

ENGLISH



*Documentation Project of
the Biodiversity from Municipio de
Livingston, Izabal*

Session 7/8

Find it in Livingston

Aquatic plants and ferns

1. Herbs, vines and epiphytes
2. Tropical trees and shrubs
3. Insects, amphibians and other creatures
4. Parks and Reserves in the Caribbean
5. Tropical Animals
6. Palms
7. Aquatic plants and ferns
8. Mushrooms and lichens

CONTENT

- General introduction
- Specific data for this group of flora
- Location of species on the FLAAR Mesoamerica catalog

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the Biodiversity from Municipio de Livingston, Izabal*

Glossary

Catálogo de Hojas de Contacto
Julio, Agosto y Septiembre

Macrophytes: plants that grow in or near water and are emergent, submerged, or floating. In lakes and rivers, macrophytes provide cover for fish, substrate for aquatic invertebrates, produce oxygen, and act as food for some fish and wildlife.

Fern: herbaceous, shrubby or arborescent plant, depending on the species. The correct name of its leaves is called fronds. They are lanceolate, abundantly ribbed and joined at the base and reproduce by means of spores.













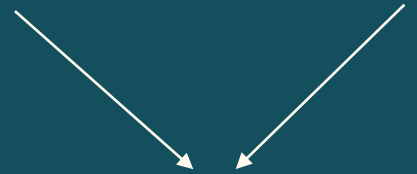


Pontederia cordata

Photo by: David Arrivillaga, FLAAR Mesoamerica, Feb. 15, 2020, 2:14 pm. Lagunita, Morales, Izabal.
Camera: Sony Alpha A9 II. Lens: Sony FE 90mm Macro G OSS. Settings: 1/250 sec; f/11; ISO 250.

Relationship between

Macrophytes - Ferns



WATER

(immersed, near clear or
salty water)

A close-up photograph of a white flower with a yellow center and a small dark beetle on it. The flower has five petals and a prominent yellow center with many stamens. A small, dark, elongated beetle is perched on one of the petals. The background is a soft, out-of-focus green.

Serie

Edible Plants of Wetlands

Edible Wetlands Plants of Municipio de Livingston, Izabal

Wetland Series 1: from Swamps, Marshes and Seasonally Inundated Flatlands of Izabal



Wetland Series 2: plants that grow along the beach shore of Amatique Bay



Wetland Series 3: plants that grow alongside water: rivers, lagoons, swamps, or ocean



Edible Wetlands Plants of Municipio de Livingston, Izabal

Wetland Series 1: from Swamps, Marshes and Seasonally Inundated Flatlands of Izabal



Edible Wetlands Plants of Municipio de Livingston, Izabal

Wetland Series 1: from Swamps, Marshes and Seasonally Inundated Flatlands of Izabal



Pontederia cordata – Edible Plants of Wetlands, Provided Food for the Classic Maya #6

Throughout this Photo essay you can discover the *Pontederia* plant. *Pontederia* is a native edible plant that the classic Mayans used to eat.

[Free download](#)

