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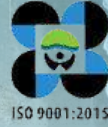
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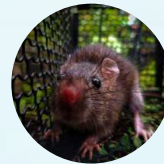
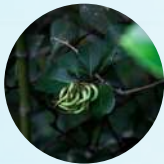
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RESEARCH AND DEVELOPMENT

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A Field Guide to some

FLORA & FAUNA

of the Kaigangan Satoumi Seascape of Brgy. Masao,
Butuan City, Mindanao Island, Philippines



Jess H. Jumawan
Jeco Jed J. Ruales
Anne Frances V. Buhay
Inocencio E. Buot, Jr.

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2024

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University of the Philippines Open University

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FOREWORD

Satoumi seascapes emphasizes the need to balance human activities with coastal ecosystem processes to achieve a sustainable coastal management. Communities need to adapt their practices to ensure the health and vitality of both the socio-cultural systems and marine ecosystems. In recent years, the concept has gained international recognition as a model for integrated coastal management and sustainable development as it emphasizes community involvement in the management and conservation of coastal ecosystems, fostering a sense of shared responsibility among local residents.

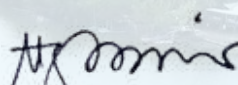
Satoumi areas, such as those found in Brgy. Masao, Butuan City, Philippines often demonstrate sustainable resource use by applying traditional fishing techniques, aquaculture, and the cultivation of marine plants. The management of these areas aims to conserve biodiversity and maintain a healthy balance between different species, contributing to the overall resilience of marine environments. Satoumi seascapes are often intertwined with local cultural practices and traditions related to fishing, coastal agriculture, and marine resource utilization. These coastal areas offer various ecosystem services, including shoreline protection, water purification, and habitat for diverse marine life.

A field guide to some flora and fauna of Satoumi seascape especially for Brgy. Masao is thus important for various stakeholders of the resources in the area, including researchers, conservationists, educators, and the local community. Such a field guide can aid in the accurate identification of plant and animal species inhabiting the seascape. This is crucial for researchers, naturalists, and students studying marine biodiversity. In addition, having a good understanding of the flora and fauna of such a seascape is essential for conservation efforts.

FOREWORD

Thus, the field guide provides information about endangered or vulnerable species, helping guide conservation initiatives and sustainable management practices. Containing information on floral and faunal species' descriptions, uses, endemism, distribution, and conservation status, it can serve as an educational tool, which can offer valuable information about the ecological roles, descriptions, and distributions of the various species in the seascape. It can also encourage responsible behavior and actions of all stakeholders to protect and preserve marine ecosystems, and therefore, an important material that can promote environmental and natural resources stewardship. The authors are commendable in coming up with this material, which in one way or another can help maintain the sustainable co-existence of human societies and natural environments.

The use of this field guide can be empirically grounded as this material is one of the outputs of the research program of the Faculty of Management and Development Studies, University of the Philippines Open University on the blending of multimedia approach and Satoyama-Satoumi principles for building climate smart communities. The research program was funded by the Emerging Interdisciplinary Research (EIDR) research fund facility of the University of the Philippines System through the Office of the Vice-President for Academic Affairs and conducted in collaboration with the Institute of Biological Sciences, University of the Philippines Los Banos and Caraga State University.



RICARDO T. BAGARINAO, PhD

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and Program Leader, Blending of Multimedia
Approach and Satoyama-Satoumi Principles
for Building Climate Smart Communities



PREFACE

The coastal expanse of Butuan City, nestled amid the embracing arms of Satoumi principles, is a pivotal nexus in pursuing a sustainable coexistence between human activities and the rich biodiversity that thrives in its surrounding water bodies. As the beating heart of the city's livelihoods, responsible resource management emerges as an imperative commitment to safeguard the delicate balance of this dynamic ecosystem.

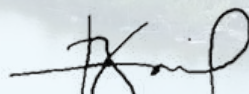
Satoumi, as a guiding philosophy, endeavors to orchestrate a harmonious ballet, carefully choreographing the conservation of biodiversity alongside addressing the fundamental needs of coastal communities. Paramount among these needs are food security and livelihoods, making it crucial to integrate thoughtful approaches that resonate with both ecological preservation and human welfare. Within this paradigm, the active participation of local communities becomes the linchpin, wherein their involvement in decision-making processes concerning conservation initiatives, resource management, and the implementation of environmental friendly aquaculture methods is deemed pivotal.

In a concerted effort, the collaboration research program “Blending of Multimedia Approach and Satoyama-Satoumi Principles for Building Climate Smart Communities of the Emerging Interdisciplinary Research (EIDR-bSMART)” unites the intellectual prowess of the University of the Philippines Los Baños, University of the Philippines Open University, and Caraga State University Ampayon. This collaboration has borne fruit in the form of a comprehensive field guide, meticulously crafted to unveil the intricate tapestry of the Satoumi seascape that cradles Butuan City.

PREFACE

The guide goes beyond a mere enumeration flora and fauna; it unfolds a vivid narrative, offering active descriptions, exploring uses, documenting endemism, dissecting distribution patterns, and meticulously outlining conservation status. More than a compendium of knowledge, this guide emerges as a vital resource, serving the diverse needs of local communities, researchers, conservationists, and educators alike. It acts as a compass for species identification, a tool for assessing ecological roles, and a catalyst for devising effective conservation strategies.

The impact of this collaboration initiative reverberates far beyond the city limits of Butuan. It stands tall as a beacon for biodiversity research across the broader Caraga Region, galvanizing informed action and fostering a collective commitment to the sustainable cohabitation of humanity and the coastal biodiversity that graces this region. In doing so, it embodies a tangible testament to the potential inherent in blending scientific inquiry, community engagement, and environmental stewardship.



ROLYN C. DAGUIL, PhD

University President

Caraga State University

Ampayon, Butuan City, Agusan del Norte



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- To the Department of Environment and Natural Resources (DENR) Caraga Region for issuing the gratuitous permit (DENR-GP No. R13-2021-22) to conduct flora and fauna assessment in Brgy. Masao.
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- To Undergraduate Thesis Student Assistant (UTSAs) who helped collect and organize data.
- To Prof. Desamarie Antonette P. Fernandez for obtaining wildlife permit (UPLB-2021-031) from the University of the Philippines Los Baños Institutional Animal Care and Use Committee (UPLB IACUC) and for helping the identification of the animal species.
- To the UPLB Conserve Kaigangan's funding through the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) for the financial assistance of printing this field guide.

INTRODUCTION

Satoumi refers to the sea and coastal areas in the Philippines and wherever in the world. It has high biodiversity and productivity reflecting the interconnectedness of human communities with coastal ecosystems (Yanagi, 2008). It is characterized as a mosaic of both terrestrial and aquatic ecosystems comprised of seashores, tidal flats, coral reefs, mangrove forests (Buot 1994; Doydee et al. 2008; Tinh et al. 2009; Sinfuego and Buot, 2008, 2014; Doydee and Buot 2011, 2014; Almazol et al. 2013; Martinez and Buot 2018; Buot 2020; Buot et al. 2022; Martinez and Buot 2022) and seaweed/grass beds.

The term “Kaigangan” today refers to the lush vegetation or forest that typically grows over limestone formations. Its roots trace back to the ancient Visayan word “Igang”, denoting sharp-edged limestone rocks formed from hardened reefs. This term persists in usage within Hiligaynon, Waray, and various dialects spoken in the Caraga Region. The vicinity surrounding Butuan Bay showcases remnants of Kaigangan vegetation intertwined with alluvial deposits from the Agusan River. This melding of diverse ecosystems alongside human activities has sculpted captivating Satoumi seascapes along the shores of Butuan Bay, Philippines.

The conceptual framework of satoumi, emphasizes the sustainable coexistence of people and their activities as well as the biodiversity in coastal areas. It promotes a holistic approach to resource management, considering both ecological and human well-being (Makino, 2011). Satoumi management framework stressed the need for community involvement, adaptive management, and the integration of traditional ecological knowledge with modern practices.

As an initiative, Satoumi includes practical efforts and projects aimed at restoring and managing coastal ecosystems sustainably. This may include activities such as habitat restoration, community-based fisheries management, and the promotion of eco-friendly aquaculture practices (Gu and Subramanian, 2012). Satoumi initiatives often focus on collaboration between local communities, government agencies, NGOs, and researchers to achieve environmental and social goals.

The hope is for satoumi in Butuan to reflect both sustainable coastal management and a practical initiative involving on-the-ground efforts to realize satoumi principles. The optimism is also to enhance the balanced relationship between the coastal environment and the local community, aiming not just for economic growth but also for the sustainable use of coastal resources.

STUDY SITE DESCRIPTION

The biodiversity assessment was conducted in selected areas of Barangay Masao, Butuan City, Agusan del Norte. Barangay Masao is a coastal-estuarine barangay located in the western part of Butuan City, Agusan del Norte with a total land area of 534,628 hectares, where 70% was used in agriculture; 18% residential; and 10% timberland. The area is composed of land and water forms including sea, river, ponds, estuary, plains, mangroves, and remnants of Kaigangan forest. A total of three vegetation patches/zones were determined and examined based on the species composition, physiognomic features, and other ecological indicators. These include seaward, middleward, and lardward.

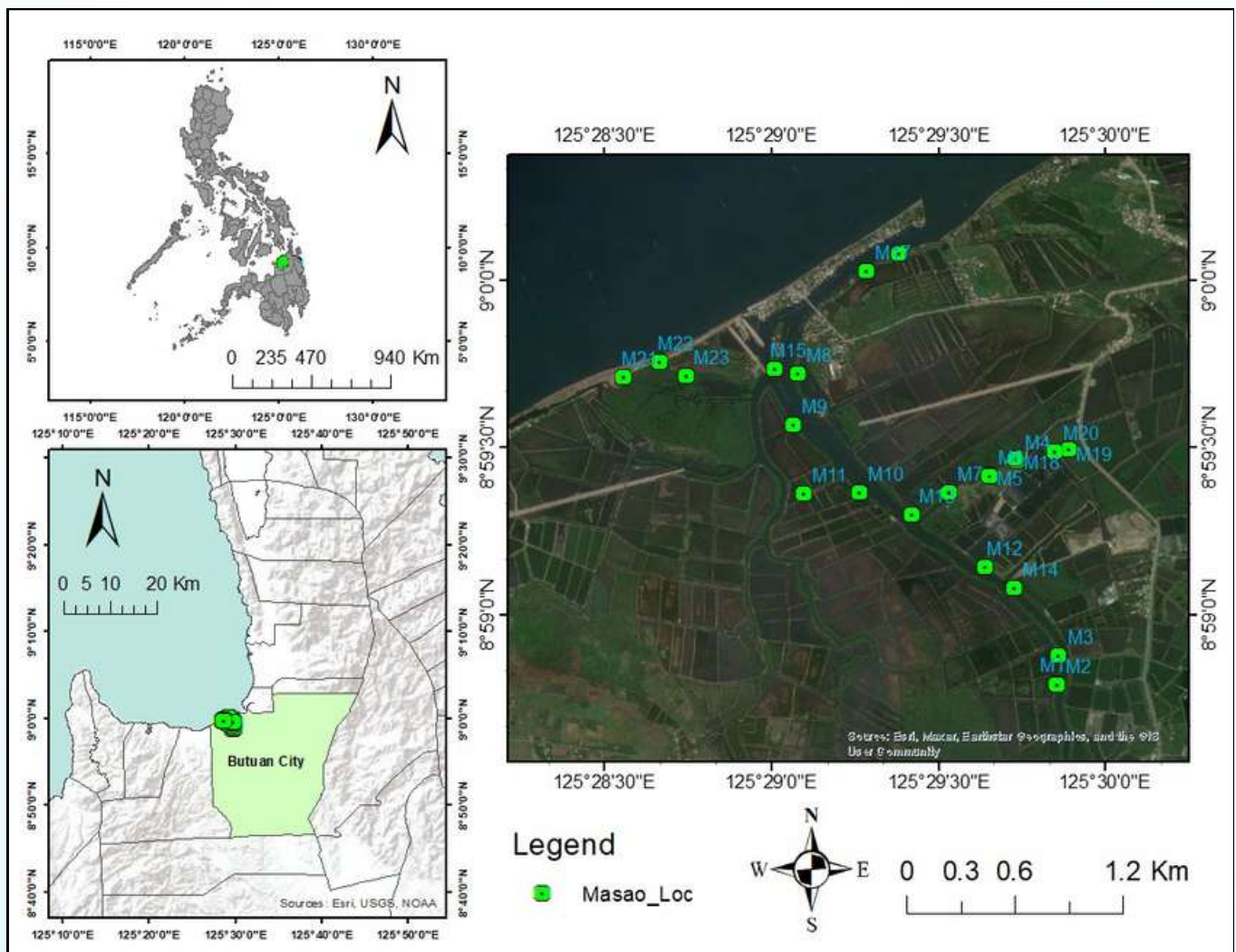


Figure 1. Location map of the study area and sampling plots in Barangay Masao, Butuan City – a satoumi seascape.



a Satoumi Seascape

BRGY. MASAO



Drone shots by: Jabez Joshua M. Flores, PhD

**some remnants of Kaigangan
along Butuan Bay**





HOW TO USE THIS BOOK

The field guide aims to enable the reader to identify some plants found in Kaigangan Satoumi of Brgy. Masao, Butuan City - a socioecological seascape.

This field guide book includes plant information such as spot characters and economic uses as well as information on the conservation status and current distribution.

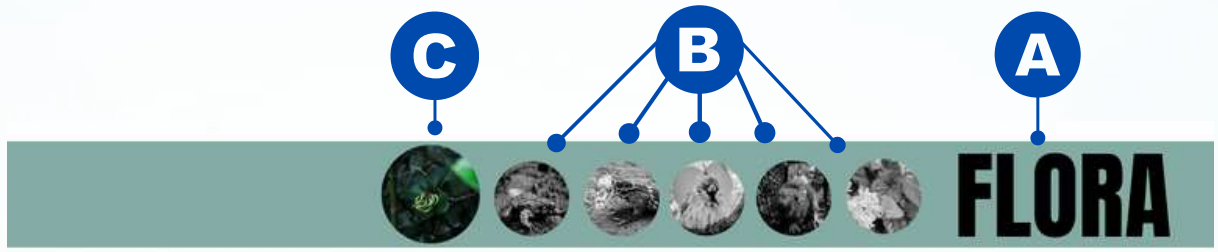
Flora Guide

Legend:

- A** **Group**
indicates what group that the species belongs
- B** **Non-Active Icons**
- C** **Active Icon**
the highlighted icon determines that the species below belongs to the said group
- D** **Image of the species**
- E** **Label of the Figures**
describes the characters of the figures
- F** **Family**
a taxonomic group of one or more genera
- G** **Scientific Name**
taxonomic name of an organism that consists of the genus and species.

- H** **Local Name**
name existing in or belonging to a specific area
- I** **Synonym**
- J** **Spot Characters**
allows for quick scanning and species verification
- K** **Uses**
contains information on ethnobotanical application of the species
- L** **Endemism**
used in this field guide to refer to the category of species occurrence whether it is endemic, native, naturalized, or cultivated
- M** **Distribution**
provides range and species distribution
- N** **Conservation Status**
this refers to the status of the species based on the IUCN Red List (2023).

HOW TO USE THIS BOOK



Family: Combretaceae
Scientific Name: *Lumnitzera littorea* (Jack) Voigt
Local Names: Tabao, Culasi

Synonym: *Bruguiera littorea* (Jack) Steud., *Laguncularia coccinea* Gaudich., *Laguncularia haenkei* Endl., *Laguncularia pedicellata* Steud., *Laguncularia purpurea* Gaudich., *Lumnitzera coccinea* (Gaudich.) Wight & Arn., *Lumnitzera pedicellata* C.Presl, *Lumnitzera pentandra* Griff., *Lumnitzera purpurea* (Gaudich.) C.Presl, *Petaloma coccineum* Blanco, *Pirranthus littoreus* Jack, *Pokornya ettingshauseni* Montrouz., *Pyrrhanthus littoreus* Jack

Description: A medium to tall tree with dark brown bark. The leaves are simple, alternate, spiral in arrangement, and obovate in shape. It has a bright red flowers and it has a vase-shaped, smooth, and dark green color fruit.

Uses: The branches can be utilized for fuel and for smoking fish. The leaves through the process of decoction is used to treat thrush in infants (Primavera et al. 2004).

Endemism: Native

Distribution: Andaman Isls, Australia, Borneo, Cambodia, China, India, Indian Ocean, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, Myanmar, New Guinea, Nicobar Isls, Pacific Ocean, Philippines, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status: (IUCN 2022-2)

NE DD **LC** NT VU EN CR EW EX

HOW TO USE THIS BOOK

The field guide aims to enable the reader to identify some animals found in Kaigangan Satoumi of Brgy. Masao, Butuan City - a socioecological seascape.

This field guide book includes animal information such as description of characters as well as information such as conservation status and ecological importance.

Fauna Guide

Legend:

- | | |
|---|---|
| A Group
indicates what group that the species belongs | H Common Name
used to universally identify and name an organism. |
| B Non-Active Icons | I Spot Characters
allows for quick scanning and species verification |
| C Active Icon
the highlighted icon determines that the species below belongs to the said group | J Uses
contains information on ethnozoological application of the species |
| D Image of the species | K Endemism
used in this field guide to refer to the category of species occurrence whether it is endemic, native, naturalized, or cultivated |
| E Label of the Figures
describes the characters of the figures | L Distribution
provides range and species distribution |
| F Family
a taxonomic group of one or more genera | M Conservation Status
this refers to the status of the species based on the IUCN Red List (2023). |
| G Scientific Name
taxonomic name of an organism that consists of the genus and species. | |

HOW TO USE THIS BOOK

C
B
A



AMPHIBIANS



A two light brown dorsolateral bands



B small head and short snout

Family: Microhylidae

Scientific Name: *Kaloula pulchra* (Gray, 1831)

Common Name: The Banded Bullfrog

Description: The body is stocky with two light brown dorsolateral bands. The head is small and short with rounded snout. When threatened, the frog will inflate itself for protection.

Ecological Role: Help controls pest population, however, the introduction of this non-native species in the Philippines pose a threat to our native species.

