The grey alder (Alnus incana (L.) Moench) is a relatively small short-lived deciduous tree that can be found across the Northern Hemisphere. Normally associated with riparian areas, it is extremely frost tolerant and can be found up to the treeline in parts of northern Europe. Like the common alder (Alnus glutinosa), it is a fast-growing pioneer and it is also able to fix nitrogen in symbiotic root nodules, making it useful for improving soil condition and for reclaiming derelict or polluted land.

Alnus incana (L.) Moench, or grey alder, is a short lived, small to medium sized deciduous tree. It lives for around 60 years and can reach a height of around 24 m but often also occurs as a multi-stemmed shrub. It is generally smaller than the common alder (Alnus glutinosa). The bark is smooth and deep grey, developing fissures with age. The leaves are oval to ovate-lanceolate and deeply toothed with pointed tips, matt green above and grey and downy underneath. It is a monoecious and wind pollinated species. It flowers from late February to May before the leaves open. The yellow male catkins are 5-10 cm long and occur in clusters of three or four, while the female catkins are woody and resemble small cones 1-2 cm long, growing in clusters of 2 to 6. Both male and female catkins are formed during the previous growing season. The seeds are small flat ovoid cones, grouped in three or four, which ripen and disperse between September and November, usually by wind or water.

Grey alder is native to most of central Europe, extending westwards towards France and east into Russia, the Caucasus and western Siberia. It is widespread in Scandinavia and has been introduced in Britain. Two subspecies (subsp. rugosa and subsp. hirsuta) are native to northern parts of the United States and Canada and a third subspecies (subsp. hirsuta) is found in central and northeast Asia. Its European range overlaps with that of the common alder (Alnus glutinosa) but it extends further north. Conversely, its southern extent is less than that of the common alder and it is absent from the UK except as an introduced species.

Habitat and Ecology

Grey alder can be found on stream banks, lake shores and damp meadows and also in bogs and nutrient-rich swamp communities. It prefers mesic and moist conditions and it is tolerant of acid soils, able to stand pH levels of 3.5-4.0 without problems, but it is able to grow on a wide range of soil types, moisture and texture classes. In the Caucasus it can be found at elevations of up to 1800 m. It replaces the common alder (Alnus glutinosa) at higher elevations in central Europe, and it is frost tolerant so it can grow up to the northern forest border in Scandinavia and European Russia, limited only in areas of permafrost. Able to withstand direct sunlight, it is a pioneer species, quickly colonising open disturbed areas and able to regenerate rapidly from root suckers, at its northern and elevational limits this is its main method of reproduction. Where it overlaps with the common alder, they may occasionally form hybrids, although this is not common as the two species flower at slightly different times: the grey alder around a week earlier than the common alder.

Importance and Usage

The timber of the grey alder has little commercial value except as fuel wood, although it is suitable for carpentry and turning and is reported to make good charcoal for drawing. It has several advantages as a short-rotation crop. It is relatively untroubled by grazing animals and has few pests and diseases, it has modest site requirements, coppices easily and combines fast growth with the ability to improve soil fertility. It is also useful for restoration of disturbed sites including old mines, for consolidating the ground in wet woods, river-banks and on unstable slopes, and it is suitable for planting on polluted sites. It has been historically used for medicinal purposes for a range of ailments from sprains and bruises to urinary problems and anaemia.


**Threats and Diseases**

Grey alder has relatively few major threats in the way of pests and disease, although older stems are prone to decay by a number of fungus species. It is more resistant than other European alders to the oomycete Phytophthora alni. Threats and diseases include:

1. **Threats:**
   - Pest attacks by various insects and mites.
   - Diseases caused by fungal pathogens, such as Phytophthora alni, which can cause stem decay.

2. **Diseases:**
   - Brown spot caused by Mycosphaerella alni.
   - Downy mildew caused by Pseudoperonospora alni.
   - Anthracnose caused by Colletotrichum alni.

Grey alder can also be affected by **environmental factors** such as:

1. **Climate:**
   - Cold winters can cause stem damage.
   - Too much shade can limit its growth.

2. **Soil:**
   - Poorly drained soils can lead to root rot.
   - Infertile soils can restrict growth.

3. **Management:**
   - **Silviculture:** Pruning can help to control crown density and improve light penetration.
   - **Thinning:** Occasionally necessary to enhance air circulation around the tree.

**References**


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