

Press information file

## National Botanic Garden of Belgium



**Something is growing in Meise!**

## A botanic garden?

Botanic gardens are among the least known scientific institutes. Often they are confused with parks; pretty plants and flowers, peaceful surroundings to take a walk.... But botanic gardens are much more...

## Plant blindness?

How often do we pay attention to plants? Usually they are but a simple green backdrop to our lives. Most of the time we ignore them. On a walk through the woods one squirrel is enough to make us forget the towering oaks.

But plants are crucial, no one, anywhere, can survive without plants for even a single moment. Green plants provide us with oxygen with every breath we draw. In the atmosphere this oxygen creates the protective ozone layer, sheltering us from the harmful ultra-violet radiation from the sun. Without plants we would suffocate and burn.

Almost all our food comes directly from plants; wheat, rice, corn, coffee, tea, fruit, vegetables, chocolate, wine and even beer, to name but a few. Even the meat we consume is linked to plants, cows eat grass after all.

Not only do we eat plants, we use them as building materials, we clothe ourselves with them, we use them as cosmetics and we even cure our illnesses with them. Plants provide us with wood, cotton, perfumes, cosmetics, pigments and medicines.

Our wild plants are indispensable in our daily environment; they purify water, stabilize and fertilize the soil. They offer us shade and mitigate the impact of climate and weather. In our gardens and parks they offer beauty, calm and inspiration.

Plants are there every moment of every day of our life and they influence us in countless ways.

**Without plants human existence simply would not be possible.**

## What does the Botanic Garden do?

Botanic gardens are the only kind of institutions that are solely devoted to the Plant Kingdom. We study plants simply because they are plants. The Mission of the National Botanic of Belgium is botanical, educational and ecological.



**Studying plants**



**Conserving biodiversity**



**Teaching about plants**

The work of the Garden in all these areas rests on our large collections. Not only does the Garden hold a vast collection of living plants, but also an herbarium and a library. Moreover, within the Garden there is also a vast body of knowledge and competences, accumulated through working with plants for over two centuries. The National Botanic Garden is one of the largest botanical gardens in the world.

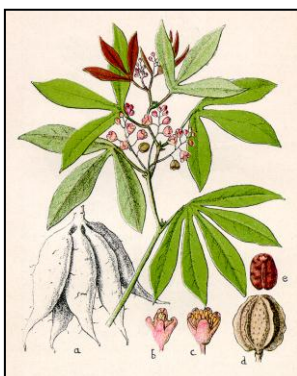
## The National Botanic Garden of Belgium is:



- Older than Belgium, our earliest roots can be traced to 1796, meaning that we have been working with plants for over two centuries
- A collection of about 18,000 different kinds of plants, comprising several threatened species like the wollemi pine (*Wollemia nobilis*) and the Laurent cycad (*Encephalartos laurentianus*)
- A historical domain of 92 hectares with a Castle from the 12th century
- A scientific institute with activities spanning the globe; from Antarctica till the rainforests of Gabon
- A research centre for the coffee family (Rubiaceae).

Recently one of our scientists discovered a new species of coffee plant (*Coffea charrieriana*), producing coffee beans with no caffeine, decaf straight from the plant.

- An internationally recognized seed bank holding the seeds of numerous wild bean species. A useful tool in agricultural research.
- A gigantic herbarium housing about 4 million specimens containing the largest rose herbarium of the world, and collections of seeds, fruits and wood samples.
- A botanical library holding over 200,000 volumes; from the 15th century till modern day publications., 45,000 monographies, 11,000 periodicals and numerous maps and plans.



- A collection of more than 60,000 botanical illustrations, containing beautiful examples from the hands of Redouté and Hélène Durand.
- A gene bank and a seed bank. Using the seeds from the seed bank the only Belgian endemic plant species, the brome of the Ardennes (*Bromus bromoideus*) was resurrected in 2005.
- A total of 60 glasshouses holding about 10,000 tender plants. In 2009 the renovation of the roof of the 13 large glasshouses of the Plant Palace was finished. The Evolution House traces the 450 million years of history of the Plant

Kingdom.