Endemicity: **Invasive Alien Species (IAS)**

Distribution: Native to India, Bangladesh, Thailand, Myanmar, Vietnam, China, Cambodia, Singapore, Sumatra, Borneo, and Sulawesi. Introduced becoming widespread in the Philippines including Boracay, Cebu, Luzon, Leyte, Mindanao, Mindoro, Negros, Palawan, and Samar (Venturina et al. 2023)

Conservation Status: NE DD LC NT VU EN CR EW EX

D

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DEFINITION OF TERMS

Amphibians

These are groups of cold-blooded vertebrates including frogs, toads, salamanders, newts, and caecilians that can live both on lands and water.

Arthropods

These are invertebrate animals that possess an exoskeleton.

Birds

These are a group of warm-blooded vertebrates, characterized by having a wings, feathers, and toothless beaked jaws.

Conservation Status

a category assigned to a species to reflect its risk of extinction

Critically Endangered (CR)

This category is used to classify species that experienced an extraordinarily rapid and severe decline in its population, often exceeding 80 to 90 percent over the previous 10 years or three generations, whichever is shorter (IUCN, 2001).

Data Deficient (DD)

This category is used to classify species for which there is inadequate information to assess their extinction risk based on distribution and population status (IUCN, 2001)

Endangered (EN)

This category is used to classify species that are at an extremely high risk of extinction. This is typically due to very rapid population declines, often ranging from 50 to more than 70 percent, over the previous 10 years or three generations, whichever is shorter (IUCN, 2001).

Endemic

species that is found only in that particular area.

Endemism

condition of being endemic, or restricted in geographical distribution to an area or specific region.

Fauna

All animal forms present in a particular region.

Flora

All plant forms present in a particular region.

Introduced

a species that has been intentionally or unintentionally transported by humans to a region outside its natural range.

DEFINITION OF TERMS

Least Concern (LC)

A category containing species that are pervasive and abundant after careful assessment. This means that species are not threatened to extinction (IUCN, 2001).

Native

A species that have originated and evolved in a local area over a long period of time.

Near Threatened (NT)

Close to qualifying or is likely to qualify for a threatened category in the near future, but does not qualify for Critically Endangered (IUCN, 2001).

Not Evaluated (NE)

A category used to indicate that a species has not yet been assessed by the International Union for Conservation of Nature (IUCN, 2001).

Non-Volant Mammals

These are group of small mammals that are incapable of flying.

Reptiles

These are group of cold-blooded vertebrates, covered in special skin made up of scales, bony plates, or a combination of both that can live both in lands and in water.

Satoumi

A Japanese term that describes a seascape where human-ecosystem interaction has resulted in increased biodiversity and productivity (Mizuta and Vlachopoulou, 2017).

Seascape

A mosaic of mangrove forests, seagrass beds, and coral reef ecosystems.

Vulnerable (VU)

This category is used to classify species that are at very high risk of extinction. The species has experienced a significant and rapid decline in its population (IUCN, 2001).

METHODOLOGY

FLORA



- 10 x 10 Plots (Trees and Mature Individuals)
- 5 x 5 Plots (Shrubs or Sapling Layers)
- 1 x 1 Plots (Herbs or Seedling Layers)

AMPHIBIANS



- Search and Capture
- Visual Encounter

REPTILES



- Search and Capture
- Pitfall Trap
- Visual Encounter

BIRDS



- Mist Netting
- Bird Watching

NON-VOLANT
MAMMALS



- Box Trapping

ARTHROPODS

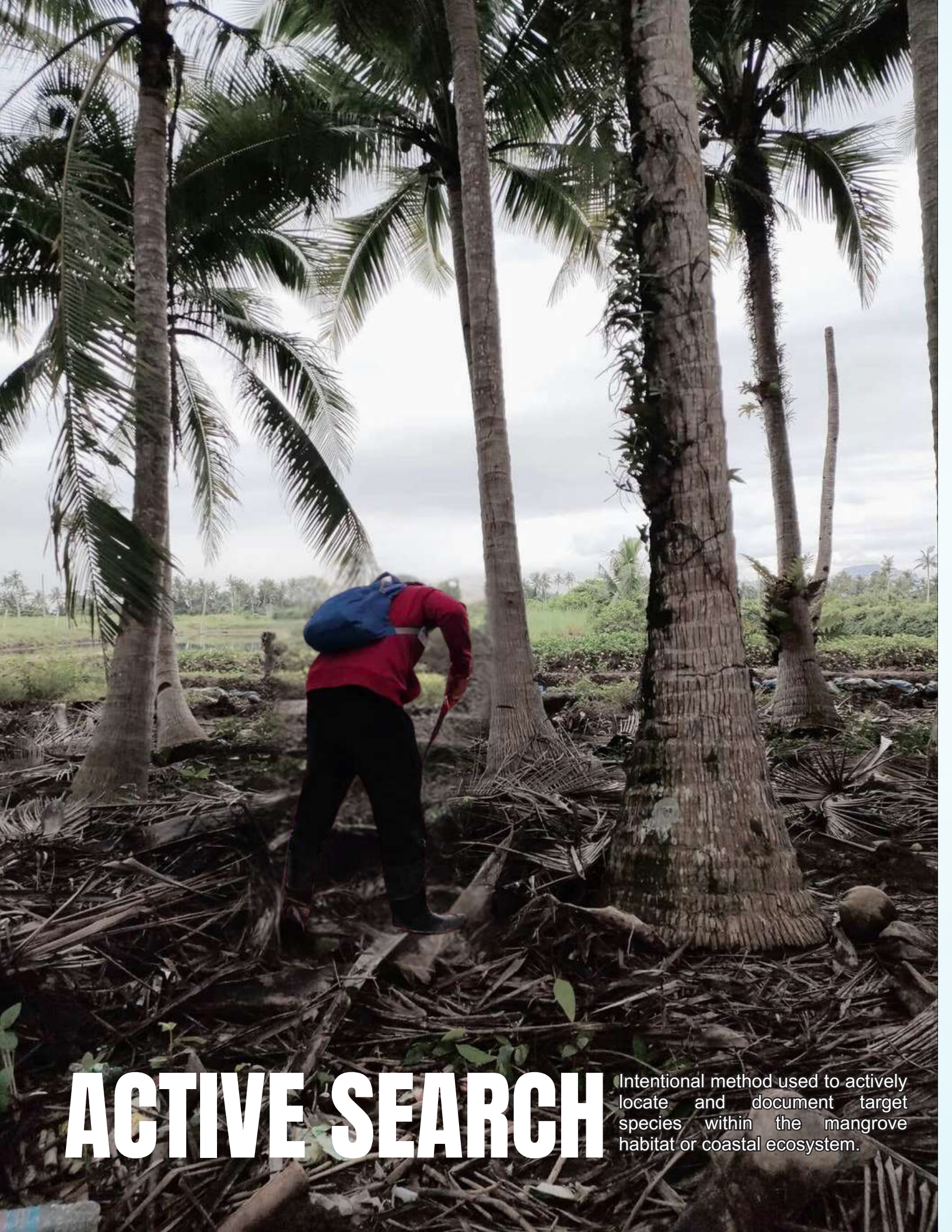


- Insect Net Sweeping
- Transect Walk



Metal traps were set along the transect in 5-10 m intervals for capturing small to medium-sized animals, baits such as coconut meat or peanut butter are used.

BOX TRAPPING



ACTIVE SEARCH

Intentional method used to actively locate and document target species within the mangrove habitat or coastal ecosystem.



Plastic containers were buried with the brim lower or about the same level as the ground. Spaced 5 meters apart and the trap is covered with natural rooting material, a drift fence may be added.

PITFALL TRAP

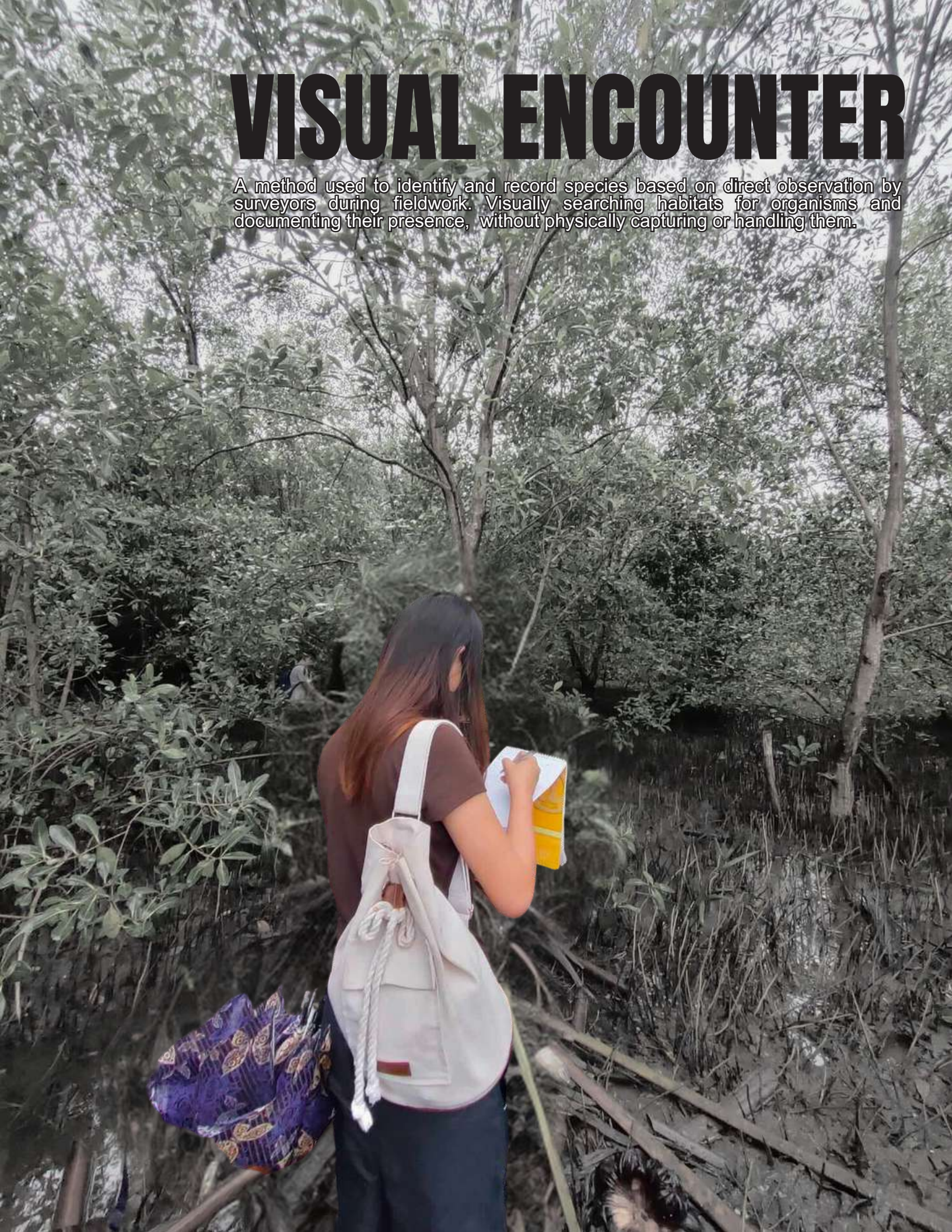
TRANSECT WALK

A total of 2km transect line were established along the coastal forest ecosystem. Laid on the forest floor, to make sure the points or plots are evenly distributed.



VISUAL ENCOUNTER

A method used to identify and record species based on direct observation by surveyors during fieldwork. Visually searching habitats for organisms and documenting their presence, without physically capturing or handling them.





MIST NETTING

Mist nets were set along possible flyways or near feeding trees



Handheld net were used to capture insects flying or hovering over foliage.

INSECT NET SWEEPING







FLORA

FLORA SPECIES LIST

Acanthaceae

- *Aegiceras corniculatum* (L.) Blanco.
- *Acanthus ilicifolius* L.
- *Acanthus volubilis* Wall.
- *Avicennia alba* Blume.
- *Avicennia marina* (Forssk.) Vierh.
- *Avicennia officinalis* L.
- *Avicennia rumphiana* Hallier fil.

Arecaceae

- *Cocos nucifera* L.
- *Nypa fruticans* Wurmb.

Combretaceae

- *Lumnitzera littorea* (Jack) Voigt
- *Lumnitzera racemosa* Willd.

Euphorbiaceae

- *Excoecaria gallocha* L.

Fabaceae

- *Cynometra ramiflora* L.

Lythraceae

- *Sonneratia alba* Sm.
- *Sonneratia caseolaris* (L.) Engl.

Malvaceae

- *Heritiera littoralis* Dryand. ex W. Ait.

Meliaceae

- *Xylocarpus granatum* J.Koenig
- *Xylocarpus moluccensis* (Lam.) M. Roem.

Primulaceae

- *Aegiceras corniculatum* (L.) Blanco.
- *Aegiceras floridum* Roem. & Schult.

Pteridaceae

- *Acrostichum speciosum* Willd.

Rhizophoraceae

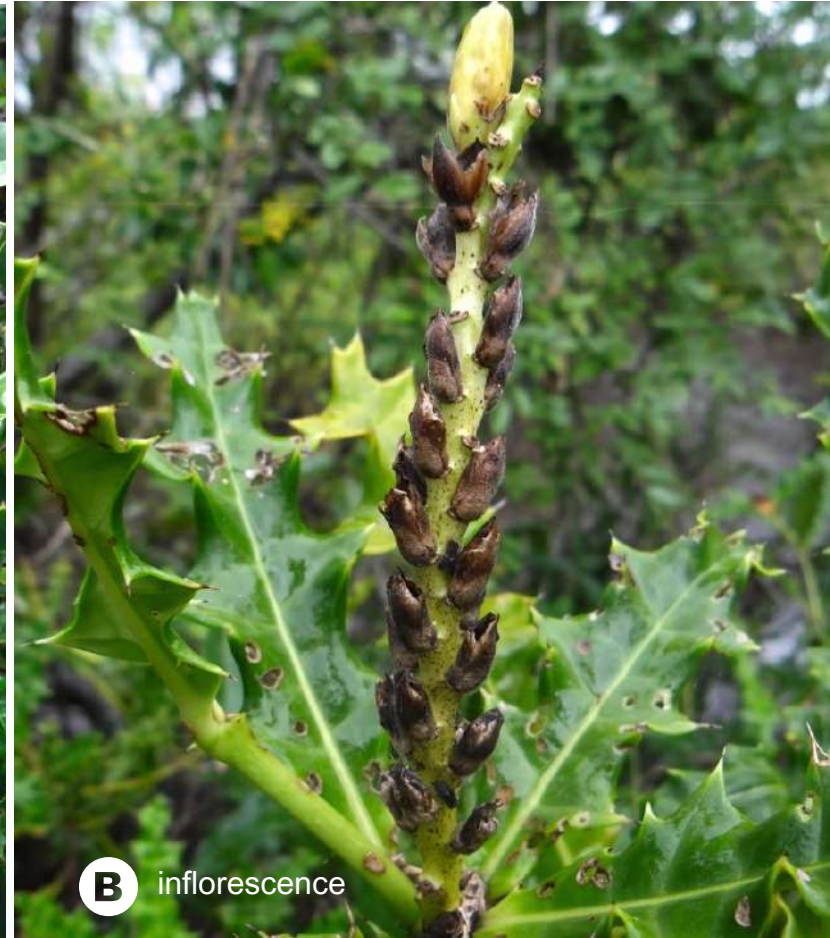
- *Bruguiera cylindrica* (L.) Blume
- *Bruguiera gymnorhiza* (L.) Lam.
- *Bruguiera parviflora* (Roxb.) Wight & Arn. ex Griff.
- *Bruguiera sexangula* (Lour.) Poir.
- *Ceriops tagal* (Perr.) C.B.Rob.
- *Ceriops decandra* (Griff.) W.Theob.
- *Rhizophora apiculata* Blume
- *Rhizophora mucronata* Lamk.

Rubiaceae

- *Morinda citrifolia* L.



A habit



B inflorescence

Family: Acanthaceae

Scientific Name: *Acanthus ebracteatus* Vahl.

Local Names: Lagiqliw, Ragoyroy

Synonym: *Acanthus ebracteatus* subsp. *ebarbatus* R.M.Barker, *Acanthus ebracteatus* subsp. *ebracteatus* Vahl

Description: Found in soft muds within the upper to middle reaches of estuarine rivers and creeks. The leaves are simple, opposite, elliptic to oblong, with deeply lobed with sharp spines. The upper surface of the leaves are shiny and dark green in color.

Uses: The whole plant is used as an astringent, expectorant, and stimulant. The roots are used as a remedy for coughs while the leaves are used as a cure for snake bites (Subudhi et al. 1992). The stem and roots are also utilized against various conditions, including coughs, chronic fever, paralysis, asthma, hepatomegaly (enlargement of the liver), hepatitis, and lymphoma (Burkill 1966).

Endemism: Native

Distribution: Andaman Isls, Australia, Bangladesh, Cambodia, China, India, Java, Lesser Sunda Isls, Malay Peninsula, Myanmar, New Guinea, Pacific Ocean, Philippines, Solomon Isls, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)

NE

DD

LC

NT

VU

EN

CR

EW

EX



A habit



B inflorescence

Family: Acanthaceae

Scientific Name: *Acanthus ilicifolius* L.

Local Name: Lagiqliw, Ragoyroy

Synonym: *Acanthus doloar* Blanco, *Acanthus doloarin* Blanco, *Acanthus doloarius* Blanco, *Acanthus ilicifolius* subsp. *orientalis* Bremek., *Acanthus ilicifolius* var. *subinteger* Nees, *Acanthus ilicifolius* var. *typica* Domin, *Acanthus neoguineensis* Engl., *Acanthus xiamensis* R.T.Zhang, *Dilivaria ilicifolia* (L.) J.St.-Hil., *Dilivaria ilicifolia* (L.) Juss., *Dilivaria ilicifolia* (L.) Nees, *Dilivaria ilicifolia* (L.) Pers.

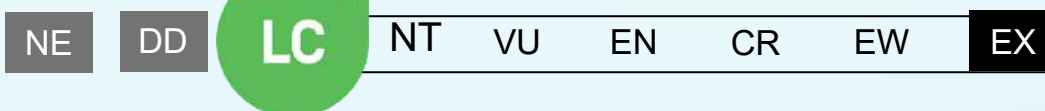
Description: This species is a semi-woody, sprawling shrub. The leaves are pale green in color with a yellowish tinge above and green below, shortly-stalked, and possess a spiny leaf blades that are oval to oblong.

