



Extreme Trees: Tallest, Biggest, Oldest

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Trees have a long relationship with people. They are both utility and amenity. Trees can evoke awe, mysticism, and reverence. Trees represent great public and private values. Trees most noticed and celebrated by people and communities are the one-tenth of one-percent of trees which approach the limits of their maximum size, reach, extent, and age. These singular, historic, culturally significant, and massive extreme trees become symbols and icons of life on Earth, and our role model in environmental stewardship and sustainability.

What Is A Tree?

Figure 1 is a conglomeration of definitions and concepts about trees from legal and word definitions in North America. For example, 20 percent of all definitions specifically state a tree is a plant. Concentrated in 63% of all descriptors for trees are four terms: plant, woody, single stem, and tall. If broad stem diameter, branching, and perennial growth habit concepts are added, 87% of all the descriptors are represented.

At its most basic level, defining a tree is not species based, but is a structural definition. A tree is represented by a type of plant architecture recognizable by non-technical people. The most basic concepts for defining a tree are — a large, tall, woody, perennial plant with a single, unbranched, erect, self-supporting stem holding an elevated and distinct crown of branches, and which is greater than 10 feet in height and greater than 3 inches in diameter. Everyone tends to have their own tree definition.

The structure and architecture of a tree help define its past, present, and future appearance and continued growth. The four tree metrics most people list to represent maximum limits of tree expression are height, girth, mass, and longevity.

HEIGHT — TALLEST

Measuring tree height is fraught with problems, and errors can be significant (>12% error). The two accepted means of measuring accurate tree height is by a climber dropping a measuring tape down from the top of a tree, or by using laser range finders. Carefully measured (not estimated) height values are available for many trees. The tallest trees alive and standing are provided here. In the past, tall tree lists had error-prone measures and estimates, plus some involved rough paced measures of downed trees. In some cases, old tall trees previously listed have been logged or damaged.

Figure 2 lists the twenty tree species which contain the tallest individual trees in the world greater than 275 feet in height. These are scientifically confirmed measures of living trees. The height in feet is listed for the tallest individual within each species, as of the date of this publication. Redwood (*Sequoia sempervirens* – a

gymnosperm) is by far the tallest tree on the planet. The second tallest tree species (*Cupressus torulosa* Himalayan cypress) is new to the list of tallest trees as an individual was just discovered in Tibet. *Shorea / meranti* represents the tallest tropical tree and the tallest angiosperm. Note the tallest trees are represented by a number of eucalyptus species. Height records fall rapidly with inclusion of more species, providing a maximum height for most trees of less than 150 feet.

World-wide, there are more than 20 tree species with an estimated or measured height greater than 250 feet not listed here. Some of these claims are difficult to verify, and many repeat old measures, primarily due to remoteness of the tree. Only living trees measured with climbers or laser instruments are here provided.

Figure 3 is a list of the 21 tallest individual trees, regardless of species, in the world. All these trees exceed 315 feet in verified height. Redwoods (*Sequoia sempervirens*) occupy thirteen of the twenty-one spots. The tallest tree in the world with a confirmed height measure is the Hyperion redwood at 381 feet. It should be noted the tallest trees tend to grow in isolated areas of moist cloud forests in temperate climatic zones (i.e. mountain slopes in California, USA, and Tasmania, Australia), and in isolated valleys of dense tropical rainforests of Southeast Asia (Borneo).

In the past there have been claims of taller trees than currently listed. In the Western coastal forests of the United States, a number of trees were measured and cited as the tallest, but were logged or killed. For example, redwoods (*Sequoia sempervirens*) 427 feet tall (1893 record) and 390 feet tall (1905 record); coastal Douglas-fir (*Pseudotsuga menziesii*) 466 feet tall (1897 record), 415 feet tall (1902 record), and 393 feet tall (1897 record); and, giant sequoia (*Sequoiadendron giganteum*) 320 feet tall. None of these heights could be verified.

In Australian eucalyptus forests, three species have been historically cited for extreme height: blue gum (*Eucalyptus globulus*) 331 feet tall; mountain-ashe (*Eucalyptus regnans*) 459 feet tall (1872 record), 435 feet tall (1872 record), and 375 feet tall (1884 record); and, black peppermint (*Eucalyptus amygdalina*) 499, 465, 420, 380 feet tall (1878 record). It is interesting the black peppermint species today is listed as a small to medium sized eucalyptus. Note all of these trees were logged. None of these heights could be verified.

