

Elms

of the

BALLARAT BOTANICAL GARDENS





Ulmus x hollandica 'WREDEI'
WREDE'S ELM syn Golden Elm

Planted 1935

WREDE'S GOLDEN ELM originated as an unusual growth or sport on a specimen of the cultivar *Ulmus x hollandica* 'DAMPIERI' at the Alt-Geltow Arboretum near Potsdam, Germany in 1875. It was first described by John Elwes and Augustine Henry in 1906. [The Trees of Great Britain and Ireland vol. 7' John Elwes and Augustine Henry (1906)]. It was named for Joseph Wrede (1831–1912), Curator of the Alt-Geltow Arboretum. It was introduced to Australia in the early 20th century. Two specimens in the Ballarat Botanical Gardens are classified by the National Trust (Victoria) at regional level as of significance in the Landscape and on Aesthetic Grounds.





Ulmus glabra
SCOTCH ELM, syn WYCH ELM

Planted 1989

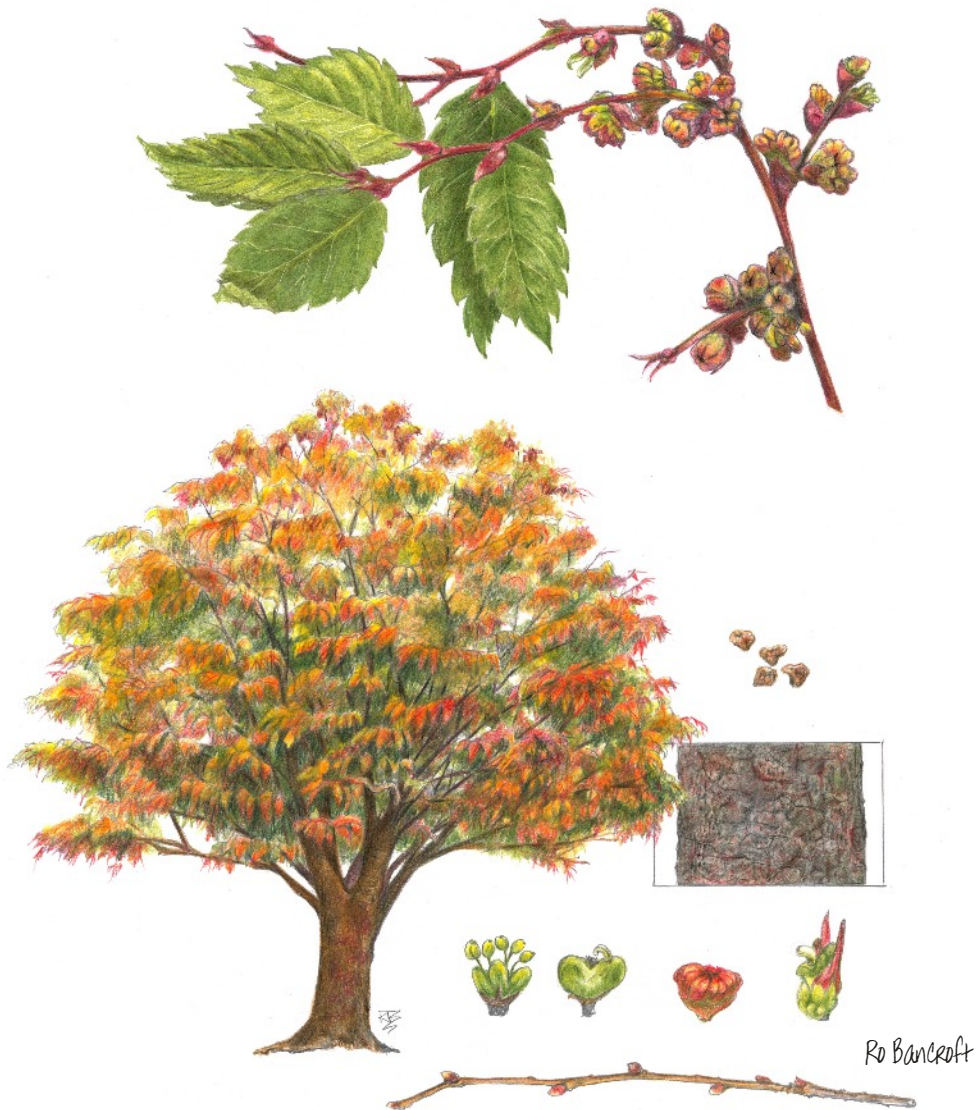
Ulmus glabra has the widest range of the European elms stretching from Ireland to the Urals and from the arctic circle to Sicily and Iran at altitudes up to 1500m.