Uses: The plant is used for dyspepsia, paralysis, and asthma. It is reported that the leaves are to be used in headache, rheumatism, and in skin diseases. In addition, the shoots and leaves are used as antidote in snake bite (Gupta et al. 2004).

Endemism: **Native**

Distribution: Andaman Isls, Australia, Bangladesh, Bismarck Arch, China, India, Java, Laos, Malay Peninsula, Myanmar, New Caledonia, New Guinea, Nicobar Isls, Pacific Ocean, Philippines, Singapore, Solomon Isls, Sri Lanka, Sumatra, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)





A habit

B inflorescence

Family: Acanthaceae

Scientific Name: *Acanthus volubilis* Wall.

Local Names: Lagiwliw, Ragoyroy

Synonym: *Acanthus ilicifolius* var. *volubilis* (Wall.) Hochr., *Dilivaria scandens* Nees, *Dilivaria volubilis* (Wall.) Nees

Description: The plant is semi-erect to sprawling, and climbing. The leaves have a dark green color, and the margins are usually smooth in younger leaves while older ones may have small spines. Inflorescence terminal, spike, and white in color.

Uses: The leaves are utilized for dressing boils and wounds while the powdered seeds are taken with water as a blood cleansing medicine and against ulcers (Das et al. 2013).

Endemism: **Native**

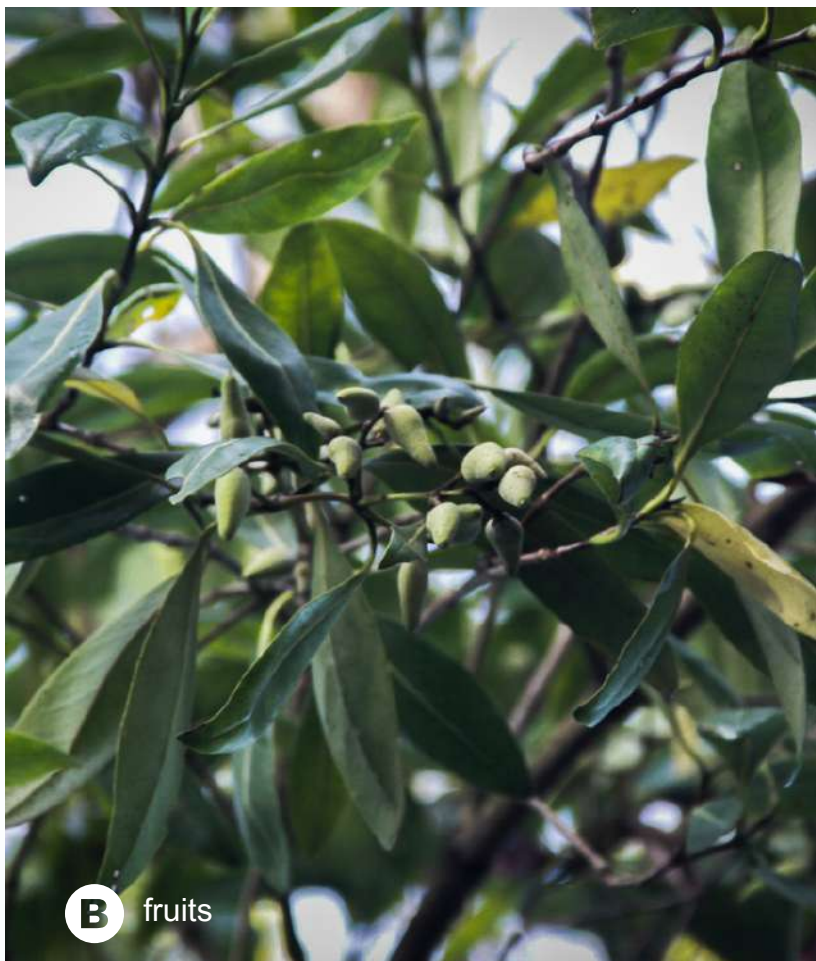
Distribution: Andaman Isls, Bangladesh, Malay Peninsula, Myanmar, Nicobar Isls, Philippines (Basilan, Mindoro, Panay, Samar, Sibuyan), Thailand.

Conservation Status:
(IUCN 2022-2)

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A leaves



B fruits

Family: Acanthaceae

Scientific Name: *Avicennia alba* Blume.

Local Names: Bungalon, Apiapi, Miapi

Synonym: *Avicennia alba* var. *latifolia* Moldenke, *Avicennia marina* var. *alba* (Blume) Bakh., *Avicennia officinalis* var. *alba* (Blume) C.B. Clarke

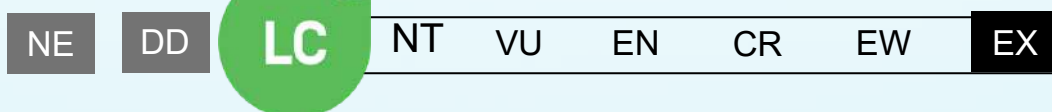
Description: The leaves are oblong to lanceolate in shape. The fruits are chili-like shaped as the base are broad and has a pronounced beak.

Uses: The fruits are edible and the seeds are utilized for therapeutic purposes. The woods are also used as fuelwood and timber and the leaves for forage (Primavera et al. 2004).

Endemism: **Native**

Distribution: Australia, Bangladesh, Bismarck Arch, Borneo, India, Java, Lesser Sunda Isls, Malay Peninsula, Myanmar, New Guinea, Pacific Ocean, Philippines (MINDANAO: Cotabato, Lanao, Misamis, Surigao del Norte), Solomon Isls, Sulawesi, Sumatra, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)





A leaves



B fruits

Family: Acanthaceae

Scientific Name: *Avicennia marina* (Forssk.) Vierh.

Local Names: Apiapi, Miapi, Bungalon

Synonym: *Avicennia maritima* Naurois & Roux, *Avicennia mindanaense* Elmer, *Avicennia officinalis* Baker, *Halodendron thouarsii* Roem. & Schult.

Description: This species can be observed along muddy seashores and tidal streams. The leaves are elliptic to oblong-obovate in shape. The fruits are ovoid in shape with sharp apical beak and has a color of light-green.

Uses: The fruits are edible while the leaves are used for medicinal purposes including treating burns. The wood is also used for timber and products (Primavera et al. 2004).

Endemism: **Native**

Distribution: Africa, Andaman Isls, Australia, Bangladesh, Bismarck Arch, Borneo, China, India, Indian Ocean, Java, Lesser Sunda Isls, Madagascar, Malay Peninsula, Middle East, Moluccas, Myanmar, New Caledonia, New Guinea, New Zealand, Nicobar Isls, Pacific Ocean, Pakistan, Philippines (Boaan, Cebu, LUZON: Aurora, Bataan, Bulacan, Camarines Sur, Laguna, NCR, Quezon, Zambales, MINDANAO: Davao, Davao del Sur, Misamis, Zamboanga del Sur, Mindoro, Panay); Ryukyu Isls, Solomon Isls, Sulawesi, Sumatra, Taiwan, Vietnam (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)

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A phyllotaxy



B leaves

Family: Acanthaceae

Scientific Name: *Avicennia officinalis* L.

Local Names: Apiapi, Miapi, Bungalon

Synonym: *Avicennia obovata* Griff., *Avicennia oepata* Buch.-Ham., *Avicennia officinalis* f. *flaviflora* Kuntze, *Avicennia officinalis* f. *tomentosa* Kuntze, *Avicennia officinalis* var. *acuminata* Domin, *Avicennia tomentosa* Willd., *Halodendrum thouarsii* Roem. & Schult., *Racka ovata* Roem. & Schult., *Racka torrida* J.F.Gmel.

Description: A medium size tree with obovate-oblong leaves. Leaves above are dark green and yellowish-green underneath. The flowers are orange-yellow color,

Uses: Traditional medicine to treat various diseases like asthma, dyspepsia, paralysis, tumor and rheumatism (Lalitha et al. 2021)

Endemism: **Native**

Distribution: Andaman Isls, Australia, Bangladesh, Borneo, Cambodia, China, India, Java, Lesser Sunda Isls, Malay Peninsula, Middle East, Moluccas, Myanmar, New Guinea, Sri Lanka, Sulawesi, Sumatra, Taiwan, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)

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A leaves



B fruits

Family: Acanthaceae

Scientific Name: *Avicennia rumphiana* Hallier fil.

Local Names: Apiapi, Miapi, Bungalon

Synonym: No synonyms accounted for this name

Description: Ovate to elliptic leaves with dark green color above, beneath covered with brown powdery hairs. The fruit is broadly ovoid covered with dense woolly hairs.

Uses: The fruit is edible while the wood is utilized for timber and products (Primavera et al. 2004).

Endemism: **Native**

Distribution: Borneo, Lesser Sunda Isls, Malay Peninsula, Moluccas, New Guinea, Philippines, Singapore, Sulawesi, Talaud Isls (Pelsner et al. 2011).

Conservation Status:
(IUCN 2022-2)

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Family: Arecaceae
Scientific Name: *Cocos nucifera* L.
Local Name: Niyog

Synonym: *Calappa nucifera* (L.) Kuntze, *Cocos indica* Royle, *Cocos mamillaris* Blanco, *Cocos nana* Griff., *Cocos nucifera* f. *palmyrensis* Becc., *Cocos nucifera* subsp. *synphyllica* Becc., *Cocos nucifera* var. *alangan* Blume, *Cocos nucifera* var. *alba* Blume, *Cocos nucifera* var. *angustifolia* Hassk., *Cocos nucifera* var. *aurea* Anon., *Cocos nucifera* var. *austera* Blume, *Cocos nucifera* var. *bego* Blume, *Cocos nucifera* var. *buri* Blume, *Cocos nucifera* var. *calimbahin* Blume, *Cocos nucifera* var. *capuliformis* Blume, *Cocos nucifera* var. *cistiformis* Blume, *Cocos nucifera* var. *como* Blume, *Cocos nucifera* var. *crassissima* Blume, *Cocos nucifera* var. *delicata* Blume, *Cocos nucifera* var. *eburnea* Blume, *Cocos nucifera* var. *edulis* Blume, *Cocos nucifera* var. *elongata* Blume, *Cocos nucifera* var. *fibrosa* Blume, *Cocos nucifera* var. *fragilis* Blume, *Cocos nucifera* var. *humilis* Blume, *Cocos nucifera* var. *iners* Blume, *Cocos nucifera* var. *javanica* G.V.Narayana, *Cocos nucifera* var. *laetevirens* Blume, *Cocos nucifera* var. *lansiformis* Blume, *Cocos nucifera* var. *lolog* Blume, *Cocos nucifera* var. *machaeroides* Blume, *Cocos nucifera* var. *macrocarpa* Blume, *Cocos nucifera* var. *maldivica* Blume, *Cocos nucifera* var. *mamillaris* (Blanco) Blume, *Cocos nucifera* var. *microcarpa* Hassk., *Cocos nucifera* var. *microcarpa* Hassk. ex F.W.T.Hunger, *Cocos nucifera* var. *nana* (Griff.) G.V.Narayana, *Cocos nucifera* var. *ossea* Blume, *Cocos nucifera* var. *palmyrensis* (Becc.) Becc., *Cocos nucifera* var. *palmyrensis* (Beccari) Pignotti & Baldini, 2020, *Cocos nucifera* var. *pinang* Blume, *Cocos nucifera* var. *pretiosa* Blume, *Cocos nucifera* var. *pruniformis* Blume, *Cocos nucifera* var. *pumila* Hassk., *Cocos nucifera* var. *regia* Blume, *Cocos nucifera* var. *rubescens* Hassk., *Cocos nucifera* var. *rutila* Blume, *Cocos nucifera* var. *sacharina* Blume, *Cocos nucifera* var. *sapida* Blume, *Cocos nucifera* var. *spicata* K.C.Jacob, *Cocos nucifera* var. *stuppea* Blume, *Cocos nucifera* var. *suavis* Blume, *Cocos nucifera* var. *subamara* Blume, *Cocos nucifera* var. *subcandida* Blume, *Cocos nucifera* var. *synphyllica* Becc., *Cocos nucifera* var. *tabogog* Blume, *Cocos nucifera* var. *tamisan* Blume, *Cocos nucifera* var. *tenuissima* Blume, *Cocos nucifera* var. *viridis* Blume, *Cocos nucifera* var. *viridis* Hassk., *Diplothemium henryanum* F.Br., *Palma cocos* Mill.

Description: A large, palm-like tree with a single trunk and pinnate leaves. This tree is known for its tall, slender appearance and the characteristic arrangement of its leaves. The coconut consists of a hard, woody shell surrounding the seed, which is the edible part

Uses: The coconut fruit can be used as food, water, oil, medicine, and other products. The fibers from the coconut husk, known as coir, are traditionally used to make ropes and nets. This plant species is also utilized for timber and products.

Endemism: Native

Distribution: Australia, Bismarck Arch, Moluccas, New Guinea, Pacific Ocean, Philippines: Ifugao, Laguna, NCR, Rizal, Mindanao, Mindoro, Palawan, Samar, Sulu Archipelago, Tawi-Tawi, Solomon Isls. (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)

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A habit



B fruit

Family: Arecaceae

Scientific Name: *Nypa fruticans* Wurmb.

Local Names: Nipa, Sasa

Synonym: *Cocos nypa* Lour., *Nypa arborescens* Wurmb, *Nypa arborescens* Wurmb ex H.Wendl., *Nypa fruticans* (Wurmb) Thunb., *Nypa fruticans* var. *neameana* F.M.Bailey, *Nypa littoralis* Blanco, *Nypa littoralis* Blanco, *Nypa arborescens* Wurmb, *Nypa arborescens* Wurmb ex H.Wendl., *Nypa fruticans* var. *neameana* F.M.Bailey

Description: shares leaf characteristics with coconut trees, particularly their palm-like appearance, but it thrives in low-lying inland mangrove areas. Its stem can reach a diameter of up to 40-45 cm.

Uses: Its leaves find purpose in crafting handicrafts, while the young seeds and shoots are suitable for consumption (Primavera et al. 2004). The fermented juice is widely employed in the creation of beverages.

Endemism: Native

Distribution: Andaman Isls, Australia, Bangladesh, Bismarck Arch, Borneo, Cambodia, India, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, Myanmar, New Guinea, Nicobar Isls, Pacific Ocean, Philippines (Biliran, Luzon: Bulacan, Cagayan, NCR, Pampanga, Quezon, Rizal, Mindanao: Davao, Davao Del Sur, Mindoro, Polillo), Ryukyu Isls, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
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EX



A leaves



B inflorescence

Family: Combretaceae

Scientific Name: *Lumnitzera littorea* (Jack) Voigt

Local Names: Tabao, Culasi

Synonym: *Bruguiera littorea* (Jack) Steud., *Laguncularia coccinea* Gaudich., *Laguncularia haenkei* Endl., *Laguncularia pedicellata* Steud., *Laguncularia purpurea* Gaudich., *Lumnitzera coccinea* (Gaudich.) Wight & Arn., *Lumnitzera pedicellata* C.Presl, *Lumnitzera pentandra* Griff., *Lumnitzera purpurea* (Gaudich.) C.Presl, *Petaloma coccineum* Blanco, *Pirrhanthus littoreus* Jack, *Pokornya ettingshauseni* Montrouz., *Pyrrhanthus littoreus* Jack

Description: A medium to tall tree with dark brown bark. The leaves are simple, alternate, spiral in arrangement, and obovate in shape. It has a bright red flowers and it has a vase-shaped, smooth, and dark green color fruit.

Uses: The branches can be utilized for fuel and for smoking fish. The leaves through the process of decoction is used to treat thrush in infants (Primavera et al. 2004).

Endemism: **Native**

Distribution: Andaman Isls, Australia, Borneo, Cambodia, China, India, Indian Ocean, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, Myanmar, New Guinea, Nicobar Isls, Pacific Ocean, Philippines, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
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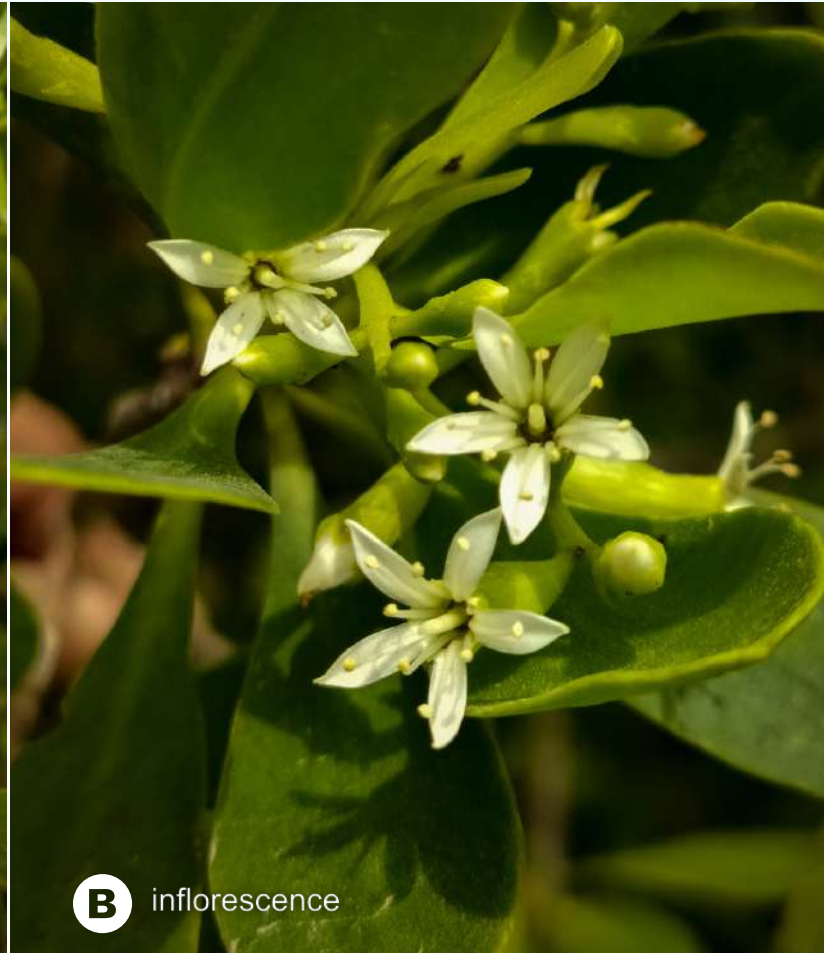
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EX



A leaves



B inflorescence

Family: Combretaceae

Scientific Name: *Lumnitzera racemosa* Willd.

