

BIODIVERSITY LOSS

“When I worked in Sabah in northern Borneo 35 years ago, 80% of the land was covered by original rainforest. Today, less than 2% of that forest remains. It's not just ecosystems and plants that have disappeared over time, but also the animals and tribes that once lived there, along with all their knowledge. We're all directly responsible to some degree for this deforestation because of the way we live our lives. Before, we had ecosystems that worked well, but, today, they've been completely eroded. The number one cause of biodiversity loss isn't pollution, it's the disappearance of ecosystems. In France, for example, 600,000 hectares are lost every 8 years. That's the size of an entire county, like Savoie. We artificialise... the land is no longer natural, plant life no longer has a place, so we shouldn't be surprised when climate incidents happen. Preserving vegetation is the basis of the system. With vegetation comes insects, birds... life creeps in and the climate is better regulated.”

Bruno David

“Every year, more and more species disappear. It's serious, because once they're gone, they're gone forever. They clearly had a role to play, surviving for so long, but we haven't been able to save them. It's a loss to humanity. And our knowledge isn't advancing as quickly as the rate of disappearance. It's hard to make people see what's really at stake. Fortunately, in the early days of humanity, plants were there. They've been our source of inspiration, giving everything to mankind. Plants are essential – we won't be able to survive without them.”

Christel Fiorini



LET'S MAKE A DIFFERENCE!

“Plants are the basis of life on our planet, from oxygen production to a range of ecosystem services, so we have to preserve them. Plants reduce heatwaves, especially in cities, by lowering temperatures. The pursuit of life on Earth depends on the plant world. And being interested in that world is also about becoming aware of its usefulness, and its fragility.”

Bruno David

“Everyone needs to play their part in increasing the number of native plants in their local area as this will help understand what's around us. It's also important to accept the idea that we need to allow wildflowers to grow.”

Christel Fiorini

IN CONCLUSION

“Nature is amazing. The solution to continuing life on Earth comes from that observation. Being amazed is very important. Being interested in this world is about remembering that plant life is fragile, even though it's the foundation of life on Earth.”

Bruno David

It's thought just 20% of the plant species on Earth are known to us – that's really not a lot. We absolutely must preserve this biodiversity, whether it's known to us or yet to be discovered.”

Christel Fiorini



MEET TWO REAL-LIFE BOTANISTS

WHY DID YOU BECOME A BOTANIST?

Christel Fiorini

“I've always loved plants. I've always been drawn to the different ways we can use them, whether that's in food, textiles, medicine... I studied plant biology and specialised in plants because I wanted to understand all the things plants are capable of producing. Then I specialised in phytochemistry for medical and cosmetic purposes. For me, you have to see plants in their natural environment. And you never really stop discovering – we're finding out new things all the time. A plant is a bit like a factory that's able to produce everything needed for an ecosystem to survive. When you're interested in plants, the hard part is that you're never finished discovering. You have to understand and protect ecosystems. Plants produce exciting things in certain environments that they simply don't produce elsewhere, because absolutely everything depends on their environment. They often produce things according to the defences they need to put up. Plants suffer less than you might think – they can adapt, camouflage themselves, produce poisons, and they even know how to stop other plants from growing... It really is survival of the fittest.”



“The more we know, the more we respect what's around us. The things we don't know about get less respect.”

Bruno David



Bruno David

“From around 4 or 5 years old, I've been fascinated by the diversity of the plant world. I would watch everything around me. Plants intrigued me. Animals too, but they were always a little too similar to humans for me. Plants have a mysterious side to them. I was convinced there were significant resources to be found in plants. Because they can't move, they've developed a whole bunch of strategies to survive. Plants are full of bioactive molecules capable of interacting with other living things to defend themselves against predators, which makes them very interesting. I decided to focus my studies on understanding how they work. I studied pharmacy, chemistry and, all throughout my career, I've worked with plants from a therapeutic point of view. It's not just humans who use plants for their health. For example, Muriqui monkeys in Brazil* use plants to increase and decrease their fertility. Plants have considerable powers. As a botanist and phytochemist, it's never felt like work to me. I've always been following my passion.”

*Brachyteles arachnoides

OUR INTEREST IN PLANTS

Being interested in plants, particularly in plants with practical uses (food, medicines, and so on), is a very old practice indeed.

In ancient Egypt, Queen Hatshepsut dispatched a major expedition to south-eastern Egypt in the 15th century BC to explore and bring back its 'wonders'. In particular, members of the expedition reportedly returned with uprooted frankincense trees in large baskets for transplanting.

