

## G1.2a *Alnus* woodland on riparian and upland soils

### Summary

This habitat of *Alnus* woodland, usually lacking *Salix* spp., occurs mostly as narrow strips on the frequently inundated banks of streams and small to medium rivers throughout temperate Europe; less often, but more extensively, on land-upheaval sites on the Baltic coast. The associated flora varies with flood frequency and soil moisture according to proximity to the coast. Threats include a degradation of hydrological conditions, clearance for silviculture and agriculture and, more recently, pollution and invasion of alien species. Conservation needs maintenance of the flood regime with deposition of alluvium and debris, exclusion of non-native species and, along rivers, ensuring freedom from pollution.

### Synthesis

The past present decline in quantity of around 14% is not strong enough to qualify a Near Threatened category and the reported decline in quality has only been slight (36%) on less than half of the area. Neither trend in quality nor in quantity could qualify the Near Threatened category. The situation certainly benefits from nature conservation programmes such as Natura 2000, but the pressure remains strong on this habitat that can be easily degraded by river regulation or destruction of trees along agricultural lands (just like other hedgerows), or forest plantations.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Least Concern	-	Least Concern	-

### Sub-habitat types that may require further examination

The Baltic coastal subtype would qualify for a Vulnerable category in Finland because more than 80 % of the area is affected by a slight decline in quality since the 50's. It appeared as Near threatened category on the habitat redlist of this country.

### Habitat Type

#### Code and name

G1.2a *Alnus* woodland on riparian and upland soils



*Alnus* woodland on alluvial soils in Belgium, Dal van de Hohn (Photo: John Janssen).



*Alnus* woodland in the upper Loire valley, France on a young soil, frequently rejuvenated by the floods of this fast-flowing river, association *Artemisia vulgaris-Alnetum glutinosae* (Photo: Benoît Renaux).

## Habitat description

These are riparian and land-upheaval woodlands dominated by *Alnus glutinosa* and/or *A. incana*, and sometimes *Fraxinus excelsior*, typically without many softwood willows in the canopy, such woodland being assessed separately as G1.1 Temp and boreal softwood riparian woodland). This habitat also differs from riparian woodlands of the middle and lower reaches of major European rivers, which is assessed separately as G1.2b Temperate and boreal hardwood riparian forest. The non-riverine subtype of this present habitat (corresponding to the original G1.B Non-riverine alder woodland) is typical of the Baltic coast, a sea with a low level of salinity.

The stands show varying degrees of soil moisture according to the frequency of flooding in mature river valleys, depth of water table, or proximity to the coast. Moister forms can also have some *Salix fragilis*, *Betula pubescens* and *Prunus padus* in the canopy with *S. phylicifolia* beneath; in more mesic situations, *Sorbus aucuparia* can appear among the trees with *Juniperus communis* beneath. Other shrubs include *Crataegus monogyna*, *Ribes alpinum*, *R. spicatum*, *Rubus caesius*, *R. idaeus*, *S. triandra* and *Sambucus nigra*. The field layer can be quite species-rich, especially in moister situations, when more nutrient-demanding herbs such as *Urtica dioica* and *Filipendula ulmaria* may be abundant. Other herbs then include *Valeriana sambucifolia*, *Angelica sylvestris*, *Deschampsia cespitosa*, *Calamagrostis canescens* and *C. purpurea*. More mesic stands have *Milium effusum*, *Silene dioica*, *Rubus saxatilis* and *Poa nemoralis*. In the driest situations, *Agrostis capillaris* and *Moehringia trinervia* occur and even some forest dwarf shrubs but at low frequency and cover. In the northernmost Bothnian Bay, on slightly more calcareous substrate, *Geranium sylvaticum*, *Oxalis acetosella*, *Filipendula ulmaria*, *Geum rivale* and *Anthriscus sylvestris* are distinctive.

Indicators of quality:

- Undisturbed natural hydrology
- Dominance of mature trees with shrubs forming a subordinate layer
- Few if any signs of exploitation for timber, fallen trees remaining *in situ* with ample deposition of natural organic debris from flooding in riparian sites.
- No signs of eutrophication or pollution by anthropogenically enriched flood or ground waters, for example excessive spread of nutrient-demanding weeds
- Absence of non-native tree species and absence of invasive aliens such as *Reynoutria japonica* or *Impatiens glandulifera*

Characteristic species:

Tree layer: *Alnus glutinosa*, *A. incana*, *Betula pubescens*, *Prunus padus*, *Salix fragilis*, *Sorbus aucuparia*.

