LEVERS

LEARNING VENTURES FOR CLIMATE JUSTICE



FIELD GUIDE

TECHNICAL SPECIFICATIONS

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Authors: Rita F. Patarra, Carolina Costa, Filipa Silveira, André Ruela, João Santos, Paulo Amaral, Susana Cabral, Vera Gouveia, João Paulo Constância, António M. de Frias Martins

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https://leversforclimate.eu

I AM...



Name

Age

Kingdom

Species

School

Class

City

Island

I dream to be ...

I like to discover about ...

THE LEVERS PROJECT: BIODIVERSITY NICHES

The European project LEVERS (Learning Ventures for Climate Justice), led by Trinity College Dublin (Ireland), has education as its central premise and seeks to promote climate justice and empower citizens in a cross-cutting, flexible, and inclusive way on environmental issues, so that they can take an active role in creating a more sustainable future.

In Portugal, the actions were coordinated by Expolab - Centro Ciência Viva, with the development and implementation of the educational project "**Biodiversity Niches**," aiming to promote a greater understanding of the importance of maintaining resilient biodiversity as a way to mitigate climate change, starting with the creation of Laurissilva gardens in schools.

This initiative was developed in partnership with various Eco-School projects, involving students, teachers, and several local partners, in an integrated approach of environmental education, citizen science, and community engagement.

In this field guide, in addition to learning more about the Laurissilva forest, you will be able to record all the stages of the implementation of this project in your school!

THE LAURISSILVA FOREST

The **Laurissilva forest** is the name given to a type of humid subtropical forest, composed mainly of trees from the laurel family and endemic to Macaronesia (the region formed by the archipelagos of Madeira, Azores, Canary Islands and Cape Verde). In the past, it occupied vast areas of Southern Europe and the Mediterranean basin. In the Azores, its extent has been greatly reduced due to use by the population, having been replaced over time by agricultural and forestry crops. Currently, it is found in isolated patches on all the islands, the most significant being in the Central Plateau of Pico, in the Serra de Santa Bárbara on Terceira and in the northeast of São Miguel.

Why protect?

The **biodiversity** of the Laurissilva forest encompasses different life forms, from microscopic organisms, shrubs, insects, and animals, to the largest trees, and plays a crucial role in maintaining our food sources, soil health, water systems, climate patterns, and the quality of the air we breathe, also acting as a **natural defense against climate change**. Conserving and restoring these natural environments, as well as the biodiversity they contain, is essential!




TOP 10
plants of the
LAURISSILVA
FOREST

Azorean holly

Endemic

Ilex azorica Gand.





Common name Holly, Perry

Height up to 14m

Altitude mainly between 300 and 1300 m altitude

Description

A tree with small, evergreen, glossy leaves, up to 6x5 cm, with pinkish-white flowers and fruits that are initially green and then red when ripe.

Curiosities

A natural resource of the Azores. It has great ecological importance, being an essential food source for the Azores Bullfinch (*Pyrrhula murina*) - an endemic bird. It is also used as an ornamental plant (used in Christmas decorations).

Azorean heather

Endemic

Erica azorica Hochst. ex Seub.





Common name Heather, Bush, Broom

Height up to 6m

Altitude up to 1700m

Description

Small tree or shrub with narrow, light green, soft leaves, up to 1 cm long. Greenish flowers tinged with red and fruits in dry capsules.

Curiosities

A natural resource of the Azores. Traditionally used as firewood, charcoal, and brooms.

Azorean picconia

Endemic

Picconia azorica (Tutin) Knobl.





Common name Azorean Picconia

Height up to 15m

Altitude up to 700m

Description

Shrub or tree with smooth bark, with large, smooth, evergreen leaves, up to 6x3 cm. The flowers are small and white, and the fruits are fleshy (green and dark blue when ripe).

Curiosities

Natural resource of the Azores. Used in the feeding of livestock and poultry (fruit). Wood used in construction and carpentry.

Azorean buckthorn

Endemic

Frangula azorica Grubov





Common name Azorean Buckthorn

Height up to 100m

Altitude between 500 to 700m

Description

A small tree with deciduous, feather-like leaves, up to 15x8 cm. The flowers are light yellow, solitary, with 4 to 5 petals, and the fruits are red to black when ripe.

Curiosities

A natural resource of the Azores. The branch is used as feed for livestock in silvo-pastoral systems, and the fruit resembles cherries. The wood is used in construction, and the bark can also be used in dyeing.

Short Azorean juniper

Juniperus brevifolia (Seub.) Antoine

Endemic





Common name Short Azorean juniper

Height up to 12m

Altitude up to 1500m

Description

Shrub or low tree with a broad crown, needle-like, rough leaves, up to 10x2 mm, and an aroma similar to that of pine.

