonifera)
- No occurrence of invasive alien species (e.g. *Ludwigia* spp.)

Characteristic species:

Flora, Vascular plants: *Alisma gramineum, A. lanceolata, A. plantago-aquatica, Alopecurus aequalis, Berula erecta, Bolboschoenus glaucus, B. yagara, B. planiculmis, Butomus umbellatus, Calla palustris, Comarum palustre, Eleocharis mamillata, E. palustris, E. uniglumis, Glyceria fluitans, G. nemoralis, G. notata, G. spicata, G. declinata, Helosciadium bermejoi, H. nodiflorum, Hippuris vulgaris, Juncus subnodulosus, Leersia oryzoides, Menyanthes trifoliata, Nasturtium officinale, Oenanthe aquatica, Rorippa amphibia, Sparganium emersum, S. erectum, Sagittaria sagittifolia, Veronica beccabunga, Veronica anagallis-aquatica.*

Mosses: *Fontinalis antipyretica*

Classification

This habitat may be equivalent to, or broader than, or narrower than the habitats or ecosystems in the following typologies.

EUNIS:

C3.1 Species-rich helophyte beds

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

EuroVegChecklist (alliances):

Glycerio-Sparganion Br.-Bl. et Sissingh in Boer 1942

Eleocharito palustris-Sagittarion sagittifoliae Passarge 1964

Alopecuro-Glycerietum spicatae S. Brullo et al. 1994

Carici-Rumicion hydrolapathi Passarge 1964 (partly)

Annex 1:

-

Emerald:

-

MAES:

Rivers and lakes

IUCN:

5.4. Bogs, Marshes, Swamps, Fens, Peatlands

5.5. Permanent Freshwater Lakes [over 8 ha]

5.7. Permanent Freshwater Marshes/Pools [under 8 ha]

Does the habitat type present an outstanding example of typical characteristics of one or more biogeographic regions?
No

Justification
The habitat has a widespread distribution.

Geographic occurrence and trends

EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Austria	Present	Unknown Km^2	Decreasing	Stable
Belgium	Present	10 Km^2	Unknown	Unknown
Bulgaria	Present	unknown Km^2	Increasing	Stable
Croatia	Present	1 Km^2	Decreasing	Decreasing
Czech Republic	Present	9 Km^2	Stable	Stable
Denmark	Uncertain	Unknown Km^2	Unknown	Unknown
Estonia	Uncertain	Unknown Km^2	Unknown	Unknown
Finland	Aland Islands: Present Finland mainland: Present	unknown Km^2	Stable	Stable
France	Corsica: Present France mainland: Present	39 Km^2	Decreasing	Decreasing
Germany	Present	unknown Km^2	Decreasing	Stable

EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Greece	Crete: Uncertain East Aegean: Uncertain Greece (mainland and other islands): Present	unknown Km^2	Unknown	Unknown
Hungary	Present	600 Km^2	Decreasing	Decreasing
Ireland	Present	Unknown Km^2	Unknown	Unknown
Italy	Italy mainland: Present Sardinia: Present Sicily: Present	Unknown Km^2	Decreasing	Decreasing
Latvia	Uncertain	Unknown Km^2	Unknown	Unknown
Lithuania	Present	Unknown Km^2	Decreasing	Decreasing
Netherlands	Present	23 Km^2	Stable	Unknown
Poland	Uncertain	Unknown Km^2	Unknown	Unknown
Romania	Uncertain	Unknown Km^2	Unknown	Unknown
Slovakia	Present	0,9 Km^2	Increasing	Stable
Slovenia	Present	0.5 Km^2	Decreasing	Decreasing
Spain	Balearic Islands: Present Canary Islands: Present Spain mainland: Present	Unknown Km^2	Decreasing	Decreasing
Sweden	Uncertain	Unknown Km^2	Decreasing	Decreasing
UK	Gibraltar: Uncertain Northern Island: Present United Kingdom: Present	Unknown Km^2	Increasing	Unknown