Shrub layer: *Crataegus monogyna*, *Juniperus communis*, *Ribes alpinum*, *R. spicatum*, *Rubus caesius*, *R. idaeus*, *Salix phylicifolia*, *S. triandra*, *Sambucus nigra*.

Field layer: *Aegopodium podagraria*, *Agrostis capillaris*, *Angelica sylvestris*, *Anthriscus sylvestris*, *Athyrium filix-femina*, *C. purpurea*, *Calamagrostis canescens*, *Deschampsia cespitosa*, *Filipendula ulmaria*, *Galium aparine*, *Glechoma hederacea*, *Geum urbanum*, *Geranium sylvaticum*, *Geum rivale*, *Milium effusum*, *Moehringia trinervia*, *Oxalis acetosella*, *Petasites hybridus*, *Poa nemoralis*, *P. trivialis*, *Rubus saxatilis*, *Silene dioica*, *Solanum dulcamara*, *Urtica dioica*, *Valeriana sambucifolia*.

Mosses: *Brachythecium rutabulum*, *Eurhynchium praelongum*, *Plagiomnium undulatum*.

## Classification

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

EUNIS:

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

EuroVegChecklist alliances:

*Alnion incanae* Pawłowski et al. 1928

*Alno incanae-Salicion pentandrae* Kielland-Lund 1981

Annex 1:

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

9030 Natural forests of primary succession stages of landupheaval coast

Emerald:

G1.12 Boreo-alpine riparian galleries

G1.21 Riverine *Fraxinus* - *Alnus* woodland, wet at high but not at low water

G1.B3 Boreal and boreonemoral *Alnus* woods

MAES-2:

Woodland and forest

IUCN:

1.1 Boreal Forest

1.4 Temperate Forest

EFT

12.1 Riparian forest

VME:

U3.1 Hardwood alluvial forests in combination with willow and poplar alluvial forests

**Does the habitat type present an outstanding example of typical characteristics of one or more biogeographic regions?**

No

Justification

The habitat has a widespread range on river banks and land upheaval sites through temperate Europe.

### **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)
<i>Austria</i>	Present	375 Km <sup>2</sup>	Stable	Stable
<i>Belgium</i>	Present	109 Km <sup>2</sup>	Stable	Stable
<i>Bulgaria</i>	Present	80 Km <sup>2</sup>	Decreasing	Decreasing
<i>Croatia</i>	Present	98 Km <sup>2</sup>	Decreasing	Decreasing
<i>Czech Republic</i>	Present	790 Km <sup>2</sup>	Stable	Decreasing
<i>Denmark</i>	Present	59 Km <sup>2</sup>	Unknown	Stable
<i>Estonia</i>	Present	35 Km <sup>2</sup>	Stable	Increasing