Local Names: Culasi, Tabao

Synonym: *Bruguiera madagascariensis* DC., *Combretum alternifolium* Herb.Madr., *Combretum alternifolium* Herb.Madr. ex Wight & Arn., *Funckia karakandel* Dennst., *Lumnitzera edulis* Blume, *Lumnitzera edulis* Blume ex Laness., *Lumnitzera japonicum* (Thunb.) Sa.Kurata, *Lumnitzera racemosa* subsp. *pubescens* Koord. & Valeton, *Lumnitzera racemosa* var. *pubescens* Koord. & Valeton, *Petaloma alba* Blanco, *Petaloma albiflorum* Zipp., *Petaloma albiflorum* Zipp. ex Span., *Petaloma alternifolium* Roxb., *Pokornya ettingshauseni* Montrouz., *Problastes cuneifolia* Reinw., *Pyrrhanthus albus* Wall.

Description: A shrub to tree growing plant. The leaves are simple, succulent, alternate in arrangement, and obovate in shape. Flower small and white.

Uses: Used as decorative/ornamental and firewood in local communities. The leaves of the plant are used as forage, providing a source of nutrition for livestock (Primavera et al. 2004).

Endemism: **Native**

Distribution: Africa, Andaman Isls, Australia, Bangladesh, Borneo, Cambodia, China, India, Indian Ocean, Java, Korea, Lesser Sunda Isls, Madagascar, Malay Peninsula, Moluccas, Myanmar, New Caledonia, New Guinea, Nicobar Isls, Pacific Ocean, Philippines (Cebu, Luzon: Bataan, Bulacan, NCR, Quezon, Rizal, Zambales, Mindanao: Davao DEL Sur, Mindoro, Negros, Olango, Panay, Semirara), Ryukyu Isls, Sri Lanka, Sulawesi, Sumatra, Taiwan, Vietnam. (Pelser et al. 2011).

Conservation Status:
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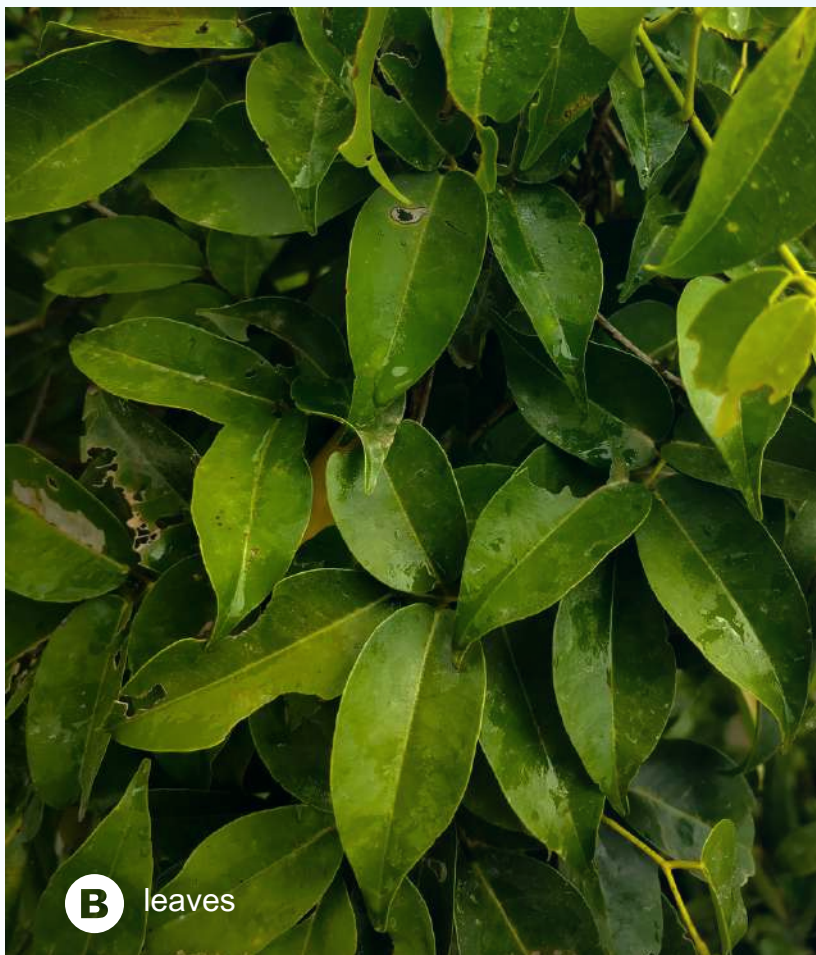
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EX



A phyllotaxy



B leaves

Family: Euphorbiaceae

Scientific Name: *Excoecaria agallocha* L.

Local Names: Lipata, buta-buta

Synonym: *Commia cochinchinensis* Lour., *Excaecaria agallocha* var. *genuina* Müll.Arg., *Excaecaria agallocha* var. *ovalis* Müll.Arg., *Excoecaria affinis* Endl., *Excoecaria agallocha* subsp. *camettia* (Willd.) Müll.Arg., *Excoecaria agallocha* subsp. *genuina* Müll.Arg., *Excoecaria agallocha* subsp. *lancifolia* Pax & K.Hoffm., *Excoecaria agallocha* subsp. *orthostichalis* Müll.Arg., *Excoecaria agallocha* subsp. *ovalis* (Endl.) Müll.Arg., *Excoecaria agallocha* var. *camettia* (Willd.) Müll.Arg., *Excoecaria agallocha* var. *genuina* Müll.Arg., *Excoecaria agallocha* var. *lancifolia* Pax & K.Hoffm., *Excoecaria agallocha* var. *orthostichalis* Müll.Arg., *Excoecaria agallocha* var. *ovalis* (Endl.) Müll.Arg., *Excoecaria camettia* Willd., *Excoecaria ovalis* Endl., *Excoecaria sphaerosperma* F.Muell., *Excoecaria sphaerosperma* F.Muell. ex Pax, *Stilingia agallocha* (L.) Baill., *Stilingia agallocha* (L.) Baill.

Description: The tree is characterized by its distinctive milky sap with grayish to brownish bark. Leaves simple, oval to drop-shaped, and spirally arranged. These trees exist in two distinct genders, either male or female (dioecious). Male blossoms take the form of hanging tassels, whereas female blossoms manifest as shorter spikes.

Uses: Source of latex, oil is extracted to cure skin diseases, bark chewed to cure constipation. Also twigs are used as insect repellent and the leaves are used to treat epilepsy (Primavera et al. 2004).

Endemism: Native

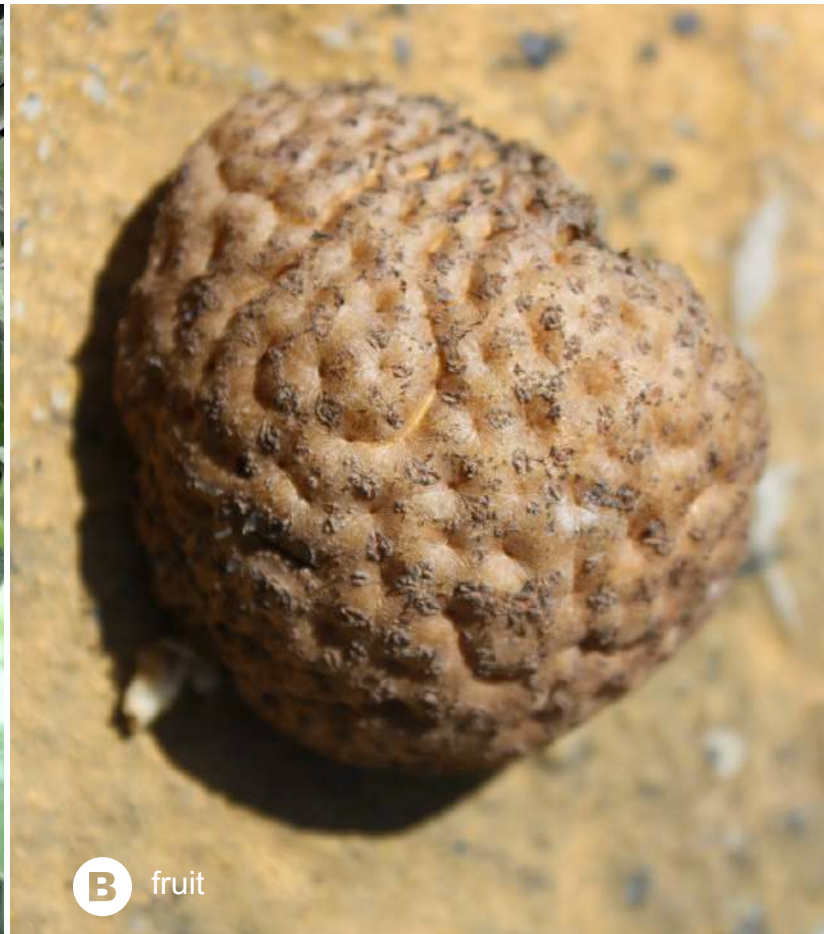
Distribution: India to Taiwan and Ryukyu Isls, Malesia, Pacific Ocean. Throughout the Philippines along the seashore or within the influence of salt or brackish water (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)

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A habit



B fruit

Family: Fabaceae

Scientific Name: *Cynometra ramiflora* L.

Local Name: Katong

Synonym: *Cynomorium sylvestre* Rumph., *Cynometra bijuga* Span., *Cynometra carolinensis* var. *glabrescens* Kaneh., *Cynometra neo-caladonica* Guill., *Cynometra ramiflora* subsp. *genuina* Prain, *Cynometra ramiflora* var. *bijuga* Prain, *Cynometra ramiflora* var. *mimosoides* Wall., *Cynometra schumannia* Harms, *Cynomorium sylvestre* Rumph., *Maniltoa carolinensis* (Kaneh.) Hosok.

Description: A medium to large-sized tree. The leaves are compound, with leaflets arranged alternately along the rachis. The fruit is a pod, elliptic to almost round, brown with a roughened or wrinkled surface and it is edible.

Uses: Utilized for timber and products, usually used to make door-posts, or for construction locally. The fruits are consumed by birds and mammals, contributing to seed dispersal.

Endemism: **Native**

Distribution: Leyte, Batangas, Cagayan, Isabela, Laguna, Quezon, Malapackun, Agusan, Agusan del Norte, Davao, Lanao, Maguindanao del Norte, Misamis Occidental, Zamboanga Sibugay, Mindoro, Palawan, Sulu Archipelago, Tawi-Tawi (Pelser et al. 2011).

Conservation Status:
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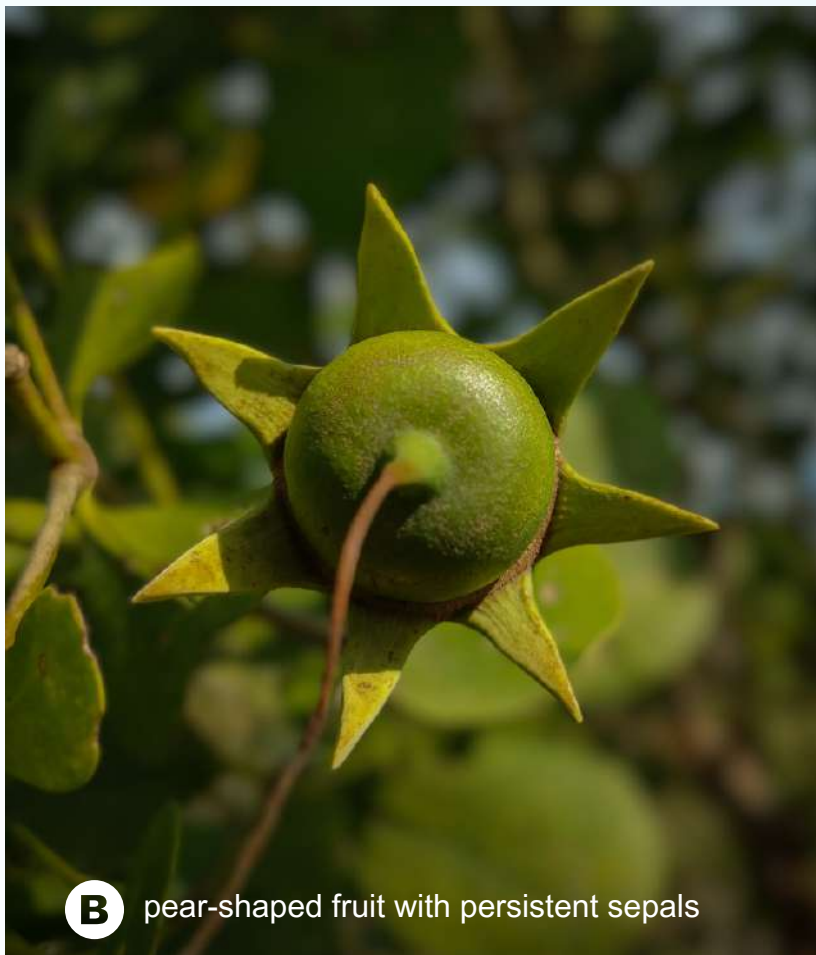
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EX



A leaves



B pear-shaped fruit with persistent sepals

Family: Lythraceae

Scientific Name: *Sonneratia alba* Sm.

Local Name: Pagatpat

Synonym: *Blatti alba* (Sm.) Kuntze, *Blatti leucantha* (Montrouz.) Kuntze, *Blatti pagatpat* (Blanco) Nied., *Chiratia leucantha* Montrouz., *Sonneratia acida* Benth., *Sonneratia acida* var. *mossambicensis* (Klotzsch) Mattei, *Sonneratia alba* var. *iriomotensis* (Masam.) Masam., *Sonneratia griffithii* Watson, *Sonneratia iriomotensis* Masam., *Sonneratia mossambicensis* Klotzsch, *Sonneratia mossambicensis* Klotzsch ex Peters, *Sonneratia pagatpat* Blanco

Description: Leaves opposite in arrangement with elliptic to obovate shape. The fruits are hard, green in color, and somewhat in pear-shaped with persistent sepals.

Uses: The fruits are edible. It is utilized as timber and products and used for industrial compounds (Primavera et al. 2004).

Endemism: Native

Distribution: Africa, Andaman Isls, Australia, Bangladesh, Bismarck Arch, Borneo, Cambodia, China, Indian Ocean, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, Myanmar, New Caledonia, New Guinea, Nicobar Isls, Pacific Ocean, Philippines (Alabat, Boaan, Luzon: Ncr, Quezon, Mindanao: Cotabato, Misamis, Mindoro, Olango, Palawan, Semirara), Ryukyu Isls, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)

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A inflorescence



B fruit

Family: Lythraceae

Scientific Name: *Sonneratia caseolaris* (L.) Engl.

Local Name: Pedada

Synonym: *Aubletia caseolaris* (L.) Gaertn., *Blatti acida* (L.fil.) Lam., *Blatti caseolaris* (L.) Kuntze, *Rhizophora caseolaris* L., *Sonneratia acida* L.fil., *Sonneratia caseolaris* (L.) Druce, *Sonneratia evenia* Blume, *Sonneratia neglecta* Blume, *Sonneratia obovata* Blume, *Sonneratia ovalis* Korth., *Sonneratia rubra* Oken

Description: This mangrove species can be observed in the muddy substrate of low salinity upstream riverbanks. The leaves are simple, opposite in arrangement, and elliptic in shape. Flowers red in color with 4-6 petals and 4-7 lobed green sepals. Fruit rounded, shiny, and green in color.

Uses: The bark produces tannin, the leaves are fed to goats and cows, and the branches are utilized as firewood (Primavera et al. 2004).

Endemism: Native

Distribution: Andaman Isls, Australia, Bangladesh, Bismarck Arch, Borneo, Cambodia, China, India, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, New Caledonia, New Guinea, Nicobar Isls, Pacific Ocean, Pakistan, Philippines, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam. (Pelsler et al. 2011).

Conservation Status:
(IUCN 2022-2)

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A habit

B fruit

Family: Malvaceae

Scientific Name: *Heritiera littoralis* Dryand. ex W. Ait.

Local Name: Dungon

Synonym: *Heritiera littoralis* subsp. *littoralis*, *Heritiera littoralis* subsp. *ralima* Arènes

Description: It is a low-branching and bushy tree. The leaves are dark green above and scaly silvery white to brown on the underside; it is spirally arranged with a leathery stalked and a stiff leaf blades that are oblong-elliptical to egg-shaped-elliptical. The fruits are glossy brown, woody, and ellipsoid to oblong egg-shaped.

Uses: The plant has been used to treat indigestion, diarrhea, and dysentery, mainly in the seed that is mainly obtained through decoction (Wangensteen et al. 2013). Also utilized for timber and product.

Endemism: Native

Distribution: Africa, Andaman Isls, Bangladesh, Bismarck Arch, Borneo, Cambodia, China, India, Indian Ocean, Java, Lesser Sunda Isls, Madagascar, Malay Peninsula, Moluccas, Myanmar, New Caledonia, New Guinea, Nicobar Isls, Pacific Ocean, Philippines, Ryukyu Isls, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Taiwan, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
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A habit



B fruit

Family: Meliaceae

Scientific Name: *Xylocarpus granatum* J.Koenig

Local Name: Tabigi

Synonym: *Amoora salomonensis* C.DC., *Carapa carnosula* (Zoll. & Moritzi) Kurz, *Carapa carnosula* (Zoll. & Moritzi) Kurz, *Carapa granatum* (J.Koenig) Alston, *Carapa indica* A.Juss., *Carapa obovata* Blume, *Granatum obovatum* (Blume) Kuntze, *Guarea oblongifolia* Griff., *Monosoma littorata* Griff., *Xylocarpus benadirensis* Mattei, *Xylocarpus carnosus* Zoll. & Moritzi, *Xylocarpus minor* Ridl., *Xylocarpus obovatus* (Blume) A.Juss., *Xylocarpus obovatus* (Blume) Spreng., *Xylocarpus obovatus* var. *macrophyllus* Pierre,

Description: This is a relatively small to medium-sized evergreen tree. The buttresses and above-ground roots extend over significant distances in both directions. The bark is brown and smooth, and it peels off in flakes. The leaves are arranged spirally on the twigs, with a pinnate structure and typically two to four pairs of leaflets. When young, the leaves are a pale green, darkening as they age. The inflorescence appears as a short panicle either in the leaf axils or at the tip of the branch. The individual flowers, with parts occurring in groups of four, and come in white or pinkish-yellow colors. Fruits brown, woody capsules, grapefruit- to small pomelo-sized.

