F9.2 Salix fen scrub

Summary

This non-riverine *Salix*-dominated scrub occurs through most of Europe on permanently waterlogged sites around water-bodies and in mires on organic or peaty soils in plains, foothill valleys and plateaus. It shows wide variations in dominants and associates according to regional climate and the nutrient-status and acidity of the soil and often occurs in mosaics with wet meadows and mires. It has spread considerably with abandonment of agriculture but is threatened by changes in hydrological conditions and eutrophication. Conservation therefore depends on ensuring that natural ground water supplies are maintained.

Synthesis

The habitat type meets the Near Threatened (NT) category because of a relatively large decline in area (criterion A1) and in quality (criterion C/D1). There is some uncertainty, as the overall assessment is strongly affected by the French data (more than 50% of the total area was reported from France), while data from several northern countries, which are supposed to have a stable or increasing trend, were missing.

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

There are variations in nutrient richness, from nutrient poor to nutrient rich types, that could be a focus for further examination.

Habitat Type

Code and name

F9.2 Salix fen scrub

Salix carr in the Frumoasa valley in the Eastern Carpathians, Romania (Photo: John Janssen).

Rich Salix wet carr, Londalen, Vingelen, Tolga, Norway (Photo: Yngve Rekdal, Skog og landskap).

Habitat description

Low to middle-high non-riverine *Salix* dominated scrub on permanent water-logged sites on organic or peaty soils in plains and low mountain valleys and plateaus. Dominant shrubs are *Salix cinerea*, *Salix*

aurita, *Salix pentandra, Salix atrocinerea (= Salix cinerea ssp. atrocinerea)*, *Salix rosmarinifolia* as well as hybrids of these willow species (like *Salix x multinervis*), sometimes together with other *Salix* species, *Myrica gale*, and/or *Frangula alnus*. The scrub is on average between 2 and 4 meters high, except for scrub dominated solely by *Myrica gale* or by *Salix rosmarinifolia,* which are on average lower. Trees like *Alnus glutinosa*, *Fraxinus excelsior* and *Betula pubescens* may be present, indicating the first stages of succession towards forest. The understorey of this habitat depends on the nutrient-status and acidity of the soil. In relatively nutrient-rich sites, the optimum for *Salix cinerea*, it is composed of common helophytes and tall-herbs, like *Filipendula ulmaria*, *Phragmites australis, Iris pseudacorus*, *Geranium sylvaticum*, *Solanum dulcamara*, *Lythrum salicaria*, *Galium palustre*, *Scutellaria galericulata*, *Lycopus europaeus*, *Thelypteris palustris*, *Carex elata*, *Carex riparia, Carex gracilis* and *Carex remota*. Under acidic, nutrient-poor conditions, which is the optimum for *Salix aurita* and *Myrica gale*, *Sphagnum* species may dominate the moss layer, while in the herb layer *Carex diandra*, *Carex echinata, Carex limosa*, *Carex nigra*, *Carex rostrata*, *Agrostis canina, Comarum palustre, Eriophorum angustifolium, Menyanthes trifoliata* and *Calamagrostis canescens* are found. The (sub)boreal distributed *Salix rosmarinifolia* often grows together with *Betula humilis*, but in pre-Alpine relict communities with *Salix myrtilloides* and *Pedicularis sceptrum-carolinum*. In very wet situations, floating and submerging aquatic plants may be present. In the Carpathians and Rodopi mountains, several rare relict species are found in this habitat, like *Spiraea salicifolia*, *Evonymus nanus* and *Polemonium caeruleum*. In Scandinavia, *Salix myrsinifolia* may accompany *Salix pentandra, Salix aurita*, *Salix cinerea* and *Myrica gale* and in northern Scandinavia *Salix lapponum*, *Salix lanata* and *Salix glauca* are dominating the habitat together with among others *Salix myrsinifolia* and *Salix phyllicifolia*.

The habitat type is widespread in Atlantic, Boreal and Continental Europe, both in lowlands and mountains. It is found more sporadically in the Mediterranean, where it occurs mainly in mountains. It is absent from the Arctic and most northern Boreal regions. It is an azonal habitat, related to permanent wet soils, found in fens, mires, marshy floodplains, along brooks and on fringes of lakes, ponds and wet forest. It often forms relatively small stands and mosaics with other marsh habitats. It may develop in wet meadows when hay making ceases, indicating abandonment of traditional land-use. It also develops in drained mires and bogs. It is mainly a non-riverine type, as spring-fed and temporarily flooded *Salix* scrubs on the shores of brooks or rivers are included in habitat F9.1 Riverine scrub. In those situations other Salix species (*S. triandra*, *S. fragilis*) dominate in most cases, but, for example, *Salix cinerea* may also be present. It also excludes Salix scrub from well-drained sites in high mountains and subarctic regions (alliance *Salicion pentandrae*), which are considered under F2.3 Subalpine and subarctic deciduous scrub. *Myrica gale* dominated vegetation is included in this habitat, but in bogs and mires it may be considered part of the broader defined habitats of the main group D. In wet dune slacks similar *Salix cinerea* communities are found, but those are considered part of B1.6a.