GIRTH — LARGEST DIAMETER

Tree diameter / circumference is usually simple to measure. This measure is made at a standard height, usually at 4.5 feet above the soil surface (i.e. known as dbh). The 4.5 feet above the ground measuring point clears many buttress roots and root base / stem base swellings. Usually a tape is pulled around the circumference passing over any indentations while maintaining the tape at 4.5 feet above the ground. These circumference inches are then divided by π (3.14159) to yield a diameter measure (in the same units). A commercial diameter tape marked in π inches is easy to use.

Figure 4 is a list of the twenty-two (22) species of trees which contain individuals with the largest measured stem diameters (dbh). In older popular literature, the girth (circumference) of stem bases was measured anywhere between ground level and 60 inches above the ground. These older measures may have included multiple stems and buttressed stem bases, and so have been discarded.

The largest trees in diameter are baobab (*Adansonia digitata*), giant sequoia (*Sequoiadendron giganteum*), two figs (*Ficus* spp), and Montezuma cypress (*Taxodium mucronatum*). A number of trees with large diameters are not necessarily the tallest, and tall trees are not always the largest in diameter. Some trees shrink and swell significantly over a growing season and can produce variable diameter measures, like baobabs (*Adansonia* spp.). Multi-stemmed trees, or trees with many consolidated aerial roots around the stem base degrade any diameter measure, like Montezuma cypress. There are more than 60 tree species which have individuals with diameters claimed to exceed 14 feet dbh.

BIGGEST — GREATEST STEM VOLUME

Measuring tree volumes is extremely difficult. Trunk measures, plus branches and root systems, can add large volumes to total tree tissues. For almost all volume measures, only the above ground main stem is measured, or estimated by calculation, without providing for cull or accounting for cavities, decay, or openings. Volume estimates are made in cubic feet. The largest volume occurs in trees with large diameters, tall stems, and small taper.

Figure 5 presents ten species with individuals having the largest volumes, reliably measured. Giant sequoia (*Sequoiadendron giganteum*) and redwood (*Sequoia sempervirens*) trees enclose extremely large volumes of space filled with both living and dead woody material. There are 13 individual giant sequoias (*Sequoiadendron giganteum*) larger in stem volume than the next largest individual of any other tree species. There are multi-stem clonal tree systems which represent greater weight and volume measures than any single stem tree listed here.

One great impact on human perceptions of tree importance is represented by crown size and extent. Figure 6 lists seventeen (17) tree species with individuals having the largest crown diameters in the world. Many trees with large stem diameters do not have large crown widths. Trees with the largest crown width or diameter, tend to grow in large open spaces without crown competition from other trees. A number of trees are not found growing with large crown widths within their native range (i.e. many are planted trees). Note branch form and associated wood strength play great roles in crown width limits. Of the 17 widest crowned tree species, only two are gymnosperms, while five are from the oak (*Quercus* spp.) genus.

OLDEST — LONGEST LIVED

Longevity is one defining component for trees. Aging tree stems is fraught with huge inaccuracies. Age of a tree is difficult to determine, and older trees are associated by humans with large tree diameters. Many large trees are younger than you think. This is why trees which do reach immense size, without the aid of human exaggeration or ignorance, are so unique and rare.

Some trees have been properly aged only upon death through full examination of the stem base. For living trees, estimates from branches, increment cores, and wedge-shaped dead areas have been used. In one case, a seedling from the original Bodhi tree of the Buddha was documented as planted in 288 BC, and is the oldest historic record of a living, human-planted tree at more than 2,300 years old.

Tree age is most accurately determined by counting annual growth increments using increment cores taken from the stem. Accuracy of the count depends upon whether a microscope or naked eye is used. In addition, height above the ground where a core was removed represents a count of annual growth increments above that point. The number of annual growth increments to reach that measurement height must be added to the total count.

Indistinct annual increments, false rings, wood decay, and wood cavities (especially within the center of the tree stem base) conspire to make aging trees difficult. Fallen or cut-branch aging has many additional problems, especially with sprout-origin branches. Ring-porous temperate trees usually present the most clear annual increment demarcations. Some diffuse porous architecture trees require a careful microscopic examination for accurate aging. Some tropical trees may show wet / dry season increments, or no increments at all.

Figure 7 provides the best estimate for 16 non-clonal tree species individuals which have lived longer than 1,675 years. Great basin bristlecone pine (*Pinus longaeva*) represents the eldest of all tree species with an individual reaching greater than 5,000 years of age. Note there are two bristlecone pines on the list, Great

Basin bristlecone pine (*Pinus longaeva*) and Rocky Mountain bristlecone pine (*Pinus aristata*) — the latter living half as long as the former.

