BUDDING BOTANIST

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RE-WILDING

PARTS OF FRANCE'S VOSGES REGIONAL NATURE PARK

In forests, a re-wilding space is an area where nature is left to run its course naturally without human intervention. In France, over 90% of the country's forests are used for wood production. Just 0.2% are considered to be in their natural state!

In a re-wilding space, not only are the trees not cut down for wood, but they're allowed to age until they naturally die off...

Even then, they enjoy an afterlife as the forest rangers leave them to decompose and provide food for all the insects and other small creatures of the forest. A great idea, where by letting nature run its course without intervention, we create even more life!

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REMOVING INVASIVE PLANTS* IN THE FONTAINEBLEAU FOREST

France's Association of Volunteer Invasive Plant Removers was set up in 2012 with one key objective:

Fighting two invasive plant species* in the Fontainebleau forest: the black cherry (*Prunus serotina*) and pokeweed (*Phytolacca americana*).

The latter, imported from the Americas in the 17th century to bring some colour to certain wines, is often used as a decorative plant in people's gardens. However, it releases toxic substances that have an effect on the forest's flora, as well as its insects. Its seeds, carried by birds, colonise forests at an unbelievable rate. A single plant can grow to 4 metres in no time at all. Without intervention by the volunteer removers, the local flora in the Fontainebleau forest would be completely taken over by these two highly invasive intruders. To protect biological diversity, the fight against invasive species is a top priority!

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BUILDING AN ECOLOGICAL NETWORK, THE 'GREEN AND BLUE GRID'

A natural environment is a collection of animals and plants that live within the same space. For many years now, these natural environments have been sliced up and fragmented in order to make way for roads, car parks, shopping centres, and housing estates. This fragmentation is one of the leading causes of biodiversity loss. Since 2019, the 'green and blue grid' project, set up by the French Ministry of the Environment, has worked to limit this phenomenon whilst taking human activity into account.

The green and blue grid is an ecological network made up of natural land and aquatic spaces that relate to one another known as 'ecological continuities'.

They're designed to let animal and plant species move about to protect their life cycles (food, rest, reproduction, migration, etc.). Ecological continuities are 'biodiversity reservoirs', which need to offer natural spaces of a sufficient size and be linked to one another by 'ecological corridors'. Hedges are good examples of green grids.

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CREATING SEED BANKS TO SAVE THREATENED PLANTS IN MAURITIUS

Biodiversity is declining at breakneck speed. In every part of the world, plants are disappearing that we'll never see again. There's only one solution:

To effectively conserve seeds to protect the most fragile species, ensuring future generations will be able to revitalise them. Conservatories and botanical gardens all over the world are creating seed banks for that purpose.

Mauritius is the 3rd country in the world in terms of seeing the highest numbers of extinct species. Overcome by invasive species brought over by Dutch, French and English settlers from the 16th century onwards, Mauritius' endemic plants, numbering 300, risk being wiped out forever. Botanists from the Conservatoire botanique national de Brest (National Botanical Conservatory of Brest) in France are working to reintroduce around thirty endangered plant species from their collections, sometimes saved by just a few frozen seeds, so they can be replanted in different parts of Mauritius, mainly in national parks.

While some species like *Cylindrocline lorencei* have already taken root successfully, others remain harder to cultivate, even in their country of origin. Currently, the Conservatory is working to preserve one of the island's endemic palm trees, *Hyophorbe amaricaulis*, the only single surviving specimen of which can be found in the Curepipe Botanical Garden.

*An endemic species lives in a specific region. We say it is endemic to that region. Endemic plants from Mauritius only grow naturally in Mauritius.

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RE-GREENING URBAN SPACES: THE 'HAPPY VALLÉE' PROJECT IN PARIS

Today, a 20 km motorway connects Paris with Roissy. A real ecological desert! That was until some very ambitious minds, led by Gad Weil, came together to transform this grey and noisy space into an agro-ecological valley to make road users happier, improve the well-being of local residents and, above all, protect the area's animal and plant inhabitants! The idea of the 'Happy Vallée' project is simple:

Transform the space along the motorway, plot by plot (there are twenty in total) to create an ecological beltway.

