Ailanthus altissima in Europe: distribution, habitat, usage and threats

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Ailanthus altissima (Mill.) Swingle, known as tree of heaven, is native to China, but it can be found in several countries across Europe and North America. Tree-of-Heaven is known as an invasive species that can rapidly spread onto disturbed sites or fragmented landscapes.

Description

Tree of heaven (Ailanthus altissima (Mill.) Swingle) is a short-lived, fast-growing tree, reaching a height of around 20 m and 70 cm in diameter. The bark is greyish and slightly rough. The leaves are 0.4-0.7 m long; each leaf comprises 11-25 leaflets usually lanceolate. The leaflets usually have one or more coarse teeth at the base and each of these teeth has a characteristic gland on the underside. The flowers appear in late spring, the trees being usually dioecious, but in some cases both sexes exist on the same individual. Male plants have a foul odour while flowering. The winged fruits are twisted at the top, membranous, purplish yellow and up to 5 cm long. Tree-of-Heaven is readily propagated both by seed and vegetatively.

Distribution

Tree of heaven is native of central Asia (China) and was first introduced to Europe by the French missionary Pierre d’Incaville more than 260 years ago, who sent seeds from Nanking to Paris. Since then, the species has spread over all continents except Antarctica and is naturalised across large areas of Europe. It is limited by low temperatures in the north but is abundant across the Mediterranean region. Its expansion has been facilitated by the worldwide transfer of seeds over the last two centuries and by its ability to grow on poor sites, urban areas and fragmented landscapes.

Habitat and Ecology

Tree of heaven tolerates a wide variety of soil types and climatic conditions. It demands a warm climate, but is resistant to drought and air pollution, although it is sensitive to ozone. It is a shade intolerant species, preferring open spaces.

Importance and Usage

Tree of heaven has been used for a variety of purposes such as: ornamental species, in folk medicine or for establishment of protective forest shelterbelts. The species is known for its ability to produce allelopathic compounds in its leaflets and bark which are toxic to numerous species and which may have potential for development as a natural herbicide. However, its pollen is a known allergen, and its invasive nature means that it is currently in the top 20 environmental weeds identified as targets of classical biological control in Europe.

References


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