

## Insights on Europe's small-leaved and large-leaved lime trees from the European Atlas of Forest Tree Species

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<https://forest.jrc.ec.europa.eu/en/european-atlas/> Published March 2016



**Far left: Temperate broadleaved forest in autumn. © Valentin Sabau, CC0, pixabay.com.**  
**Archived at: <http://archive.is/GyEvu>.**

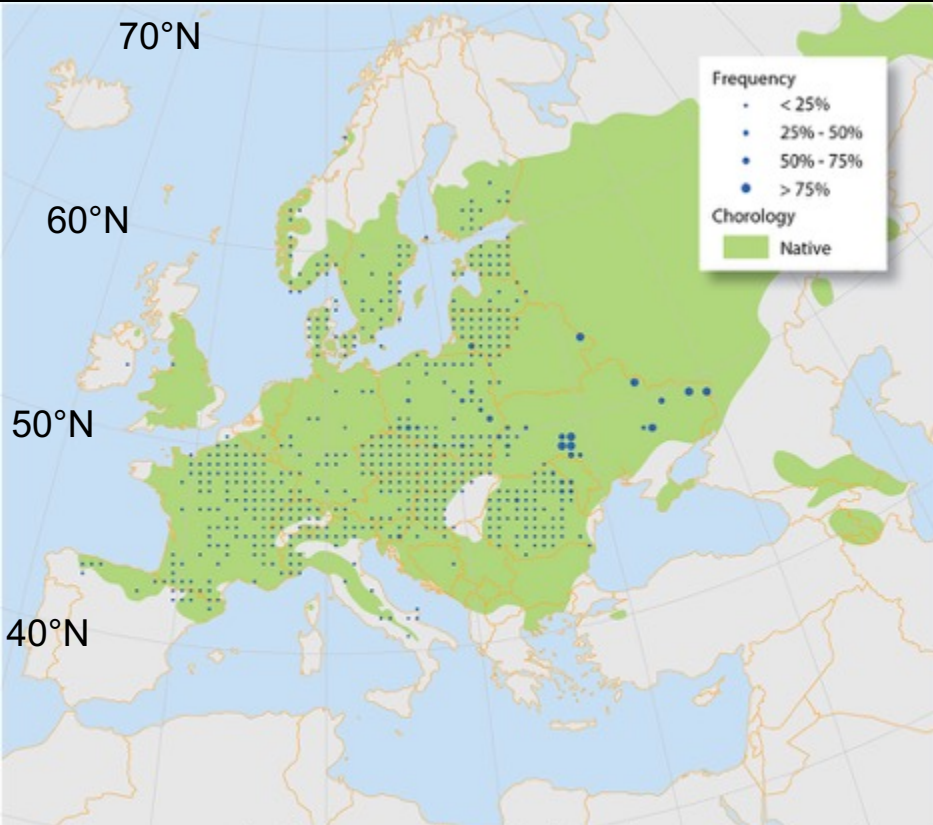
**Middle left: Thermophilous deciduous forest, detail of oak leaves. © Alfonso San Miguel, CC-BY, commons.wikimedia.org. Archived at: <http://archive.is/DHmr9>.**

**Middle right: Downy oak (*Quercus pubescens*), Pyrenees, Spain. © Alfonso San Miguel, CC-BY, commons.wikimedia.org. Archived at: <http://archive.is/rCDbO>.**