Human Perception Issues

A large-growing tree species on a resource-rich site can grow quickly to a large size. In contrast, a small statured tree may still be very old. For example, a Southern live oak (*Quercus virginiana*) on a great site was found to be adding and sustaining more than 3/4 diameter inches per year over a one hundred year period, generating a large girth tree, but relatively young in age. Age and diameter are not strongly related, which leads to large errors when using aging formulae, human memory, comparisons, or “estimates.” For all their great height, many redwoods (*Sequoia sempervirens*) can be far younger than individuals of many tree species.

Humans can continue to add years to trees without scientific basis. For example, in the case of one famous Southern live oak (*Quercus virginiana*), over a 25 year period of time, a tourism development group added more than 300 years to the tree’s age without additional input. There are a number of trees where circumstantial evidence, folklore, and exaggerations retold many times have generated old age claims. Sometimes due to inner cavities and decay, an accurate measure can not be made, but may be estimated based upon average growth rates. A number of trees have been claimed to be old, but these claims can not be verified. In some cases, tree owners and/or conservators do not want an accurate age determined.

There are some individual trees around the world which have been claimed to be of great age. Figure 8 provides a selected list of tree age claims by species which may be accurate, but which can not be verified. Some of these trees are now dead.

SPECIAL OLDEST / BIGGEST — CLONAL TREES

Trees which vegetatively reproduce can hold and control a site for many centuries. Stem portions may have grown and fallen, but root tissues continue to resprout new stems. Many generations of stems with identical genetic components are grown. Root portions have also grown / expanded and died. Some root tissues with identical gene sets may not be attached to one another anymore, but are still generating identical stem sprouts. In addition, some trees generate new trees through layering, where branches recline on the ground, form roots and then new shoots, moving the clonal tree outward away from the initial stem.

Clonal trees present a number of issues in determining tissue volume, total organism size and age. For many people, the basic single stem tree definition prohibits consideration of root mass / stem mass in age determinations. Figure 9 presents a selected list of clonal trees which have been brought forward as the oldest “trees” on Earth. Given this view of clonal trees, there are sure to be many hundreds more clonal trees present which would challenge for age and size records.

For example, clonal tree group “Pando” is comprised of a Rocky Mountain hillside of male quaking aspen (*Populus tremuloides*) covering more than 100 acres with almost 50,000 stems, each averaging 130 years of age. Pando is estimated to have existed on the site for at least 14,000 years. The Palmer oak (*Quercus palmeri*) clonal tree system is a traditional oak regeneration system where new shoots continue to be generated from old root systems. In this case, one of these identical gene set oak groups is estimated to be 13,000 years old.

The huon-pine (*Lagarostrobos franklinii* – a podocarp, not in the pine genus) can reproduce vegetatively with individual trees living less than 4,000 years, but identical gene sets on the site have existed for more than 10,000 years. In Sweden, many (i.e. >15) Norway spruce (*Picea abies*) trees have vegetatively layered away from parent stems to generate clonal trees. The oldest identical gene set group found so far is

estimated to be >9,500 years old. Each short Norway spruce stem lives no more than 500-600 years, but root age can be more than 18 times older. Another old clonal tree system is *Lomatia tasmanica* (King's holly). This individual is located in Tasmania. There are roughly 600 genetically identical stems with a shrubby nature growing trunks to 25 feet tall and 3 inches in diameter. The tree is probably a sterile hybrid, flowering but never generating fruit or seeds. It is estimated to be 45,000 years old. Two clonal tree species from the Southern hemisphere have been identified as potentially being more than 50,000 years old.

CONCLUSION

Trees which are tall, large, and old capture people's attention. Beyond knowing the growth limits of individual trees and species, tree extremes help place important trees into human context. People's communities, civilizations, structures, and even our own size and age, can be dwarfed by trees.