Curiosities

A natural resource of the Azores. It is the only coniferous plant that was not introduced to the region. The wood has traditionally been used for various purposes, such as repelling clothes moths and in the construction of violas, boats, roof frames, windows, tools, wine barrels, galoshes, handicrafts, among others.

Azorean viburnum

Endemic

Viburnum treleasei Gand.





Common name Azorean Viburnum

Height up to 4m

Altitude between 300 a 800m

Description

Shrub or small tree, with evergreen leaves and wavy surface, up to 8x5 cm. The flowers are white and pink, where dense clusters of shiny dark blue fruits (when ripe) are formed.

Curiosities

Natural resource of the Azores.

Azorean laurel

Endemic

Laurus azorica (Seub.) Franco





Common name Azorean Laurel, Wild Laurel, Bay Tree

Height up to 15m

Altitude between 100 to 900m

Description

Evergreen tree with long, lance-shaped leaves, up to 15x8 cm, with a characteristic aroma. The flowers are yellowish-green and the fruits are black when ripe.

Curiosities

A natural resource from the Azores. Used as an ornamental plant at Christmas, and its wood was used to manufacture tools and handles for agricultural implements.

Azorean blueberry

Endemic

Vaccinium cylindraceum Sm.





Common name Mountain grape, Wild grape, Grape tree, Romania

Height up to 5m

Altitude between 300 to 1300m

Description

A deciduous shrub or small tree, up to 3x5 cm. The flowers can have white, pink, or red petals, and the fruits are initially green, turning dark blue when ripe.

Curiosities

A natural resource of the Azores. The fruits are used for food, and can be eaten raw or used in the making of sweets.

Firetree

Native

Morella faya (Aiton) Wilbur





Common name Firetree, faya plant

Height up to 20m

Altitude up to 1000m

Description

Evergreen shrub or tree with leaves up to 10x3 cm. Its flowers can be yellowish-green or pinkish. The fruits, similar to small blackberries, are initially green, turning red and finally black when ripe.

Curiosities

A natural resource of the Azores. The fruit is traditionally used in the making of jams and liqueurs, and is an important food source for birds. The wood is used in charcoal production, industry, and agriculture.

European chain fern

Native

Woodwardia radicans (L.) Sm.





Common name European chain fern

Height up to 180cm

Altitude up to 600m

Description

A robust fern that can reach up to 250 cm in height. Its leaves (fronds) are drooping.

Curiosities

A natural resource of the Azores. Its arched fronds develop "buds" (gems) at the tip, capable of giving rise to new plants when in contact with the soil, which gives it its name. It is also a food source for the Azores bullfinch - an endemic bird.

My school **garden**



Date: ___/___/____

Paste a photo of your garden here.

My notes

What species?

My school **garden**



My notes

Garden
Monitoring



Date: __/__/____

Required material



Tape measure



Caliper



Pencil

Registration table

Phytosanitary status (FS)			
Good (G)	Reasonable (R)	Bad (B)	Dead (X)

Plate ID	Plant	Height (cm)	Basal diameter (cm)	FS

Garden **Monitoring**



Date: ___/___/____

Plate ID	Plant	Height (cm)	Basal diameter (cm)	FS

Playgrounds with **life**



Date: ___/___/____

What living beings inhabit your school garden?

How are we going to investigate?
How are we going to proceed?

IDENTIFICATION OF ANIMAL PHYLA

0	Animals with spinal column	VERTEBRATES
0	Animals without a spinal column	GO TO 1
1	With articulated legs and a body covered in chitin	ARTHROPODS
1	No articulated legs	GO TO 2
2	Soft body protected by a visible shell	MOLUSCANS
2	Soft body, without a shell and with locomotor britles	ANNELIDS

IDENTIFICATION OF VERTEBRATE CLASSES

0	Bare-skinned; 4 legs; live on land and in water; oviparous	AMPHIBIANS
0	Animals with fur, feathers, or scales	GO TO 1
1	With fur; 4 limbs; offspring feed on milk	MAMMALS
1	Hairless	GO TO 2
2	With feathers and a beak-like mouth	BIRDS
2	Without feathers	GO TO 3
3	With scales/plates originating from the superficial layer of the skin; creeping movement	REPTILES
3	With scales or plates originating from the deep layer of the skin and with fins	FISH

IDENTIFICATION OF ARTHROPOD CLASSES

0	Animals without antennae and with four pairs of legs	ARACHNIDS
0	Animals with antennas	GO TO 1
1	With two pairs of antennae; five pairs of legs	CRUSTACEANS
1	With a pair of antennas	GO TO 2
2	With three pairs of legs	INSECTS
2	With one or two pairs of legs on each segment	GO TO 3
3	With a pair of legs on each segment	CENTIPEDES
3	With two pairs of legs on each segment	MILLIPEDES

Playgrounds with **life**



What did I observe?