- Maintained "wild" areas in the Domain, here wild plant species like indigenous orchids find a protected home.
- Several gardens and arboreta among which a garden with medicinal plants, a rhododendron woodland and an oak collection of over 160 species.
- Six thematic guided visits for groups, one of which; "Behind the scenes" explores the day to day activities of the Botanic Garden.



# Something is growing in Meise!



- Workshops for schools.
- 200 collaborators; gardeners, scientists, illustrators, horticulturalists, historians, technicians and guides, working every day to study and protect the Plant Kingdom.
- More than 70 volunteers helping in the plant collections, but also aiding our researchers and welcoming our visitors.
- The central partner in a EU financed project to redevelop the Botanic Garden of Kisantu in the Democratic Republic of Congo.
- An active member of various national and international networks: PLANTCOL, a database to give the public a large access to the living collections of most Belgian botanic gardens and

arboreta; the European Native Seeds Conservation Network (ENSCONET) and the global network of botanic gardens, Botanic Gardens Conservation International (BGCI).

- A partner in implementing the convention of International Trade in Endangered Species (CITES) and the Rio Convention on Biological Diversity (CBD).



**Belgium holds about 1,400 indigenous plant species, the National Botanic Garden in Meise houses about 18,000 kinds of plants from all over the world.**



## The Mission of the National Botanic Garden: Studying plants

Like the other larger botanic gardens Meise has a specific set of tools to study plants. The large glasshouse complex holds many living tropical plants; species from cooler parts of the world thrive in the gardens, arboreta and collections in open air. The immense Herbarium and the extensive botanical library complement these living collections. The laboratories hold state of the art instruments.

The presence of all these elements in one locations enables scientists to study plants on various levels, they can work with living material, dried specimens from the Herbarium, look up information, analyse DNA or study seeds, they can study the relationships between plant species, their evolution, their distribution, their conservation status, their ecology or their use.

## Why all this research?



Agriculture, forestry and the pharmaceutical industry can benefit directly from the work done in Botanic Gardens. The methodical classification of plants often leads to the discovery and characterization of new plant species. The National Botanic Garden has been working on the coffee family for over a century. Round 1900 the robusta coffee (*Coffea robusta*) was characterized. This easy to grow species revolutionized the coffee industry.

Our work also enables us to better understand and measure global problems like climatic changes and environmental disturbances.

The scientific work of the National Botanic Garden focuses on the correct and scientific identification of plant species. What are the characteristics of a plant species? How many plant species are there? How do we distinguish one species from another? Without answers to these questions no economic activity based on plants or plant derived product could function. Knowing the correct scientific name of a species is the key that unlocks all information on a species. Correctly identifying a species helps us to recognize poisonous species from related medicinal ones. It helps us to establish if a plant species is threatened by extinction and in need of protection.

## Expeditions

The researchers of the National Botanic Garden regularly depart on expeditions to far-flung corners of the world like Madagascar and Greenland, exploring the biological diversity of the world. Africa remains the geographical centre of our research activities. For more then 75 years, for instance, our mycologists have studied the mushrooms of Benin, Gabon and Burkina-Faso. Not only do they study the fungi themselves, they also document the local use of these mushrooms. Working this way they ensure that the indigenous knowledge is written down and is made accessible to the local population.



On the other side of the world, on the islands surrounding the South Pole, our researchers study microscopic marine algae, gaining insight into historical climatic changes. The National Botanic Garden is also involved in the establishment of a Belgian zero impact scientific base on Antarctica. In January 2007 one of our researchers worked on the biological inventory on the site of the base.



## At home

The plants of country are also being scrutinized. Discovering new species is, of course, a rather rare event. But there are changes in the distribution and the composition of the flora of Belgium. Due to various influences like climatic change or human disturbance certain species are becoming very rare while a few others are expanding. New arrivals, like the giant hogweed (*Heracleum mantegazzianum*) from the Balkans, are becoming invasive and crowd out other species. In 2007 44% of our 1,400 indigenous species of plants was threatened in one way or another.

The Botanic Garden also edits the Flora of Belgium. This book contains the identification methods to correctly identify every species of plant in our country. The Flora is regularly updated.