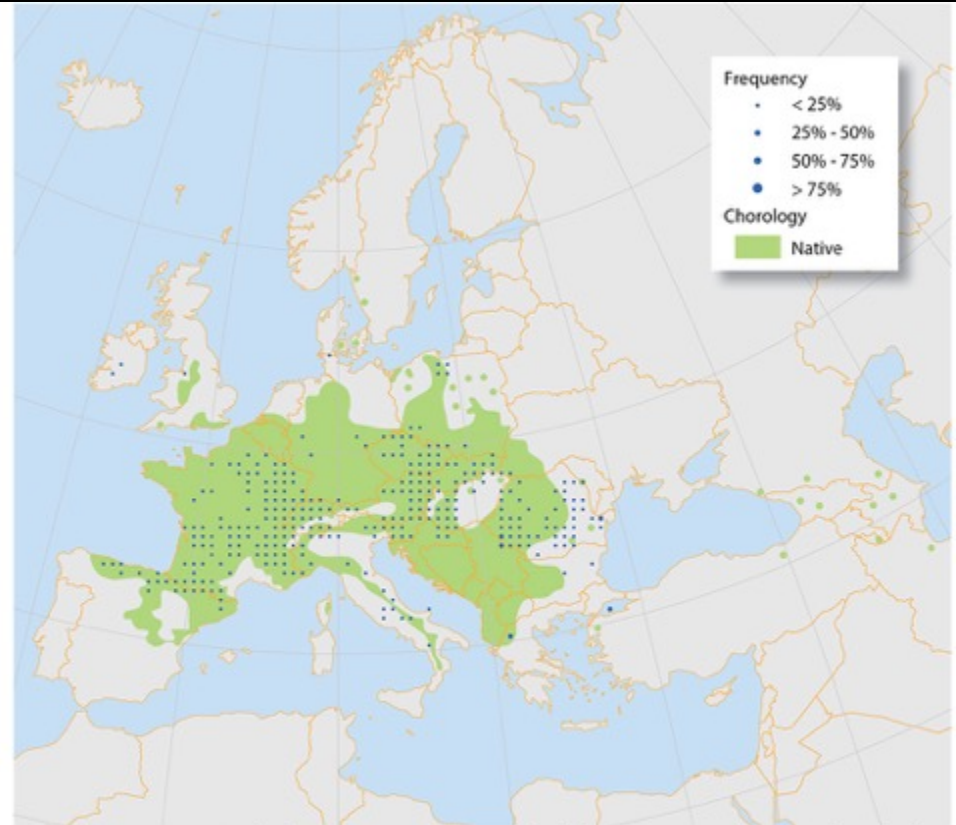
**Far right: Deadwood and litter in a mature beech (*Fagus sylvatica*) forest. © Alfonso San Miguel, CC-BY, commons.wikimedia.org. Archived at: <http://archive.is/jZvzv>.**

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*E. Eaton, G. Caudullo, D. de Rigo, 2016. Tilia cordata, Tilia platyphyllos and other limes in Europe: distribution, habitat, usage and threats, pp. 184-185*



Map 1-A: Plot distribution and simplified chorology map for *Tilia cordata*. Frequency of *Tilia cordata* occurrences within the field observations as reported by the National Forest Inventories. The chorology of the native spatial range for *T. cordata* is derived after EUFORGEN and Afonin et al.<sup>26,27</sup>



Map 1-B: Plot distribution and simplified chorology map for *Tilia platyphyllos*. Frequency of *Tilia platyphyllos* occurrences within the field observations as reported by the National Forest Inventories. The chorology of the native spatial range for *T. platyphyllos* derived after EUFORGEN<sup>28</sup>.

**Chorology** is also referred to as regional geography. Chorology stems from the Greek word *khōros* for “place” or “space” and the suffix *-logy* for the “study of”. With lime tree’s relative drought-tolerance and preference for warmer temperatures, the range may increase in a warming climate.

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Isolated small-leaved lime (*Tilia cordata*) in Leskova Dolina (South Slovenia).  
(Copyright Stefano Zeraushek, [www.flickr.com](http://www.flickr.com): AP)

*Tilia cordata* Mill., known as small-leaved lime, and *Tilia platyphyllos* Scop., known as large-leaved lime, are very similar trees, both native to Europe and liking warmer climates. Growing into large trees, they occur from southern Finland to southern Italy, and from the Caucasus to north-west Spain and Wales.

Limes prefer lowlands to higher elevations and have been a component of European woodlands for six millennia. Coppicing\* has been a common form of management for limes, as they produce long straight poles and can be very long-lived (>2,000 years) in this form. Lime wood is much valued for carving, as it is soft and resistant to splitting.

\*as discussed later in this slide set

Both an attractive tree and an excellent candidate for field measurement for GLOBE Trees!

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Large-leaved lime (*Tilia platyphyllos*) on karst plateau near Lokev village (Sežana, Slovenia). (Copyright Stefano Zeraushek, [www.flickr.com](http://www.flickr.com): AP)

Small-leaved lime (*Tilia cordata* Mill.) and large-leaved lime (*Tilia platyphyllos* Scop.) are large-sized deciduous broad-leaved trees. They are long-lived, able to survive more than 1,000 years even if coppiced. The small-leaved lime is the more common species in Europe, but the large-leaved lime extends farther south.

