

PRELIMINARY STUDY ON
THE MANGROVES OF
LAMPI ISLAND AND ADJACENT AREAS

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ABSTRACT

Mangroves of Lampi and adjacent Islands namely Kyunn Pya Gyi, Kyaung Mi Thar Su, Nyaung Wee, Bo Cho, Ko Phawt and Thanda Ni Islands on Myeik Archipelago, Tanintharyi Division, Myanmar, are studied during 12 to 24 January 2008. A total of about fifty species of mangroves and their associates are observed from the study. The common

plants in these areas are *Rhizophora mucronata*, *R. apiculata*, *Ceriops tagal*, *Xylocarpus granatum* and *Excoecaria agallocha*. *R. mucronata* and *R. apiculata* are co-dominant mangrove plants of Lampi and Nyaung Wee Islands. Floristic composition and distribution of mangroves among studied Islands and some other areas have been briefly discussed.



Fig. 1. Lampi Island.



Fig. 2. San Tha Tun (left), Tint Tun (middle) and Tint Swe (right) in a mangrove forest at Lampi.

INTRODUCTION

Myanmar is situated on mainland Southeast Asia and it has a coastline of about 2279 km long with a large number of estuaries, rivers, creeks and islands. Tanintharyi Coastal area lies in southern Myanmar between Gulf of Mottama and up to the mouth of Pakchan River including Myeik Archipelago stretches from Mali Isand to Similand Island consisting of about 800 Islands (San Myint, 1995).

Lampi Island is an island of Myeik Archipelago (Fig. 1, 2 & 3) and it is also known as Kyunn Tann Shey. The Island was also known as Sullivan Island in the past. Lampi Island was officially designated as Marine National

Park on the 27th of February, 1996 and coral reefs, mouse deer and salone ethnic culture are key protection (NCEA, 1997; Khaing, 1999).

Lampi Island is located at latitude 10°50'N and longitude 98°10'E. The seahorse shaped Lampi Island stretches from north to south



Figure 3. Map showing the Lampi Island.

and its area is around 79.09 sq. miles (204.84 sq. km.). Length is about 31 miles and its average width is about seven miles. In an Island ecosystem, the Islands are classified into two categories: oceanic and continental Islands (Salm and Clark, 1989). Continental Islands are virtually situated near a continent, mostly fragments, temporarily detached by rising seas. The flora and fauna of these Islands usually resemble those of nearby continent.

Mangroves are the characteristic littoral and tidal

influenced plant formations of tropical and subtropical tidal marshes or sheltered coast line (Saenger et al, 1983; FAO, 1994), of which southeast asia is central, having the greatest number of species (Yamada, 1997). These mangroves are found on a variety of habitats such as deltas, rivers, bays, gulfs, lagoons, atolls and islands.

A preliminary study was made during 12 to 24 January, 2008, to know the floristic composition and distribution of mangroves from Lampi and adjacent Islands.

STUDY AREA AND METHODS

The study area covered the Lampi and adjacent islands, namely Kyun Pya Gyi (Pine Tree Island; 10°21'N 98°17'E), Kyaung Mi Thar Su Kyunn (Cat and Kitten Island; 10°26'N, 98°17'E), Nayung Wee Kyunn (Palau Bada Island; 10°29'N, 98°14'E), Bo Cho Kyunn (Pu Nala Island; 10°41'N, 98°16'E), Kyunn Tann Shey (Lampi Island; 10°51'N, 98°12'E), Ko Phawt (Kubo Island; 10°51'N, 98°11'E) and Than Dar Phyu

Kyunn (Pu Myang Island; 10°46'N, 98°17'E).

Floristic composition and local distribution of mangroves and associated plants were recorded. Some samples were collected from the islands and they were made into herbarium sheets. The samples are deposited at the Marine Science Department, University of Pathein.

RESULTS

Mangrove forests of the Lampi and adjacent Islands are very good and pristine condition. (Fig. 4; Plate 6, Fig. 7). A total of about 50 mangrove species could be identified from the Lampi and adjacent Islands. They are listed in Table 1 and they are also shown in Plate 1 to 6 (Appendices). The common plants in these Islands are *Rhizophora mucronata*, *Rhizophora apiculata*, *Ceriops tagal*, *Xylocarpus granatum* and *Bruguiera parviflora*.

Among the plants, *R. mucronata* is very common and dominant mangrove of Lampi and Nyaung Wee Island areas. *C. tagal* formed in understory in *Rhizophora* dominant forest of Lampi Island.

Among Avicenniaceae, *Avicennia marina* are facing the sea rather than a channel and can be found quite commonly. *Avicennia officinalis* is found to be very rare in this study.