Hives and flowery meadows for the bees, rolling pastures for the sheep and rabbits, community horticultural gardens, hills and cultivated fields, urban farms and even rooftop vegetable gardens... all great ideas that could be implemented to transform these spaces and help animals, plants, insects and bees return to the area.

Bringing nature back into our cities helps clean the air (by absorbing CO_2 and producing the oxygen we need to breathe, what we call photosynthesis), reduce ambient temperatures (cities are hotter than the countryside, because of the lack of nature), but also limits stress among local residents.

© Happy vallée

© Happy vallée

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REWARDING PESTICIDE-FREE GARDENING

Since 1 January 2019, consumers in France can no longer buy, use or store chemical pesticides* for gardening or weeding. And that's a big step forward, because a natural and well-balanced garden is a more resilient garden!

Rewarding municipalities that maintain the green spaces and flowerbeds in the public spaces they're responsible for without pesticides, that's what the 'Healthy Land' programme created in 2014 is all about.

More than 5,000 local authorities in France have already achieved this status! Alternatives have been found and new plantations have helped promote a return to greater biodiversity. All the following tips and tricks are useful, regardless of the size of the natural space you have available:

– plant local species,
– use plants and beneficial organisms* to combat diseases and pests,
– plant as many different species as possible,
– use mulch to limit weeding and protect your plants from greedy little garden visitors.

* A pesticide is a product used to destroy certain organisms that attack crops: insects, mould, bacteria, herbs...

* A beneficial organism is an organism that helps crops, for example, ladybirds help because they eat aphids that damage crops.

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RESTORING WETLANDS IN ARGENTINA

In Argentina, to the north of Buenos Aires, the Rio de la Plata delta was once a pristine ecosystem, rich and teeming with life. The biodiversity there was unique. On the wetlands bordering the rivers, you'd find the dense forest of Monte Blanco, where moss, lichens, grass, vines and trees all rubbed shoulders in perfect harmony.

But tourism, agriculture, deforestation, inappropriate planting and changes to watercourses have all massively affected the Monte Blanco forest. The vegetation of the past has disappeared to make way for less diversified vegetation, which is also less specific to wetlands. Restoring this great forest of the past, and finding space for all the unique vegetation once again, seems like an immense undertaking!

The first step involves building some small islands in the water where plants can be planted, in the hope the forest will 'spring to life'.

The idea is that we'll then see these islands come together, influenced by the plants growing on them, creating a sort of 'organic corridor', populated by the flora and fauna once found there. The project is taking place in a nature reserve already working on environmental protection and eco-responsible tourism: the Delta Terra. There's even a small rescue centre for wild animals! The Buenos Aires Botanical Gardens and BGCI (Botanic Gardens Conservation International) are coordinating operations.

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CREATING MIYAWAKI FORESTS: THE SILVA PROJECT

When you want to encourage the natural rebuilding of a forest, it's always best to use local species and vary the tree species you plant as much as possible. That's exactly the approach the Silva Project took when first rolled out in several municipalities in the Tarn region of France, following in the footsteps of Japanese botanist Akira Miyawaki. The concept is fairly simple:

Plant lots of local species very closely together (around thirty species or so), then let nature take the wheel. Forests naturally regulate themselves, and a diverse range of plant species will attract a diverse range of animal species.

The Miyawaki method is fantastic for biodiversity and tree growth in a Miyawaki forest is 10 times faster than in traditional, single-species forests. The aim of the Silva Project, launched back in 2018 by Yann Roques, is to plant a new 5,000-tree Miyawaki forest every year with the help of citizen volunteers.

Miyawaki forests are also very interesting when it comes to re-greening our cities, because they're suitable for smaller spaces.

