**Acer platanoides in Europe:** distribution, habitat, usage and threats

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*Acer platanoides*, commonly known as Norway maple, is a large tree that is widespread in central Europe and reaching eastwards the Ural Mountains. It is a fast-growing species, able to grow in a wide range of soils and habitat conditions. In natural stands it occurs in fresh and humid sites in temperate mixed forests, both with conifers and broadleaves. It is a secondary species, growing in small groups or individually. It has been planted intensively as an ornamental and shade tree, appreciated for its colourful foliage and large, spreading crown, in combination with its tolerance of urban conditions. Its wood is also valued for its attractive flaming figures and is used for music instruments, furniture, marquetry and turned objects. This maple is generally free of serious diseases, except in urban areas, where it is more vulnerable to pathogens. In North America it has been widely planted and is now naturalised, becoming an invasive species.

The Norway maple (*Acer platanoides*) is a large and tall-domed tree, sometimes very broad, growing to 25–30 m tall and 60–80 cm in diameter, although exceptionally over 150 cm. The stem is straight, short with perpendicular shoots and the crown is dense with foliage. The leaves are opposite, simple, 10–15 cm long, very variable in dimension depending on the age and the vigour of the tree. They have five lobes with long and acuminate teeth and smooth margins. The colour is bright to shiny green turning yellow in autumn; the stalk is reddish, 10–20 cm long. The Norway maple is a monocious hermaphrodite species with inflorescences grouped in panicles of 30–40 flowers, each 6–8 mm long with five yellow-green petals. In this species flowers appear from about 25–30 years and are insect pollinated. The fruit is a double samara, 3–5 cm each, greenish-yellow, dispersed by the wind. The two *samaras* are set at a wide angle approaching 180°. The bark of young trees is smooth and grey-brown; on older trees the bark becomes darker and shallowly furrowed with long narrow ridges in a network. The wood is dark reddish-brown, the grain is straight, with a fine, uniform texture. Many cultivars have been selected for their distinctive leaf shape and coloration and for crown shape.*

**Distribution**

Norway maple is the most widespread native maple in Europe. Its natural distribution ranging from Greece, Balkans, North Italy and Pyrenees to southern Fennoscandia, and toward the East it arrives as far as Russia but not over the Ural Mountains. It grows from sea level up to 1400 m in the Alps. In Europe it is not native of western France, British Isles, Netherlands and Denmark. The subspecies *Acer platanoides* turkestanicum occurs in mountain forests of Turkey, Caucasus and northern Iran on the southern coasts of the Black Sea and Caspian Sea, reaching 2400 m in elevation. Norway maple is commonly found throughout mainland Europe, even in countries where it is non-native. It was also introduced in the United States in the 18th century and now it is naturalised in some areas of central-east United States and south-east Canada. It shares the ecological range of sugar maple (*Acer saccharum*), which is taxonomically close. Norway maple may be found all over the world in towns and villages as an ornamental and shade tree.

**Habitat and Ecology**

The Norway maple is a fast-growing tree species, able to grow well across a wide range of soil conditions, shade, drought and pollution. However, it thrives best in deep, fertile, moist soils, which are adequately drained and with a subacid pH. Exposure to light is very important and it becomes more light-demanding when the tree is 25–30 years of age. Flowers are insect pollinated and are produced from about 25–30 years and are insect pollinated. The fruit is a double samara, 3–5 cm each, greenish-yellow, dispersed by the wind. The height increment is about 1 m/year in the first 10 years. With its wide crown it tends to shade and suppress other slow-growing competitor species.*

Under optimal conditions Norway maple may live for more than 250 years.* Over Europe it occurs in fresh and humid sites both in coniferous and deciduous forests. In natural stands Norway maple occurs as a secondary species with low frequency, thus not forming pure stands but generally found in small groups or as individual trees. In temperate continental mixed forests it can co-dominate with other broadleaves such as English oak (*Quercus robur*) and small-leaved lime (*Tilia cordata*) when the tree is 25–30 years of age.

**Importance and Usage**

The Norway maple has been used extensively as an ornamental, shade and street-side tree because of its attractiveness, colourful foliage and large, spreading crown, in combination with its tolerance of urban conditions. Its ability to resprout vigorously after trimming makes it suitable to be used as a live fence.

The Norway maple distribution range overlaps with many areas...
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Acer in the United States and recently in Europe. Norway maple and aesthetic impacts on different hardwood tree species mainly the host species. It is creating serious economic, ecological and healthy trees as well as trees under stress and eventually killing larvae tunnel and feed on the beetle serious damage after hot and dry summers. The Asian longhorn and central Europe, affecting principally the sycamore maple (Acer pseudoplatanus), but also dangerous for the Norway maple, with serious damage after hot and dry summers. The Asian longhorn beetle Alopexophila globinennis is a large wood-boring beetle native of Asian countries, such as Japan, Korea and China. Its larval tunnel and feed on the cambium layer of bark, attacking healthy trees as well as trees under stress and eventually killing the host species. It is creating serious economic, ecological and aesthetic impacts on different hardwood tree species mainly the host species in the United States and recently in Europe. Norway maple and other species of genus Acer are particularly vulnerable and one of the major hosts in urban areas. Fungi of the genus Rhytismatae infect the leaves of maples and cause black spots on upper leaf surfaces. The wilt fungi of genus Verticillium infect ornamental and nursery plants through the root system along water-conducting tissues and resulting in blockage of water movement to the foliage. Although Comaroserio orchid (horse-chestnut leafminer) is mainly known for its impressive impact on the European horse-chestnut (Aesculus hippocastanum L.), it is also harmful to Norway maple which partly coexists with the natural niche of the horse-chestnut leafminer. During the middle of the 20th century this species was widely planted in United States to replace American elm (Ulmus americana) that were lost due to Dutch elm disease. However, with its fast growth, dense shade, and shallow roots, the species has since demonstrated itself to be a prolifically invasive species, reducing abundance and diversity of native species and altering the natural forest community structures. It has invaded mixed-deciduous forests especially on disturbed sites in parts of eastern North America, requiring in some cases mechanical or chemical control measures.

References