**Together with the other Botanic Gardens the National Botanic Garden of Belgium works on a world wide inventory of the Plant Kingdom. Through the labour of our researchers we gradually compile a more detailed picture of the number of different species of plants, mushrooms, algae and mosses that surround us.**





## The Mission of the National Botanic Garden: Protecting plant species

The living collections of the National Botanic Garden comprise about 18,000 different kinds of plants. The various glasshouses hold around 10,000 kinds and the arboreta, gardens and collection areas in open air hold approximately 8,000.

## Conserving living plants

The Living collections hold several rare and threatened plant species, like the titan arum (*Amorphophallus titanum*) which produces an inflorescence of 2 meter high. Of some species, like the Laurent cycad (*Encephalartos laurentianus*), Meise probably holds the genetically most diverse collection of plants. Several orchids species like the Emerson lady slipper (*Paphiopedilium emersonii*) are on the brink of extinction.



Other plant species are extinct in the wild, ruthless collectors have wiped out the wild populations of *Mammillaria glochidiata*. Even tree species like franklinia (*Franklinia alatamaha*) have disappeared from the wild and now only hang on in the living collections of botanic gardens.

Several zones in the National Botanic Garden of Belgium are dedicated to the wild indigenous plants of our region. By differentiating the mowing regime of several of our lawns more wild plant species get the opportunity to complete their life cycles. Also fungi and animals are taken into consideration in the management of the grounds, they too, provide the base for a healthy environment, for humans too.

## The Seed Bank, a world reference

The Garden manages a unique seed bank of wild bean relatives. In this global reference collection the seeds of hundreds of species and varieties are stored. Using specialized drying and cooling techniques the seeds retain their viability for at least a hundred years. Important genetic characteristics like disease resistances are safeguarded and can be used by agriculturalists and plant breeders. Beans, and their relatives, are very important food crops. Their seeds are rich in protein and are often called vegetable steaks. These plants are allies in combating hunger worldwide.

Using similar techniques the seed bank also conserves the seeds of numerous Belgian rare plants

## The kiss of life

In 2005 an almost extinct plant species was literally resurrected. The researchers in the seed bank managed to get the last seeds of the brome of the Ardennes (*Bromus bromoides*) to germinate. This plant species is extinct in the wild and was a true Belgian endemic. Maybe these plants can one day return to their natural environment.



## What if we run out of plants?

Plants are a vital resource for humankind, managed in a durable way they are infinitely renewable. Even common weeds still hold many surprises and hidden treasures. A few years ago an inconspicuous plant, annual wormwood (*Artemisia annua*) was found to contain a new and efficient anti-malarial drug: artemisine.

**We can only use the plants that we have and we can only conserve the plants that we know. The work of the National Botanic Gardens helps us to safeguard plants species worldwide. It is our duty to ensure that our children inherit a botanically rich and varied world, filled with fascinating plants.**





## The Mission of the National Botanic Garden: Teaching about plants

On a yearly basis approximately 120,000 people visit the Garden. Most of our visitors come to explore the Glasshouses and the gardens, but, of course, there is more. For a long time our scientists have climbed down from their ivory tower, they fully realize the importance of sharing their knowledge, passion and enthusiasm with the public. The National Botanic Garden has developed a range of tools to spread knowledge about plants and to raise public awareness about plant conservation.

Our website [www.botanicgarden.be](http://www.botanicgarden.be) offers an overview of current activities in the Garden. Visitors can also find practical information on how to visit the Garden. Teachers and groups find all the tools to organize a successful and exiting excursion.



Our seasonal digital newsletter 'Musa' reports in Dutch and French on the work of the garden and presents highlights in the plant collections.

The plant displays in our living collections are often thematic; economical plants, plant evolution, medicinal plants. Information signs give further explanation. The Evolution House traces the 450 million years of history of the plant kingdom. In an age where fundamentalist voices are attacking the very foundations of science it is important to show how the first tree looked like or the very first flower.

A range of seasonal leaflets guide the visitor along several thematic walks and less known parts of the Garden. Magnolias, winter flowering plants, indigenous trees, the history of the Garden or edible plants are a few of the subjects.

