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Pine

From Wikipedia, the free encyclopedia

This article is about the tree. For other uses of the term "pine", see [Pine \(disambiguation\)](#).

A **pine** is any [conifer](#) in the [genus](#) ***Pinus***, /ˈpiːnuːs/,^[1] of the [family](#) [Pinaceae](#) . *Pinus* is the sole genus in the [subfamily](#) **Pinoideae**. The Plant List compiled by the [Royal Botanic Gardens, Kew](#) and [Missouri Botanical Garden](#) accepts 126 species names of pines as current, together with 35 unresolved species and many more synonyms.^[2]

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Etymology [edit]

The modern English name *pine* derives from Latin *pinus*, which some have traced to the Indo-European base *pīt- ‘resin’ (source of English ^[3]

Pine tree



Japanese red pine (*Pinus densiflora*), North Korea

Scientific classification

Kingdom:	Plantae
Division:	Pinophyta
Class:	Pinopsida
Order:	Pinales
Family:	Pinaceae
Genus:	<i>Pinus</i> <div>L.</div>

Subgenera

- Subgenus *Strobus*
- Subgenus *Pinus*

See **[Pinus classification](#)** for complete taxonomy to species level. See **[list of pines by region](#)** for list of species by geographic

Azərbaycanca
Беларуская
Български
Boarisch

Буряад
Català
Cebuano
Čeština
Dansk
Deutsch
Deutsch
Diné bizaad
Dolnosorbiski
Eesti

Ελληνικά
Эрзянь
Español
Esperanto
Euskara
فارسی
Français
Gaeilge
Gaelg
Gàidhlig
Galego
한국어
Հայերէս

Hornjoserbsce
Ido
Bahasa Indonesia
Ирон
Íslenska
Italiano
עברית

Қазақша
Kinyarwanda
Коми
Kurdî
Кырык мары
Latina



Pine Forest in **Vagamon**, Southern **Western Ghats**, Kerala (India)

pituitary). Before the 19th century, pines were often referred to as firs (from **Old Norse** *fura*, by way of **Middle English** *firre*). In some European

languages, Germanic cognates of the Old Norse name are still in use for pines—in **Danish** *fyr*, in **Norwegian** *fura/fure/furu*, **Swedish** *fura/furu*, **Dutch** *vuren*, and **German** *Föhre*—but in modern English, *fir* is now restricted to **fir** (*Abies*) and **Douglas fir** (*Pseudotsuga*).

Taxonomy, nomenclature and codification [edit]

*Main article: **Pinus classification***

Pines are **gymnosperms** . The genus is divided into three subgenera, which can be distinguished by cone, seed, and leaf characters:

- Pinus* subg. *Pinus*, the yellow, or hard pine group, generally with harder wood and two or three needles per *fascicle* ^[4]
- Pinus* subg. *Ducampopinus*, the foxtail or pinyon group
- Pinus* subg. *Strobus*, the white, or soft pine group, generally with softer wood and five needles per fascicle^[4]

Distribution [edit]

Most regions of the Northern Hemisphere (see **List of pines by region**) host some **native** species of pines. One species (**Sumatran pine**) crosses the equator in Sumatra to 2°S. In North America, various species occur in regions at latitudes from as far north

distribution.



Range of *Pinus*

Latviešu
 Lëtzebuergesch
 Lietuvių
 Magyar
 Македонски

Мокшень
 Монгол

Nederlands

日本語
 Nordfriisk
 Norsk bokmål
 Norsk nynorsk
 Occitan
 Олык марий
 O‘zbekcha/Ўзбекча

پنجابی
 Перем Коми
 Plattdüütsch

★ Polski
 Português
 Română
 Runa Simi
 Русский
 Саха тыла
 Seeltersk
 Shqip
 Simple English
 Slovenčina
 Slovenščina
 Српски / srpski
 Srpskohrvatski /
 српскохрватски
 Basa Sunda
 Suomi
 Svenska



A Khasi pine in Benguet, Philippines

as 66°N to as far south as 12°N.

Various species have been

introduced to **temperate** and **subtropical** regions of both hemispheres, where they are grown as **timber** or cultivated as ornamental plants in parks and gardens. A number of such introduced species have become **invasive** ^[5] and threaten native ecosystems.

