

Natura 2000 habitat 91E0 : Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)

Habitat 91E0 is broadly defined and consists of several types of wet forests :



- Riparian forests of common ash (*Fraxinus excelsior*) and common alder (*Alnus glutinosa*), of temperate and boreal Europe lowland and hill watercourses (Alno-Padion),
- Riparian woods of gray alder (*Alnus incana*) of montane and sub-montane rivers of the Alps and the northern Apennines (Alnion incanae),



(photo : Steven De Saeger)

- Arborescent galleries of tall white willow (*Salix alba*), crack willow (*salix x fragilis*) and black poplar (*Populus nigra*) along medio-European lowland, hill or sub-montane rivers (the white willow gallery forests - Salicion albae),



- Typical ash-alder woods of springs and their watercourses (*Carici remotae-Fraxinetum*),
- Swamp forests dominated by common alder (*Alnion glutinosae*) which can be subdivided into eutrophic (with tall herbs), mesotrophic and oligotrophic types.

The woods of habitat 91E0 in general occur on heavy soils (generally rich in alluvial deposits) along rivers, watercourses and in swampy depressions. Alder swamp forests can occur on more peaty soils too. Habitat 91E0 forests can be inundated or very wet most of the time; or they can be periodically inundated by the annual rise of the river (or brook) level and well-drained and aerated during low-water.



Lesser celandine can cover the soil.

The herbaceous layer often includes tall herbs like meadowsweet (*Filipendula ulmaria*), woodland angelica (*Angelica sylvestris*) and cabbage thistle (*Cirsium oleraceum*), but also various vernal geophytes can occur such as lesser celandine (*Ficaria verna*), wood anemone (*Anemone nemorosa*), yellow anemone (*Anemone ranunculoides*) and fumewort (*Corydalis solida*).

Where to find it?

As this habitat contains a lot of forest types it can be found all over the European Union. But its place in the landscape makes it very vulnerable for disturbances by drainage or big infrastructure works along rivers.

Typical species

The following typical plants are mentioned in the European habitat description for the tree layer :



- common alder (*Alnus glutinosa*) (photo : Paul Busselen)
- grey alder (*Alnus incana*)
- common ash (*Fraxinus excelsior*)
- black poplar (*Populus nigra*)
- white willow (*Salix alba*)
- crack willow (*Salix x fragilis*)
- downy birch (*Betula pubescens*)
- wych elm (*Ulmus glabra*)

The following typical plants are mentioned in the European habitat description for the herb layer :

- woodland angelica (*Angelica sylvestris*)
- large bitter-cress (*Cardamine amara*)
- cuckooflower (*Cardamine pratensis*)

- lesser pond sedge (*Carex acutiformis*)
- pendulous sedge (*Carex pendula*)
- remote sedge (*Carex remota*)
- thin-spiked wood sedge (*Carex strigosa*)
- wood sedge (*Carex sylvatica*)
- cabbage thistle (*Cirsium oleraceum*)
- great horsetail (*Equisetum telmateia*)
- species of horsetail (*Equisetum* spp.)
- meadowsweet (*Filipendula ulmaria*)
- wood crane's-bill (*Geranium sylvaticum*)
- water avens (*Geum rivale*)
- gipsywort (*Lycopus europaeus*)
- yellow pimpernel (*Lysimachia nemorum*)
- red veined dock (*Rumex sanguineus*)
- wood stitchwort (*Stellaria nemorum*)
- common nettle (*Urtica dioica*)

Typical animals :



- white admiral (*Limenitis camilla*) (photo : VILDA/Jeroen Mentens)



- purple Emperor (*Apatura iris*)



- fire salamander (*Salamandra salamandra*) (photo : Vilda/Rollin Verlinde)



- Eurasian beaver (*Castor fiber*) (photo : VILDA/Yves Adams)
- Eurasian otter (*Lutra lutra*)
- European brook lamprey (*Lampetra planeri*)
- freshwater sculpins (*Cottus* spp.)
- beautiful demoiselle (*Calopteryx virgo*)
- golden ringed dragonfly (*Cordulegaster boltonii*)
- common nightingale (*Luscinia megarhynchos*)



- Eurasian golden oriole (*Oriolus oriolus*)

Management and threats

External management has to be mostly focused on the conservation of a good quality of ground and surface water, natural ground water levels and flood dynamics. Any forest management is difficult on such swampy locations, also economically sustainable multifunctional forestry is problematic seen the high vulnerability. The logic goal is to avoid human intervention, but small-scale coppicing is possible as well as some forestry in dryer, more robust forms of this habitat, without degrading the nature conservation values. Wood can e.g. be winched out or extracted with cable lifts.

In the past a lot of the surface of this habitat has been turned into poplar plantations poor in structure and species; for this goal they were clear-cut, drained and severely disturbed by heavy machines. The planted poplar varieties vanish spontaneously through natural succession in the absence of management after a few dozens of years restoring the nature values of this habitat.

As these forests appear often in the landscape as small scattered relics, it is important to link them better together by giving nature and forest more surface. As the typical trees of this habitat grow quickly, restoration of this habitat tends to be somewhat more rapid than of other forest habitats. For the same reason new links between scattered relics of this habitat can be realised rather quickly after a few dozens of years.

The forests of habitat 91E0 are sensitive to drying because of e.g. ground water extraction. Floods with polluted water are also a major threat. Cleaning the water courses makes their shores higher and disturbs the soil. Natural dynamics of water courses have often been altered by making them straight, broader and with strengthened sides. Hydrological changes upstream can damage natural hydrology too : quicker water-flow because of more hardened surfaces, stronger drainage, sewer overflows, ... Too intensive recreation may damage these forests, but in general they are not very accessible for people due to the wet and muddy situations. Grazing by cattle is not possible on the most wet places; only dryer, more robust types of these forests can be grazed in very low densities and on big surfaces, if higher and open areas are also accessible for the grazing animals.

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