

# Tree Ferns in San Francisco

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One of the numerous and very agreeable aspects of living in the San Francisco Bay area is the sight of tree ferns growing outside in relatively large numbers. One notices them during walks through the downtown streets and in suburban gardens. Any reasonably-sized nursery here will certainly have some for sale.



Fig.1 Primitive Plant Garden in Strybing Arboretum; left: *Cyathea cooperi*; right: *Dicksonia antarctica*?

## Climate

Situated in the middle latitudes of the Pacific west coast of the United States, the San Francisco Bay offers a Mediterranean type of climate not found elsewhere in this country. The interaction of the topography with the climate in turn generates various microclimates. The Pacific Ocean regulates the temperature and reduces the extremes that occur further inland. As a result, we have only small seasonal variations in temperature. There is often dense fog.

Winters are moist, mild and largely free of frost, with temperatures averaging 10-16°C (55-60°F), and lows in the range of 7-10°C (45-50°F). Snow is extremely rare and only occurs in small amounts at the highest elevations. Most of the rainfall (annual average: 500mm or 20 inches) occurs between November and March. Summers are dry, with very little rain during June through August. Due to the cool maritime air, and the coastal fog for which the city is well known, the average

summer temperature for San Francisco is only 16-21°C (60-70°F), with lows in the range 10-13°C (50-55°F). USDA plant hardiness zones for the San Francisco Bay area are 9b to 10a.

Aside from the numerous privately-owned tree ferns, two major botanical gardens have collections of these 'architectural' plants growing outdoors.



Fig. 2 Well-trunked *Cyathea medullaris* in Strybing Arboretum

## San Francisco Botanical Garden

Located in San Francisco's Golden Gate Park, the San Francisco Botanical Garden is a 55-acre public garden featuring some 7,000 species of plants from around the world. Together with the Strybing Arboretum, it was established in 1940 through a generous bequest made by Mrs. Helene Strybing. The gardens (Figs 1 & 2) are open to the public, free of charge, for 365 days in the year. At present they contain 7 species of tree fern, some long-established and very tall.

Upon entering the Main Gate, you will immediately see four species: *Dicksonia blumei* from Indonesia, *Dicksonia squarrosa* from New Zealand, *Cyathea atrox* from New Guinea, and another New Zealand endemic, *Cyathea medullaris*. The *D. blumei* was grown from spore obtained from Bali Botanic Garden in 1999.

Proceeding further into the garden, past the Main Lawn and fountain, one reaches the Wildfowl Pond. Just to the east of the bridge across the pond is a magnificent stand of large *C. medullaris* (Fig. 2). Nearby are two specimens of *Cibotium glaucum*, or Hapu'u

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pulu, a species endemic to the Hawaiian Islands. Both of these specimens were acquired as bare-rooted trunks from a nursery in Hawaii about ten years ago.

To the west of the Pond is the Primitive Plant Garden containing numerous *Dicksonia antarctica*, along with *Cyathea cooperi*, both species being Australian natives (Fig. 1). Many of the *C. cooperi*, along with some of the *C. medullaris*, were planted before 1960. Some of the other *C. medullaris* were grown from spore and planted about ten years ago. There are further tree-fern species currently being cultivated and waiting to be planted out. The Garden's website is: <http://www.sfbotanicalgarden.org/>

## City gardens

Golden Gate Park is also home to two other collections of tree ferns. Northeast of the San Francisco Botanical Garden is the M.H. de Young Museum. This fine arts museum is surprisingly home to a collection of thirty-three tree ferns housed in an open air atrium within the building. The atrium is behind glass, but is open to the air at the top. The species here seem to be *D. antarctica* and *C. cooperi*, with at least one *D. squarrosa*. The Museum's website is: [www.famsf.org/deyoung/index.asp](http://www.famsf.org/deyoung/index.asp)

Further east on John F. Kennedy Drive and located opposite The Conservatory of Flowers is Tree Fern Dell (Fig. 3), a forest of well established tree ferns growing within the park. The predominant species found here would seem to be *D. antarctica*, with some *C. cooperi* and *C. medullaris*. An article in the American Fern Journal published in 1959 states that there were eight species within Golden Gate Park. The Park's website address is: <http://www.golden-gate-park.com/>



Fig. 3 Tree Fern Dell on John F. Kennedy Drive

Amongst the privately-owned tree fern collections in the city of San Francisco, my favourite is the group of seven *C. cooperi* (Fig. 4) located at 1160 Battery Street (opposite Pier 19 on the Embarcadero). They were planted in 2000 and include a magnificent large specimen 3.3 meters high, with a crown spanning

some 4.9 meters. If you plan to visit them, please be mindful that they are on private property and stay on the paved areas.