Indicators of quality:

- Dominance of *Salix* species or *Myrica gale*.
- Forming landscape mosaics with more open reedbeds, mires and grasslands.
- Presence of relict species.

Characteristic species:

Flora:
Vascular plants: *Alnus glutinosa*, *Betula pubescens, Betula humilis*, *Frangula alnus, Myrica gale*, *Salix atrocinerea, Salix aurita, Salix cinerea, Salix myrsinifolia, Salix myrtilloides, Salix pentandra, Salix repens, Salix rosmarinifolia, Salix lanata, Salix lapponum, Salix glauca, Salix phyllicifolia*

Classification

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

EUNIS:

F9.2 *Salix* carr and fen scrub

EuroVegChecklist:

Salicion cinereae T. Müller et Görs ex Passarge 1961

Annex 1:

40B0 Rhodope Potentilla fruticosa thickets

Emerald:

F2.336 Rhodope Potentilla fruticosa thickets

MAES-2:

Heathland and shrub

IUCN:

Temperate shrubland

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

Justification
It is a very wide spectra of willow fens included, and at least in some part of Europe, it is both common and of low biodiversity and conservation interest.

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	10 Km^2	Decreasing	Stable
Belgium	Present	Km^2	Decreasing	Decreasing
Bulgaria	Present	0.05 Km^2	Decreasing	Decreasing
Croatia	Present	Unknown Km^2	Decreasing	Decreasing
Czech Republic	Present	62 Km^2	Decreasing	Decreasing
Denmark	Present	100-200 Km^2	Increasing	Unknown
Finland	Finland mainland: Present	200-500 Km^2	Unknown	Unknown
France	France mainland: Present	1000-2500 Km^2	Decreasing	Decreasing
Germany	Present	Unknown Km^2	Decreasing	Stable
Hungary	Present	170 Km^2	Decreasing	Stable
Ireland	Present	6 Km^2	Unknown	Unknown
Italy	Italy mainland: Present	174 Km^2	Decreasing	Decreasing
Latvia	Present	Unknown Km^2	Increasing	Unknown
Lithuania	Present	<25 Km^2	Decreasing	Unknown
Netherlands	Present	Unknown Km^2	Stable	Unknown
Poland	Present	Unknown Km^2	Unknown	Unknown

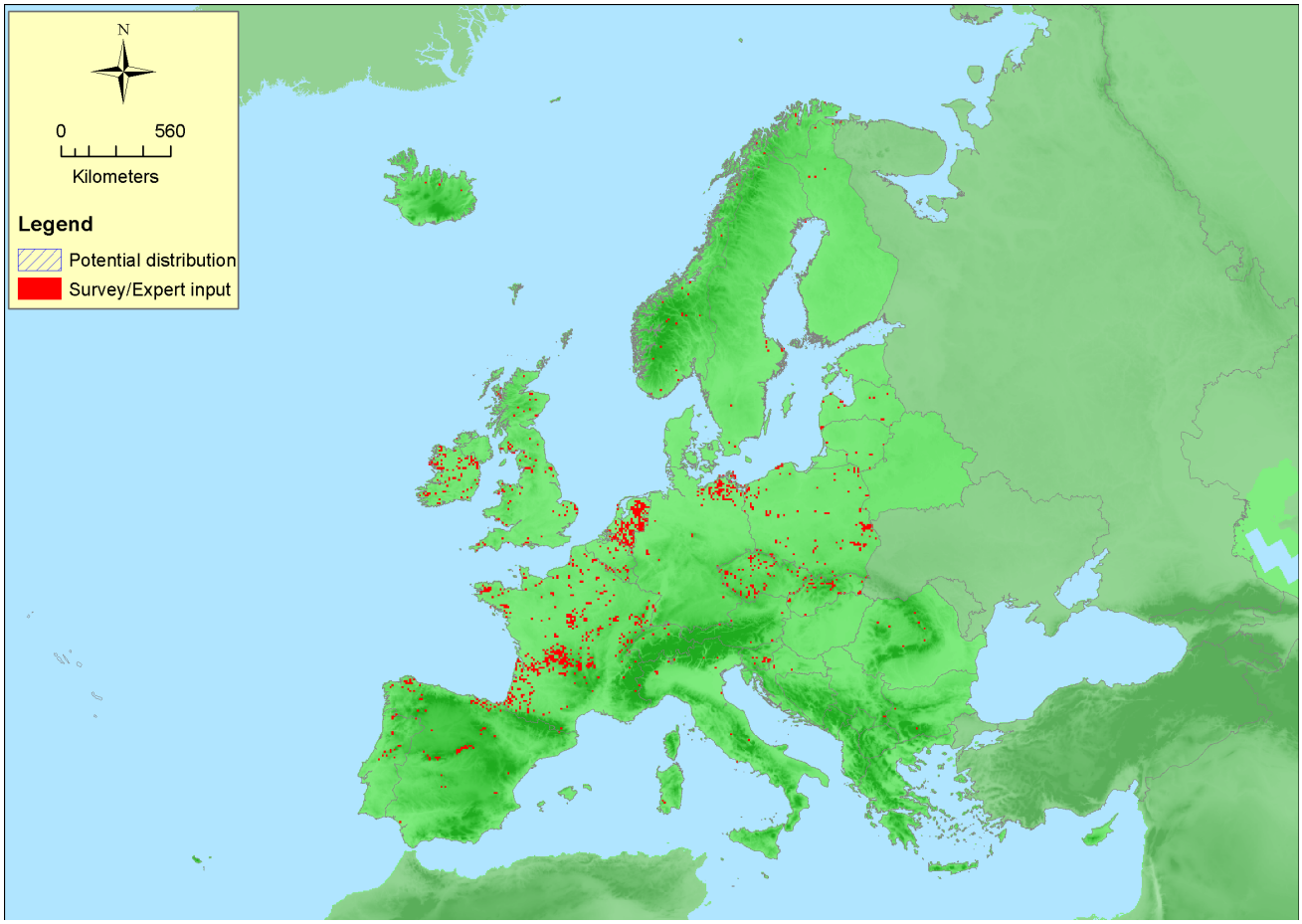
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Romania	Present	2.1 Km^2	Decreasing	Unknown
Slovakia	Present	1 Km^2	Decreasing	Decreasing
Slovenia	Present	0.5 Km^2	Decreasing	Decreasing
Sweden	Present	600 Km^2	Increasing	Stable
UK	United Kingdom: Present	150 Km^2	Increasing	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)
Bosnia and Herzegovina	Present	10 Km^2	Increasing	Stable
Norway	Norway Mainland: Present	Unknown Km^2	Unknown	Unknown
Switzerland	Present	110 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
EU 28	6649200 Km^2	1287	3450 Km^2	Lacking data from some countries, but probably not from any important
EU 28+	8383100 Km^2	1331	3570 Km^2	data lacking from Norway, which has a substantial area of the habitat