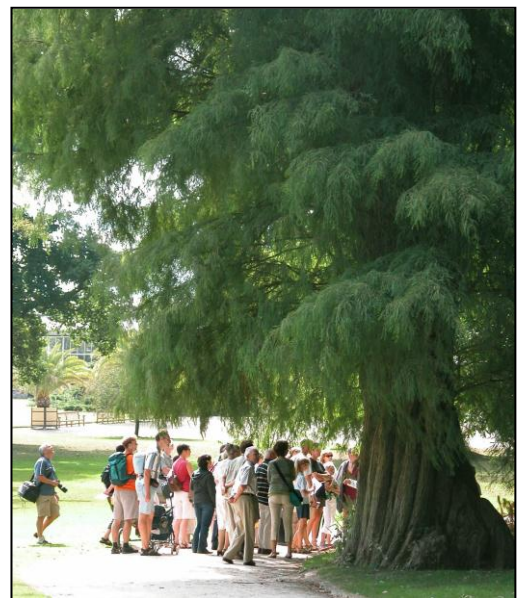
## Raising awareness

The Botanic Garden offers six thematic visits in five languages. There is a general visit, of course, but also a more in depth visit to the Plant Palace, the garden with Medicinal Plants or a visit "Behind the scenes".

The educational program comprises of workshops for school groups of all ages. Ecology, the tropical rain forest, evolution, or even "how to find a partner using plants?" are some of the subjects that are covered.

Temporary events like exhibitions of flower arrangement, garden fairs or picture exhibitions help plant lovers to discover the Botanic Garden.

Not only biology students but also agriculture, forestry, pharmacy, horticulture and art students can book a free visit to discover the professional side of the Garden and to meet our enthusiastic staff.



Year Card holders can visit the Garden as often as they want. Year Card Gold holders, individual or 1+3, get special attention and are regularly invited to discover unknown aspects of the Garden; a look behind the scenes, a meeting with our researchers or gardeners, or a preview on new developments. They also benefit from a reduction at the Garden Shop.

## Want to know more?

The botanical Library of the Garden can be consulted every Tuesday and Thursday and offers specialized information on botany but also books on general subjects like plant care.



## The Garden edits several journals and books:

"Dumortiera" (NL and FR) covers the flora of Belgium and surrounding areas.

"Systematics and Geography of Plants" is an international journal

"Opera Botanica Belgica" is a series of thematic monographs

The flora of Belgium is regularly updated in both national languages

In 2006 an Atlas of the flora of Flanders and Brussels was published.

A similar volume covering Wallonia is under preparation.

The Garden also regularly edits more general publications.

**In many different ways the National Botanic Garden raises the awareness that plants are a vital part of our environment, and that they are an essential renewable resource that needs to be protected**



# Something is growing in Meise!

## The National Botanic Garden of Belgium; a greener future for our planet?

Never in human history has basic knowledge about plants been more important than today. Plants are the foundation of a viable and healthy environment, but the plant kingdom is counting serious losses, about 40% of all plant species are threatened in one way or another. The past century has been devastating and more and more plants species are becoming extinct.

This biodiversity crisis is mainly caused by us humans. We recklessly waste energy and resources. We disturb natural environments with disastrous consequences, for ourselves but also for plant species. Climate changes, soil erosion, drought and pollution claim their victims. How much longer before the damage is irreversible?

But we have the solutions within hands reach; by sustainable management of our living botanical resources we can successfully keep our world intact and hand it over to our children.

Botanic gardens with their unique vision on the plant kingdom and their vast knowledge about plants are an indispensable tool in finding solutions to the problems our world and our societies face; the National Botanic Garden of Belgium is one of the largest botanical gardens in the world.

The National Botanic Garden holds a wealth of information on the ecology, the distribution and the uses of plants. The living collections offer a unique view on the plant kingdom in all its diversity and the passionate researchers and gardeners know, better than anybody else, how vital plants are.



## Practical information

National Botanic Garden of Belgium

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Open every day of the year at 9.30 a.m.

3 km from the Atomium

Highway A12 Brussel-Boom (Antwerp), exit 3 'Meise'

Public transport: take bus 250 or 251 of 'De Lijn' from Brussels North Railway Station or from Brussels metro station King Baudoin (metro line 6).

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