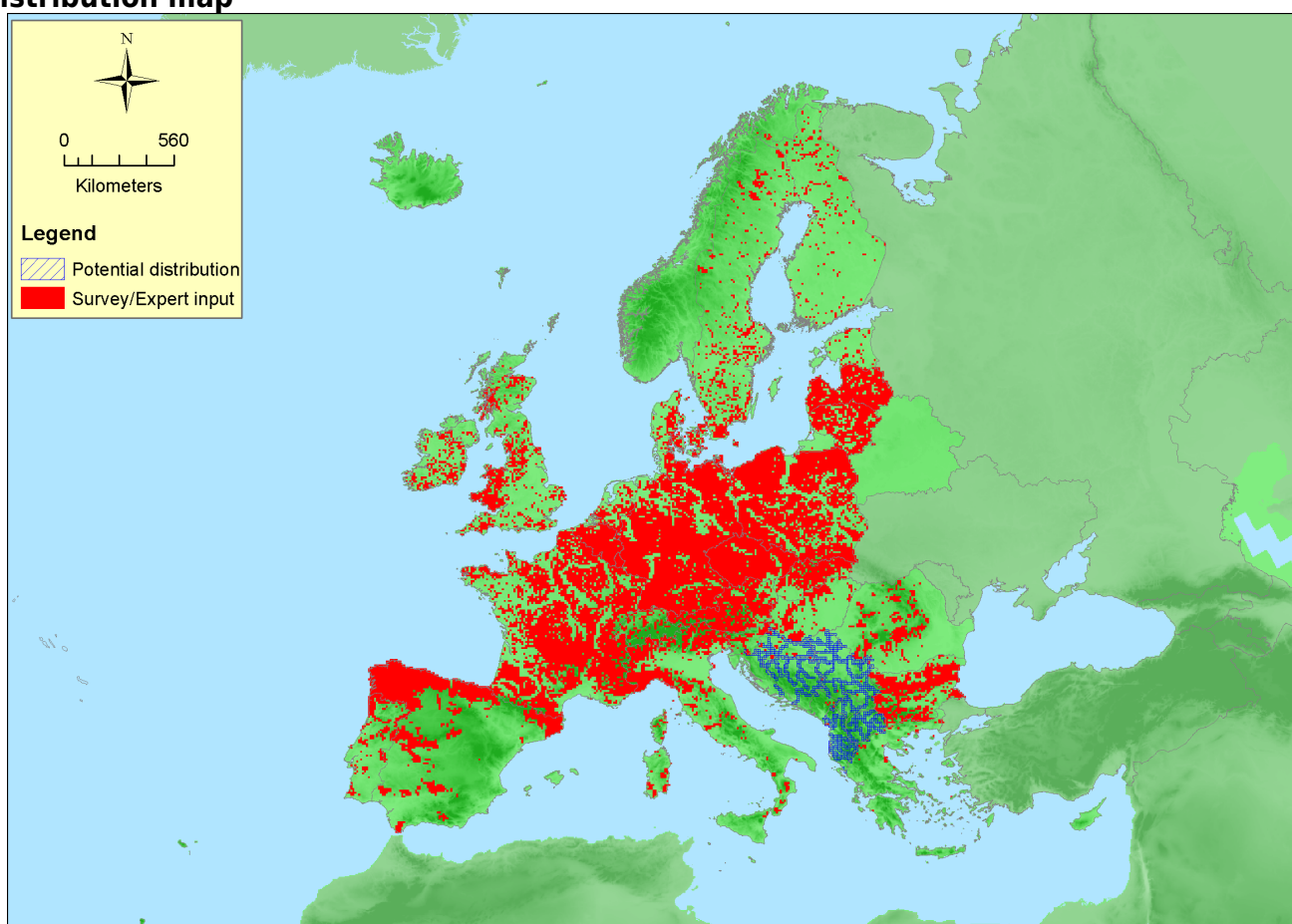
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Finland</i>	Finland mainland: Present	20 Km <sup>2</sup>	Stable	Stable
<i>France</i>	France mainland: Present	2460 Km <sup>2</sup>	Stable	Decreasing
<i>Germany</i>	Present	700 Km <sup>2</sup>	Increasing	Stable
<i>Greece</i>	Crete: Uncertain East Aegean: Uncertain Greece (mainland and other islands): Present	85 Km <sup>2</sup>	Stable	Decreasing
<i>Hungary</i>	Present	60 Km <sup>2</sup>	Decreasing	Decreasing
<i>Ireland</i>	Present	1.3 Km <sup>2</sup>	Stable	Stable
<i>Italy</i>	Italy mainland: Present Sardinia: Present Sicily: Present	Km <sup>2</sup>	Decreasing	Decreasing
<i>Latvia</i>	Present	55 Km <sup>2</sup>	Unknown	Decreasing
<i>Lithuania</i>	Present	441 Km <sup>2</sup>	Stable	Decreasing
<i>Luxembourg</i>	Present	unknown Km <sup>2</sup>	Unknown	-
<i>Netherlands</i>	Present	18 Km <sup>2</sup>	Stable	Unknown
<i>Poland</i>	Present	2 Km <sup>2</sup>	Decreasing	Decreasing
<i>Portugal</i>	Portugal mainland: Present	176 Km <sup>2</sup>	Decreasing	Decreasing
<i>Romania</i>	Present	125 Km <sup>2</sup>	Decreasing	Unknown
<i>Slovakia</i>	Present	50 Km <sup>2</sup>	Decreasing	Decreasing
<i>Slovenia</i>	Present	37 Km <sup>2</sup>	Decreasing	Decreasing
<i>Spain</i>	Spain mainland: Present	398 Km <sup>2</sup>	Decreasing	Decreasing
<i>Sweden</i>	Present	unknown Km <sup>2</sup>	Unknown	-
<i>UK</i>	Gibraltar: Uncertain Northern Island: Present United Kingdom: Present	80 Km <sup>2</sup>	Stable	Decreasing

EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Albania</i>	Uncertain	Km <sup>2</sup>	-	-
<i>Bosnia and Herzegovina</i>	Present	20 Km <sup>2</sup>	Decreasing	Decreasing
<i>Former Yugoslavian Republic of Macedonia (FYROM)</i>	Present	unknown Km <sup>2</sup>	Unknown	Unknown
<i>Kosovo</i>	Uncertain	Km <sup>2</sup>	-	-
<i>Montenegro</i>	Present	unknown Km <sup>2</sup>	Unknown	Unknown
<i>Norway</i>	Norway Mainland: Present	unknown Km <sup>2</sup>	Unknown	Decreasing
<i>Serbia</i>	Present	unknown Km <sup>2</sup>	Unknown	Unknown
<i>Switzerland</i>	Present	60 Km <sup>2</sup>	Stable	Decreasing

## Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28	7882900 Km <sup>2</sup>	16830	6500 Km <sup>2</sup>	6076 is reported but data is missing for several countries. 6500 seems to be a good estimate of the total area for EU 28 according to art 17 and estimates
EU 28+	7882900 Km <sup>2</sup>	16896	7000 Km <sup>2</sup>	6155 is reported but data is missing for several countries. 7000 seems to be a good estimate of the total area of EU 28+ according to art 17 and estimates

## Distribution map



Map is rather complete, with possible data gap in Norway and potential distribution provided for the Balkan. Data sources: EVA, Art17, BOHN.

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

Probably about 50 % of the area lies in EU28.

## Trends in quantity

The recent past-present trend is a 10 to 50% decrease in most countries providing data for this criterion (Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Finland, France, Germany, Hungary, Italy, Netherlands, Portugal, Romania, Slovenia, Spain, Switzerland), almost stable (-0,5% decrease) in Slovakia, stable in Lithuania, increasing in Ireland and Czech Republic. The long-term historical trend in quantity cannot be assessed, contrary to temperate and boreal hardwood riparian woodland, but most countries



report an historical decrease (Bosnia and Herzegovina, Bulgaria, Hungary, Switzerland, Germany). The current trend is still a decrease in a bit less than 2/3rd of the countries, stable in 1/3rd, increasing in only 1 country. The expected future trend is a bit better than the current one, with an increase expected in Belgium, Czech Republic, Estonia and Ireland and a stable trend in Germany, the Netherlands and Switzerland. The experts mostly expect the effects of conservation measures, with the protection of riparian woodlands. Still, Bosnia and Herzegovina, Bulgaria, France, Hungary, Italy, Latvia and Slovakia expect a decrease in the area.

- 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 habitat has a large range (EEO).

- Does the habitat have a small natural range by reason of its intrinsically restricted area?

No

*Justification*

The habitat is widely distributed through temperate Europe, occupying a lot of medium to small rivers banks and can form long linear patches.

## **Trends in quality**

It is not possible to assess a long-term historical trend in sufficient countries. For the last 50 years, most countries report a decrease in quality and the trend is calculated on 84 to 85 % of the extent. Most countries (Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, France, Greece, Hungary, Italy, Latvia, Lithuania, the Netherlands, Slovenia, Spain, Switzerland, the UK) have reported a decline in quality for the last 50 years, even if the situation is not as bad as G1.2b riparian woodlands of large rivers. The reason is that most of the time this forest type forms only small linear stands along small rivers and streams, and thus is less affected by changes in land use. The current quality is not good, because of a lack of deadwood and large trees, pollution, grazing under trees, and degradation in hydrological conditions. The trend is now better : a current stable trend is now reported in 11 out of 28 countries (Austria, Belgium, Denmark, Finland, Germany, Ireland, Norway, Slovakia), even an improvement in Estonia where the habitat covers 700 km<sup>2</sup> (10% of EU28+ total area). Thought, a decrease trend is still reported in half of the countries (14 out of 28) representing half of the area (51%) : Bosnia and Herzegovina, Bulgaria, Croatia, France, Greece, Hungary, Italy, Latvia, Poland, Portugal, Romania, Slovakia, Slovenia, Spain.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