Categories: Edible Plants of Wetlands, Ethnobotany, Livingston Project

Tags: 2021, Edible Plants of Wetlands, FLAAR

Mesoamerica, Maya ethnobotany, *Pontederia cordata*

MACROPHYTES

Nymphoides indica (L.) Kuntze, Jardín Acuático, Municipio de Livingston



FERNS

Acrostichum aureum L., Creek Blanco, Municipio de Livingston



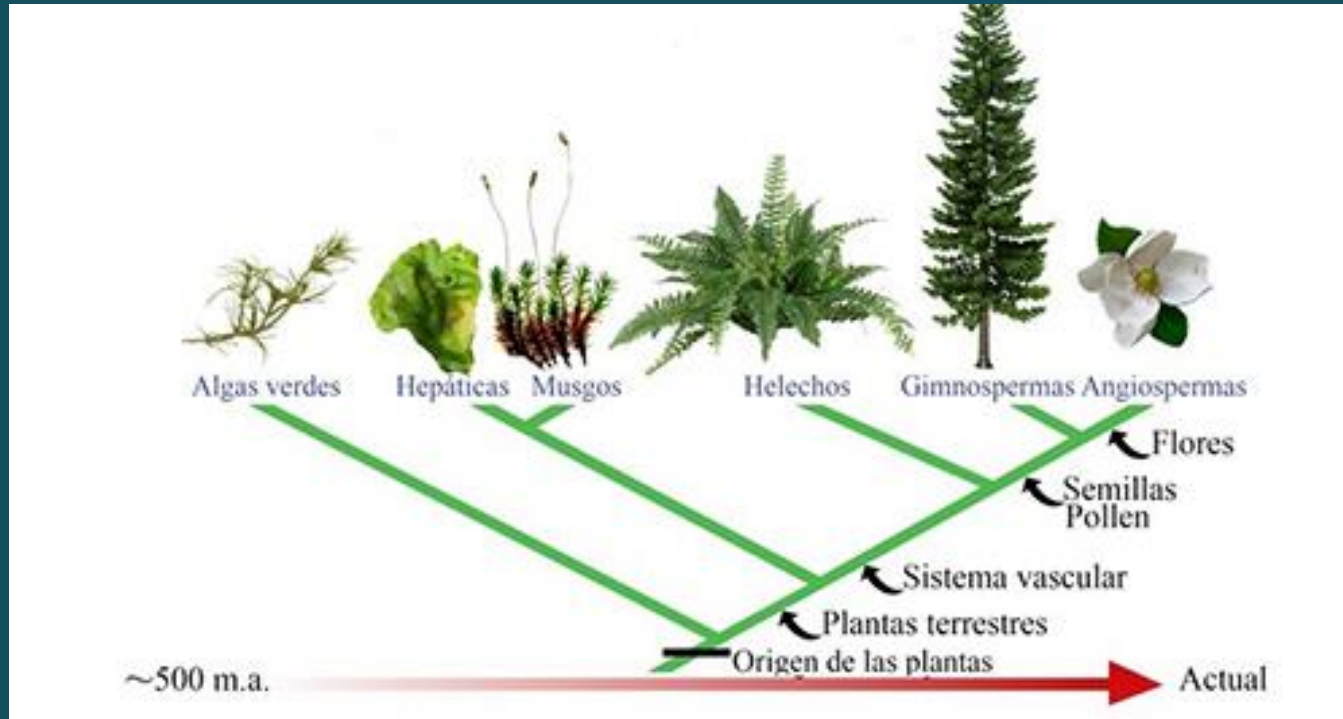
Aquatic Macrophytes and Ferns

Researcher Victor Mendoza



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EVOLUTION OF PLANTS





Phylum CHLOROPHYRA (green algae)

- Macroscopic
- Large amounts of chlorophyll therefore very important in the production of oxygen.
- 7,000 species with 13% marine. Common in shallow places with clear water
- They carry out much of the world's photosynthesis

Acetabularia are giant (0.5 to 10 cm long), marine, unicellular green algae with a characteristic umbrella shape.

SEEDLESS NON-VASCULAR PLANTS

Phylum BRIOPHYTA (mosses and liverworts)

- Lack roots, stems and leaves.
- Considered the transition between terrestrial and aquatic plants.
- It does not have a vascular system.
- Need water to survive and reproduce.
- Useful as bioindicators because they are very sensitive.
- In some countries it is used as fuel or as packaging material.
- Because they retain moisture, help the seeds of other plants to germinate and grow.





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SEEDLESS VASCULAR PLANTS

Phylum PTRIDOPHYTA (Ferns)

- Generally live in the tropics.
- Measure from a few cm to 18 meters in height.
- Have a well-developed root, stem, leaves and vascular system.
- Its reproduction is by means of spores produced on it instead of its fronds.
- Its stems are called rhizomes and produce roots in the ground generating new fronds.



