*Sequoia sempervirens* (coastal redwood, redwood, Californian redwood)

This particular tree was planted in the early 1980’s and has grown rapidly in this area which was once fairly wet and close to natural springs. It can be seen at the eastern end of the Commerce building. The coastal redwoods are a monotypic species with a just a few selected cultivars. They originate from coastal California and S.W. Oregon. In their native habitat grow to become very large trees with a narrow columnar form. There are examples of this species reputed to be over 100 metres tall. Coastal redwoods are evergreen trees with small linear leaves arranged somewhat like the teeth of a comb that was double sided. Male and female cones are both produced on the same tree, the female cones are almost round and not quite as large as a golf ball, whilst the male cones are a creamy yellow, very much smaller and rounded at the tips of each shoot. The trunk is covered with a very soft, reddish brown bark that becomes very much thicker and more fibrous as the tree ages. Where very large tree are seen in places like the Christchurch Botanic Gardens the lower branches are often removed and the trunk can become a very significant feature. There are two trees at the eastern end of the Betula Border, probably planted in the 1980’s also.

![soft fibrous bark](image1.png)

![female cone](image2.png)

![young growth mid November](image3.png)
Sequoiadendron giganteum  (Wellingtonia, giant sequoia, big tree, Sierra redwood)

Ultimately a very large evergreen conifer, there was a very large example of this species removed from where the Stewart Building was erected in 1990. There are two specimens on campus since planted, one by Bob Crowder in the organics block in the Hort. Research area from a seedling I obtained, planted in the early 1990’s, the other is in the Taxodiaceae family group of the Gymnospermae collection in the Amenity area near the gate at the north end planted in the late 1990’s.
Sophora fulvida  (kowhai)

This is a fine leaved species planted at the south eastern corner of the Horticultural Teaching lab in the early 1980’s. It is a small graceful tree, ideally suited to modern small gardens. It flowers exceptionally well in spring. This tree is between Sophora prostrata to the south and Sophora longicarinata to the north.
Sophora japonica  (pagoda tree, Japanese pagoda tree, Chinese scholar tree)

This is the only example of the species growing on campus. It is growing to the south corner of the eastern side of Forbes. This tree is a medium sized, deciduous broadleaf tree with a rounded form, from the legume family. It originates from China and Korea, not Japan as the specific epithet might suggest, although it is apparently widely grown there. This species is closely related to the native New Zealand species of our predominantly yellow flowered kowhai, with many examples of species represented on campus. These include Sophora microphylla, S. tetraptera, S. prostrata, S. fulvida, S. longicarinata and a number of hybrid and cultivar forms. Sophora japonica has large alternately arranged, pinnately compound leaves of 9 to 17 leaflets up to 25cm long. Typical of many legumes it has small pea like creamy - white flowers in panicles of 15 to 25cm in late summer these are followed by small pods. The flowering qualities of this species improve with age.
Sophora longicarinata  (kowhai)

This is a very fine leaved species planted at the south eastern corner of the Hort. Teaching lab in the early 1980’s from seed obtained from a tree in the Christchurch Botanic Gardens. It is a small graceful tree, ideally suited to modern small gardens. It flowers exceptionally well in spring.
**Sophora microphylla** (kowhai, South Island kowhai)

This is a commonly planted species on campus. It has a divaricating stage of growth when it is young, before growing in a more erect manner as it develops its adult growth phase. Examples can be seen to the south of Burns wing, in the Rose garden, near the NRE walkway and other areas.
*Sophora prostrata* (kowhai)

This is a small bun shaped shrub rather than a tree, but it should be included with the others here. It tends to be quite a tangled divaricating plant with flowers that form inside the zigzagging branches. It is easily recognised by its form growing to about three metres across and slightly less in height. It is also different to other New Zealand species as the standard petal is distinctly orange. Examples of this are at the south eastern end of the Hort Teaching lab. (planted 1986), north of McCaskill and in the Amenity area. The specimen in the Amenity area was planted as *Sophora prostrata* 'Little Baby' and was planted in 1991.

A bun shaped shrub with divaricating branches, flowers are often within the branches at the south east end of the Horticultural Teaching Lab in Farm Rd.