Fig. 4 *Cyathea cooperi* at 1160 Battery Street

**University of California Botanical Garden at Berkeley.** Across San Francisco Bay, at 200 Centennial Drive in Berkeley, is another botanical treasure-house, the University of California Botanical Garden at Berkeley. It is open to the public (excluding major holidays) from 9:00am-5:00pm daily. Website: <http://botanicalgarden.berkeley.edu/>

The garden covers 34 acres and is home to over 9,600 plant species, the majority growing outdoors in areas arranged geographically by continent or region. There are also special collections of epiphytes, ferns, carnivorous, and tropical plants in greenhouses. At present, there are 5 species of tree ferns growing outside in this garden.

The outdoor tree ferns are primarily located in the Australasia section. Here are many *D. antarctica* (Fig 5), along with a *D. blumei*, *D. squarrosa*, and a mature *Dicksonia fibrosa*, or Wheki Ponga, from New Zealand, complete with the distinctive 'skirt' of dead fronds which protect the plant. Some of the larger tree ferns have the epiphyte *Platycterium* planted on their trunks.

Also in the Australasia section there are several specimens of the "dwarf tree fern" *Blechnum gibbum* (Fig. 6), a species endemic to New Caledonia and other islands of the South Pacific. Whilst not a true tree fern, this species along with other blechnums develops a small trunk with a crown of fronds on top. Two larger species of trunk-forming fern are also to be found here, *Sadleria cyatheoides*, or 'Ama'u, endemic to Hawai'i, and *Todea barbara*, a species that occurs in Southern Africa, Australia, and the North Island of New Zealand.

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Continuing east into the garden leads to the Mexico/Central America section, which is home to several young specimens of *Dicksonia sellowiana*, endemic to Mexico, central and southern America. This section of the garden is home to several specimens of *Lophosoria quadripinnata*, a trunk-forming species which is also endemic to Mexico, central and southern America. Toward the middle of the garden, adjacent to the Conference Centre in the Cycad and Palm Garden, there is also a large stand of *D. antarctica*.



Fig. 5 UC Botanical Garden at Berkeley:  
*Dicksonia antarctica*.

## Horticulture of tree ferns

Although the climate in the San Francisco Bay Area is suitable for many tree-fern species, there are some special horticultural considerations. Irrigation is perhaps the most obvious and, during the three months of our normally dry summer season, it is critical that tree ferns receive regular watering. This is done at the two public gardens mentioned, with sprinkler heads at the end of narrow vertical pipes reaching above each plant.



Fig. 6 UC Botanical Garden at Berkeley:  
trunked specimen of *Blechnum gibbum*.

As the tree ferns gain height, the length of the pipe is adjusted accordingly. Alternatively, the tree ferns can be watered manually, which is how I do it.

Although the San Francisco Bay area generally has a moderate climate, a further issue of concern is frost. During the “freeze of the century” in 1989, the recorded temperature in the nursery area of the San Francisco Botanical Garden hit a low of  $-7^{\circ}\text{C}$  ( $20^{\circ}\text{F}$ ), and did not rise above freezing for five consecutive days. During this time numerous tree ferns in the garden were damaged, but fortunately the majority of them recovered. Should such temperature extremes occur again, the garden plans to wrap the more ‘exotic’ tree ferns.

Horticultural fleece is freely-available in large sheets for covering crops, but its application to (and removal from) numerous scattered tree ferns in a botanic garden would seem not to be a practical proposition. I do, however, use it for plants in my own collection.

## My collection

I became interested in tree ferns through a passion for fossils going back to childhood days. When my wife and I moved from Kent in England to San Francisco 11 years ago, I thus brought a latent long-standing enthusiasm for ancient plants. Three years ago this led to the acquisition of my own ‘prehistoric’ tree fern, a *D. antarctica* from a local store. This was soon followed by a *C. cooperi* ‘Brentwood’ and another *D. antarctica*. Later, from Canada, came spore-grown plants of *Cyathea brownii*, *Cyathea smithii*, *Dicksonia fibrosa*, and *Dicksonia squarrosa*. From the annual spring sale of the San Francisco Botanical Garden I acquired *C. atrox*, *C. medullaris*, and *C. novae-caledoniae*. From Hawaii came *Cibotium glaucum*, rarely cultivated here, and mailed as bare-rooted plants. I recently purchased a small *Cyathea tomentosissima* from a grower in Southern California.

*Blechnum gibbum* ‘Silver Lady’ is also readily available here and grows particularly well. Less frequently offered is *Blechnum brasiliense*, another trunking blechnum which is endemic to South America. This has particularly attractive bright red new fronds, but in my experience it is very sensitive to not being kept moist and will die if it dries out. All these are now growing outside our house, along with some 150 other species of pteridophytes - ferns, equisetums, and selaginellas, accompanied by thirteen species of cycad, a Ginkgo tree, and a Wollemi Pine.

I have been growing ferns from spore for quite some time now and have built up a considerable stock of young plants of numerous species. This summer I expect to start my own home-based retail mail-order nursery, specializing in tree ferns, along with Californian native and xeric ferns. □