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BUILDING THE GREAT GREEN WALL IN THE SAHEL

In the Sahel, the desert has been gaining ground for dozens of years now, slowly diminishing the forest as it grows. Its progression has led to the displacement of certain parts of the population, and the worsening of poverty. Out of all this came a crazy project idea:

To recreate a new green beltway, running across the entire African continent. A long green strip connecting Dakar with Djibouti, more than 7,000 km of vegetation around 15 km wide, all designed to slow the advancing desert.

11 African nations came together and decided to take up the challenge, creating the Pan-African Agency of the Great Green Wall. A number of associations and institutions, like the French National Centre for Scientific Research, have committed to supporting this programme.
To push back the desert, you need plants capable of surviving the extreme conditions of the Sahel, such as the desert date (*Balanites aegyptiaca*), acacias (*Acacia senegal*, *Acacia seyal*) or the Indian jujube tree (*Ziziphus mauritiana*).
In Senegal, where the project has been under way for over 10 years now, more than 45,000 hectares of desert have already re-greened, where life is bouncing back!

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PLANT WILD, PLANT LOCAL

Local nature brings together the various animal and plant species that live all around us. These include, for example, the birds in our garden, the wild flowers you see on a walk... Local plant species have many advantages, because they're already adapted to the local soil and climate, which means they can play an important part in preserving local biodiversity. Today, this biodiversity is threatened by use of pesticides, soil degradation and land-take, the proliferation of invasive species that come from the other side of the world, the standardisation of species (e.g. Thuja hedges and pine forests)... In a bid to preserve our precious natural spaces, a large number of associations have been created to:

Share skills and take action to preserve local plant species.

A collective brand has been created in France, for example, by the French Agency for Biodiversity: 'Végétal Local', certifying that the seeds you're planting have been locally harvested and are therefore perfectly well suited to the biodiversity of your particular region.

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DEVELOPING AGROFORESTRY TO PROTECT THE AMAZON RAINFOREST

The Amazon rainforest (the biggest tropical rainforest in the world, with one of the richest biodiversities on the planet) has been plagued by significant deforestation for many years. More than 11,000 km^2 of tropical forest disappeared in 2020 alone. A number of associations and NGOs are working in the various affected countries (mainly Brazil, but also Bolivia, Peru, Columbia, Ecuador, etc.) to fight the different root causes of this deforestation.

In Ecuador, the Ishpingo Association (from the local word for Amazonian cinnamon) is teaching indigenous Kichwa farmers to reforest in a sustainable way, helping crops and the forest live side-by-side in harmony.

Rather than continuing to fell trees from the main forest to sell or recover land for monoculture farming, support and awareness work is being carried out to replace trees in affected areas. This is what's known as agroforestry: plots already cultivated for food (cassava, corn, coffee, etc.) are reforested (with fruit trees, trees designed to be felled in the longer term for their wood, etc.). They plant at least 15 different species per orchard, to promote biodiversity, with endangered trees given priority. This method of agroforestry cultivation provides a better yield for the plots, a more varied diet, along with better living conditions for local people.
The Ishpingo Association also works in schools to educate children about local biodiversity and how to preserve it.

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GIVING LOCAL CITIZEN PROJECTS A VOICE: UNESCO GREEN CITIZENS

All over the world, citizens are leading local initiatives to save the planet, whether that's preserving forests, oceans or wetlands, supporting entire ecosystems, or raising awareness of sustainable agricultural practices, to name but a few.
To promote some of these amazing initiatives, but also to inspire others who are eager to get involved, UNESCO (the United Nations Educational, Scientific and Cultural Organisation) launched the 'UNESCO Green Citizens' campaign.
Every year, 100 citizen initiatives are selected by a panel of UNESCO experts to receive the 'UNESCO Green Citizens' award and be showcased on the project's dedicated website.

The goal is to spread these ideas for change around the world, inspiring other citizens, associations, businesses, and volunteers to get involved.

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