Uses: construction material, furniture making, and the fruits and seeds are used to treat diarrhea (Primavera et al. 2004).

Endemism: Native

Distribution: Africa, Andaman Isls, Bangladesh, Bismarck Arch, Borneo, Cambodia, India, Indian Ocean, Java, Lesser Sunda Isls, Madagascar, Malay Peninsula, Moluccas, Myanmar, New Caledonia, New Guinea, Nicobar Isls, Pacific Ocean, Philippines, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam (Pelsner et al. 2011).

Conservation Status:
(IUCN 2022-2)

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EX



A leaves

B fruit

Family: Meliaceae

Scientific Name: *Xylocarpus moluccensis* (Lam.) M. Roem.

Local Name: Piagao

Synonym: *Carapa borneensis* Becc., *Carapa mekongensis* (Pierre) Pellegr., *Carapa moluccensis* Lam., *Carapa moluccensis* var. *elliptica* Koord. & Valetton, *Carapa moluccensis* var. *gangetica* Prain, *Carapa moluccensis* var. *ovalifolia* Koord., *Carapa moluccensis* var. *ovalifolia* Koord. ex Prain, *Carapa obovata* var. *microphylla* (Pierre) Pellegr., *Granatum moluccense* (Lam.) Kuntze, *Guarea oblongifolia* Griff., *Monosoma littorata* Griff., *Xylocarpus australasicus* Ridl., *Xylocarpus gangeticus* (Prain) C.E.Parkinson, *Xylocarpus mekongensis* Pierre, *Xylocarpus moluccensis* var. *ellipticus* (Koord. & Valetton) Harms, *Xylocarpus moluccensis* var. *gangeticus* (Prain) Craib, *Xylocarpus obovatus* var. *microphyllus* Pierre, *Xylocarpus parvifolius* Ridl.

Description: It is a medium to large-sized tree with leaves that are spirally arranged and usually consist of 2-3 leaflets. Leaflets are paired, oval to heart or egg-shaped, leathery, and with a broadly rounded to sharply tapered base. The fruit is broadly ellipsoid greenish-brown.

Uses: The plant has been traditionally used for various medicinal purposes including treatment of fever, dysentery, diarrhea, swelling, and abdominal disorders (Islam et al. 2020). Utilized also for timber and products.

Endemism: Native

Distribution: Palaeotropics from Africa to Pacific Ocean (Pelser et al. 2011).

Conservation Status:
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A leaves and curved fruit



B fruit

Family: Primulaceae

Scientific Name: *Aegiceras corniculatum* (L.) Blanco.

Local Names: Saging-saging, tinduk-tindukan

Synonym: *Aegiceras fragrans* J.Koenig, *Aegiceras fragrans* K.D.Koenig, *Aegiceras majus* Gaertn., *Aegiceras malaspinaea* A.DC., *Aegiceras minus* A.DC., *Aegiceras obcordatum* Steud., *Aegiceras obovatum* Blume, *Crateva corniculatum* (L.) L., *Malaspinaea laurifolia* C.Presl, *Rhizophora aegiceras* J.F.Gmel., *Rhizophora corniculata* L., *Umbraculum corniculatum* (L.) Kuntze

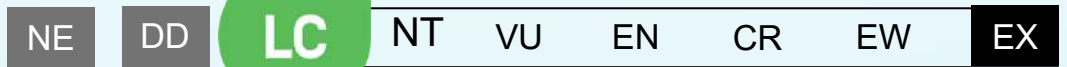
Description: A shrub to small tree mangrove plant. The leaves are elliptic to spoon-shaped while the fruit is crescent/curved-shaped.

Uses: Utilized as fuelwood and firewood (Primavera et al. 2004).

Endemism: **Native**

Distribution: Andaman Isls, Australia, Bangladesh, Cambodia, China, India, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, Myanmar, New Guinea, Nicobar Isls, Pacific Ocean, Philippines (Catanduanes, Coron, Dinagat, Leyte, Luzon: Aurora, Bataan, Bulacan, Isabela, NCR, Quezon, Rizal, Zambales, Mindanao: Cotabato, Davao, Davao Del Sur, Maguindanao Del Norte, Misamis Occidental, Surigao, Surigao Del Sur, Zamboanga Del Norte, Mindoro, Palaui, Palawan, Polillo, Samar, Tawi-Tawi), Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Vietnam (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)





A habit



B leaves



C straight fruit

Family: Primulaceae

Scientific Name: *Aegiceras floridum* Roem. & Schult.

Local Names: Saging-saging, Tinduk-tindukan

Synonym: *Aegiceras ferreum* Blume, *Aegiceras nigricans* A.Rich.

Description: A shrub to small mangrove tree with gray to brown outer bark. Leaves simple, opposite, and elliptic to ovate in shape. Fruit is somewhat straight like small banana with pink to red color.

Uses: The wood is used for fuel and the bark has a small amount of tannin (Primavera et al. 2004).

Endemism: **Native**

Distribution: Lesser Sunda Isls, Moluccas, New Guinea, Philippines (Culion, Palawan, Panay), Sulawesi (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)

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Family: Pteridaceae

Scientific Name: *Acrostichum speciosum* Willd.

Local Name: No local name recorded

Synonym: *Acrostichum aureum* var. *schmidtii* (Christ) C.Chr., *Acrostichum aureum* var. *speciosum* (Willd.) Domin, *Acrostichum aureum* var. *speciosum* (Willd.) T.Moore, *Acrostichum calamarium* W.Hunter, *Acrostichum fraxinifolium* R.Br., *Chrysodium aureum* var. *schmidtii* Christ, *Chrysodium fraxinifolium* (R.Br.) Fée, *Leptochilus raapii* Alderw.

Description: This species occurs in mangroves and brackish swamps. The fronds are large and pinnately compound. The opposite pinnae (leaflets) are oblong with a sharply pointed tip. The fertile pinnae are smaller than the sterile ones. They bear dark brown sporangia.

Uses: Used as traditional medicine. Usually the rhizome is crushed and applied to wounds and boils.

Endemism: **Native**

Distribution: Andaman Isls, Australia, Bismarck Arch, China, Indian Ocean, Lesser Sunda Isls, Malay Peninsula, Moluccas, New Caledonia, New Guinea, Nicobar Isls, Pacific Ocean, Philippines, Singapore, Solomon Isls, Sri Lanka, Sulawesi, Thailand, Vietnam (Pelsner et al. 2011).

Conservation Status:
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habit



leaves



propagules

Family: Rhizophoraceae

Scientific Name: *Bruguiera cylindrica* (L.) Blume

Local Names: Pototan, Busain

Synonym: *Bruguiera caryophyllaeoides* (J.F.Gmel.) Blume, *Bruguiera caryophylloides* (Burm.fil.) Blume, *Bruguiera malabarica* Arn., *Kanilia caryophylloides* Blume, *Rhizophora candelaria* Macrae, *Rhizophora candelaria* Macrae ex Blume, *Rhizophora caryophylloides* Burm.fil., *Rhizophora cylindrica* L.

Description: A small to medium-sized mangrove tree with rounded crown. The leaves are simple, opposite, elliptic, and have a glossy green appearance. Inflorescence cyme and axillary, having 8 white petals with brown hairs and 8 light green sepals. Propagules cylindrical and short, green to purple when mature.

Uses: Timber usually harvested for household and construction use (Primavera et al. 2004).

Endemism: Native

Distribution: Andaman Isls, Australia, Bangladesh, Bismarck Arch, Cambodia, India, Indian Ocean, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, Myanmar, New Guinea, Philippines, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
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A leaves and inflorescence



B leaves with young buds

Family: Rhizophoraceae

Scientific Name: *Bruguiera gymnorhiza* (L.) Lam.

Local Names: Pototan, Busain

Synonym: *Bruguiera capensis* Blume, *Bruguiera conjugata* (L.) Merr., *Bruguiera conjugata* f. *alba* Stone, *Bruguiera conjugata* subsp. *alba* Stone, *Bruguiera gymnorhiza* (L.) Lam. ex Savigny, *Bruguiera gymnorhiza* (L.) Lamk., *Bruguiera gymnorhiza* (Linnaeus, 1753) Sav., *Bruguiera gymnorhiza* f. *alba* (Stone) Fosberg, *Bruguiera gymnorhiza* var. *nana* Hatus., 1994, *Bruguiera gymnorhiza* var. *palun* Blume, *Bruguiera rhedii* Tul., *Bruguiera rheedei* Blume, *Bruguiera rumphii* Blume, *Bruguiera wightii* Blume, *Bruguiera zippelii* Blume, *Bruguiera zippelii* var. *oblongifolia* Blume, *Rhizophora conjugata* L., *Rhizophora gymnorhiza* L., *Rhizophora mucronata* Náves, *Rhizophora palun* DC., *Rhizophora rheedei* Steud., *Rhizophora tinctoria* Blanco

Description: has buttressed roots with knee-like pneumatophores, the bark is brown to almost black and deeply fissured. The leaves are opposite, blade elliptic-oblong, leathery with stipules often reddish

Uses: The fruits is used as substitute medicine for sore eyes. Use as charcoal and firewood (Primavera et al. 2004).

Endemism: Native

Distribution: Africa, Andaman Isls, Australia, Bangladesh, Borneo, Cambodia, China, India, Indian Ocean, Java, Lesser Sunda Isls, Madagascar, Malay Peninsula, Moluccas, Myanmar, New Guinea, Nicobar Isls, Pacific Ocean, Pakistan, Philippines, Ryukyu Isls, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam. (Pelser et al. 2011).

Conservation Status:
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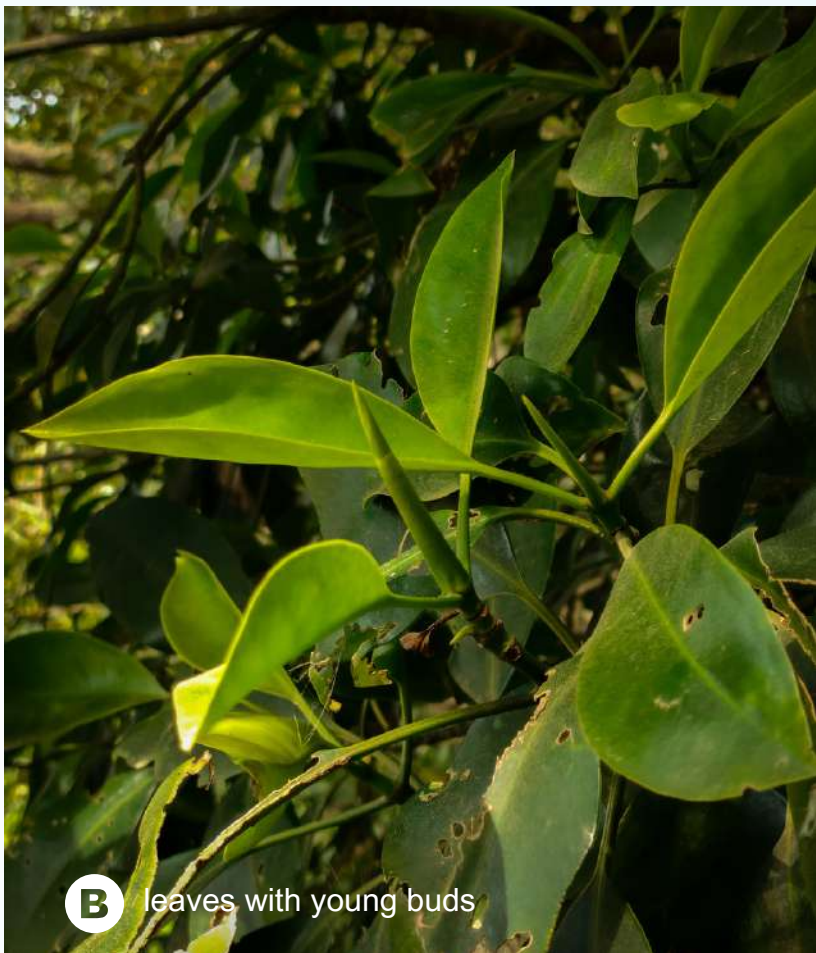
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A leaves



B leaves with young buds

Family: Rhizophoraceae

Scientific Name: *Bruguiera parviflora* (Roxb.) Wight & Arn. ex Griff.

Local Name: Lagarai

Synonym: *Bruguiera ritchiei* Merr., *Kanilia parviflora* Blume, *Rhizophora parviflora* Roxb., *Rhizophora pauciflora* Griff.

Description: This slender tree with grey, fissured bark and slightly flanged at the base. Its lateral roots emerge just below the surface, resembling bent knees. The leaves are elliptical with black dots beneath that turn yellowish-green as they age. It produces flowers in clusters of 3-7, sometimes up to 10 in a group, with ridged calyx tubes and straight, not curved, 8-lobed calyx lobes. The fruit is narrow and spirally rolled.

Uses: Traditionally, fruits are used to treat eye diseases and herpes. The bark is used as an astringent treatment for diarrhea and malaria (Bui et al. 2021). Wood is used foundation pilings, house posts, flooring, cabinetwork (Primavera et al. 2004) and as firewood or charcoal.

Endemism: Native

Distribution: Andaman Isls, Australia, Bangladesh, Borneo, Cambodia, China, India, Java, Lesser Sunda Isls, Malay Peninsula, Middle East, Moluccas, Myanmar, New Guinea, Sri Lanka, Sulawesi, Sumatra, Taiwan, Thailand, Vietnam (Pelsner et al. 2011).

Conservation Status:
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EX



A leaves

Family: Rhizophoraceae

Scientific Name: *Bruguiera sexangula* (Lour.) Poir.

Local Name: Pototan

Synonym: *Bruguiera australis* A.Cunn., *Bruguiera australis* A.Cunn. ex Arn., *Bruguiera eriopetala* Wight & Arn., *Bruguiera malabarica* F.-Vill., *Bruguiera oxyphylla* Miq., *Bruguiera parietosa* Griff., *Bruguiera sexangula* var. *sexangula*, *Bruguiera sexangularis* Spreng., *Rhizophora australis* (A.Cunn. ex Arn.) Steud., *Rhizophora eriopetala* (Wight & Arn.) Steud., *Rhizophora polandra* Blanco, *Rhizophora polyandra* Blanco, *Rhizophora sexangula* Lour.

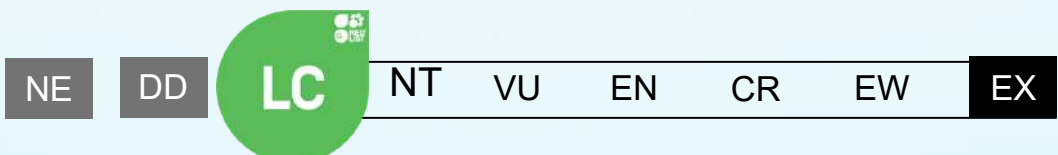
Description: It is a medium- to large-sized tree. When in flower, small clusters of reddish calyxes can be seen throughout the tree. The trunk has a greyish bark with fissures and many lenticils. It has fin-like buttresses, occasionally with stilt roots, and commonly with kneed roots that rise above the substrate.

Uses: Remedy for burns, sore eyes and shingles; fuelwood charcoal, construction material (Primavera et al. 2004).

Endemism: **Native**

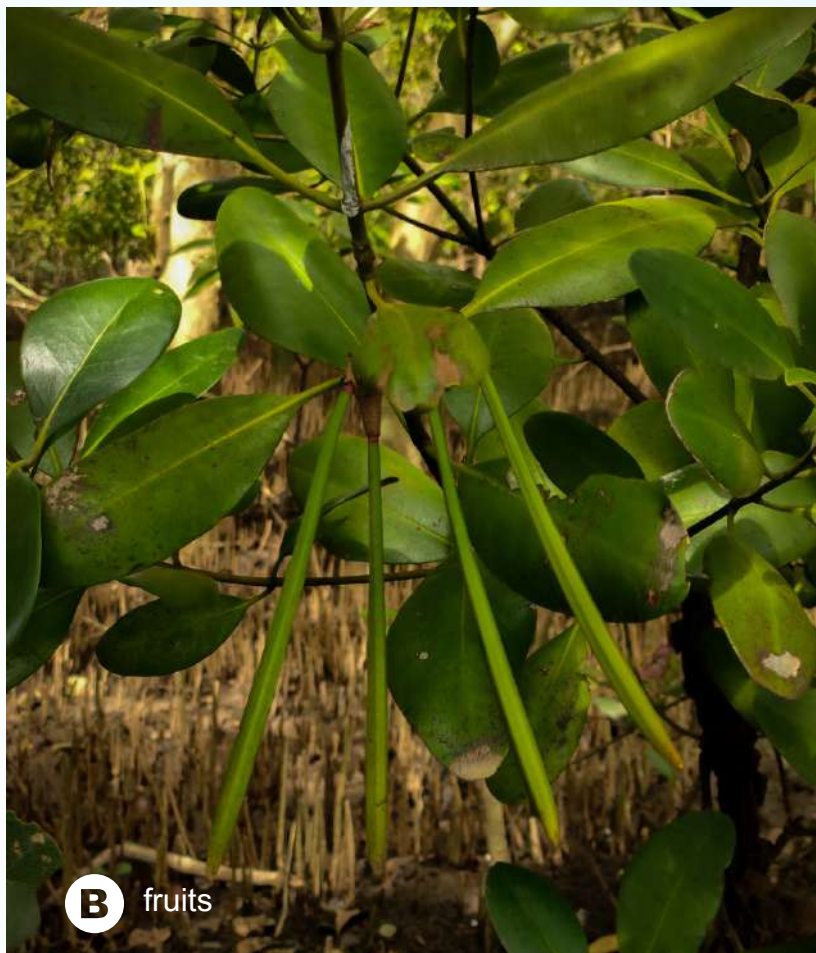
Distribution: Andaman Isls, Bangladesh, Bismarck Arch, Borneo, Cambodia, India, Indian Ocean, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, Myanmar, New Guinea, Philippines, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam. Basilan, Leyte, Luzon: Albay, Bataan, Bulacan, Cagayan, Camarines Sur, NCR, Quezon, Zambales, Mindanao: Davao Del Sur, Misamis, Zamboanga, Mindoro, Palau, Palawan, Panay, Samar, Semirara, Tawi-Tawi (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)





A leaves



B fruits

Family: Rhizophoraceae

Scientific Name: *Ceriops tagal* (Perr.) C.B.Rob.