CYATHEACEAE



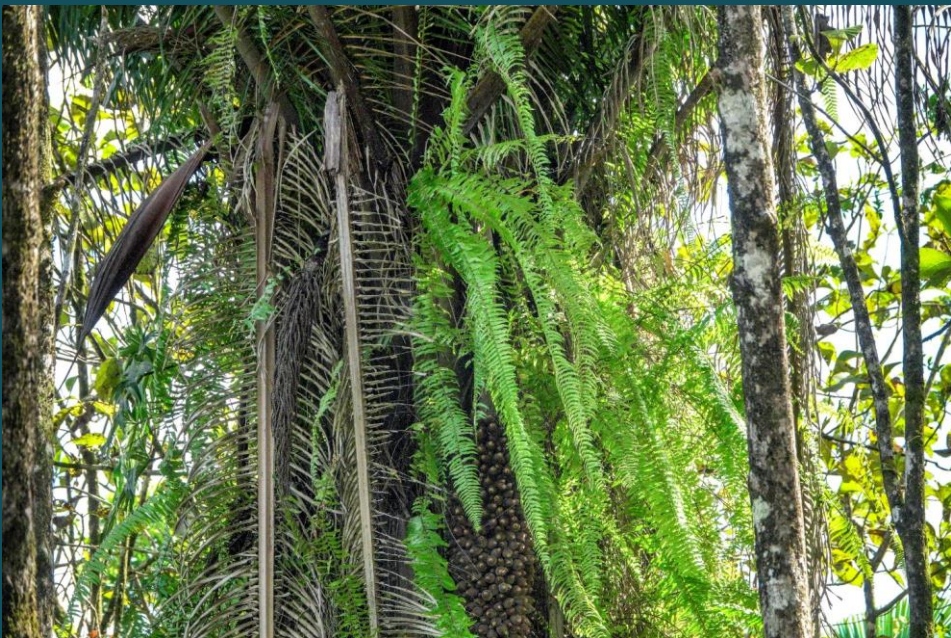
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Acrostichum sp. - Photo by Victor Mendoza - Manglares de Tapón Creek



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Nephrolepis sp. - Photo by Nicholas Hellmuth - Cañón de Río Dulce



Lomariopsis recurvata. - Photo by Nicholas Hellmuth- Cerro San Gil



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Phylum LYCOPHYTA (Lycopods, Selaginelas and isoetes)

Approximately 1,000 living species, classified into three orders

*Lycopodiales

*Isoethals

*Selaginellales: Small, grow horizontally on the ground, small and delicate leaves and cones.



Phylum SPHENOPHYTA (Horsetails)



Selaginella - Photo by Alejandra Gutierrez - Río Lámpara



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VASCULAR PLANTS WITH SEED COVER

ANGIOSPERMS

- Evolution of gymnosperms (130 million years)
- Dominant in plant life on the planet
- Adapted to different climates, both deserts, bodies of water, mountains and very cold climates.
- Represent the most important block of animal and human nutrition.



AQUATIC MACROPHYTES

Aquatic macrophytes are characterized by having adapted to aquatic life, which is why they have a thin epidermis, dysfunctional stomata and little lignified elements. They inhabit lagoons, dams, swamps, riverbanks, lakes and even the seas. These are important as they serve as a filter for nutrients in bodies of water, in addition to producing oxygen and can maintain the ecological balance in their aquatic habitat.

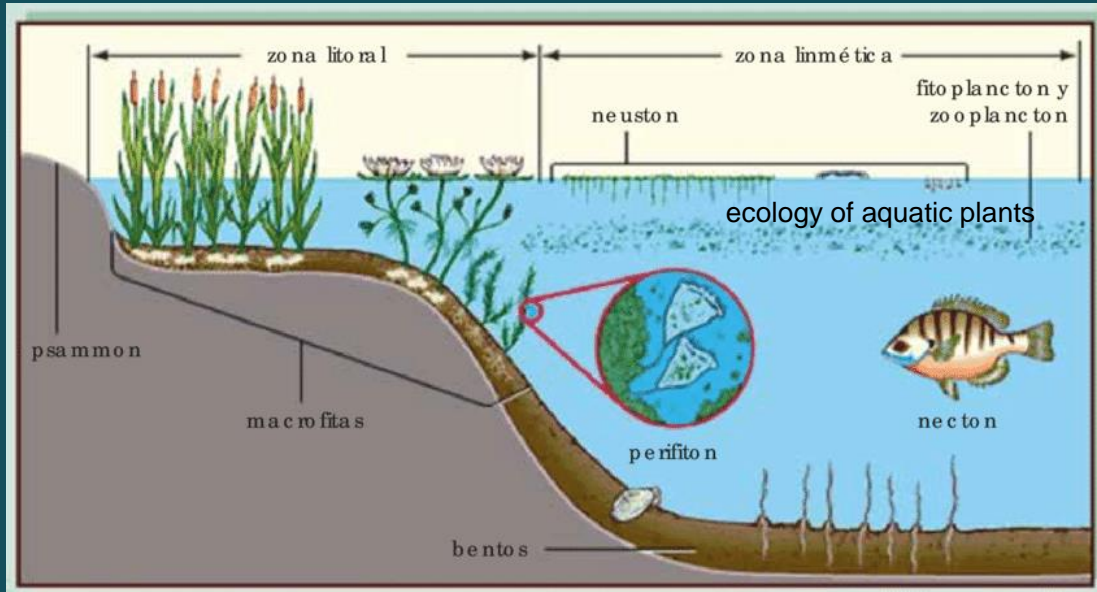


Nymphaea indica - Photo by Alejandra Gutierrez - Río Dulce



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Ecology of aquatic plants



horizontal stratification

- **Coastal Zone:** Interface between the land and the pelagic zone where there is great diversity and presence of light.
- **Pelagic zone:** also called limnetic, open zone, diversity suspended in the water.



