



The history of the garden

Villa Thuret has been a research site dedicated to botany and acclimatization since 1857. Created by Gustave Thuret, a botanist and specialist in algal biology, it was the first privately funded research laboratory to be set up in France. Gustave Thuret carried out systematic acclimatization on trials with exotic plants, in collaboration with the Museum of Paris and with the assistance of Edouard Bornet.

His work was pursued by his successors, Charles Naudin and Georges Poirault. In addition to generating scientific data over the years since its creation, this garden, through the introduction of exotic species, has also contributed to the creation of the landscape of the Côte d'Azur and the rise of Mediterranean horticulture.

Gustave Thuret entertained not only the scientists of the time at his villa, but also numerous diplomats and artists. In her "Lettres d'un voyageur" in 1868, George Sand described it as:

"...The most beautiful garden she had ever seen..."

In 1878, Villa Thuret was donated to the French state. It is now permanently affiliated to a higher education and research establishment.

The entire site, including the research laboratories and the collections (herbarium, library, botanic garden) is currently managed by the French National Research

Institute for Agriculture, Food and Environment (INRAE).

A garden recognised and accredited

The French Ministry of Culture classified this garden as a "*Jardin remarquable*" (remarkable garden) in 2007. A number of the trees it contains were awarded the status of "*Arbre remarquable*" (remarkable tree) by the A.R.B.R.E.S association in 2015. In 2017, the garden was labelled "*Jardin botanique de France*" (Botanical Garden of France). In 2018, the garden and its villa are labelled "*Maisons des Illustres*" by the Ministry of Culture.

Original maintenance techniques

The plants are allowed to develop freely and to acclimatise to their environment. Pruning is rare and carried out only to ensure the safety of the public. Watering is restricted to the first few years after planting, to help the trees to become established. Wild grasses serve as ground cover, protecting the soil from erosion. The leaf and bark litter is also left in place. Cutting takes place late in spring, to allow the wild flowers to reproduce naturally. Rather than a uniform lawn of grass, these techniques yield a meadow that changes during the course of the year: green, with flowers, in the spring and autumn, and dry during the summer.

Plants adapted to the Mediterranean climate have morphological and physiological characteristics enabling them to tolerate summer drought: the orientation of the leaves, a decrease in their surface area, with the leaf often protected by a thick cuticle, the presence of essential oils and protective hairs or thorns. The phenological cycle may also be displaced with respect to that in more temperate zones, such that the plant grows in the winter, but not during the summer. Mediterranean plants rest during the summer.

For the protection of the garden, biological control methods are sometimes used against certain pests, such as the red palm weevil and the box tree moth.



Scientific and educational activities



In the face of climate change, we may need to use species adapted to hotter and more extreme climates, to maintain the levels of production of forestry and horticulture, and the services they deliver to society. For this reason, morphological and phenological observations of tree growth are therefore being made, with sensors fixed to the trunk and branches. The data collected are increasing our knowledge and providing responses to professional demands.



These activities are part of a framework of scientific programmes conducted in partnership with several scientific networks.

The garden is also a permanent living exhibition, providing educational support for students (universities and elite horticultural and landscape management schools), school children, professionals and the public at large.

Practical information

Individual visits: free and open-access, every day except Saturday, Sunday and bank holidays.

Group visits: paying, by reservation. Possibilities for a commented botanical tour or activities "Walks in the garden".



Center
Provence-Alpes-Côte d'Azur

INRAE



Experimental unit Villa Thuret of INRAE

Villa Thuret Experimental Unit of the French National Research Institute for Agriculture, Food and Environment

Jardin botanique de la Villa Thuret
90, chemin Raymond
06160 Antibes Juan les Pins
Tel.: 33 (0) 4 92 38 64 70
www.sophia.inrae.fr/jardin_thuret



Opening hours
8h00 am - 6h00 pm in summer
8h30 am - 5h30 pm in winter



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The remarkable trees of the garden

Most of the trees at Villa Thuret are exceptional.

The most important have been awarded the status of "*Arbre remarquable*", based on a set of criteria relating to age, their dimensions, habitat, aesthetic qualities, rarity or protected species status.

A trail, shown opposite, has been created to bring visitors into contact with these unique living organisms that defy time and lift their crowns to the heavens. The principal criteria used to select these trees are as follows:

Rare or protected: species figuring on the lists of the IUCN (International Union for Conservation of Nature) or the CITES (Convention on International Trade in Endangered Wild Species of Flora and Fauna) or the Washington Convention.

Rare in collection: exotic species for which only a few examples can be found growing in the open air in France or in Europe.

Historic: specimen remarkable in terms of its age, dimensions or history.

Some trees are rare, protected and historic at the same time.