Flowers have an orange standard petal, alternately arranged pinnately compound leaves are smaller than any of the other species.
Sophora tetraptera  (kowhai, North Island kowhai)

This is the largest leaved of the New Zealand kowhais. It has usually less than twenty pairs of leaflets, whilst the other common kowhai *Sophora microphylla* has smaller leaflets and usually greater than twenty pairs. There are however hybrids where the species meet, so identification can be difficult. This species tends to be less divaricating when young than *Sophora microphylla*, it is generally more formal and upright in appearance. *Sophora tetraptera* tends to flower only in spring, about October, whilst *Sophora microphylla* flowers over a wider range of months from autumn through to the end of spring.

Flowers and larger leaflets of the pinnately compound leaves, doesn’t have a strong divaricating juvenile growth stage. There are lots of intermediate hybrid seedling forms between the NZ species.

kowhai at the eastern end of the Horticultural Teaching Lab.
Sorbus aria ‘Lutescens’ (whitebeam)

This tree was planted in the Amenity area, in 1991 but appears to have suffered from injudicious use of herbicide around its base and may need to be removed. A second tree of this sort has been planted on the south side of the Commerce building in 1991 and is doing well. This species grows to about ten metres or so and is mainly attractive because of its soft silvery leaves. It is deciduous like all other Sorbus species. It is a native of central and southern Europe. This species has simple leaves, unlike most other Sorbus spp. that have pinnately compound leaves. It has an ovate or rounded form. Flowers are small and white in November. It has pale yellow autumn foliage for a brief time.

This tree was in the Amenity area, but has died and needs to be removed. There is another younger example that has been planted on the south side of the Commerce Building at the eastern end of the car park within the last couple of years.
Sorbus aucuparia  (rowan tree, mountain ash)

This is a small tree from the Rosaceae family growing as a lawn specimen on the west side of Hudson Hall. There are other specimens notably one to the east side of Orchard carpark planted in the mid 1990’s and another much older specimen about midway in the Betula border. Rowan trees are fast growing, somewhat upright in habit and growing four to six metres or so in height (occasionally more). They seem susceptible to wind throw in good soils, but not so in much poorer soil. They are relatively fast growing and often develop multiple stems. They have creamy white flowers around November and are followed by red berries in mid to late summer. Leaves are pinnately compound. There are a number of cultivars grown with variations in the colour of the fruit. Europe, Asia Minor.
Sorbus hupehensis  (Hupeh rowan)

This is a small tree planted in the Amenity area in April 2001, it was a donation from Dudley Franklin a visitor I had shown around the area previously. It is just to the north of the red photinia hedge within a small collection of species from the Rosaceae family. This tree has good autumn foliage. Fruit is a pink colour.
Sorbus insignis x S. foliosa ‘Ghose’

This tree was donated to the Amenity area by James Stuart a student in August 1990. This tree grew rapidly and was multi branched at the base. It eventually blew apart in a southerly storm. Two suckers that redeveloped from the damage were selected in 1998 and allowed to grow since. The pinnately compound leaves are distinctly bluish beneath. It has white flowers around late October to mid November followed with large clusters of red fruit. This is a very attractive upright small tree to about five metres.

Tree growing in the Amenity area in the block s.w. of the pond

Alternately arranged, pinnately compound leaves
*Styrax japonicum* (snowbell, silverbells, storax)

*Styrax japonicum* is a small, deciduous tree of about 5m in height in the border that runs between the eastern end of the Commerce Building and the south of Burns wing. It usually has a rounded crown, but this specimen appears to be somewhat drawn up, possibly because of the many other larger trees in the vicinity. This tree is situated near the path, roughly equal with the south end of the Lodge. The glabrous leaves are alternately arranged on the branches, they are oval to elliptic shaped, sparsely toothed on a wavy margin, shiny green above, paler below up to about 8 cm long and half as wide on petioles up to 8mm or so. Pinnate to reticulate veins are evident on both surfaces, slightly more so above. This species flowers in late spring or early summer. It has white flowers with five petals about 12mm long, flowers are clustered closely beneath the branches singly or in racemes of 3 or 4, flowers are followed by ovoid to round berries on long stalks, containing a single seed in the summer. Snowbell is a native of Japan, Korea and China. A second tree is in the amenity area and has a more typical dome shaped crown.