Description [edit]

Pine trees are **evergreen**, coniferous **resinous trees** (or, rarely, **shrubs**) growing 3–80 m (10–260 ft) tall, with the majority of species reaching 15–45 m (50–150 ft) tall. The smallest are **Siberian dwarf pine** and **Potosi pinyon**, and the tallest is an 81.79 m (268.35 ft) tall **ponderosa pine** located in southern **Oregon**'s **Rogue River-Siskiyou National Forest**.^[6]

The **bark** of most pines is thick and scaly, but some species have thin, flaky bark. The branches are produced in regular "pseudo whorls", actually a very tight spiral but appearing like a ring of branches arising from the same point. Many pines are *uninodal*, producing just one such whorl of branches each year, from **buds** at the tip of the year's new **shoot**, but others are *multinodal*, producing two or more whorls of branches per year. The spiral growth of branches, needles, and cone scales are arranged in **Fibonacci number** ratios. ^[*citation needed*] The new spring shoots are sometimes called "candles"; they are covered in brown or whitish bud scales and point upward at first, then later turn green and spread outward. These "candles" offer **foresters** a means to evaluate **fertility** of the soil and vigour of the trees.

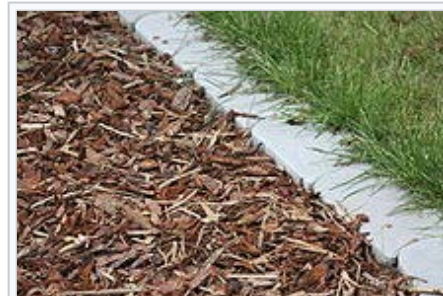
Pines are long-lived, and typically reach ages of 100–1,000 years, some even more. The longest-lived is the **Great Basin bristlecone pine**, *Pinus longaeva*. One individual of this species, dubbed "**Methuselah**", is one of the **world's oldest living organisms** at around 4,600 years old. This tree can be



Huangshan pine (*Pinus hwangshanensis*), Anhui, China



Ancient *Pinus longaeva*, Nevada, USA



Bark chips

Tagalog

Татарча/tatarça

ไทย

Türkçe

Тыва дыл

Удмурт

Українська

اردو

Vepsän kel'

Tiếng Việt

West-Vlams

Winaray

יידיש

粵語

Žemaitėška

中文

 Edit links

found in the **White Mountains** of California. ^[7] An older tree, now cut down, was dated at 4,900 years old. It was discovered in a grove beneath **Wheeler Peak** and it is now known as " **Prometheus** " after the **Greek immortal**.^[*citation needed*]

Foliage [edit]



Illustration of needles, cones, and seeds of **Scots pine** (*Pinus sylvestris*)

Pines have four types of **leaf**:

- **Seed leaves** (**cotyledons**) on seedlings, born in a whorl of 4–24.
- **Juvenile leaves**, which follow immediately on seedlings and young plants, 2–6 cm long, single, green or often blue-green, and arranged spirally on the shoot. These are produced for six months to five years, rarely longer.
- **Scale leaves**, similar to bud scales, small, brown and non-photosynthetic, and arranged spirally like the juvenile leaves.
- **Needles**, the adult leaves, are green (**photosynthetic**) and bundled in clusters called *fascicles*. The needles can number from one to seven per fascicle, but generally number from two to five. Each fascicle is produced from a small bud on a dwarf shoot in the axil of a scale leaf. These bud scales often remain on the fascicle as a basal sheath. The needles persist for 1.5–40 years, depending on species. If a shoot is damaged (e.g. eaten by an animal), the needle fascicles just below the damage will generate a bud which can then replace the lost leaves.

Cones [edit]

Pines are mostly **monoecious** , having the male and female **cones** on the same tree, though a few species are **sub-dioecious** , with individuals predominantly, but not wholly, single-sex. The male cones are small, typically 1–5 cm long, and only present for a short period (usually in spring, though autumn in a few pines), falling as soon as they have shed their **pollen** . The female cones take 1.5–3 years (depending on species) to mature after **pollination** , with actual fertilization delayed one year. At maturity the female cones are 3–60 cm long. Each cone has numerous spirally arranged scales, with two seeds on each fertile scale; the scales at the base and tip of the cone are small and sterile, without seeds. The seeds are mostly small and winged, and are anemophilous (wind-dispersed), but some are larger and have only a vestigial wing, and are **bird-dispersed** (see below). At maturity, the cones usually open to release the seeds, but in some of the bird-dispersed species (e.g. **whitebark pine**), the seeds are only released by the bird breaking the cones open. In others, the seeds are stored in closed ("serotinous") cones for many years until an environmental cue triggers the cones to open, releasing the seeds. The most common form of serotiny is pyriscence, in which a resin binds the cones shut until melted by a forest fire.