Local Names: Tungog, Tagal

Synonym: *Bruguiera australis* A.Cunn., *Bruguiera australis* A.Cunn. ex Arn., *Bruguiera eriopetala* Wight & Arn., *Bruguiera malabarica* F.-Vill., *Bruguiera oxyphylla* Miq., *Bruguiera parietosa* Griff., *Bruguiera sexangula* var. *sexangula*, *Bruguiera sexangularis* Spreng., *Rhizophora australis* (A.Cunn. ex Arn.) Steud., *Rhizophora eriopetala* (Wight & Arn.) Steud., *Rhizophora polandra* Blanco, *Rhizophora polyandra* Blanco, *Rhizophora sexangula* Lour.

Description: Fruit is small, club-shaped or subovoid, surrounded near the base by the reflexed segments of the calyx.

Uses: Whole plant is considered astringent. Stem-bark considered vulnerary and anti-infective. Bark is astringent, hemostatic, and used as quinine substitute. Used also for fuel, charcoal, and house posts (Primavera et al. 2004).

Endemism: **Native**

Distribution: Africa, Andaman Isls, Australia, Cambodia, India, Indian Ocean, Madagascar, New Caledonia, Pacific Ocean, Philippines (Apulit, Basilan, Cullion, Dammal, Jolo, Leyte, Luzon: Bulacan, Cagayan, La Union, Quezon, Masbate, Minasawa, Mindanao: Davao, Davao Del Sur, Surigao, Zamboanga, Zamboanga Del Sur, Mindoro, Negros, Olango, Palau, Palawan, Panay, Polillo, Samar), Solomon Isls, Sri Lanka, Taiwan, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
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A Propagule

Family: Rhizophoraceae

Scientific Name: *Ceriops decandra* (Griff.) W.Theob.

Local Name: Baras-baras

Synonym: *Ceriops decandra* (Griff.) Ding Hou

Description: A shrub that thrives in compact mud or sandy-mud of inner mangroves. The leaves are simple, opposite in arrangement, and obovate in shape. The flowers are white, 6-8 per cluster, on short thick stalk. The propagules are cylindrical and pencil-shaped which is green and turn brown when mature.

Uses: This species is commonly utilized as firewood. The bark of mature trees are harvested to be processed as powder used in making local vinegar (Primavera et al. 2004).

Endemism: **Native**

Distribution: Java, Malaysia, Philippines, Singapore, Thailand, Vietnam (Pelsler et al. 2011).

Conservation Status:
(IUCN 2022-2)

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A habit



B fruit

Family: Rhizophoraceae

Scientific Name: *Rhizophora apiculata* Blume

Local Name: Bakhaw lalaki

Synonym: *Rhizophora candelaria* DC., *Rhizophora conjugata* Arn.

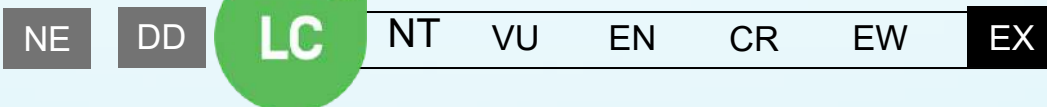
Description: The leaves are dark green, simple, flat, and elliptic in shape. It usually bears 2 sessile flowers on a very short peduncle. The fruit are long, smooth, and viviparous. Dark pink to red interpetiolar stipules.

Uses: For construction and piling; fishing stakes; raw material for crafting furniture, branches used as anchors; Firewood, charcoal; source of tannin.

Endemism: **Native**

Distribution: Andaman Isls, Australia, Bangladesh, Bismarck Arch, Borneo, Cambodia, China, India, Indian Ocean, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, Myanmar, New Guinea, Nicobar Isls, Pacific Ocean, Pakistan, Philippines, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
(IUCN 2022-2)





A habit



B leaves

Family: Rhizophoraceae

Scientific Name: *Rhizophora mucronata* Lamk.

Local Name: Bakhaw Babae

Synonym: *Rhizophora mucronata* var. *typica* A.Schimp.

Description: The tree is characterized by its stilt roots. Leaves are shining, oblong-elliptic and pointed at both ends. Cymes are axillary and bear 3 to 7 stalkless, white or cream-colored flowers. Fruit is ovoid, pendulous, brown or olive colored, the persistent calyx-lobes are reflexed.

Uses: Astringent, antiseptic, febrifuge, bark used for hematuria, diabetes, angina, boils, fungal infections. Leaves and bark used as antiseptic; used for diarrhea, dysentery, fever, malaria and leprosy. Also for fuel and charcoal (Primavera et al. 2004).

Endemism: **Native**

Distribution: Africa, Andaman Isls, Australia, Bangladesh, Borneo, Cambodia, India, Indian Ocean, Java, Lesser Sunda Isls, Malay Peninsula, Middle East, Moluccas, Myanmar, New Guinea, Nicobar Isls, Pacific Ocean, Pakistan, Ryukyu Isls, Sri Lanka, Sulawesi, Sumatra, Taiwan, Thailand, Vietnam (Pelser et al. 2011).

Conservation Status:
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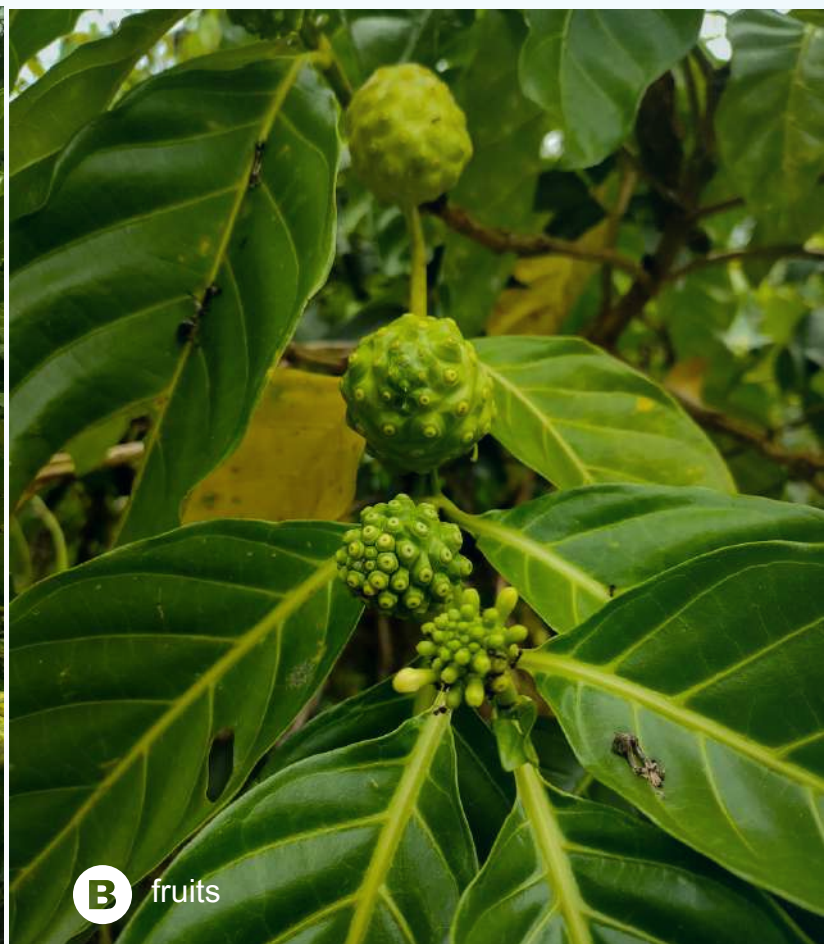
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A leaves



B fruits

Family: Rubiaceae

Scientific Name: *Morinda citrifolia* L.

Local Name: Noni

Synonym: *Morinda aspera* Wight & Arn., *Morinda citrifolia* f. *potteri* (O.Deg.) H.St.John, *Morinda citrifolia* subsp. *elliptica* Hook.f., *Morinda citrifolia* subsp. *potteri* (O.Deg.) H.St.John, *Morinda citrifolia* var. *citrifolia*, *Morinda citrifolia* var. *potteri* O.Deg., *Morinda coreia* subsp. *stenophylla* (Spreng.) Chandrab., *Morinda ligulata* Blanco, *Morinda littoralis* Blanco, *Morinda macrophylla* Desf., *Morinda mudia* Buch.-Ham., *Morinda multiflora* Roxb., *Morinda nodosa* Buch.-Ham., *Morinda pubescens* var. *aspera* (Wight & Arn.) M.Gangop., *Morinda quadrangularis* G.Don, *Morinda teysmanniana* Miq., *Morinda tinctoria* Noronha, *Morinda tinctoria* subsp. *aspera* (Wight & Arn.) Hook.f., *Morinda tinctoria* subsp. *multiflora* (Roxb.) Hook.f., *Morinda tinctoria* var. *aspera* (Wight & Arn.) Hook.f., *Morinda tinctoria* var. *multiflora* (Roxb.) Hook.f., *Morinda zollingeriana* Miq., *Platanocephalus orientalis* Crantz, *Samama citrifolia* (L.) Kuntze, *Sarcocephalus leichhardtii* F.Muell.

Description: A small evergreen tree or shrub. Flower white, small, perfect, ovoid to globose heads. Leaves opposite, pinnately veined and glossy. Blades membranous, elliptic to elliptic-ovate. Fruit lumpy, potato-shaped, and are yellowish white in color.

Uses: High valued food and medicinal source; used as hedge or fence

Endemism: **Native**

Distribution: Andaman Isls, Australia, Bangladesh, Bismarck Arch, Borneo, Cambodia, China, India, Indian Ocean, Java, Lesser Sunda Isls, Malay Peninsula, Moluccas, Myanmar, New Guinea, Nicobar Isls, Pacific Ocean, Philippines, Ryukyu Isls, Solomon Isls, Sri Lanka, Sulawesi, Sumatra, Taiwan, Thailand, Vietnam (Pelsner et al. 2011).

Conservation Status:
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FAUNA



FAUNA SPECIES LIST

AMPHIBIANS

- *Fejervarya moodiei* (Taylor, 1920)
- *Fejervarya vittigera* (Wiegmann, 1834)
- *Limnonectes cf. magnus* (Stejneger, 1910)
- *Kaloula pulchra* (Gray, 1831)
- *Hoplobatrachus rugulosus* (Wiegmann, 1834)
- *Polypedates leucomystax* (Gravenhorst, 1829)
- *Rhinella marina* (Linnaeus 1758)

REPTILES

- *Eutropis multifasciata* (Kuhl, 1820)
- *Varanus cumingi* Martin, 1839
- *Cerberus schneiderii* (Schlegel, 1837)
- *Acrochordus granulatus* (Schneider, 1799)
- *Indotyphlops braminus* (Daudin, 1803)
- *Gekko gecko* (Linnaeus 1758)
- *Hemidactylus frenatus* (Duméril & Bibron 1836)
- *Eutropis multicarinata* (Gray, 1845)
- *Lamprolepis smaragdina philippinica* (Mertens, 1928)

BIRDS

- *Todiramphus chloris* (Boddaert, P 1783)
- *Pycnonotus goiavier* (Scopoli, GA 1786)
- *Spilopelia chinensis*, Giovanni Antonio Scopoli, 1768
- *Caprimulgus affinis*, Thomas Horsfield, 1821
- *Cincloramphus timoriensis* (Wallace, AR 1864)
- *Passer montanus* (Linnaeus, C 1758)
- *Egretta garzetta* (Linnaeus, 1766)
- *Haliastur indus* (Boddaert, 1783)
- *Cinnyris jugularis* (Linnaeus, 1766)

NON-VOLANT MAMMALS

- *Rattus norvegicus* (Berkenhout, 1769)
- *Rattus tanezumi* (Temminck, 1845)

ARTHROPODS

- *Cephrenes acalle chrysozona* Plötz 1883
- *Taractrocera luzonensis luzonensis* Staudinger 1889
- *Hypolimnas bolina philippensis* Butler, 1874
- *Mycalesis frederici* Aoki & Uemura, 1982
- *Ypthima stelleri stelleri* Eschscholtz, 1821
- *Ypthima sempera chaboras* Fruhstorfer, 1911
- *Leptosia nina terentia* Fruhstorfer, 1910
- *Appias olferna peducaea* Fruhstorfer, 1910
- *Batocera magica* Thomson, 1859
- *Aspidimorpha miliaris* (Fabricius, 1775)

AMPHIBIANS





AMPHIBIANS



Family: Dicroglossidae

Scientific Name: *Fejervarya moodiei* (Taylor, 1920)

Common Name: Crab-Eating Frog

Description: A medium-sized frog which inhabits in mangrove swamps, brackish water swamps, marshes, and river mouth estuarine areas.

Ecological Role: Play an important role in the ecosystem as prey and predator. They help in controlling small invertebrate population and serve as prey for larger animals. Locals also consumed this species.

Endemism: **Philippine Endemic** (Sanguila et al. 2016)

Distribution: Widely distributed in the Philippines and common in coastal areas of NE Mindanao (Sanguila et al. 2016).

Conservation Status:
(IUCN 2022-2)

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AMPHIBIANS



Family: Dicroglossidae

Scientific Name: *Fejervarya vittigera* (Wiegmann, 1834)

Common Name: Luzon Wart Frog

Description: Can be easily identified at a distance by its loud “honking” advertisement call (Sanguila et al. 2016). This species can be observed in disturbed habitats with standing water.

Ecological Role: Play an important role in the ecosystem as prey and predator. They help in controlling insect population and serve as prey for larger animals. Harvested for human consumption.

Endemism: **Philippine Endemic**

Distribution: Widespread in the Philippines including Bohol, Cagraray, Caluya, Caramiguin Sur, Cebu, Cocomo, Dinagat, Guimaras, Leyte, Lubang, Luzon, Marinduque, Masbate, Mindanao, Mindoro, Negros, Palawan, Pan de Azucar, Panay, Polillo, Romblon Island Group (Diesmos et al. 2015).

Conservation Status:
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AMPHIBIANS



Family: Dicroglossidae

Scientific Name: *Limnonectes cf. magnus* (Stejneger, 1910)

Common Name: Mindanao Fanged Frog

Description: A large-bodied frog with muscular legs and have a huge head. Skin on dorsum smooth, slightly rugose laterally with irregular dark markings. Finger discs nonexpanded; discs of toes slightly expanded. Snout rounded in dorsal and lateral aspect.

Ecological Role: Play an important role in the ecosystem as prey and predator. They help in controlling small invertebrate population and serve as prey for larger animals. This species is also consumed by local residents.

Endemism: **Mindanao Faunal Regional Endemic** (Sanguila et al. 2016)

Distribution: Widely distributed all throughout the Mindanao faunal region including Basilan, Biliran, Bohol, Camiguin Sur, Dinagat, Leyte, Mindanao, Samar (Diesmos et al. 2015; Sanguila et al. 2016; Pitogo et al. 2021)

Conservation Status:
(IUCN 2022-2)

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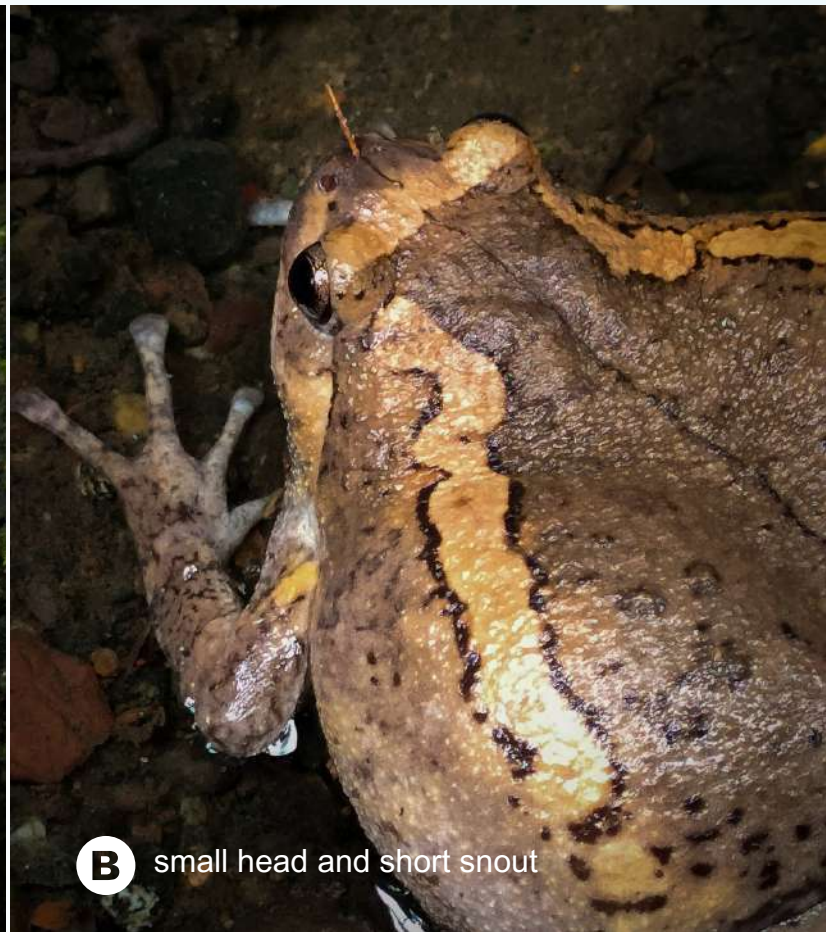
EX



AMPHIBIANS



A showing the two light brown dorsolateral bands



B small head and short snout

Family: Microhylidae

Scientific Name: *Kaloula pulchra* (Gray, 1831)

Common Name: The Banded Bullfrog

Description: The body is stocky with two light brown dorsolateral bands. The head is small and short with rounded snout. When threatened, the frog will inflate itself for protection.