## **Pressures and threats**

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The most frequently reported problem in almost every country is a change in hydrological conditions, especially a lack of flooding with river regulation, also in some countries drying out and water abstraction for agriculture irrigation. Forestry clearance especially for agriculture, also for infrastructures as roads and poplar plantation are also reported in a lot of countries. The third most important pressure is invasive non-native species (*Impatiens glandulifera*). Pollution (eutrophication of rivers, pesticides) is also reported, even if less frequently, and tree disease affects the 2 main tree species in this habitat in alder dieback and chalara ash disease. Grazing under the trees or from nearby grasslands is sometimes reported.

## List of pressures and threats

### Sylviculture, forestry

- Forest and Plantation management & use
  - Forest replanting (non native trees)
  - Forestry clearance
  - Removal of dead and dying trees
- Forest exploitation without replanting or natural regrowth

### Pollution

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

### Invasive, other problematic species and genes

- Invasive non-native species

### Natural System modifications

- Human induced changes in hydraulic conditions
  - Canalisation & water deviation
  - Lack of flooding

## **Conservation and management**

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Conservation measures include the conservation or restoration of a good functioning of the river with floodings and natural banks, and a protection against clearing and planting of alien species. Clearings and cuttings have not only been done for logging or in favor of other land-use, but also to avoid large woody debris to cause log-jam on the river. Such woody debris are vital for the whole river ecosystem and provide habitat for a lot of species, from the river banks (beaver, birds) and bed (fish nursery, insects, molluscs). Dead or dying trees should be kept unless a log-jam threatens infrastructures just downstream in urbanized areas. Many riparian alnus woodlands along small rivers form only ribbons along agricultural lands, and their conservation must involve farmers, as with the conservation of hedges. It is also important to keep cattle from grazing the banks and going down in the river, as they damage the soil and vegetation. When riparian woods are located along rivers flowing in a forest, their conservation implies forestry stewardship (no logging on the river banks, no crossing by machines).

## List of conservation and management needs

### Measures related to agriculture and open habitats

- Other agriculture-related measures

### Measures related to forests and wooded habitats

- Restoring/Improving forest habitats
- Adapt forest management

### Measures related to wetland, freshwater and coastal habitats

- Restoring/Improving the hydrological regime

### Measures related to spatial planning

- Legal protection of habitats and species
- Manage landscape features

## Conservation status

Annex 1:

9030: BOR U1

91E0: ATL U2, ALP U2, BLS U1, BOR U2, CON U2, MED U1, PAN U1

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

The best thing to restore riparian hardwoods for example from old poplar plantations and fight alien species is to avoid any further strong intervention in the vegetation, because soil perturbation and light on the ground would favour alien species whereas shade will control them.

### Effort required

50+ years
Through intervention

## Red List Assessment

### Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-14 %	unknown %	unknown %	unknown %
EU 28+	-14 %	unknown %	unknown %	unknown %

Only a small decrease (-14 %) is reported for criterion A1, in both EU28 and EU28+. This trend has only been calculated on half of the area, due to a lack of trend for France.

### Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50000 Km <sup>2</sup>	No	No	No	>50	No	No	No	No
EU 28+	>50000 Km <sup>2</sup>	No	No	No	>50	No	No	No	No

The thresholds for AOO and EOO and the number of locations exceed the thresholds for criteria under 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	46 %	35 %	unknown %	unknown %	unknown %	unknown %
EU 28+	45 %	35 %	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%

A slight decrease (35% severity) in quality is reported for criterion C/D1 on less than half (45 to 46 %) of the reported area. This trend is calculated on 85% of the total area.

### 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	LC	DD	DD	DD	LC	LC	DD	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	DD	DD	DD	LC	LC	DD	LC	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
Least Concern	-	Least Concern	-

### Confidence in the assessment

Medium (evenly split between quantitative data/literature and uncertain data sources and assured expert knowledge)

### Assessors

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### Reviewers

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