Classification of Aquatic Macrophytes

Emerging Rooted Macrophytes



Have their roots at the bottom of the body of water, but their leaves and parts of the flora emerge from the water.



Typha domingensis- Photo by David Arrivillaga - Río Cáliz



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Floating Rooted Macrophytes



Rooted at the bottom of the body of water and their leaf and flower parts only float on the mirror of the water.

Nymphaea ampla - Photo by Nicholas Hellmuth - Laguna Grande Sarstún



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Submerged Rooted Macrophytes

Take root at the bottom of the body of water, and their leaf and flower parts are submerged in the water.



Potamogeton illinoensis - Photo by Victor Mendoza - Río Dulce



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Floating Macrophytes

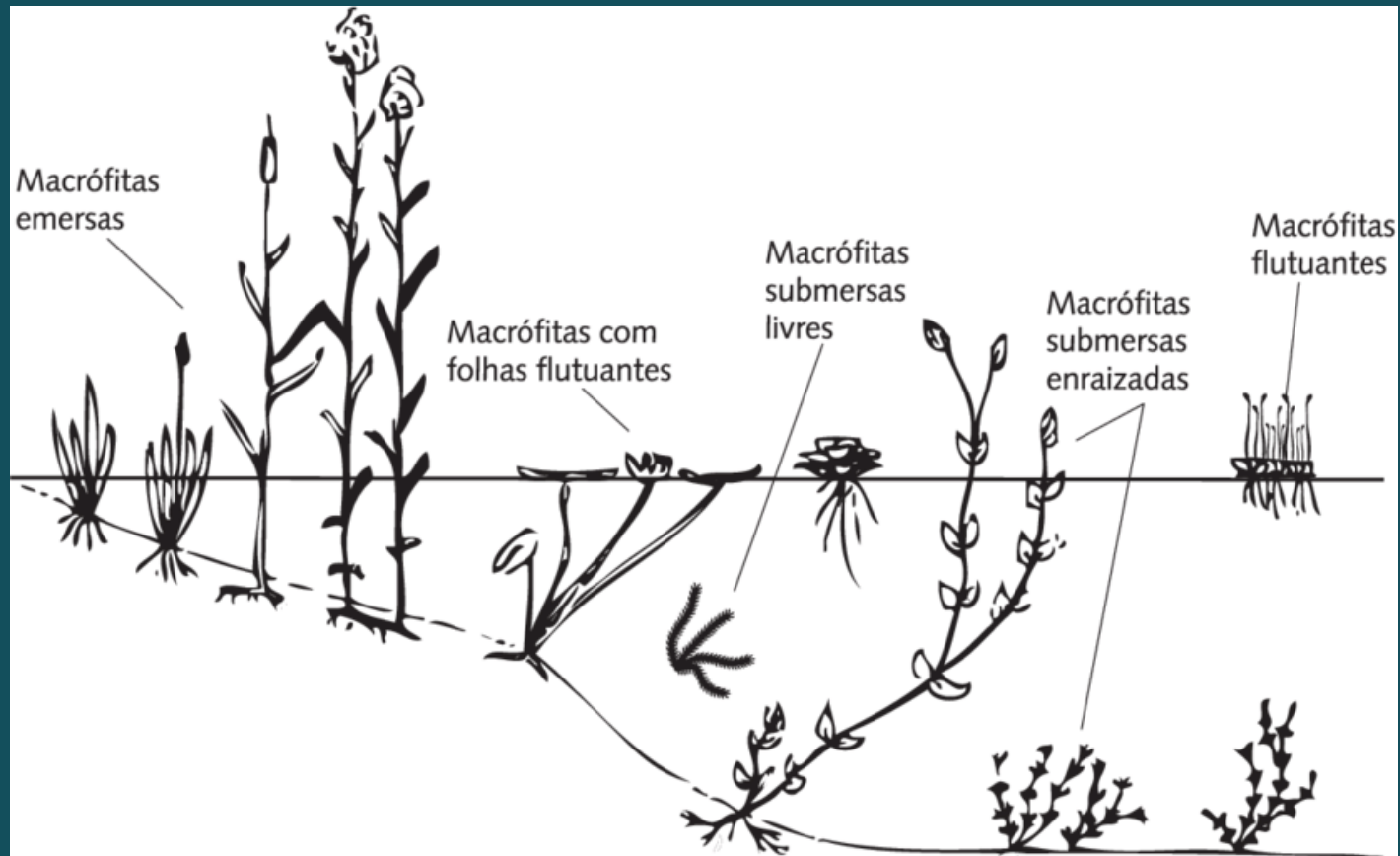
Floating in the mirror of the water and their roots are not anchored to the bottom of the body of water.