It is the only indisputable British native elm, and is fast growing reaching a height of 40 m. it is often used as a rootstock as it produces few suckers.

The world's oldest Scotch Elm, located at Beaulieu Priory near Inverness, Scotland, fell recently, finally succumbing to Dutch Elm disease having limped through its last decades with only five per cent of living tissue. It was over 800 years old.

Our tree may yet live to that age.





Zelkova serrata
JAPANESE ELM syn KEYAKI, KEAKI

Planted 1981

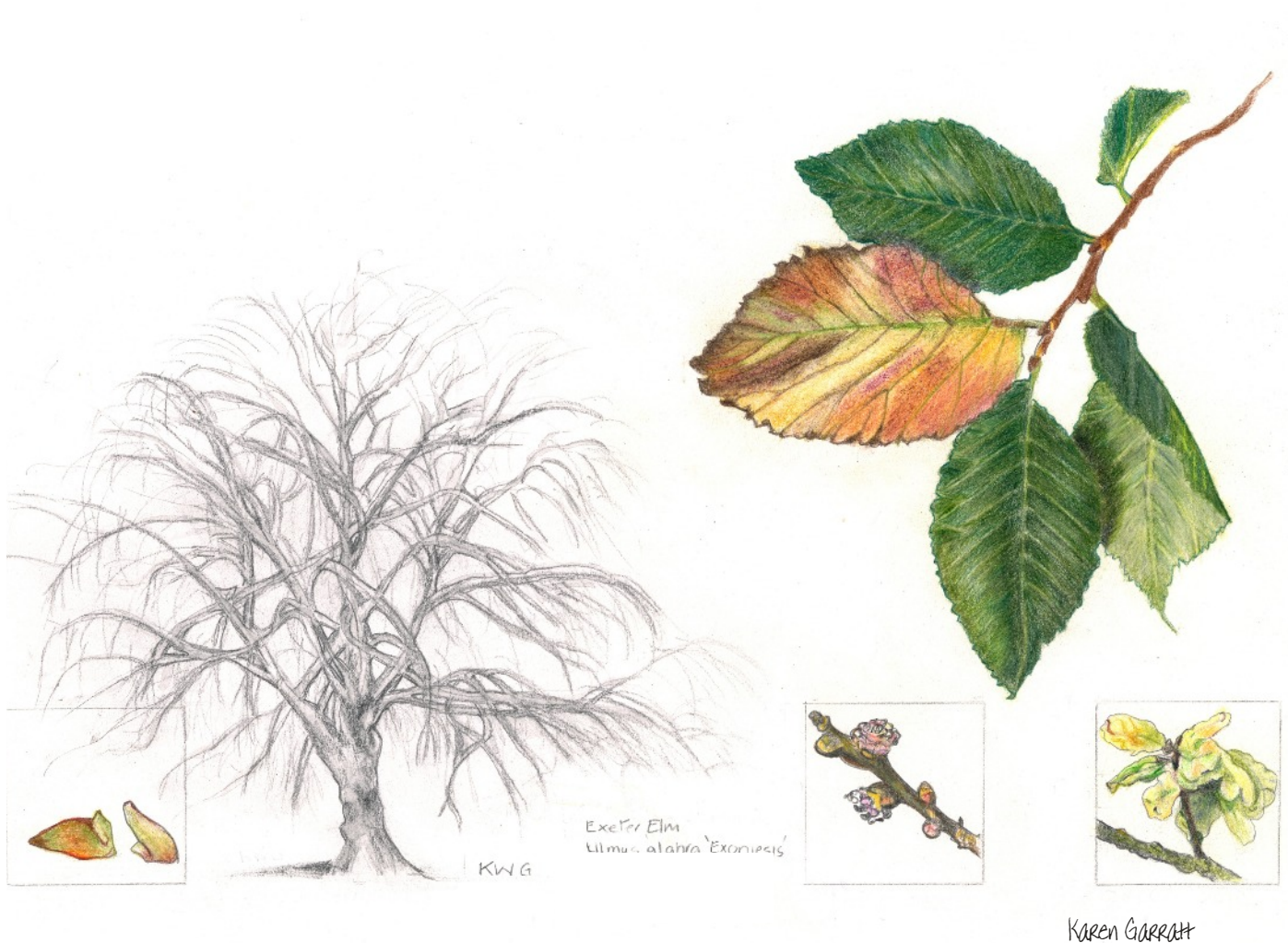
The genus *Zelkova* are considered as Cenezoic relic trees with an evolutionary heritage of great value.