Ecology [edit]

Pines grow well in acid soils, some also on **calcareous** soils; most require good soil drainage, preferring sandy soils, but a few (e.g. **lodgepole pine**) will tolerate poorly drained wet soils.

A few are able to sprout after forest fires (e.g. [Canary Island pine](#)). Some species of pines (e.g. [bishop pine](#)) need fire to regenerate, and their populations slowly decline under fire suppression regimes. Several species are adapted to extreme conditions imposed by elevation and latitude (e.g. Siberian dwarf pine, [mountain pine](#) , whitebark pine and the [bristlecone pines](#)). The pinyon pines and a number of others, notably [Turkish pine](#) and [gray pine](#) , are particularly well adapted to growth in hot, dry [semi-desert](#) climates. ^[*citation needed*]



A prescribed fire in a [European black pine](#) (*Pinus nigra*) woodland, Portugal

The seeds are commonly eaten by birds, such as grouse, crossbills, jays, nuthatches, siskins, woodpeckers, and by [squirrels](#) . Some birds, notably the [spotted nutcracker](#) , [Clark's nutcracker](#) and [Pinyon jay](#) , are of importance in distributing pine seeds to new areas. Pine needles are sometimes eaten by some [Lepidoptera](#) ([butterfly](#) and [moth](#)) species (see [list of Lepidoptera that feed on pines](#)), the [Symphytan](#) species [pine sawfly](#), and [goats](#) .^[*citation needed*]

Pine [pollen](#) may play an important role in the functioning of [detrital food webs](#) .^[8] Nutrients from pollen aid detritivores in development, growth and maturation, and may enable fungi to decompose nutritionally scarce litter.^[8] Pine pollen is also involved in moving plant matter between terrestrial and aquatic ecosystems.^[8]

Use [\[edit\]](#)



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Pines are among the most commercially important tree species valued for their timber and [wood pulp](#) throughout the world. In temperate and tropical regions, they are fast-growing [softwoods](#) that will grow in relatively dense stands, their acidic decaying needles inhibiting the sprouting of competing hardwoods. Commercial pines are grown in [plantations](#) for timber that is denser, more resinous, and therefore more durable than [spruce](#) (*Picea*). Pine wood is widely used in high-value carpentry items such as furniture, window frames,



Logging [Pinus ponderosa](#), Arizona, USA

panelling, floors and roofing, and the [resin](#) of some species is an important source of [turpentine](#) .

Many pine species



Pine cone

make attractive
ornamental
plantings for [parks](#)

and larger [gardens](#) with a variety of dwarf [cultivars](#) being suitable for smaller spaces. Pines are also commercially grown and harvested for [Christmas trees](#). Pine cones, the largest and most durable of all [conifer cones](#), are craft favorites. Pine boughs, appreciated especially in wintertime for their pleasant smell and greenery, are popularly cut for decorations. A number of species are attacked by nematodes, causing [pine wilt disease](#), which can kill some quickly. Pine needles are also used for making decorative articles like baskets, trays, pots, etc. This Native American skill is now being replicated across the world. Pine needle handicrafts are made in the US, Canada, Mexico, Nicaragua and India. Pine needles serve as food for various [Lepidoptera](#). See [List of Lepidoptera that feed on pines](#).

Because pines have no insect or decay resistant qualities after logging, they are generally recommended for construction purposes as indoor use only (ex. indoor drywall framing). This wood left outside can be expected to last no more than 12–18 months depending on the local climate. It is commonly referred to by several different names which include North American timber, SPF (spruce, pine, fir) and whitewood.

Farming [\[edit\]](#)

When grown for sawing timber, pine plantations can be harvested after 30 years, with some stands being allowed to grow up to 50 (as the wood value increases more quickly as the trees age). Imperfect trees (such as those with bent trunks or forks, smaller trees, or diseased trees) are removed in a "thinning" operation every five to ten years. Thinning allows the best trees to grow much faster, because it prevents weaker trees from competing for sunlight, water, and nutrients. Young trees removed during thinning are used for pulpwood, while most older ones are good enough for saw timber.