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descriptor	percent	cumulative percent
PLANT	20%	
WOODY	16	
SINGLE STEM	14	
TALL / HEIGHT	13	
		63%
BRANCHED	9	
PERENNIAL	8	
GIRTH / DIAMETER	7	
		87%
ELEVATED CROWN	4	
DISTINCT CROWN	3	
SELF-SUPPORTING	3	
		97%
LOWER STEM		
WITHOUT BRANCHES	2	
ERECT STEM	1	
		100%

Figure 1: Relative frequency of descriptors defining a tree.
(155 descriptors in 45 definitions)

TALLEST SPECIES

#	height	scientific name	common name
1	381 ft	<u>Sequoia sempervirens</u>	redwood
2	336 ft	<u>Cupressus torulosa</u>	Himalayan cypress
3	331 ft	<u>Shorea faguettiana</u> (tallest tropical -- tallest angiosperm)	yellow meranti
4	330 ft	<u>Eucalyptus regnans</u>	mountain-ashe
5	329 ft	<u>Picea sitchensis</u>	sitka spruce
6	327 ft	<u>Pseudotsuga menziesii</u>	coastal Douglas-fir
7	316 ft	<u>Sequoiadendron giganteum</u>	giant sequoia
8	310 ft	<u>Cupressus cashmeriana</u>	Kashmir cypress
9	298 ft	<u>Eucalyptus globulus</u>	Tasmanian blue gum
10	295 ft	<u>Abies procera</u>	noble fir
11	292 ft	<u>Eucalyptus viminalis</u>	mann gum
12	290 ft	<u>Dinizia excelsa</u>	Brazilian angelim
12	290 ft	<u>Eucalyptus obliqua</u>	brown-top stringbark
13	288 ft	<u>Eucalyptus delegatensis</u>	alpine-ashe
13	288 ft	<u>Petersianthus quadrialatus</u>	Philippine rosewood
14	282 ft	<u>Koompassia excelsa</u>	mengar
15	279 ft	<u>Eucalyptus cypellocarpa</u>	mt. grey gum
15	279 ft	<u>Eucalyptus diversicolor</u>	karri
15	279 ft	<u>Shorea argentifolia</u>	dark red meranti
16	277 ft	<u>Shorea superba</u>	magnificent meranti
16	277 ft	<u>Eucalyptus nitens</u>	silvertop gum
17	276 ft	<u>Taiwania cryptomerioides</u>	taiwania

Figure 2: Ranked list of tree species (22 species) which contain the tallest (in feet) individuals in the world (>275ft).

TALLEST INDIVIDUAL TREES

#	height	scientific name	common name	tree name / location
1	381 ft	<u>Sequoia sempervirens</u>	redwood	Hyperion, CA, USA
2	377 ft	<u>Sequoia sempervirens</u>	redwood	Helios, CA, USA
3	373 ft	<u>Sequoia sempervirens</u>	redwood	Stratosphere Giant, CA, USA
4	372 ft	<u>Sequoia sempervirens</u>	redwood	Icarus, CA, USA
5	369 ft	<u>Sequoia sempervirens</u>	redwood	Lauralyn, CA, USA
5	369 ft	<u>Sequoia sempervirens</u>	redwood	National Geographic Society, CA, USA
5	369 ft	<u>Sequoia sempervirens</u>	redwood	Orion, CA, USA
5	369 ft	<u>Sequoia sempervirens</u>	redwood	Paradox, CA, USA
5	369 ft	<u>Sequoia sempervirens</u>	redwood	Rockefeller, CA, USA
6	368 ft	<u>Sequoia sempervirens</u>	redwood	Mendocino, CA, USA
7	367 ft	<u>Sequoia sempervirens</u>	redwood	Federation Giant, CA, USA
8	363 ft	<u>Sequoia sempervirens</u>	redwood	Deadalus, CA, USA
9	336 ft	<u>Cupressus torulosa</u>	Himalayan cypress	Tibet, China
10	331 ft	<u>Shorea faguetiana</u>	y. meranti	Menara, Borneo
11	330 ft	<u>Eucalyptus regnans</u>	mt.-ashe	Centurion, Tas, AUS
12	329 ft	<u>Picea sitchensis</u>	sitka spruce	Raven's Tower, CA, USA
13	327 ft	<u>Pseudotsuga menziesii</u>	Douglas-fir	Doerner Fir, OR, USA
14	325 ft	<u>Sequoia sempervirens</u>	redwood	Stout Tree, CA, USA
15	318 ft	<u>Eucalyptus regnans</u>	mt.-ashe	Icarus' Dream, Tas, AUS
16	318 ft	<u>Shorea faguetiana</u>	y. meranti	Sabah, Borneo
16	316 ft	<u>Sequoiadendron giganteum</u>	giant sequoia	CA, USA

Figure 3: List of the twenty-one (21) tallest (exceeding 315 feet in height) individual trees in the world.