Zelkova serrata occurs naturally in Japan, Taiwan, Russia, Korea, and China.

It is used as a bonsai specimen. Its wood is used for furniture, and it is considered ideal for taiko drums.

Our tree was planted in 1981 to mark the Golden Jubilee of the Inner Wheel Club by Mayor I. N. Clarke and Inner Wheel Club President Marjorie Cornell.





***Ulmus glabra* 'EXONIENSIS'**
EXETER ELM

Planted 1890

The Exeter elm was discovered by chance near Exeter in 1826 and propagated by Ford and Pease, Nurserymen in that city. It is considered rare.

It is reputed to be somewhat resistant to Dutch Elm Disease.

It was introduced into Australia in 1873.

Our Elm is Heritage listed by the National Trust (Vic) as the best of its type in Victoria. Two other Exeter Elms are registered, one in Footscray (Botanic Gardens) Park and the other in the Buninyong Avenue of Honour.





***Ulmus minor* 'CORNUBENSIS' Planted 1993**
CORNISH ELM syn RED ENGLISH ELM, GOYDERS ELM

The Cornish Elm can grow to 27m in height and is sterile, but suckers freely. It is found naturally in an isolated area of southwest England and is considered resistant to Dutch Elm Disease.

It was first described in '*Gerarde's Herbal.*' [Gerarde's Herbal, Gerard, John (1597)]

It is now considered an endangered Elm.

At maturity its contorted trunk lends itself to ideas of mystery and magic.

With excellent water resistance and strength, it was once used for boat building, wheel and wagon construction, as well as for furniture, firewood, and flooring.





***Ulmus glabra* 'PENDULA'** Planted 1890
WEeping SCOTCH ELM syn WEeping WYCH ELM, *Ulmus horizontalis*

The Weeping Scotch Elm is often twice as broad as high, with a horizontally flattened framework of large branches from which long slender pendulous branches, some over two metres long, droop, this tree can live for 300 years.

"A beautiful....tree generally growing to one side, spreading its branches out in a fan-like manner....sometimes horizontally and at other times almost perpendicularly downwards so that the head of the tree exhibits great variety of shape".

[The Illustrated dictionary of Gardening Vol 8 P120, Nicholson, George (1888)]

It was introduced into Australia in 1860.

Our specimen is Heritage listed by the National Trust (Victoria) at regional level as of significance in the Landscape and on Aesthetic grounds.





***Ulmus glabra* 'CAMPERDOWNII'**
CAMPERDOWN ELM Wedding Tree

Planted 1920

The Camperdown Elm was first discovered in Dundee, Scotland in 1835 by the Earl of Camperdown's head forester, David Taylor, as an unusual seedling. It was planted in the Earl's Garden where it is still growing.