Both species can reach 30-40m in height with straight trunks up to around 1m in diameter which are largely free of epicormic growth, unlike their hybrid *Tilia x europaea* (common lime).

Epicormic sprouts, also known as “suckers” or “water sprouts”, are growth that emerge from dormant buds along the trunk and branches of a tree.

**Another excellent candidate for field measurement for GLOBE Trees!**

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Leaves of European lime are very similar, with toothed margin, cordate base and pointed tips.  
(Copyright Graham Calow, [www.naturespot.ork.uk](http://www.naturespot.ork.uk): AP)



Bark of small-leaved lime ( *Tilia cordata*) forming longitudinal fissures at the base of the trunk.  
(Copyright Stefano Zeraushek, [www.flickr.com](http://www.flickr.com): AP)

Despite their common names, the leaves of these two tree species are very similar: both are often around 9cm long, with *T. platyphyllos* up to 15cm; pointed tips to the leaves are common to both, as are a cordate, or heart-shaped form. Their mature high crowns can allow a branch-free bole or trunk of 10-15m in length making them desirable for timber.

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❖❖❖ Inflorescences of white-yellowish fragrant flowers arranged in clusters of 4-5.  
(Copyright Giovanni Caudullo: CC-BY)



❖❖❖ Pendulous fruits of small-leaved lime (*Tilia cordata*).  
(Copyright AnRo0002, commons.wikimedia.org: CC0)

**Both species flower profusely in June and July. The white or pale flowers, which are insect-pollinated, are fragrant and occur in clusters of 4 to 5. Seeds are first produced around 30 to 40 years of age, and every 2-3 years trees produce a reasonable crop of seeds. Honey from the flowers of lime trees is also much valued, and a tea made from the flowers (Tilleul) has long been thought to have anti-inflammatory properties.**

# GLOBE Trees - Trees In The News

Insights on Europe's small-leaved and large-leaved lime trees from the European Atlas of Forest Tree Species



☼☼☼ Trunk of small-leaved lime (*Tilia cordata*), which generally reaches lower heights than large-leaved lime (*Tilia platyphyllos*).  
(Copyright AnRo0002, commons.wikimedia.org: CC0)

Both main lime tree species in Europe produce a wood that is light in color and soft enough to carve, but resistant to splitting. Some of the earliest uses of lime wood includes bows and shields, as well as “bast”, which is a tough fibrous material derived from the inner bark and used for rope and clothing.

As the wood of both lime tree species can be worked easily, it has been a favored material for carving since the Middle Ages, as well as for musical instruments, clogs, beehives, and cuckoo clocks. One common use of lime trees has been as a street tree in much of Europe, notably Unter den Linden in the center of historic Berlin.



# GLOBE Trees - Trees In The News



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Both main lime tree species are generally quite disease resistant. Bleeding stem cankers caused by *Phytophthora* spore-type plant pathogens have been recorded on limes. The small-leaved lime is more sensitive than the large-leaved lime to some types of *Phytophthora*. Aphids can be a problem, but to a much lesser extent with the small- and large-leaved limes than with the common lime tree. Limes trees are susceptible to being attacked by the gypsy and by the nun moth.

\*Coppicing is a technique which involves repeatedly harvesting smaller trees every 30 or so years but leaving an upper story of larger trees for longer periods (60, 90, or 120 years). This ensures a steady supply of both firewood and construction timber. This approach also imprints a characteristic tree ring pattern in a forest's upper story trees: thick rings indicative of heavy growth, which appear at regular intervals as the surrounding smaller trees are cut down.

Adapted from: **Tree Rings Reveal How Ancient Forests Were Managed**

<https://eos.org/articles/tree-rings-reveal-how-ancient-forests-were-managed>

*By analyzing thousands of oak timbers dating from the 4th to 21st centuries, scientists have pinpointed the advent of a forest management practice. The characteristic tree ring pattern has been dating to as early as the 6th century.*

*For further insights please see E. Eaton, G. Caudullo, D. de Rigo, 2016. *Tilia cordata, Tilia platyphyllos and other limes in Europe: distribution, habitat, usage and threats*, pp. 184-185*