MANGROVE BIODIVERSITY
A case study in Kien Giang Province

WHAT IS A MANGROVE?

A mangrove is a tree, shrub, palm or ground fern that normally grows in the intertidal zone of coastal environments and estuarine margins. Mangrove is also used to describe the tidal habitat comprising such trees and shrubs.

Mangroves are a special group of plants, able to live in saturated soils, and saltwater. In Kien Giang Province, mangroves often form a fragmented fringe of vegetation along canal margins, increasing in thickness towards the sea. Along the sea edge, they form barriers to storm waves and surges. On the large island of Phu Quoc, large areas of mangroves can be found along estuarine margins.

The long and varied tropical coastline of Vietnam is ideally suited for luxuriant mangrove biodiversity, growth and development. There are 39 species of mangroves in Vietnam and the largest areas and greatest diversity is found in the south.

In Kien Giang, preliminary surveys have identified 27 mangrove species.

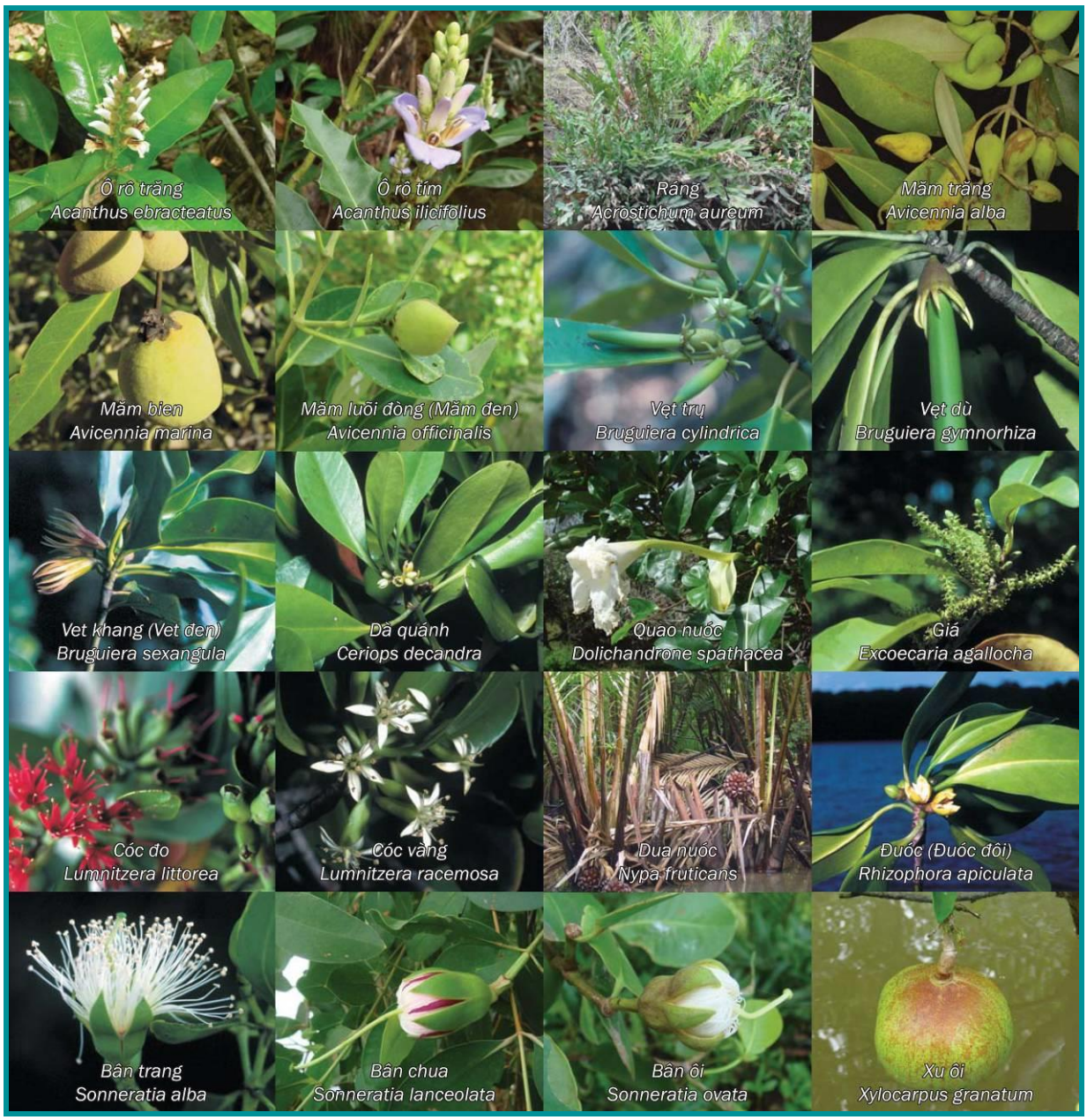
Hợp tác Đức DEUTSCHE ZUSAMMENARBEIT