LARGEST DIAMETER

#	diameter	scientific name	common name
1	35 ft	<u>Adansonia digitata</u>	baobab
2	33 ft	<u>Sequoiadendron giganteum</u>	giant sequoia
3	32 ft	<u>Ficus virens</u>	white fig
4	31 ft	<u>Taxodium mucronatum</u>	Montezuma cypress
5	30 ft	<u>Ficus macrophylla</u>	Moreton Bay fig
6	29 ft	<u>Adansonia za</u>	za baobab
6	29 ft	<u>Sequoia sempervirens</u>	redwood
7	28 ft	<u>Platanus orientalis</u>	Oriental plane tree
8	27 ft	<u>Cinnamomum camphora</u>	camphor tree
9	26 ft	<u>Eucalyptus jacksonii</u>	red tingle
10	25 ft	<u>Hopea beccariana</u>	salangan / merawan
11	24 ft	<u>Ceiba pentandra</u>	kapok
11	24 ft	<u>Ficus albipila</u>	poison fig
12	23 ft	<u>Eucalyptus regnans</u>	swamp gum / mt. ashe
13	22 ft	<u>Eucalyptus obliqua</u>	Australian oak
14	18 ft	<u>Picea sitchensis</u>	sitka spruce
14	18 ft	<u>Dracaena draco</u>	Canary Is. dragontree
14	18 ft	<u>Agathis australis</u>	kauri
14	18 ft	<u>Eucalyptus denticulata</u>	shining gum
15	17 ft	<u>Cryptomeria japonica</u>	sugi
16	16 ft	<u>Fitzroya cupressoides</u>	alerce
16	16 ft	<u>Eucalyptus camaldulensis</u>	river red gum

Figure 4: Ranked list of tree species (22 species) with individuals having the greatest stem diameter (>15.9 feet) in the world.

LARGEST VOLUME

#	volume	scientific name	common name
1	52,510 ft ³	<u>Sequoiadendron giganteum</u>	giant sequoia
2	38,322 ft ³	<u>Sequoia sempervirens</u>	redwood
3	26,490 ft ³	<u>Taxodium mucronatum</u>	Montezuma cypress
4	18,225 ft ³	<u>Agathis australis</u>	kauri
5	15,900 ft ³	<u>Thuja plicata</u>	Western redcedar
6	14,000 ft ³	<u>Eucalyptus regnans</u>	mountain-ash
7	13,000 ft ³	<u>Eucalyptus globulus</u>	Tasmanian blue gum
8	12,327 ft ³	<u>Pseudotsuga menziesii</u>	coastal Douglas-fir
9	11,903 ft ³	<u>Picea sitchensis</u>	sitka spruce
10	11,900 ft ³	<u>Eucalyptus obliqua</u>	Australian oak

Figure 5: Ranked list of tree species (10 species) containing living individuals with the largest volume (cubic feet) of a single stem individual in the world.

Note the top thirteen (13) individual trees are all *Sequoiadendron giganteum* species.

WIDEST CROWN

#	crown diameter in feet	scientific name	common name
1.	591 ft	<u>Ficus benghalensis</u> (with branch supporting aerial roots)	banyan
2.	239 ft	<u>Eucalyptus microtheca</u>	coolibah
3.	210 ft	<u>Platanus orientalis</u>	oriental plane
4.	207 ft	<u>Samanea saman</u>	rain tree
5.	201 ft	<u>Ceiba pentandra</u>	silky-cotton tree
6.	182 ft	<u>Taxus baccata</u> (widest crowned gymnosperm)	European yew
7.	181 ft	<u>Quercus margarettae</u>	sand post oak
8.	177 ft	<u>Quercus cerris</u>	Turkey oak
9.	176 ft	<u>Ficus macrophylla</u>	Moreton Bay fig
9.	176 ft	<u>Quercus coccinea</u>	scarlet oak
9.	176 ft	<u>Quercus agrifolia</u>	coast live oak
10.	175 ft	<u>Taxodium mucronatum</u>	montezuma cypress
11.	170 ft	<u>Eucalyptus pilularis</u>	blackbutt
11.	170 ft	<u>Quercus virginiana</u>	live oak
12.	169 ft	<u>Platanus occidentalis</u>	sycamore
13.	168 ft	<u>Adansonia digitata</u>	baobab
14.	167 ft	<u>Albizzia falcata</u>	batai

Figure 6: Ranked list of tree species (17 species) with the widest crown (crown diameter > 166 feet)) on a single stem individual in the world.