![Tree leaning to the right in the centre of the picture e. path n. Commerce](image1)

![Flower buds about to burst mid November](image2)

![Autumn fruit – tree in the Amenity area](image3)
Styrax obassia

This is a small tree planted in the amenity area. It is a native of Japan, Korea and China. This species is planted just to the south of *Styrax japonica* and differs by having more rounded leaves. It also has white flowers in long spreading racemes up to 150mm or so in length in summer.

- [Image of a small tree in block south of the pond on the eastern side in the Amenity area]

- [Image of simple, broad obovate leaves]
*Taxus baccata*  (yew)

The specimen below is seen to the north west of the Lodge. I am not sure how old this specimen is, but I guess it could be at least 50-60 years. Some yews in the UK estimated to be over 4000 years old. The leaves appear dense and close set on the branches. The leaves are narrow, linear, sometimes falcate or twisted at the base of the short petiole. They are spirally arranged and about 25-40mm long by 2-3mm wide, they are a dark glossy green above and paler below with a distinct midrib. The leaf apex is acute. Male cones and female arils are produced on separate trees, the aril being very distinct with scarlet flesh and a naked seed located within. The male cones are visually significant, but not as obvious, they are produced in clusters up to 4mm across and are a pale brown colour. In the last couple of decades or so yew trees have become important as a source of the toxic alkaloid taxol or taxine - an important drug in the fight against cancer. Yews are also associated with poisoning of livestock and famous for wood used to manufacture bows. Yews are tolerant of clipping and make good formal hedges.
*Taxus baccata* ‘Dovastonia’ (uncertain if this is the actual cultivar)

This example is growing in the Amenity area in the collection of Taxaceae toward the north west corner. This specimen struggles from dry conditions in the summer planted over a hard pan in that part of the paddock. This spreading form occupies many metres of ground area compared to a very fastigiated seedling of the Irish yew planted next to it.

Wide spreading form -‘Dovastonia’ ? north-west corner of Amenity Horticulture area
**Taxus baccata** ‘Fastigiata’ (Irish yew)

There are two very formal looking evergreen gymnosperms at either side of the main entrance to the Loge on the north side of the building. These fastigiate forms are the natural habit of the Irish yew (*Taxus baccata* ‘Fastigiata’).
Taxodium distichum  swamp cypress

Specimen on left is in the Christchurch Botanic Gardens, there are 2 examples at Lincoln, one in the Betula border and the other in the Amenity area.

note the double leader in the Betula border which may present future problems unless it is dealt with.
**Tetradium daniellii** (syn. *Evodia daniellii*)

This is a small deciduous tree near the old pergola at the western entrance to the old formal garden. (This tree is major need of some attention as it is currently in danger of falling apart). Some other examples are planted in the south end of the Orchard car park and one to the north of the Hort. Teaching lab. These trees were planted in the 1990’s and the sheltered tree in the old Formal Garden has grown twice as fast as the two in the more exposed Orchard car park and to the north of the Hort. Teaching lab. *Tetradium* belongs in the Rutaceae family, which also includes oranges and lemons and other citrus fruit. On campus *Choisya ternata* (Mexican orange blossom) also belongs to the Rutaceae and since the early 1970’s has been a popular and commonly planted shrub. *Tetradium daniellii* has large pinnately compound leaves of more than 30cm or so with up to 11 leaflets. The leaves are glossy green, although when young are hairy and have a bluish – green colour. The tree is about 5m in height with a similar spread in the old Formal Garden with a rounded top. At maturity it is suggested these trees can grow to 20m or so. This species flowers in late summer or early autumn, flowers are white in terminal panicles up to 150mm across. It is a native of south west China and Korea. This species appears perfectly hardy at Lincoln, but does best in an area sheltered from strong winds.

![Image of Tetradium daniellii](image1)

this particular tree has badly split and may be better removed, however this sheltered site has been an ideal choice. The tree to the n. of the HTL and the Orchard car park trees have struggled.