Implemented by: giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Co-financed by: Australian AID

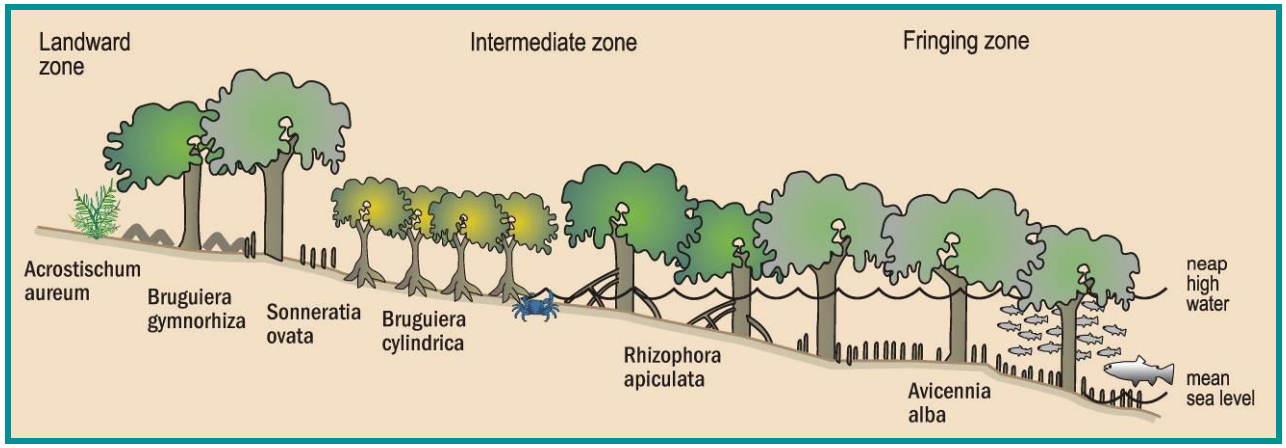
Conservation and Development of the Kien Giang Biosphere Reserve Project

THE MANGROVE SPECIES OF KIEN GIANG



MANGROVE ECOSYSTEMS OF KIEN GIANG

In natural areas, mangrove plants grow in different zones across the intertidal profile.



FRINGE MANGROVES

In most places along the coastline of Kien Giang, the sea fringe is dominated by *Avicennia alba* (Vietnamese name: Mắm trắng).

In northern parts of the province (Ha Tien), *Sonneratia alba* (Bần trắng), was seen occasionally with *A. alba* at the front of the mangrove.

In the central area from Rach Gia north to around Vam Rang, a mix of *Sonneratia caseolaris* (Bần chua) and *A. alba* dominates the sea fringe. In places, blocks of both *A. alba* and *S. caseolaris* have been planted at the front of the mangrove, extending it seaward. It is possible that nearly all of the valuable *S. caseolaris* stands were planted.

Fringing zone forest dominated by *Avicennia alba*, Hon Dat.