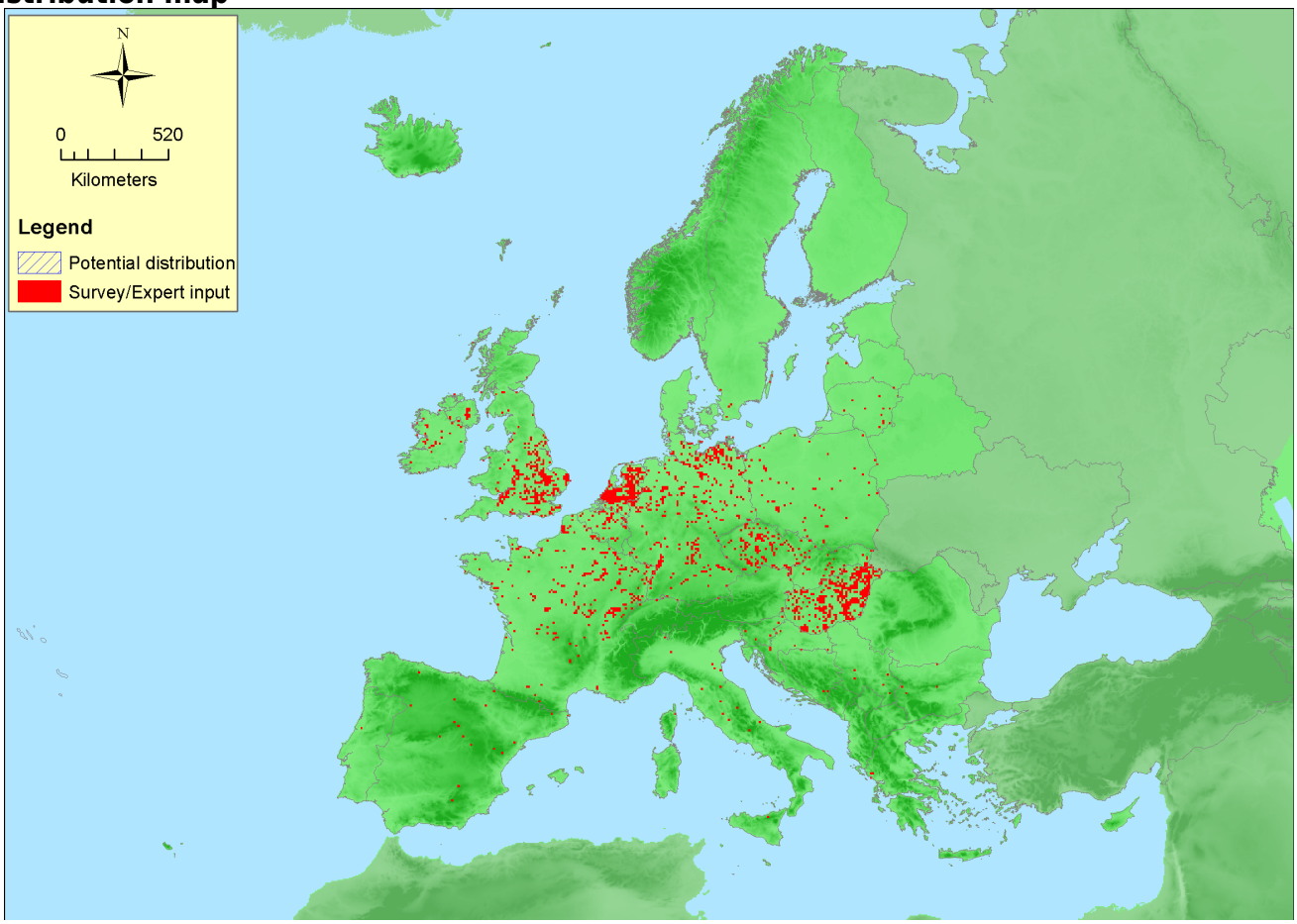
EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Bosnia and Herzegovina	Present	2 Km^2	Decreasing	Decreasing
Iceland	Uncertain	Unknown Km^2	Unknown	Unknown
Kaliningrad	Uncertain	Unknown Km^2	Unknown	Unknown
Monaco	Uncertain	Unknown Km^2	Unknown	Unknown
Norway	Norway Mainland: Uncertain Svalbard: Present	Unknown Km^2	Unknown	Unknown
Serbia	Uncertain	Unknown Km^2	Unknown	Unknown
Switzerland	Present	Unknown Km^2	Decreasing	Stable

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28	6412700 Km^2	1864	637 Km^2	Data deficient - estimates based on 6 countries only
EU 28+	6813800 Km^2	1880	635 Km^2	Data deficient - estimates based on 7 countries only

Distribution map



Map has many data gaps, depending on availability of data in EVA and GBIF. Data sources: EVA, GBIF, NAT.

How much of the current distribution of the habitat type lies within the EU 28?

The percentage of the current distribution of this habitat in Europe relative to the worldwide distribution is considered as being equivalent to the land occupied by Europe on earth (3%), considering that this habitat has historically experienced a large decrease of its area in Europe along the shores of lakes resulting from the stabilisation of water levels.

Trends in quantity

Quantitative area trends could be calculated using data from only 7 out of 19 countries that reported on the habitat. The calculation is strongly dominated by the high amount of present area reported from Hungary (600 km^2). Because of the limitations of these data, an average trend in quantity was calculated from the reported trend % only (available for 13 countries), without correcting for the relative amount in area in the countries. The average trend in area for both EU28/EU28+ was -28%.