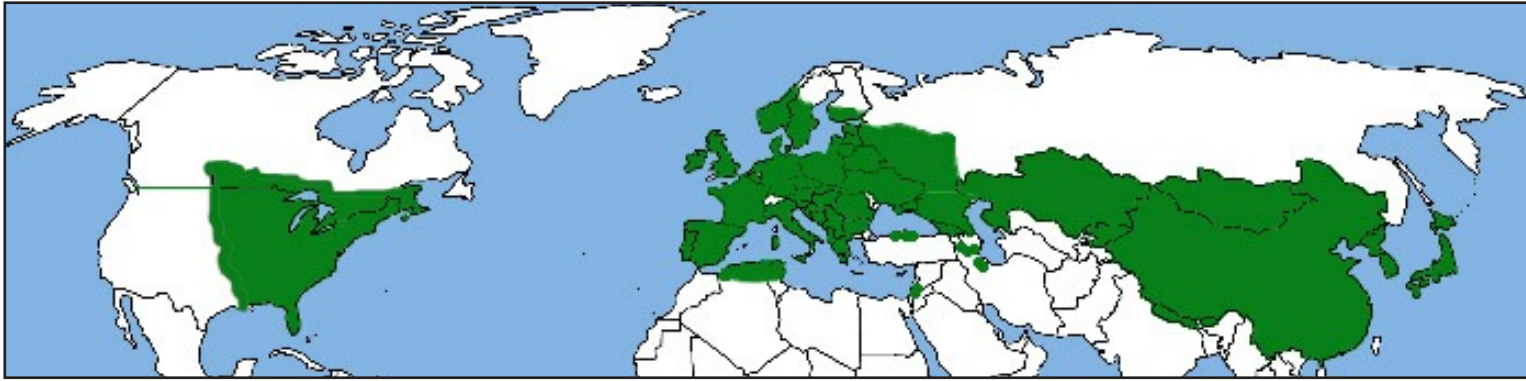
The Earl's head gardener grafted a piece onto a tall WYCH Elm, producing the world's first CAMPERDOWN ELM with its distinctive contorted head of '*furiously twisting branches*'.

It was introduced into Australia in 1873.

In 1920, Ballarat Curator Tom Toop and his apprentice high grafted a piece of CAMPERDOWN ELM onto two specimens of *Ulmus glabra*.

This tree epitomizes a Horticultural novelty and has come to symbolize a marriage where two become one.





ORIGINAL DISTRIBUTION OF ELMS ACROSS THE NORTHERN HEMISPHERE

ELMS OF THE WORLD:

Ulmus is the Latin term for Elm. It is a member of the *Ulmaceae* family which emerged in the Miocene Epoch 23 million to 5.3 million years ago, alongside the earliest mammals, maples and bamboos.

The family *Ulmaceae* originated in Central Asia and evolved into separate groups of tropical and temperate trees.

All are wind pollinated and seed is dispersed by the wind. The temperate group is represented by the genus *Ulmus* and the genus *Zelkova*.

There are approximately 30 – 40 species of *Ulmus* and countless cultivars and named varieties.

The nomenclature is very complex, leading to great debate amongst botanists. Botanists who argue over Elm identification are called '*pteleologists*' (from the Greek for Elm).

'Species and varieties are a distinction in the human mind rather than a measured distinction of genetic variation'

[Ancient Woodland, its History, Vegetation and Uses, Rackham, Oliver (1980)]

Today, modern paleontologists are using fossil pollen and DNA sequencing to discover new connections across the known species.



ELMS OF THE WORLD:

All Elms are deciduous, though some may be semi-evergreen if conditions suit. Seeds of the Elm are called *Samara*, which are a flat ovoid or round seed encased in a papery disc. They are very light - approximately 100,000 seeds are required to make a kilogram.

Some *Ulmus* are sterile and reproduce by sucker, others require the human intervention of grafting or creating cuttings. Elms also naturally hybridize, and unusual growths called sports often appear. These are often selected for propagation. An Elm takes a century to reach maturity, and may live for several hundred years.

The Elm is both a utilitarian tree and one shrouded in folklore.

Romans brought to Britain the system of transporting water and sewerage in hollowed out logs tapered together in long lines called trunk lines. In London and Bristol, water is still said to be carried in old pipes made of hollow Elm.

The bark and leaves can be used to make yellow dye. Leaves are fed to livestock. The mucilage of the inner bark is used medicinally and was once known as '*chewy bark*'.

The seeds when green can be used in salads. In olden times the Irish ground the bark to make bread.

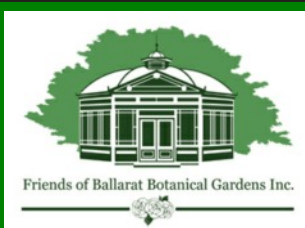
Elm wood is used for everything from coffins to piers, and its pliability has seen it used for bentwood chairs.

Celtic folklore has it that Elms have an affinity with elves who guarded the underworld.

For the Germans and for Druids they represent the divine feminine.

Christianity saw Christ as a vine and man as the branches of the Elm, with many churches having '*...of the elm*' at the end of their names.