Ecological Role: The introduction and spread of invasive species can have detrimental effects on local ecosystems, displacing native species, altering habitats, and potentially causing ecological imbalances.

Endemism: **Introduced - Invasive Alien Species (IAS)**

Distribution: Native to India, Bangladesh, Thailand, Myanmar, Vietnam, China, Cambodia, Singapore, Sumatra, Borneo, and Sulawesi. Introduced becoming widespread in the Philippines including Boracay, Cebu, Luzon, Leyte, Mindanao, Mindoro, Negros, Palawan, and Samar (Venturina et al. 2023)

Conservation Status:
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AMPHIBIANS



Family: Dicroglossidae

Scientific Name: *Hoplobatrachus rugulosus* (Wiegmann, 1834)

Common Name: Chinese Edible Frog

Description: A large-sized frog species that is commonly observed in rice paddies and heavenly disturbed agricultural areas (Mcleod et al. 2011; Brown et al. 2012)

Ecological Role: The introduction and spread of invasive species can have detrimental effects on local ecosystems, displacing native species, altering habitats, and potentially causing ecological imbalances.

Endemism: **Introduced - Invasive Alien Species (IAS)**

Distribution: Native throughout China and Southeast Asia. introduced in the Philippines, making it as an Invasive Alien Species (IAS) in the country (Diesmos et al., 2006)

Conservation Status:
(IUCN 2022-2)

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EX



AMPHIBIANS



Family: Rhacophoridae

Scientific Name: *Polypedates leucomystax* (Gravenhorst, 1829)

Common Name: Common Tree Frog

Description: Can be observed in disturbed habitats mostly seen perching on shrubs, bamboos, and leaves. It has a small to medium body with four dorsal lines running from the head, tapering towards the posterior end.

Ecological Role: Play an important role in the ecosystem as prey and predator. They help in controlling insect population and serve as prey for larger animals.

Endemism: **Native**

Distribution: Widespread in the Philippines (Diesmos et al. 2015; Sanguila et al. 2016)

Conservation Status:
(IUCN 2022-2)

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EX

AMPHIBIANS



Family: Bufonidae

Scientific Name: *Rhinella marina* (Linnaeus 1758)

Common Name: Cane Toad

Description: Contain a huge paratoid glands. This species is commonly abundant around human settlements, agricultural plantations, rice fields, and highly disturbed areas.

Ecological Role: The introduction of this non-native species in the Philippines pose a threat to our native species.

Endemism : **Introduced - Invasive Alien Species (IAS)**

Distribution: Native to Central and South America. Introduced and has now become widespread in the Philippines including Alabat, Bohol, Calayan, Catanduanes, Cebu, Cocomo, Dinagat, Gigantes Norte, Leyte, Lubang, Luzon, Marinduque, Masbate, Mindanao, Mindoro, Negros, Palawan, Panay, Polillo, Romblon Island Group, Sicogon, Samar, Ticao, Verde (Diesmos et al. 2015; Sanguila et al. 2016; Meneses et al. 2022; Venturina et al. 2023;)

Conservation Status:
(IUCN 2022-2)

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EX

REPTILES





REPTILES



Family: Scincidae

Scientific Name: *Eutropis multifasciata* (Kuhl, 1820)

Common Name: Common Sun Skink

Description: The scales on its back are smooth and glossy, while those on its belly are slightly keeled. This species is known for its unique coloration, which features a brown body with several dark brown or black stripes running from its head to its tail. Juveniles have a brighter coloration, with orange or reddish-brown stripes.

Ecological Role: Play an important role in the ecosystem as prey and predator. They help in controlling insect and small invertebrate population and serve as prey for larger animals.

Endemism: **Non-Endemic**

Distribution: Western landmasses of the Indo-Australian archipelago, southwest Asian and north-ward into Indochina. Occurs throughout the Philippines (Sanguila et al. 2016)

Conservation Status:
(IUCN 2022-2)

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Family: Varanidae

Scientific Name: *Varanus cumingi* Martin, 1839

Common Name: Mindanao Monitor Lizard

Description: With intensive yellow color pattern of the body and head as compared to other *Varanus* species. It is commonly observed in forest, marine intertidal, and agricultural areas.

Ecological Role: It controls the population of its prey such as rodents, birds, and other small vertebrate species. This species also acts as scavengers.

Endemism: **Mindanao Faunal Regional Endemic**

Distribution: Widespread in Mindanao

Conservation Status:
(IUCN 2022-2)

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REPTILES



Family: Homalopsidae

Scientific Name: *Cerberus schneiderii* (Schlegel, 1837)

Common Name: Dog-faced Water Snake

Description: The upper body is gray with stripes resembling blackish stripes. The underside of the body is creamy with dark gray or blackish patches. Its head is wider than its neck. The nostrils are closed (valvular), located at the top of the muzzle.

Ecological Role: predators in mangrove ecosystems

Endemism: **Non-Endemic**

Distribution: Coastal areas of Thailand, Malaysia, Gulf of Thailand, Cambodia, S Vietnam, Indonesia (Ambon, Waingapu, Sumba Island, Sumatra, Java, Bali, Komodo, Natuna islands, Sulawesi etc.), Philippines (Jagoliaou I., Bohol Province, Palawan, Luzon, Cebu, Dinagat Island, Negros, Catanduanes), Singapore.

Conservation Status:
(IUCN 2022-2)

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Family: Acrochordidae

Scientific Name: *Acrochordus granulatus* (Schneider, 1799)

Common Name: Little File Snake

Description: The colour usually grey or brown, with bold white, pale grey, or pale brown bands, which may cross the whole back, alternate, or form zigzags or other irregular patterning. Pattern boldest in juveniles. Older specimens may be almost uniform in colour. Underside a paler shade of the upper body colour.

Ecological Role: Being a fish-eating species, *Acrochordus granulatus* probably plays a substantial role in influencing the variety and population of fish in its habitat. Additionally, various vertebrate predators in their range hunt them as prey, and there is no record of parasites affecting this species (Mattison, 1995).

Endemism: **Non-Endemic**

Distribution: Coast of India (including the Nicobar Islands), Sri Lanka, Bangladesh through south-east Asia and north to China (Hainan Island), Borneo, the Philippines, Indonesia, New Guinea, the Solomon Islands, and northern Australia.

Conservation Status:
(IUCN 2022-2)

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EX



REPTILES



Family: Typhlopidae

Scientific Name: *Indotyphlops braminus* (Daudin, 1803)

Common Name: Brahminy Blindsnake

Description: Small, slender snake with smooth and shiny scales. Usually dark brown or slightly purple, sometimes gray, the abdomen is lighter, around the muzzle and the tip of the tail light. When molting, it looks bluish light gray.

Ecological Role: *Indotyphlops braminus* feeds on delicate invertebrates and serves a crucial function as a secondary consumer in the ecosystem by helping maintain the equilibrium of small invertebrate populations, such as ants and termites.

Endemism: **Non-Endemic**

Distribution: In Maritime Southeast Asia, it occurs on Sumatra and nearby islands (the Riau Archipelago, Bangka, Billiton and Nias), Borneo, Sulawesi, the Philippines, Butung, Salajar, Ternate, Halmahera, Buru, Ceram, Ambon, Saparua, Java, Bali, Lombok, Sumbawa, Madura, Flores, Lombok, Sumba, Timor, East Timor, Kai Island, the Aru Islands, New Guinea (Western Papua and Papua New Guinea), New Britain, and Bougainville Island.

Conservation Status:
(IUCN 2022-2)

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EX



Family: Gekkonidae

Scientific Name: *Gekko gekko* (Linneus 1758)

Common Name: Tokay Gecko

Description: known for its blue-gray color, orange spots, and distinctive pattern of stripes on its body.

Ecological Role: Geckos play a vital role in the Philippines' ecosystem by consuming insects and small invertebrates, contributing to the regulation of their numbers. Simultaneously, geckos themselves become targets for larger predators like snakes and birds of prey. The presence of geckos serves to uphold a harmonious equilibrium among various species, promoting the overall health of the environment.

Endemism: **Non-Endemic**

Distribution: This species occurs in northeast India, Bhutan, Nepal, and Bangladesh, throughout Southeast Asia, including Thailand, the Philippines, Malaysia and Indonesia, and to western New Guinea. The Tokay Gecko is also found throughout the Philippines, but it is more common in the southern regions.

Conservation Status:
(IUCN 2022-2)

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EX



Family: Gekkonidae

Scientific Name: *Hemidactylus frenatus* (Duméril & Bibron 1836)

Common Name: Common House Gecko

Description: The tail has a somewhat cylindrical shape and features a line of small spines along both the top and sides. The back is smooth with minor raised bumps. Its coloration tends to be a subdued brown or gray, possibly with darker or lighter streaks. During nighttime, it may appear white or light gray. The underside is somewhat whitish in color.

Ecological Role: In the Philippines, geckos hold a significant role within the local food chain. They consume insects and small invertebrates, thereby aiding in the regulation of these populations. Conversely, geckos themselves become targets for larger predators like snakes and birds of prey. Geckos' presence within the ecosystem contributes to sustaining a delicate equilibrium among various species, which is fundamental for a thriving and healthy environment.

Endemism: **Non-Endemic**

Distribution: Native to Southeast Asia; originated from countries such as India, Malaysia, and Thailand, they have now expanded to other regions such as Africa, Australia, and the Americas

Conservation Status:
(IUCN 2022-2)

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EX



Family: Scincidae

Scientific Name: *Eutropis multicarinata* (Gray, 1845)

Common Name: Philippine Mabuya

Description: The body size is medium, measuring 61-72 mm in adults. The interparietal is large, with parietals not touching or sometimes fused to the nuchal. There are 34-39 paravertebral scales. The total number of subdigital lamellae on all five toes of one foot ranges from 74 to 80. The ventral scales have 24-29 rows. Midbody scales have 30-33 rows. Dorsal and lateral body scales have moderately defined keels, numbering between 5 and 10. The lower eyelid is covered in scales. There are 4-5 supraciliaries. The prefrontals are either separated or in contact. Two primary temporal scales are present. The dorsal and lateral body surfaces exhibit a relatively uniform bronze and dark brown coloration without prominent light stripes (Barley et al. 2020).

Ecological Role: Generally, these species are insectivores, they have a voracious appetite for a variety of insects and invertebrates. This dietary preference makes them efficient pest managers, contributing to the control of insect populations in their environments. This helps in reducing the numbers of potentially damaging insects in plants and crops.

Endemism: **Philippine Endemic**

Distribution: Occur syntopically on Mindanao, Agusan del Sur, Samar, Camiguin Sur and Dinagat Island, and assumed that the Leyte populations were representative of true *E. multicarinata*.

Conservation Status:
(IUCN 2022-2)

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REPTILES



Family: Scincidae

Scientific Name: *Lamprolepis smaragdina philippinica* (Mertens, 1928)

Common Name: Philippine Green Tree Skink

Description: They exhibit a vibrant lime green hue, featuring sizable black eyes outlined in yellow. Nevertheless, their hind limbs or the lower part of their body can display a medium brown shade with white speckles. Alternatively, their entire body may appear brown, sometimes intermingled with black markings. Their typical length ranges between 8.5 to 10 inches.

Ecological Role: Typically, these species are insectivorous, displaying a strong appetite for a wide range of insects and invertebrates. This dietary choice enhances their effectiveness as pest controllers, aiding in the regulation of insect populations within their ecosystems and, consequently, mitigating the potential harm to agricultural crops.

Endemism: **Philippine Endemic**

Distribution: Panay, Luzon, Palawan, Cebu Agusan del Norte, Agusan del Sur, Camiguin Sur, Dinagat Island, Surigao del Norte

Conservation Status:
(IUCN 2022-2)

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EX

BIRDS





Family: Alcedinidae

Scientific Name: *Todiramphus chloris* (Boddaert, P 1783)

Common Name: White-Collared Kingfisher

Description: Varies from blue to green above while the underparts can be white or buff. There is a white collar around the neck, giving the bird its name. Some races have a white or buff stripe over the eye while others have a white spot between the eye and bill.

Ecological Role: Opportunistic generalist carnivores feed on a wide range of prey depending on their location and availability of food resources.

Endemism: **Non-Endemic**

Distribution: From the Arabian Gulf and Red Sea throughout southern and south-eastern Asia, Indonesia, New Guinea, northern Australia, Vanuatu, Fiji, Tonga, Samoa and the Solomon Islands.

Conservation Status:
(IUCN 2022-2)

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Family: Pycnonotidae

Scientific Name: *Pycnonotus goiavier* (Scopoli, GA 1786)

Common Name: Yellow-Vented Bulbul

Description: It has a brownish-olive plumage on its upperparts and a yellow vent (lower part of the bird's body). This species has a distinctive black crown and face with a white nape (back of the neck)

Ecological Role: This species is omnivorous and also feeds on insects, spiders, and other invertebrates, hence, important in controlling insect populations.

Endemism: **Non-Endemic**

Distribution: Peninsular Malaysia, Sumatra (including Riau and Lingga Archipelagos, Bangka, Belitung), Java (including Kangean Is), Bali, Lombok and Sumbawa (Fishpool et al. 2020).

Conservation Status:
(IUCN 2022-2)

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Family: Columbidae

Scientific Name: *Spilopelia chinensis*, Giovanni Antonio Scopoli, 1768

Common Name: Eastern spotted dove

Description: The ground colour of this long and slim dove is rosy buff below shading into grey on the head and belly. One of the most distinctive features is the presence of black spots on its wings and a black collar on the back of the neck.

Ecological Role: Primarily feed on seeds, grains, and other plant matter. They may also consume small insects and invertebrates.

Endemism: **Non-Endemic**

Distribution: Found in a wide range of habitats across southern Asia, including parts of India, Southeast Asia, and southern China. It has also been introduced to other regions, including Australia and the Middle East.

Conservation Status:
(IUCN 2022-2)

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Family: Caprimulgidae

Scientific Name: *Caprimulgus affinis*, Thomas Horsfield, 1821

Common Name: Savanna nightjar

Description: Its upperparts display a brownish-grey, vermiculated pattern with light brown speckles, while the underparts are brown and have bars.

Ecological Role: This species feeds on flying insects and other invertebrates, hence, important in controlling insect populations

Endemism: **Non-Endemic**

Distribution: Mindanao, Sulu Archipelago,

Conservation Status:
(IUCN 2022-2)

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Family: Locustellidae

Scientific Name: *Cincloramphus timoriensis* (Wallace, AR 1864)

Common Name: Tawny Grassbird

Description: It features streaked plumage on its upper body and a notable dark brown crown. Its underparts are lighter in color, and it possesses a lengthy, graduated tail. This bird frequently emits vocalizations, including distinctive "loud, grumpy churring calls" and a longer call pattern that initiates with a series of ticking sounds and concludes with an explosive, descending trill.

Ecological Role: This species feeds on insects and other invertebrates, hence, important in controlling insect populations.

Endemism: **Non-Endemic**

Distribution: Australia, Indonesia, Papua New Guinea, Philippines, Timor-Leste.

Conservation Status:
(IUCN 2022-2)

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Family: Passeridae

Scientific Name: *Passer montanus* (Linnaeus, C 1758)

Common Name: Eurasian Tree Sparrow

Description: This species have a brownish-gray crown, a chestnut-brown patch on the back of the head, and a black spot on each cheek. The underparts are pale gray, and there is a black patch on the throat

Ecological Role: Primarily feed on seeds, grains, and other plant matter. Important seed disperser.

Endemism: **Non-Endemic**

Distribution: The Eurasian Tree Sparrow has a vast distribution across Eurasia. Its range extends from Western Europe and Asia to Southeast Asia.

Conservation Status:
(IUCN 2022-2)

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Family: Ardeidae

Scientific Name: *Egretta garzetta* (Linnaeus, 1766)

Common Name: Little Egret

Description: A small heron with all-white plumage, slender dark bill, blackish legs, and yellowish feet. Inhabit a variety of wetland habitats, including coastal areas, estuaries, rivers, lakes, ponds, and marshes.

Ecological Role: Being an aquatic bird, it primarily hunts for food in shallow water and on land, where it preys on various small creatures.

Endemism: **Non-Endemic**

Distribution: It can be found in various parts of the world. Its range includes Europe, Africa, Asia, and Oceania.

Conservation Status:
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Family: Accipitridae

Scientific Name: *Haliastur indus* (Boddaert, 1783)

Common Name: Brahminy Kite

Description: This is a medium-sized bird of prey that primarily resides in coastal and inland wetlands, feeding on carrion and other prey. The Brahminy kite is known for its striking and contrasting coloration, which makes it stand out. Adults are easily identifiable by their reddish-brown body plumage and white head and breast.

Ecological Role: These birds are opportunistic predators and scavengers. Their presence help control the populations of small fish and other aquatic organisms, which can contribute to the overall health of these ecosystems.

Endemism: **Non-Endemic**

Distribution: found in the Indian subcontinent, Southeast Asia, and Australia

Conservation Status:
(IUCN 2022-2)

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Family: Nectariniidae

Scientific Name: *Cinnyris jugularis* (Linnaeus, 1766)

Common Name: Olive-backed Sunbird

Description: They have long curved bills, a plain olive back, a yellow belly, and white tail edges that are flared out in flight.

Ecological Role: Feed on nectar, using their specialized long, curved bills to extract it from flowers. Important as polinator.