My conclusions:

Chat with the **scientist**



Date: ___/___/____

Name

Research area

My notes

Today I present my

garden



Date: __/__/__

My notes

Glossary



Climate Change - These are significant changes in the climate that have been occurring in the world over time. They imply the observation of a trend in the variation of the climate pattern over a relatively long period (30 years). On this time scale, small local or even annual variations are of little relevance.

Biodiversity - The variety of life within a system. It can be of the world, of ecosystems, of species, or the genetic diversity among organisms of a species.

Ecology - The science that studies the relationships of living beings with each other and with the environment that surrounds them.

Ecosystem - A natural unit that includes living and non-living components, interacting to produce a stable system.

Environmental Education - Environmental education is a process of recognizing natural values through which humans establish a relationship between their culture, their biophysical environment, and the fulfillment of various norms of social conduct. It translates into the acquisition of knowledge, the attitude towards situations, and the capacity for evaluation and participation.

Glossary



Endemic Species - Endemic species are those that are limited to a specific geographic area and are not found in the wild anywhere else in the world.

Exotic Species - These are species that establish themselves in a particular location but are not native to that location. These species can establish themselves through human intervention – intentionally or unintentionally – or through natural phenomena. However, exotic species may not exhibit invasive behavior.

Invasive Species - These are exotic species that, when introduced into other territories, manage to adapt, establish themselves, reproduce, and spread until they colonize the environment, form new populations, and cause impacts on biodiversity, health, and/or the economy.

Native Species - These are species that are naturally found in a particular ecosystem or region, having evolved locally without human interference.

Fauna - The set of animal species that inhabit a country, region, district, station, or geological period.

Flora - The set of plant species that exist in a country or region.

Glossary



Laurissilva Forest - This is the name given to a type of humid subtropical forest, composed mainly of trees from the laurel family and endemic to Macaronesia, the region formed by the archipelagos of Madeira, Azores, Canary Islands, and Cape Verde. In the past, it occupied vast areas of Southern Europe and the Mediterranean basin.

Environment - The set, at a given moment, of physical, chemical, biological agents and susceptible social factors that can have a direct and indirect effect on living beings and human activities.

Scientific Name - The scientific name is a unique and precise international nomenclature, written in Latin (or Latinized), which avoids confusion between regions and languages. The scientific name is composed of two parts: the genus and the species.

Common Name - The common name is the popular designation of a species in a local language, which may vary from region to region.

Glossary

Environmental Sustainability - Consists of maintaining the functions and components of the ecosystem in a sustainable way, and can also be defined as the capacity of the natural environment to maintain living conditions, taking into account habitability, the beauty of the environment and its function as a source of renewable energy.



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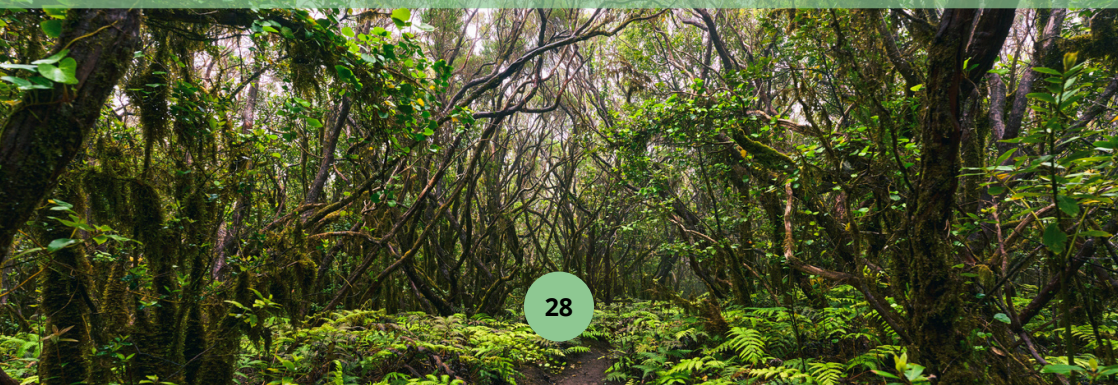

My **notes**



Date: ___/___/____

My **notes**



Date: __/__/____

My **notes**



Date: __/__/____

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