In Greece, several centuries later, scholars such as Aristotle and his then pupil Theophrastus began studying the plant world and attempted to classify plants. The great scholar Aristotle became interested in plants and was the first to engage with the concept of ecosystems. Some of the characteristics he used to differentiate plants from one another are still valid to this very day. Theophrastus is considered the father of botany due to his publication of 'De historia plantarum', a book he wrote in the 4th and 3rd centuries BC.

Pliny the Elder (23-79) studied plants extensively and tried to bring together all the scientific and technical knowledge of the day in his 37-volume encyclopaedia, 'Historia naturalis'.

During the Renaissance period, observing nature finally became fashionable. Naturalists embarked on excursions and voyages around the world. Botany would go on to establish itself as a science at the end of the 16th century.

Pierre Belon (1517-1564) was one such botanical scientist. A relentless traveller, he brought countless plant and animal specimens back home.

With the discovery of America in 1492, naturalists' explorations soon extended to the New World and brought more attention to natural history. Teaching botany soon took hold in universities, and the first botanical (and no longer just medicinal) gardens appeared. It was during this period that herbariums first appeared as we know them today: collections of dried plants that can be studied by botanists all year round.

By the 18th century, new species were being discovered at an astonishing rate, so establishing a classification system and nomenclature was urgently needed.

It was Swedish botanist Carl Linnaeus (1707-1778) who came up with an ingenious new system. From 1 May 1753, it was decided to name plants using two words to identify the genus and species. Only afterwards was an abbreviation added to note the name of the descriptor, meaning the name of the person who first created the description.

Here's an example:

***Mimosa pudica* L., 1753**

Genus name: ***Mimosa***

Species name: ***pudica***

Descriptor: **Linne in 1753**

WHAT EXACTLY IS BOTANY?

“ Botany is the science of understanding plants. Human beings have always used plants, especially for food. Ever since ancient times, people have needed to classify them, name them, describe their characteristics... Thanks to Linnaeus, the nomenclature is now unambiguous, which means everyone can talk about the same plant. Otherwise, only having their common names in lots of different languages would cause great confusion. ”

Bruno David

“ It's as if we've created a universal dictionary. We classify plants, creating lists that become like references. For example, plants used for medical purposes must be able to be recognised according to botanical criteria, otherwise we risk making mistakes. That's why in botany, we describe the shape of leaves, flowers, and the general appearance of a plant, but we also then go further by researching what plants contain and what they can produce. ”

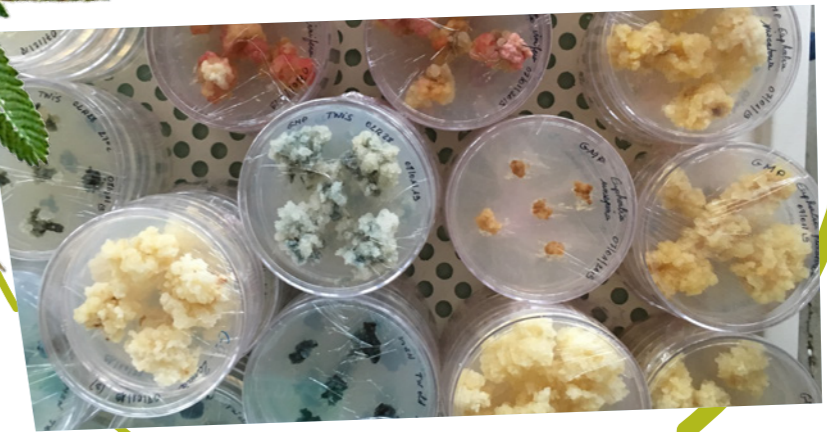
Christel Fiorini



WONDERFUL MEMORIES

Christel Fiorini

“ My best botanical memories are about getting to the heart of a plant, the microscopic sections, chloroplasts, these factories capable of producing oxygen – it's so impressive. It's the interior of plants that have always fascinated me and that continue to fascinate me every day. ”



Bruno David

“ I was lucky enough to try my hand at prospecting in Cambodia, which had lost all its herbariums and botanical research during the dark days of the Khmer Rouge (1975–1978). It was so exciting to be part of the rebirth of all that knowledge, especially at the Faculty of Pharmacy in Cambodia. In a country that still uses mainly plants for medicines, botany and identifying plants represent the key foundation for controlling phytomedicines and therapies. As such, we had to redo all the basic ground work for future Cambodian pharmacists to appropriate this vital botanical knowledge. ”