![Image of Tetradium daniellii](image2)

Flowering mid summer to mid autumn
Thuja occidentalis ‘Pyramidalis’

This is an upright growing cultivar growing in the collection of the Cupressaceae family in the Amenity area. This specimen was planted in 1992 and has grown well in this site. It is a native of eastern USA. There is a younger example planted near the northern most entranceway in to Hudson Hall from the eastern side.
*Thuja plicata*  (western red cedar)

Western red cedar forms much of the Springs Road planting east of the Lodge between Burns wing south and the eastern end of the Commerce building going north. Western red cedars are moderately fast growing, ultimately, large evergreen conifers with a conical form that may become open or broader at the top with age. They belong to the Cupressaceae family and are related to other species such as macrocarpa, Lawson’s cypress, Leyland cypress and the New Zealand *Libocedrus* species, all of which are also represented on campus at Lincoln. *Thuja plicata* originate from western parts of North America. The leaves of the western red cedar are small and scale like in flattened sprays, they are opposite and decussate. If you crush the foliage it has a very pleasant sweet fruity fragrance, some suggest it is like pineapple. The leaves are a glossy green, with some white markings below. Male and female cones are produced separately on the same tree, the female cones are upright, about 1cm in length with about 10 valvate scales, the male cones are pale yellow and very small clustered at the tips of the branches. The bark is a red – brown colour that peels in strips vertically. Overseas this is a highly valued timber tree, in New Zealand it is mainly grown for shelter or as a large specimen tree for large gardens or parks.
*Thujopsis dolabrata* (hiba arborvitae)

There are a few examples of this species on campus. The largest tree which used to be at the north end of Colombo Hall was removed some years ago to put in solar panels. The larger of the remaining trees is to the south east of the round garden at the eastern end of the library. Another tree is located in the Cupressaceae family collection in the Amenity area. This tree was a cutting from the tree to the north of Colombo Hall. The scale like leaves and cones are larger in all dimensions than the closely related thujas. This tree is variegated.

*Thujopsis dolabrata* "Variegata" east side of north entrance to the old Formal Garden.
*Tilia x vulgaris* syn. *T. x europaea*  (European lime, common lime)

The European lime is thought to be a hybrid between the small leafed lime *Tilia platyphyllos* and the large leafed lime *T. cordata*. The European lime is a medium to large deciduous broadleaf tree that always exhibits a tidy rounded - oval form. It is frequently used as an avenue tree or a specimen tree it is also used for shelter and has some specialty timber values. The timber is a satiny white colour. Lime trees usually provides good autumn foliage in Canterbury, the leaves are moderately large, alternately arranged with an uneven heart shaped base. Limes have thumbnail sized creamy-white flowers in early summer, these have been suggested as being valuable bee fodder trees, flowering at a time when few other trees are in flower. The flowers are produced in small clusters of three to five attached to an elongated creamy white or greenish bract. The nut like fruits (capsules) that develop from the flowers are also seen in late summer and autumn making this an easy tree to identify. Lime trees are among the most commonly planted trees on campus. There is a very large example to the north of the Commerce Building, although this tree is showing signs of decay, other examples can be seen lining Calder Drive, as a single specimen at the south-west end of Hilgendorf and in the same general area as a ‘pleach like’ hedge form.
*Torreya californica*  (Californian nutmeg-yew)

This is a relatively uncommon species in the Taxaceae family. This example is in the south west corner of the small collection of the Taxaceae in the Amenity area.
Trachycarpus fortunei  (Chusan palm or Chinese fan palm)

This palm is also hardy in Canterbury and can be seen as a signature plant in some of the old Buxton gardens around New Zealand and also in some of the gardens designed by Edgar Taylor. Edgar Taylor was the son of Ambrose Taylor who was an early curator of the Christchurch Botanic Gardens. Edgar Taylor worked for Alfred Buxton and was the first Landscape Architect appointed by the Christchurch City Council. Taylor was responsible for some of Christchurch's old gardens such as the Sanitarium Health Food Company gardens in Papanui Road where the paired Chusan palms can still be seen growing. This palm can be described as a fan shaped palm based on the leaf shape. The trunk of this species displays dark woolly hair and becomes something of an elongated lollipop shape over time as the lower leaves are shed.
*Ulmus carpinifolia* ‘Variegata’ (European field elm, smooth leaved elm)