Salvinia sp. - Photo by Victor Mendoza - Lago de Izabal



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Final Report and List of Species



INFORME FINAL PROYECTO DE DOCUMENTACIÓN DE LA BIODIVERSIDAD DEL MUNICIPIO DE LIVINGSTON, IZABAL



GUATEMALA, OCTUBRE 2020 - ENERO 2022

Victor Mendoza y Vivian Hurtado

Listado de especies



LISTADOS DE ESPECIES DE DOCUMENTACIÓN BIODIVERSIDAD DE LIV



MACRÓFITAS

FAMILIA	ESPECIE	NOMBRE COMÚN
ALISMACEAE	<i>Sagittaria lancifolia</i> L.	Flecha de agua
AMARYLLIDACEAE	<i>Crinum</i> sp.	Spider lily
AMARYLLIDACEAE	<i>Hymenocallis littoralis</i> (Jacq.) Salisb.	Spider lily
ARALIACEAE	<i>Hydrocotyle umbellata</i> L.	Ombigo de Venus
CABOMBACEAE	<i>Cabomba</i> sp.	Cola de zorro
CYPERACEAE	<i>Cyperus esculentus</i> L.	Cebollín
CYPERACEAE	<i>Cladium mariscus</i> (L.) Pohl	Navajuela
CYPERACEAE	<i>Eleocharis geniculata</i> (L.) Roem. & Schult.	Pajiza
CYPERACEAE	<i>Rhynchospora cephalotes</i> (L.) Vahl	Pasto de playa
CYPERACEAE	<i>Cyperus brevifolius</i> (Rottb.) Hassk.	Cebollín amarillo
CYPERACEAE	<i>Cyperus luzulae</i> (L.) Retz.	Cebollín blanco
CYPERACEAE	<i>Eleocharis caribaea</i>	
CYPERACEAE	<i>Eleocharis</i> sp.	
CYPERACEAE	<i>Oxycaryum cubense</i> (Poepp. & Kunth) Palla	
CYPERACEAE	<i>Schoenoplectus acutus</i> (Muhl.)	
HYDROCHARITACEAE	<i>Vallisneria americana</i> Michx.	Pasto acuático
MAYACACEAE	<i>Mayaca fluviatilis</i> Aubl.	Mayaca
NYMPHAEACEAE	<i>Nymphoides indica</i> (L.) Kuntze	Lirio pequeño
NYMPHAEACEAE	<i>Nymphaea ampla</i> (Salisb.) DC.	Lirio blanco
ONAGRACEAE	<i>Ludwigia leptocarpa</i> (Nutt.) H. Hara	Clavito
ONAGRACEAE	<i>Ludwigia</i> sp.	Calavera
POACEAE	<i>Phragmites australis</i> (Cav.) Trin.	Carrizo, Tahil
PONTEDERIACEAE	<i>Pontederia cordata</i> L.	Espiga de agua
POTAMOGETONACEAE	<i>Potamogeton illinoensis</i> Morong	Hierba de agua
SALVINIACEAE	<i>Salvinia</i> sp.	Lenteja de agua
TYPHACEAE	<i>Typha domingensis</i> Pers.	Junco, Tifa, Tul

2020 - 2021

VICTOR MENDOZA Y VIVIAN HURTADO

Fuente: (Mendoza, V. & Hurtado, V., FLAAR Mesoamérica, 2022)



Contact Sheet Catalog



Cinco catálogos de fotografías generados en el proyecto.



THANKS!!!!

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Location of species on the FLAAR Mesoamerica catalogs

FLAAR Mesoamerica 2022

Project: Documentation of the Biodiversity from
Municipio de Livingston, Izabal
Photographic record from FLAAR Mesoamerica

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Presenters:
Sergio Jeréz, Victor Mendoza

Guatemala city,
Guatemala
Livingston Izabal,
Guatemala