INTERMEDIATE MANGROVES

With distance from the sea, a more 'mixed' mangrove develops at mid to high tide levels where a number of other species colonize after the first development of mangrove vegetation. This is the richest type in terms of biodiversity and can develop dense, stable vegetation, with some of the biggest trees.

Mixed' mangrove forest, with a large *Avicennia alba.*

Along the coast of Kien Giang the major components of the mixed forest are *Avicennia alba* and *Rhizophora apiculata*, but other species such as *Bruguiera spp.* (Vet), *Xylocarpus spp.* (Xu) and *Sonneratia alba* (Bần trắng) also appear.

In the north of the Province, the greater extent of the mangrove allows a drier mixed forest to develop in places, with species such as *Phoenix paludosa* (Chà là), *Heritiera littoralis* (Cui biển) and *Ceriops tagal* (Dà vôi) more prominent.

Throughout the province in places where there has been cutting of the forest, mixed forests with a lot of *Excoecaria agallocha* (Giá) are present.

LANDWARD ZONE

In the northern areas of Kien Luong and Ha Tien Districts, stands of an upper intertidal 'scrub' of about 2-3 meters height and with good diversity are found. Along with commoner species such as *E. agallocha*, Plants such as *Scyphiphora hydrophylacea* (Côi), *Lumnitzera littorea* (Cóc đỏ) and *L. racemosa* (Cóc vang) that are rare or absent elsewhere in Kien Giang are present.

South of Kien Luong, the mangrove forests are usually too narrow to support this vegetation.

Scrubby open mangrove vegetation at high intertidal levels in the Giang Thanh River system, Ha Tien.

Throughout the province, stands of the palm *Nypa fruticans* (Dừa nước) can be present at the rear of the mangrove on the coast, or at the front along canals or rivers.

Fringing strips of mangrove 'associate' species are present at the rear of the tidal influence, with characteristic species such as *Hibiscus tiliaceous* (Tra nhớt) and *Thespesia populnea* (Tra bồ đề) and numerous others. This is a typical situation where forests are well developed.

NOTABLE VEGETATION FEATURES IN KIEN GIANG PROVINCE

***Lumnitzera littorea* at Phu Quoc.**

The *S. caseolaris* to the north of Rach Gia, particularly in the Vinh Quang area are perhaps the tallest in Vietnam (about 21 meters) and are very tall for the species generally. This is one of the highest biomass forests in Kien Giang.

Sonneratia caseolaris prefers brackish conditions, but is well developed on the ocean front in Kien Giang. This is because the tidal water is so low in salinity during the wet season. Other brackish species, including vines, herbs and trees are found within the mangrove although they are not usually considered mangrove plants.

There are three *Avicennia* species present, with *A. alba* easily the most common. However, the numbers of another species *A. marina* (Mắm biển) are quite high and the species occurs on mud, which is somewhat unusual in Vietnam.

There is more mangrove diversity in the north of the Province, including species such as *S. hydrophyllacea, Lumnitzera littorea, Aegiceras corniculatum* (Sú) and the palm *Phoenix paludosa* not seen elsewhere.

Lumnitzera littorea with its red flowers was previously poorly known in Vietnam, but is widely present in the high intertidal scrub mangrove in the north of the Province. Its co-occurrence with the white flowered *L. racemosa* is apparently unusual.

The resilience of mangroves, and thus the capacity of the mangroves to provide their important ecosystem services and help build resilience to climate change is enhanced by the species diversity of the forest itself. High mangrove diversity in Kien Giang Province will therefore be an asset to natural resource managers in the area.

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Conservation and Development of the Biosphere Reserve
of Kien Giang Province Project,
Department of Science and Technology,
320 Ngo Quyen Street, Rach Gia City,
Kien Giang Province, Vietnam.
T +84 77 3942 937
F +84 77 3942 938
E office.kgbp@giz.de
I www.kiengiangbiosphererereserve.com.vn
www.giz.de/vietnam