There are a number of these trees planted on the campus, the oldest is probably at the western end of Orchard Hall. Another much more recently planted example is on the western side of Stewart Building toward the northern end. This is an elm that has become more common in Christchurch and surrounding areas over the last 20-30 years. It is a large pyramidal to oval shaped deciduous broadleaf tree with attractive leaf colouring. The leaves are speckled green and white, really bright and obvious above, much paler below. Branches are strongly upright. This cultivar is hardy and appears to be generally free of any pest and disease problems. It is also hardy in full sun, whereas many plants with large areas of white or cream in the leaves are burnt in full sun. This species has large simple leaves, alternately arranged on the stem. The leaves have a serrated margin and the pinnately arranged veins are obvious above and below. The leaves have a strongly oblique base. The lamina is up to 90mm by 37mm across, the petiole is approximately 12mm. The petiole is pale green and slightly hairy.
*Ulmus glabra* ‘Camperdown’ (Camperdown elm, wych elm)

There are about forty five species of elm, most of those are trees, a few are shrubs. Elms are often large deciduous trees with alternate, simple leaves. The leaves of elms are generally rough to the touch, are serrated or toothed in some way and have an oblique (uneven) base. Flowers usually occur in early spring, before the leaves appear and they contain both male and female parts in the same flower. Seeds of the wych elm are usually fertile, although this cultivar needs to be vegetatively propagated to produce a tree with the same form as this. The flowers are often small and not very significant in a visual sense. The fruit is a winged samara. ‘Camperdown’ is a cultivar of the wych elm selected for its dome shape appearance and weeping branches. The tree in leaf is something like a narrow open umbrella in form, when it has no leaves the branching form is fascinating, with steeply ascending branches, that then seem to be uncertain which direction to grow, before drooping sharply. Mitchell describes it as “A broad head of tortuous branches grafted onto a straight bole of *Ulmus glabra* and weeping to the ground in a bower all around it.” The wych elm originates from North and Central Europe to Asia Minor.
*Ulmus parvifolia*  (Chinese elm)

There are at least two specimens of Chinese elm on campus the older and larger of the two is in a group of trees at the north east corner of the row of holm oaks (*Quercus ilex*), the other specimen is in the Betula border. The Chinese elm is a medium sized deciduous tree with a moderate growth rate at Lincoln. The leaves are simple, alternately arranged, approximately 30mm long x 15mm across on petioles of about 3-5mm. The petioles are usually hairy, at least on young leaves. The leaves appear glabrous with 7 or 8 sub-opposite pairs of veins raised beneath, less obvious above. The margins are serrate, the leaf base is often oblique, not always. The upper side of the lamina is dark green, paler beneath. Young twigs are an olive green with white lenticels. Tiny flowers can be seen in the axils of the leaves on the shoots toward the tips of the stem in late summer and early autumn.
Washingtonia robusta  (southern washingtonia, Mexican washingtonia)

This is the least hardy of the palms growing in the Amenity area, although it has withstood some very heavy frost of minus 10°C or more. It is hardier than the New Zealand nikau palm which was also grown in this area and could not survive the frosts. (Seed of the nikau was sourced from near Akaroa). This is also a fan palm, but differs from the Chusan palm with its sharply serrated petiole.

Located in the Amenity area near the garage
Zelkova serrata  (Japanese zelkova, saw leaf zelkova)

There is just one example of this species on campus toward the extreme eastern end of the Betula border. This is a medium to large sized rounded topped, spreading, deciduous tree from the elm family (Ulmaceae). It is a native of Japan, Taiwan and Eastern China. It has simple, alternately arranged leaves with coarsely serrate margins, each tipped with fine mucro. Leaves are approximately 8cm long by 2-3cm across, although can occasionally be up to 12cm long. Leaf shape is narrowly ovate to lanceolate, some pubescence above and on veins below, upper surface dull green, paler beneath, petioles are up to 6mm long. Flowers are described as polygamo-dioecious meaning some male and female flowers may be found on the same tree, or separately on different trees. Flowers are small and not showy, followed by dry nut like drupes from late spring. *Zelkova serrata* is a handsome tree where it is given sufficient space to grow, it has reasonable autumn colour.