Endemism: **Native**

Distribution: Australia, Brunei Darussalam, Cambodia, China, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Papua New Guinea, Philippines, Singapore, Solomon Islands, Thailand, and Vietnam (IUCN 2022-2)

Conservation Status:
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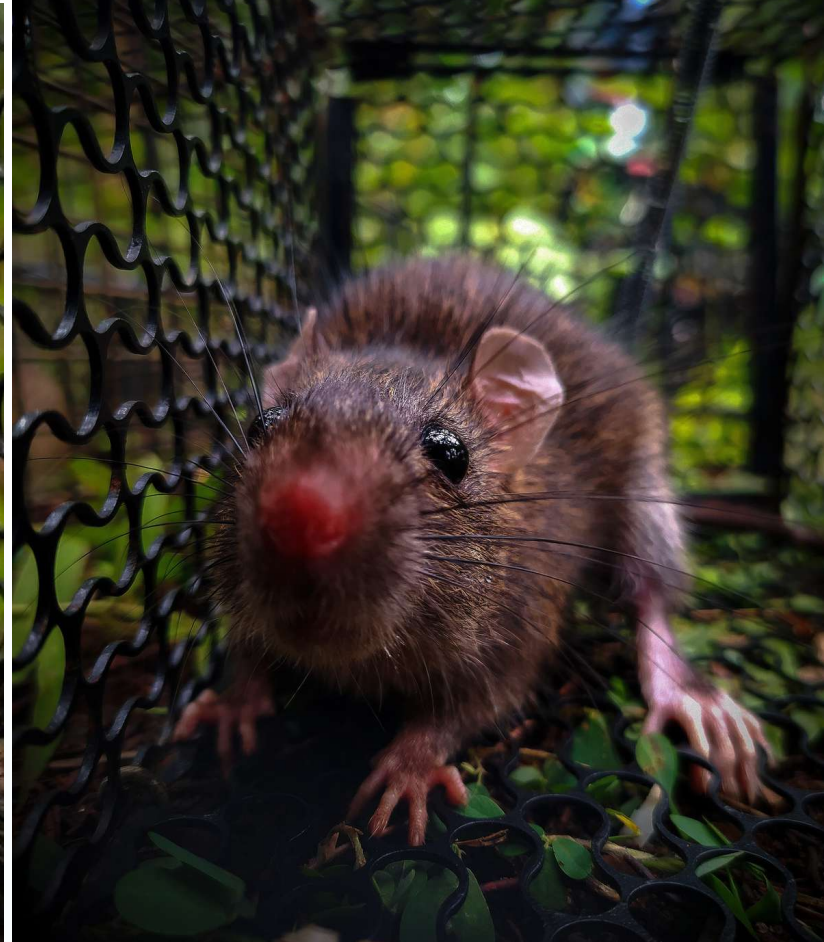
EX

Small Non-Volant Mammals





NON-VOLANT



Family: Muridae

Scientific Name: *Rattus norvegicus* (Berkenhout, 1769)

Common Name: Brown Rat

Description: These are large rodents with rough, brownish fur in the wild, sometimes with black or white spots, which lightens to gray or tan on their underside. In captivity, they come in various colors like white, brown, or black. Their ears and tails are hairless, and the tail is shorter than their body. Their ears are shorter than those of related species and don't cover their eyes when folded down.

Ecological Role: Highly effective competitors, often displacing other rat species like *Rattus rattus*. They assist in seed dispersal due to their foraging behavior and contribute to soil aeration through their burrowing. They also serve as prey, supporting the populations of their predators

Endemism: Introduced

Distribution: Native to the Palearctic, mainly of Northeast China, Southeast Siberia and parts of Japan.

Conservation Status:
(IUCN 2022-2)

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EX



Family: Muridae

Scientific Name: *Rattus tanezumi* (Temminck, 1845)

Common Name: Asian House Rat

Description: A medium-sized rodent that has a variable fur color on the dorsal side from dark brown to gray. The tail of this species is noteworthy for being either the same length as the head and body or even longer.

Ecological Role: An alien invasive species and opportunistic omnivore, considered to be serious pests of rice.

Endemism: **Non-Endemic**

Distribution: Distributed across a broad range in Eastern, Southern, and Southeastern Asia, with its presence documented in countries such as Bangladesh, Bhutan, Cambodia, China, the Cocos (Keeling) Islands, Fiji, India, Indonesia, Japan, North Korea, South Korea, Laos, Malaysia, Myanmar, Nepal, the Philippines, Taiwan, Thailand, and Vietnam.

Conservation Status:
(IUCN 2022-2)

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EX



ARTHROPODS





ARTHROPODS



Family: HesperIIDae

Scientific Name: *Cephrenes acalle chrysozona* Plötz 1883

Common Name: Plain Palm Dart

Description: Dark brown color with orange-yellow markings in the hindwing and forewing. The adults quite are similar to *Telicota* spp. but are typically larger as compared to *Telicota* spp.

Ecological Role: Essential pollinators, seed dispersers and herbivores in the various ecosystem types.

Endemism: **Non-Endemic**

Distribution: Bohol, Cebu, Camiguin de Min, Camotes, Dinagat, Leyte, Luzon, Marinduque, Mindoro, Mindanao, Negros, Panay, Polilio, Samar, Sibuyan, and Catanduanes

Conservation Status:
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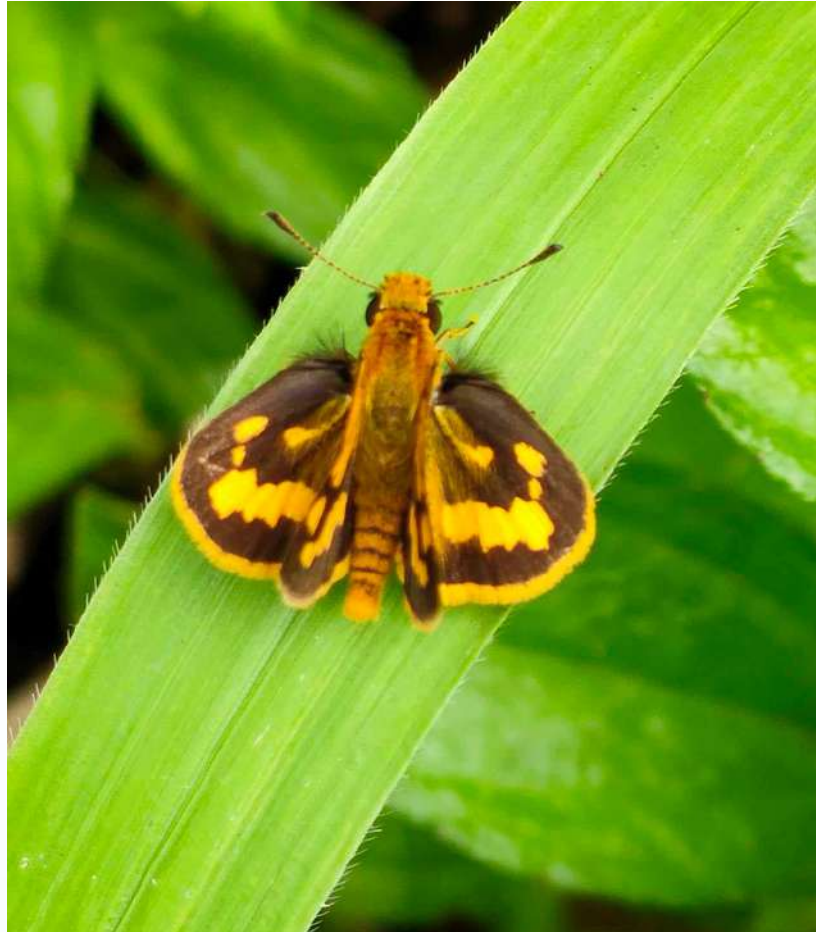
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EX

ARTHROPODS



Family: HesperIIDae

Scientific Name: *Taractrocera luzonensis luzonensis* Staudinger 1889

Common Name: Luzon Grass Dart

Description: They fold their wings vertically while feeding and keep them spread out, with the forewings and hind wings at distinct angles when at rest. Because the upper wing surfaces have markings that differ significantly from the underside, these varied postures frequently create the illusion that I am observing distinct species.

Ecological Role: Essential pollinators, seed dispersers and herbivores in the various ecosystem types.

Endemism: **Non-Endemic**

Distribution: Balabac, Basilan Cebu, Dinagat, Leyte, Luzon, Mapun, Marinduque, Masbate, Mdo, Mindoro, Negros, Palawan, Panay, Samar, Sibuyan

Conservation Status:
(IUCN 2022-2)



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A dorsal view

B ventral view

Family: Nymphalidae

Scientific Name: *Hypolimnys bolina philippensis* Butler, 1874

Common Name: Common Eggfly

Description: The species is black-bodied with a body length of 20mm. The dorsal forewings and hindwings have an iridescent blue-purple patch broadly centered with white spots. The forewing length ranged from 33-38mm; the forewing width ranged from 24-27mm; the hindwing length ranged from 29-30mm; the hindwing width ranged from 26-29mm. Thorax measures 10-12mm, while the abdomen measures 11-12mm. The antennae ranged from 15-17 mm.

Ecological Role: Essential pollinators, seed dispersers and herbivores in the various ecosystem types.

Endemicity: **Non-Endemic**

Distribution: Philippines excluding Batanes, Bongao, Jolo, Sanga Sanga, Sibutu, Tawi-Tawi.

Conservation Status:
(IUCN 2022-2)



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ARTHROPODS



A dorsal view



B ventral view

Family: Nymphalidae

Scientific Name: *Mycalesis frederici* Aoki & Uemura, 1982

Common Name: Frederici Bushbrown

Description: Having a brown wings color with a series of circular rings from its hindwing. The forewing length measures 23mm and the width measures 15-16mm. The hindwing length measures 19-20mm and the width measures 16mm. The thorax size is 5mm, the abdomen size is 8-9mm, and the body length measures 16mm. The antennae measure 11mm.

Ecological Role: Essential pollinators, seed dispersers and herbivores in the various ecosystem types.

Endemicity: **Philippine Endemic**

Distribution: Bohol, Camiguin de Mindanao, Leyte, Mindanao, Samar, Siargao.

Conservation Status:
(IUCN 2022-2)



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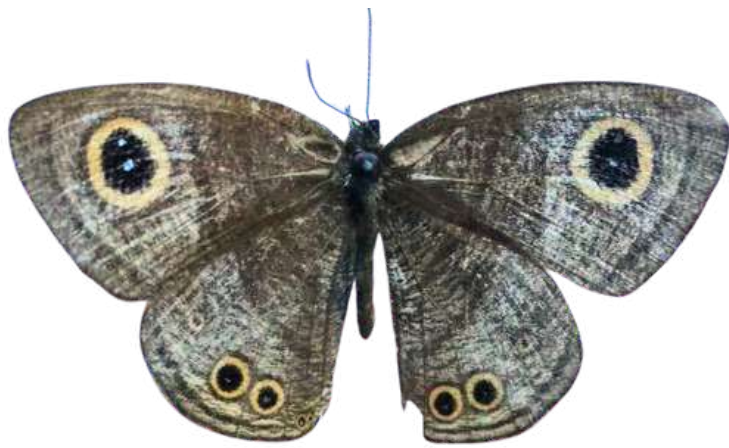
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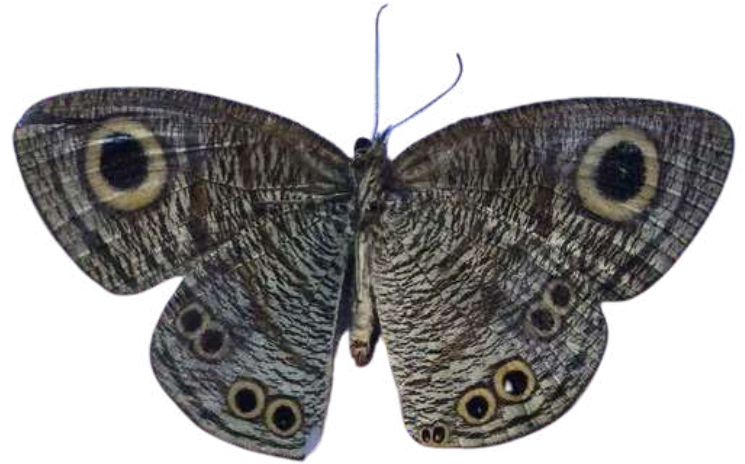
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A dorsal view



B ventral view

Family: Nymphalidae

Scientific Name: *Ypthima stelleria stelleria* Eschscholtz, 1821

Common Name: Common Five Ring

Description: Its wings have a brown coloration with 5 five circular rings from which its common name was derived. The forewing length measures 15mm and the width measures 12-14mm. The hindwing length measures 25 mm and the width measures 26 mm. The thorax has 4mm long, the abdomen measures 5mm, the body length measures 10mm, and the antennae measures 5mm.

Ecological Role: Essential pollinators, seed dispersers and herbivores in the various ecosystem types.

Endemism: **Philippine Endemic**

Distribution: Babuyan, Basilan, Bohol, Cebu, Camiguin de Min, Camotes, Dinagat, Jolo, Luzon, Leyte, Marinduque, Mindoro, Mindanao, Negros, Panay, Panaon, Romblon, Samar, Siargao

Conservation Status:
(IUCN 2022-2)



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ARTHROPODS



A dorsal view

B ventral view

Family: Nymphalidae

Scientific Name: *Ypthima sempera chaboras* Fruhstorfer, 1911

Common Name: Common Three Ring

Description: Its wings have a brown color with three (3) circular rings from which its common name was derived. The forewing length measures 15-19mm and the width measures 9-12mm. The hindwing length measures 11-15mm and the width measures 10-14mm. The thorax has 5-6mm long, the abdomen measures 4-6mm, the body length measures 11-19mm, and the antennae measure 6mm.

Ecological Role: Essential pollinators, seed dispersers and herbivores in the various ecosystem types.

Endemism: **Philippine Endemic**

Distribution: Camiguin de Min, Basilan, Dinagat, Mindanao, Sarangani

Conservation Status:
(IUCN 2022-2)



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A dorsal view

B ventral view

Family: Pieridae

Scientific Name: *Leptosia nina terentia* Fruhstorfer, 1910

Common Name: The Psyche

Description: A small butterfly with black-spot mainly on white background in the upper forewing. This butterfly species typically flies low, close to the ground, and rarely leaves the ground level.

Ecological Role: Essential pollinators, seed dispersers and herbivores in the various ecosystem types.

Endemism: **Non-Endemic**

Distribution: Basilan, Bohol, Calamian, Cebu, Cuyo, Dinagat, Mindoro, Mindanao, Palawan, Panay, Samar, Sarangani, Negros

Conservation Status:
(IUCN 2022-2)



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A dorsal view



B ventral view

Family: Pieridae

Scientific Name: *Appias olferna peducaea* Fruhstorfer, 1910

Common Name: Striped Albatross

Description: *A. olferna peducaea* is a fast-flying butterfly species. Its wings have a white coloration with black borders on the forewing. The forewing length measures 24mm and the width measures 15mm. The hindwing length measures 24mm and the width measures 23mm. The thorax size is 6mm, the abdomen size is 9mm, and the body length is 17mm. The antennae measure 11mm.

Ecological Role: Essential pollinators, seed dispersers and herbivores in the various ecosystem types.

Endemism: **Non-Endemic**

Distribution: Bohol, Cebu, Jolo, Luzon, Marinduque, Mindoro, Mindanao, Negros, Palawan

Conservation Status:
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A dorsal view

B ventral view

Family: Cerambycidae

Scientific Name: *Batocera magica* Thomson, 1859

Common Name: Long-Horned Beetle

Description: flat-faced longhorned beetle

Ecological Role: This is one of the most economically significant wood-boring insects. It disrupts and inflicts harm on forests, forest-related products, shade trees, fruit and nut trees, vegetable and field crops, seeds, orchids, and flowers.

Endemism: **Non-Endemic**

Distribution: Philippines (Bohol, Camotes, Negros, Leyte, Mindanao)

Conservation Status:
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ARTHROPODS



A dorsal view



B ventral view

Family: Chrysomelidae

Scientific Name: *Aspidimorpha miliaris* (Fabricius, 1775)

Common Name: Spotted Tortoise Beetle

Description: This particular species typically attains a size of around 15 millimeters. The larvae exhibit a social behavior and consume plants from the *Ipomoea* genus, potentially posing a significant threat to agricultural crops

Ecological Role: serious pest of sweet potato

Endemism: **Non-Endemic**

Distribution: Throughout Southeast Asia and India

Conservation Status:
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THREATS AND CONSERVATION PLAN

The satoumi in Masao seascape exhibits high vulnerability to climate-related hazards, particularly flooding, as shown in images captured in 2023 (Figure 2). This is so because of its proximity to the Agusan River. Barangay Masao is a natural catchment for debris carried downstream by the Agusan River, resulting in a concentration of garbage in this seascape. Furthermore, the presence of tourist resorts in Barangay Masao contributes to increased waste accumulation in the vicinity.

Recent investigations conducted by the EMB (Environmental Management Bureau) of the DENR (Department of Environment and Natural Resources) have revealed elevated levels of fecal coliforms in the Masao River, prompting concerns among locals due to the adverse impact on tourism (butuan.gov.ph, 2023; EMB-Caraga, 2018; Serrano, 2006).



Figure 2. Biodiversity threats in Tungao satoumi: (a) flooding, (b) waste accumulation (c) expansion of residential areas (d) improper waste management (Credits to the rightful owner of the photos)

The scenario shown in Figure 2 is serious and worrisome. Local people should be aware of the importance of the satoumi seascape to their life, culture and survival. Awareness campaigns on the impact of these disastrous events if allowed to continue, should be started as soon as possible. It would be helpful to foster a culture of environmental stewardship within the communities of Barangay Masao. This will support biodiversity conservation initiatives. And individuals become more cognizant of the significance of conserving natural ecosystems and the diverse array of species they support. We can replicate what the CONserve Kaigangan program (kaigangan.uplb.edu.ph) of the University of the Philippines Los Baños in collaboration with the Samar State University and Eastern Samar State University along with local People's Organizations, Basaranan nga Organisasyon han San Isidro Samar (BOSIS) and Tourguide and Boat Operators for River Protection and Environmental Development (TORPEDO) (Buot et al. 2023; Buot et al., 2022; Villanueva et al. 2022; Obena et al 2021, Villanueva et al. 2021, Tolentino et al. 2020, Fernandez et al. 2020; Hernandez et al., 2022; Villanueva et al., 2021a; Villanueva et al., 2021b; Villanueva et al., 2021c; Madera et al., 2021; Tolentino et al., 2020; Fernandez et al., 2020). Perhaps we can determine the top 10 or 20 plants for priority conservation in Masao satoumi seascape, using the localized conservation priority index (LCPI) (Buot et al. 2024a, 2024b). LCPI has localized indicators comprising ecological and sociocultural variables. It is important as well, to collaborate closely with the local government units even at the barangay level. Local policy plays a critical role in formalizing and institutionalizing efforts to conserve biodiversity at the local level.

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