Distribution map



The map is very incomplete due to limited data availability. Data sources: EVA, ART17.

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

About 90% of the habitat is inside EU28. There are some uncertainties because of lack of Norwegian data.

Trends in quantity

A clear decrease in area - slightly less than 30% (28-29%) - has been observed by territorial experts over the last 50 years.

- 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
  The EOO is > 50000 km².
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  The habitat is neither restricted to small spots, nor has a small total area. The distribution range is not naturally restricted.

Trends in quality

The extent of degradation is rather high, close to 35%, with a severity of 57%.

- Average current trend in quality
  EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

The most important threats are linked to hydrological changes, especially the drainage of wetlands is affecting large areas. In the southern part of the distributional range, air-borne nitrogen input is a severe threat as it changes the nutrient balance of the habitat and results in a changed species composition.

List of pressures and threats

Agriculture

Agricultural intensification

Sylviculture, forestry

Forest planting on open ground (native trees)

Mining, extraction of materials and energy production

Peat extraction

Natural System modifications

Infilling of ditches, dykes, ponds, pools, marshes or pits
Canalisation

Conservation and management

The most important conservation measure that can be done is to restore the hydrological conditions properly when they have been negatively affected (e.g. fill in ditches etc.). The problem with eutrophication can only be solved by international agreements.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

Other wetland related measures
Restoring/Improving the hydrological regime

Conservation status

Annex I:

40B0: ALP FV

(the Annex I type forms a very small part of the Red List type)

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

Like other wet grasslands on Europe, the main threats for these submediterranean grasslands are agricultural intensification, including fertilisation and drainage. Other losses are due to changes in the (natural) hydrology of floodplains and habitat destruction by urbanisation and expansion of infrastructure (e.g. roads).

Effort required

50+ years	200+ years
Through intervention	Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-29.3 %	unknown %	unknown %	unknown %
EU 28+	-28.8 %	unknown %	unknown %	unknown %

There has been an overall decrease in area over the last 50 years mainly due to major losses in France and Hungary. In contrast, countries such as Sweden and Denmark have reported a substantial increase in area. The provided figures for A1 have been calculated from the territorial data sheets and result in category Near Threatened.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50000 Km^2	Yes	No	No	>50	-	No	No	No
EU 28+	>50000 Km^2	Yes	No	No	>50	-	No	No	No

Both EEO and AOO are well above the thresholds to qualify for category Near Threatened.

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	34 %	57 %	unknown %	unknown %	unknown %	unknown %
EU 28+	34 %	57 %	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%

The overall assessment of criterion C/D1 is heavily affected by the situation in France, due to its large total area of the habitat combined with a large extent of degradation. The result both for EU28 as well as EU28+ is an intermediate decline affecting > 30% of the pan-European area, which results in the category Near Threatened.

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	LC	NT	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	NT	DD	DD	DD	LC	LC	LC	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
Medium (evenly split between quantitative data/literature and uncertain data sources and assured expert knowledge)

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