Discovery road

- 01. *Pinus bungeana*** Lacebark pine with very attractive coloured bark.
- 02. *Nannorrhops ritchiana*** Subjects with such dimensions are found in only two botanic gardens in Europe.
- 03. *Encephalartos horridus*** All the species of the order Cycadales are on the red list of the Washington Convention.
- 04. *Brahea edulis*** A palm tree with edible fruit originating from Guadalupe Island (Mexico).
- 05. *Eucalyptus dorriigoensis*** This tree, which is one and a half century old, is the largest and most symbolic tree in the garden.
- 06. *Pittosporum procerum*** Species described by Charles Naudin, based on these two specimens, which are more than a hundred years old.
- 07. *Arbutus andrachne*** Strawberry tree from the western Mediterranean basin with a bright red trunk.
- 08. *Livistona decipiens*** This is one of the most elegant of its kind.
- 09. *Agathis robusta*** The Queensland kauri pine is an Australian conifer with smooth bark and large leaves.
- 10. *Cinnamomum camphora*** A large, hundred-year-old camphor tree with several trunks.
- 11. *Melaleuca linariifolia*** Introduced into France by the Baudin expedition. Planted in Nice, for the first time, in 1804.
- 12. *Arbutus x andrachnoides*** Natural hybrid strawberry tree.
- 13. *Arbutus canariensis*** The Canary strawberry tree flowers right through the winter and loses its red bark at the end of the spring.
- 14. *Cupressus macrocarpa*** The Monterey cypress (California) rarely attains such dimensions on the Atlantic coast, where massive plantations have been established.
- 15. *Quercus ilex*** This native oak was around when the Villa Thuret garden was created.
- 16. *Quercus canariensis*** Algerian oak, a species that grows naturally in southern Spain, Portugal and North Africa.
- 17. *Taxodium mucronatum*** Individual grown from a cutting taken from the tree reputed to be the largest in the world, the Árbol del Tule. This tree, located in the town of Santa Maria del Tule in Mexico, is more than 2000 years old and has a diameter of 14 metres.
- 18. *Carya illinoensis*** The pecan tree belongs to the walnut family. It is grown for its seeds (pecan nuts).
- 19. *Eucalyptus kartzoffiana*** This vulnerable species was discovered in South-East Australia in 1968.
- 20. *Afrocarpus mannii*** This family of conifers originates exclusively from the southern hemisphere. Several of its species are protected.
- 21. *Phoenix sylvestris*** The tamarind tree tolerates the cold well, but is rarely seen growing in France.
- 22. *Cedrus atlantica*** Atlas cedar with an imposing, upright habit. This species is in danger in its area of origin.
- 23. *Eucalyptus x antipolitensis*** Historic hybrid dedicated to the town of Antibes.

24. *Araucaria bidwillii* The bunya pine is endemic to East Australia. Its female cones may grow to sizes greater than that of a rugby ball. The seeds are edible, boiled or grilled.

25 et 26. *Jubaea chilensis* Introduced by Naudin, these two 'twin' specimens have been dated and regularly photographed for more than a century.

27. *Eucalyptus x thuretiana* Historical hybrid dedicated to Gustave Thuret.

28. *Cupressus lusitanica x C. torulosa*

An exceptional collection of species of the genus *Cupressus* was assembled in the 1980s. This tree is recognised like an hybrid between *C. lusitanica* and *C. torulosa*.

29. *Cupressus guadalupensis* Cypress tree originating from Guadalupe Island in Mexico, with red bark that peels off in fine strips.

30. *Cupressus lusitanica* This species of cypress is native from Central America. Its local name is "*cedro blanco*". This fast-growing and drought tolerant evergreen conifer is also known as "*Mexican white cedar*".

31. *Pinus pinea* Stand of 27 stone pines planted at the creation of the garden. This pine wood is remarkable in terms of its size and for the phenomenon of crown shyness, which is clearly visible.



The collections: a living heritage and biological resources for the future

The collections of the botanic garden comprise 2500 trees and bushes from more than a thousand species, 150 botanic families and 450 genera. These plants, which originate from 380 major regions around the world, are all adapted to the Mediterranean climate. They were introduced in conditions respecting the conservation of biodiversity and international regulations.

The database of the Villa Thuret garden is used to manage all the available information about these plants and supplies data to other national databases, including that of the INRAE arbo-retum network.

A programme to renew the collections through themed planted areas took place between 1980 and 1996. Each year, new species are introduced, followed and studied, according to predefined protocols.

Environnemental data

- Area: 3,5 ha
- Geographical Coordinates (La Garoupe lighthouse): 43°33'51"N, 07°08'01"E
- Altitude: 20 to 40 m
- Exposure: slope with North-easterly exposure
- Soil: clay derived from decomposition of basic lava (augitic andesite). Deep, non-calcareous soil, poor in organic matter, rich in minerals; pH between 7 and 8,5
- Climate: mediterranean. Relatively mild winters, dry summers and heavy downpours in spring and autumn
- Predominant winds: North-easterly and westerly

Financial partners