The final wood quality can be improved by pruning small branches at ages 5, 7, and 9. Pruning usually goes up to a height of 6 metres (20 ft). This results in smooth timber with no knots, which is considerably more valuable. ^[9]

A 30-year-old commercial pine tree grown in good conditions will be about 0.3 metres (1.0 ft) in diameter and about 20 metres (66 ft) high. After 50 years, the same tree will be about 0.5 metres (1.6 ft) in diameter and 25 metres (82 ft) high, and its wood will be worth about 7 times as much as the 30-year-old tree. ^[10]



Pinus sylvestris prepared for transport, [Hungary](#)



[Tongue and groove](#) solid pine flooring

Trees are planted 3 to 4 metres apart, or about 1000 per hectare (100,000 per square kilometer).

Food [edit]

Some species have large **seeds** , called **pine nuts** , that are harvested and sold for cooking and baking. They are an essential ingredient of *Pesto alla genovese*.

The soft, moist, white inner bark (**cambium**) found clinging to the woody outer **bark** is edible and very high in vitamins **A** and **C**. It can be eaten raw in slices as a snack or dried and ground up into a powder for use as an **ersatz** flour or thickener in stews, soups, and other foods, such as **bark bread** . Adirondack Indians got their name from the **Mohawk Indian** word *atirú:taks*, meaning "tree eaters".

A **tea** made by steeping young, green pine needles in boiling water (known as "tallstrunt" in Sweden) is high in vitamins A and C.



Edible seeds of the Korean pine (*Pinus koraiensis*)

Folk Medicine [edit]

Pine has been **listed** as one of the 38 substances used to prepare **Bach flower remedies** ,^[11] a kind of **alternative medicine** promoted ^[*clarification needed by whom?*] for its effect on health. However, according to **Cancer Research UK** , "there is no scientific evidence to prove that flower remedies can control, cure or prevent any type of disease, including cancer".^[12]

See also [edit]

- Pine barrens**
- Pine-cypress forest**
- Three Friends of Winter**
- El Pino (The Pine Tree)**

Notes [edit]

- ↑ *Sunset Western Garden Book*, 1995:606–607
- ↑ "The Plant List Version 1.1" . Retrieved 15 December 2015 .
- ↑ "Where Are You From? - Credo Reference" . *credoreference.com*.
- ↑ ^{*a*} ^{*b*} Burton Verne Barnes; Warren Herbert Wagner (January 2004). *Michigan Trees: A Guide to the Trees of the Great Lakes Region*. University of Michigan Press. pp. 81–. ISBN 0-472-08921-8. Archived from the original on 2016-05-11.
- ↑ "Pinus ssp. (tree), General Impact" . *Global Invasive Species Database*. Invasive Species Speciali Group. 13 March 2006. Archived from the original on 26 July 2011 . Retrieved 2 March 2011 .
- ↑ Fattig, Paul (2011-01-23). "Tallest of the tall" . *Mail Tribune*. Medford, Oregon. Archived from th original on 2013-02-21. Retrieved 2011-01-27 .
- ↑ Ryan, Michael; David M. Richardson (December 1999). "The Complete Pine". *BioScience*. **49** (12): 1023–1024. doi:10.2307/1313736 .
- ↑ ^{*a*} ^{*b*} ^{*c*} Filipiak, Michał (2016-01-01). "Pollen Stoichiometry May Influence Detrital Terrestrial and Aquatic Food Webs". *Behavioral and Evolutionary Ecology*: 138. doi:10.3389/fevo.2016.00138 .

Archived from the original on 2016-12-21.

- ↑ "The Pine Plantation Rotation" (PDF). Forests NSW. Archived (PDF) from the original on 2016-08. Retrieved April 2016. Check date values in: |access-date= (help)
- ↑ Frank A. Roth II, Extension Forester. "Thinning to improve pine timber" (PDF). University of Arkansas Division of Agriculture. Archived (PDF) from the original on 2016-10-09 . Retrieved April 2016. Check date values in: |access-date= (help)
- ↑ D. S. Vohra (1 June 2004). *Bach Flower Remedies: A Comprehensive Study*. B. Jain Publishers. p. 3. ISBN 978-81-7021-271-3. Archived from the original on 31 December 2013 . Retrieved 2 September 2013.
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- Classification of pines
- Gymnosperm Database - Pinus

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External links [edit]



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V · T · E	Sources of tannins	[show]
V · T · E	Woodworking	[show]
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Categories: Pinaceae | Pinus | Invasive plant species in South Africa

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