Heraldic symbolism represents the elm to mean friendship and love and Americans see it as a Tree of Liberty, while for the French it is the tree of justice. Judges would walk under an elm seeking inspiration for their rulings.



Elms of the Ballarat Botanical Gardens Heritage Exhibition 2023

The images below are all to be found on 'Garden Explorer'.
You can use *Garden Explorer* to locate them.



Ulmus × *hollandica*
• Dutch Elm



Ulmus × *hollandica*
'Wredei'
• Dutch Elm



Ulmus glabra
'Camperdownii'
• Camperdown Elm



Ulmus glabra
'Exoniensis'
• Exeter Elm



Ulmus glabra
'Pendula'
• Weeping Scotch Elm



Ulmus minor
'Cornubiensis'
• Cornish Elm



Ulmus minor
'Louis Van Houtte'
• Van Houtte Elm



Ulmus minor
'Variegata'
• Variegated Elm



Ulmus parvifolia



Ulmus pumila
• Siberian Elm



Ulmus parvifolia
'Frosty'



Many elms are labelled *Ulmus sp.* and have no species or cultivar information

Want to know more about the gardens?

Scan the below QR code to launch **Garden Explorer**

You can also access Garden Explorer by visiting ballarat.gardenexplorer.org

CITY OF BALLARAT | BALLARAT BOTANICAL GARDENS

The Ballarat Gardens precinct has more than 1000 trees, about 10% being Elms.

In the Central Gardens there are 25 Elm trees, from 338 Trees. You can use the QR-code above to locate them.



How the City of Ballarat deals with the Elm Beetle:

ELM BEETLE



LARVAE

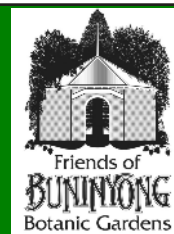


Dutch Elm Disease is a 'sac fungus' spread by elm bark beetles. The fungus originated in Asia and gradually spread. It first had an impact on the European elm populations in about 1910 but was relatively mild. In 1967, a new more virulent fungus reappeared. Mature elms have been decimated in the rest of world, including in New Zealand where they are trying to contain the disease to Auckland. This makes Australia the last bastion free of the disease, and the collection of mature specimens here the most significant in the world.

In Ballarat the Dutch Elm beetle, *Scolytus multi-striatus*, was first identified in 1975 with an outbreak near the Ballarat Railway station [VPRS 2500 Unit 302, Correspondence between City of Ballarat, and CSIRO], and another Elm beetle, *Xanthogaleruca luteola*, was accidentally introduced into Australia in the 1980s. Both are vectors for Dutch Elm disease.

The beetles, only the size of a grain of rice, can defoliate a tree in a week. Adult beetles do not fly far, but can travel by train, plane and automobile. They lay their eggs on the undersides of the leaves and the emerging larvae begin skeletonizing the leaves giving the tree a lacy appearance. The larvae then move down the trunk and bury themselves near the base of the tree to pupate. There could be several generations of beetles in a season.

Treatment against the beetle can be by trunk injection, canopy spraying or soil injection. The Ballarat City Council employs contractors using the method of soil injection as well as by trunk injection.



HOW TO TELL IF IT IS AN ELM TREE?



Leaves

The asymmetrical leaves are ovate or egg-shaped with a pointed tip and serrated edges, arranged alternately on the stems in an ascending spiral. They are up to 9 cms long and 2.5 to 5 cm wide, with prominent veins and a rough underside.

They are especially colourful in autumn.



Bark

Most elm bark has a series of crossing grooves. Between these grooves are thick ridges which have a scaly texture. There is some variety in bark texture between different elm species. In most cases, elms share the same dark-grey trunks.



Flowers

Flowers appear in small clusters in autumn, usually red or purplish on short peduncle (stalk) ripening mainly when the leaf buds are opening in early spring. The flowers have no petals and have both male and female parts.



Fruit or Seed (Samara)

These are small oval clusters of nutlets, often red or purple surrounded by a pale green or yellowish membrane with wings to aid wind dispersal.



Elms

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BUNINYONG

BOTANIC

GARDENS



Elms of the Ballarat Botanical Gardens Heritage Exhibition 2023



Friends of Ballarat Botanical Gardens Inc.



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