OLDEST SPECIES

#	age in years	scientific name	common name
1	5,073 yrs	<u>Pinus longaeva</u>	Great Basin bristlecone pine
2	4,968 yrs	<u>Fitzroya cupressoides</u>	alerce
3	3,266 yrs	<u>Sequoiadendron giganteum</u>	giant sequoia
4	2,675 yrs	<u>Juniperus grandis</u>	Sierra juniper
5	2,648 yrs	<u>Taxodium distichum</u> (oldest verified tree age in Eastern USA -- NC)	baldcypress
6	2,520 yrs	<u>Sequoia semperviren</u>	redwood
7	2,466 yrs	<u>Pinus aristata</u>	Rocky Mountain bristlecone pine
8	2,309 yrs	<u>Ficus religiosa</u> (oldest verified human planted tree)	sacred fig
9	2,230 yrs	<u>Juniperus przewalskii</u>	Przewalski juniper
10	2,200 yrs	<u>Cupressus dupreziana</u>	Saharan cypress
11	2,111 yrs	<u>Pinus balfouriana</u>	foxtail pine
12	1,950 yrs	<u>Larix lyalli</u>	subalpine larch
13	1,890 yrs	<u>Juniperus scopulorum</u>	Rocky Mountain juniper
14	1,812 yrs	<u>Cryptomeria japonica</u>	sugi
15	1,725 yrs	<u>Pinus flexilis</u>	limber pine
16	1,685 yrs	<u>Thuja occidentalis</u>	Northern whitecedar

Figure 7: Ranked list of tree sixteen (16) species with the oldest (in years) verified living non-clonal individuals in the world with age > 1,675 years.

age claimed	species	common name
6,000 yrs	<u>Olea europaea</u>	olive
5,500 yrs	<u>Fitzroya cupressoides</u>	Patagonian cypress
4,500 yrs	<u>Cupressus sempervirens</u>	Mediterranean cypress
4,115 yrs	<u>Taxus baccata</u>	European yew
4,000 yrs	<u>Lagarostrobos franklinii</u>	huon-pine
3,200 yrs	<u>Sequoiadendron giganteum</u>	giant sequoia
3,050 yrs	<u>Juniperus occidentalis</u>	Western juniper
3,020 yrs	<u>Cariniana legalis</u>	jequitiba-rosa
3,010 yrs	<u>Cryptomeria japonica</u>	sugi
3,000 yrs	<u>Castanea sativa</u>	sweet chestnut
3,000 yrs	<u>Cinnamomum camphora</u>	camphor tree
2,500 yrs	<u>Agathis australis</u>	kauri
2,500 yrs	<u>Juniperus chinensis</u>	Chinese juniper
2,200 yrs	<u>Sequoia sempervirens</u>	redwood
2,065 yrs	<u>Platanus orientalis</u>	oriental plane
2,022 yrs	<u>Cedrus libani</u>	cedar of Lebanon
2,000 yrs	<u>Quercus agrifolia</u>	coast live oak
2,000 yrs	<u>Taxodium distichum</u>	baldcypress
1,980 yrs	<u>Larix decidua</u>	European larch
1,800 yrs	<u>Podocarpus totara</u>	totara
1,800 yrs	<u>Araucaria araucana</u>	monkey-puzzle
1,700 yrs	<u>Quercus robur</u>	English oak
1,500 yrs	<u>Adansonia gregorii</u>	boab
1,500 yrs	<u>Quercus virginiana</u>	Southern live oak
1,500 yrs	<u>Juniperus scopulorum</u>	Rocky Mountain juniper
1,500 yrs	<u>Crataegus monogyna</u>	hawthorn
1,500 yrs	<u>Taxodium mucronatum</u>	Montezuma cypress

Figure 8: List of living tree age claims (>1,490 years) which may be accurate, but which have not been verified.

OLDEST CLONAL

#	age in years	scientific name	common name
1.	>50,000 yrs	<u>Northofagus moorei</u>	Antarctic beech
1.	>50,000 yrs	<u>Wollemia noblis</u>	wollemi pine
2.	45,000 yrs	<u>Lomatia tasmanica</u>	King's lomatia
3.	14,000 yrs	<u>Populus tremuloides</u>	quaking aspen
4.	13,000 yrs	<u>Quercus palmeri</u>	Palmer oak
4.	13,000 yrs	<u>Eucalyptus recurva</u>	Mongorlowe mallee
5.	10,000 yrs	<u>Lagarostrobos franklinii</u>	huon-pine
6.	9,550 yrs	<u>Picea abies</u>	Norway spruce

Figure 9: Ranked list of tree species with the oldest (in years) living clonal individuals in the world.