- Average current trend in quantity (extent)
  EU 28: Decreasing
  EU 28+: Decreasing

- Does the habitat type have a small natural range following regression?
  No
  Justification
  This habitat occurs over a widespread range with moderate or slight decrease over recent times.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  Yes
  Justification
  This habitat is restricted to shallow littoral zones of lakes, ponds and rivers subjected to periodical and repeated changes in water levels. Here, it often grows in small stands.

Trends in quality

Extent of degradation is estimated at 26% with a severity of 27% based on data from only five EU countries. Current trends are considered as decreasing but are expected to be rather stable in the future.

- Average current trend in quality
  EU 28: Decreasing
  EU 28+: Decreasing

Pressures and threats

Land reclamation for expansion of agricultural and urban areas, are probably responsible for most of the historical decline in small amphibious helophyte-dominated freshwater vegetation in Europe. Declines over the last decades are most probably associated with river correction, reprofiling of streams and ponds, abandonment of grazing and physical disturbance. Main current threats are associated with modification of hydroperiod and hydrological functioning, water pollution and eutrophication.

List of pressures and threats

Pollution

Pollution to surface waters (limnic, terrestrial, marine & brackish)

Natural System modifications

Human induced changes in hydraulic conditions
Landfill, land reclamation and drying out, general
Flooding modifications
Modification of hydrographic functioning, general

Climate change

Droughts and less precipitations

Conservation and management

The most relevant management measures are (1) the preservation of shallow littoral zones of ponds, lakes, and meanders of streams and rivers, (2) maintain or restore natural water regime (fluctuating levels in water courses or regular dry periods in standing waters), (3) reduce water pollution (nutrient inputs from sewage/agricultural waters), and (4) promote extensive grazing where tall helophytes are expanding.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

Restoring/Improving the hydrological regime

Conservation status

Not related to any Annex-1 habitat.

When severely damaged, does the habitat retain the capacity to recover its typical character and functionality?

Yes, if adequate water levels/hydroperiods or shores can be restored the habitat can easily recover.

Effort required

10 years
Through intervention

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-28 %	unknown %	unknown %	unknown %
EU 28+	-28 %	unknown %	unknown %	unknown %

Recent trends were calculated from trends provided in territorial data from 11 EU28 and 2 additional EU28+ countries, but without correction for present area. The average trend was -28% in both EU28 and EU28+, leading to the conclusion Near Threatened (NT). Too few data were available on future and historical trends.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	> 50 000 Km^2	Yes	Yes	No	> 50	Yes	Yes	No	No
EU 28+	> 50 000 Km^2	Yes	Yes	No	> 50	Yes	Yes	No	No

EOO, AOO and number of locations are much larger than the thresholds for criterion B.

Criterion C and D: Reduction in abiotic and/or biotic quality

Criteria C/D	C/D1		C/D2		C/D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	38 %	51 %	unknown %	unknown %	unknown %	unknown %
EU 28+	40 %	50 %	unknown %	unknown %	unknown %	unknown %

Criterion C	C1		C2		C3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %
EU 28+	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %

Criterion D	D1		D2		D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown%	unknown %	unknown%	unknown %	unknown%
EU 28+	unknown %	unknown%	unknown %	unknown%	unknown %	unknown%

Again too few data were available for a good quantitative analysis of trend in quality, as only 3 countries reported both present area and quality trend data. Therefore mean estimations of extent and severity of degradation were calculated, without corrections for present area. The average values for EU28 and EU28+ were respectively 38% (extent)/51%(severity) and 40%(extent)/50%(severity) based on data from 12 EU28 countries and 1 additional EU28+ countries. These values lead to the category Near Threatened for criterion C/D1. Degradation in quality is primarily due to abiotic changes but also to biotic factors, in undefined proportions.

Criterion E: Quantitative analysis to evaluate risk of habitat collapse

Criterion E	Probability of collapse
EU 28	unknown
EU 28+	unknown

There is no quantitative analysis available that estimates the probability of collapse of this habitat type.

Overall assessment "Balance sheet" for EU 28 and EU 28+

	A1	A2a	A2b	A3	B1	B2	B3	C/D1	C/D2	C/D3	C1	C2	C3	D1	D2	D3	E
EU28	NT	DD	DD	DD	LC	LC	DD	NT	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	NT	DD	DD	DD	LC	LC	DD	NT	DD	DD	DD	DD	DD	DD	DD	DD	DD

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Near Threatened	A1, C/D1	Near Threatened	A1, C/D1

Confidence in the assessment

Low (mainly based on uncertain or indirect information, inferred and suspected data values, and/or limited expert knowledge)

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