Barringtonia asiatica is conspicuous in sandy beaches above high tide level of studied islands together with *Scaevola taccada*,

Terminalia catappa, *Hibiscus tiliaceus* and *Thespesia populnea*.



Fig. 4. An intact mangrove forest at Lampi Island.

Clumps of *Excoecaria agallocha* occur in places where the soil level has been raised and sandy mud.

X. granatum grows fairly abundant on the up-river position of Crocodile River where freshwater may be influenced.

The undergrowth fern *Acrostichum speciosum* developed in

shaded place but *Acrostichum aureum* occupy in well illuminated sites.



Fig. 5. *Bostrychia* sp.

Some algae were observed on mangroves. A red alga, *Bostrychia*, attached on the prop roots and lower trunks of *Rhizophora* and some root systems of *C. tagal* (Fig. 5). Another red alga, *Catenella* sp., is also associated with mangroves of east coast of Lampi Island.

Table 1. Mangroves and its Associates of Lampi and Adjacent Islands

No.	Genus/Species	Lampi	Kyun Pya Gyi	Kyaung Mi Thar Su Kyunn	Nyaung Wee	Bo Cho	Ko Phawt	Than Dar Phyu	Plate No.	Figure No.
1	<i>Acanthus ilicifolius</i>	✓		✓					1	1
2	<i>Acrostichum aureum</i>	✓		✓		✓			1	2
3	<i>A. speciosum</i>	✓		✓	✓				1	3
4	<i>Aegialitis rotundifolia</i>	✓							-	-
5	<i>Aegiceras corniculatum</i>	✓							1	4,5
6	<i>Avicennia alba</i>	✓			✓				-	-
7	<i>A. marina</i>	✓	✓				✓		1	6
8	<i>A. officinalis</i>	✓			✓				-	-
9	<i>Barringtonia asiatica</i>	✓		✓					-	-
10	<i>Brownlowia tersa</i>	✓		✓					-	-
11	<i>Bruguiera cylindrica</i>	✓			✓				2	1
12	<i>B. gymnorhiza</i>	✓			✓	✓			-	-
13	<i>B. parviflora</i>	✓							2	2,3
14	<i>Bruguiera sp.</i>	✓							2	4
15	<i>Caesalpina crista</i>	✓			✓	✓			2	5
16	<i>C. bonduc</i>				✓				-	-
17	<i>Calophyllum inophyllum</i>	✓							-	-
18	<i>Casuarina equisetifolia</i>	✓	✓		✓				2	6
19	<i>Cerbera manghas</i>	✓		✓					2 3	7,8 1
20	<i>Ceriops decandra</i>	✓			✓				3	2

Table 1 (Conti.). Mangroves and its Associates of Lampi and Adjacent Islands.

No.	Genus/Species	Lampi	Kyun Pya Gyi	Kyaung Mi Thar Su Kyunn	Nyaung Wee	Bo Cho	Ko Phawt	Than Dar Phyu	Plate No.	Figure No.
21	<i>C. tagal</i>	✓			✓				3	3,4
22	<i>Clerodendrum inerma</i>	✓	✓		✓				3	5
23	<i>Crinum sp.</i>	✓			✓	✓		✓	3	6
24	<i>Cynometra ramiflora</i>	✓				✓			3	7
25	<i>Dalbergia candenatensis</i>	✓				✓			-	-
26	<i>Derris trifoliata</i>	✓			✓				-	-
27	<i>D. scandans</i>	✓			✓				3	8
28	<i>Dolichandrone spathacea</i>	✓							-	-
29	<i>Excoecaria agallocha</i>	✓			✓				4	1
30	<i>Finlaysonia martima</i>	✓			✓				4	2
31	<i>Flagellaria indica</i>	✓				✓			4	3
32	<i>Heritiera littoralis</i>	✓		✓	✓	✓			4	4
33	<i>Hibiscus tiliaceus</i>	✓	✓	✓	✓	✓	✓	✓	4	5,6
34	<i>Ipomaea pes-caprae</i>	✓	✓		✓				4	7
35	<i>Licuala sp.</i>				✓				-	-
36	<i>Lumnitzera littorea</i>	✓							4	8
37	<i>Nypa fruticans</i>	✓		✓		✓			5	1
38	<i>Oncosperma tigillarum</i>	✓		✓	✓				-	-
39	<i>Pandanus tectorius</i>	✓							5	2
40	<i>Pemphis acidula</i>	✓							5	3
41	<i>Pongamia pinnata</i>	✓				✓	✓	✓	-	-
42	<i>Rhizophora apiculata</i>	✓	✓		✓		✓		5	4
43	<i>R. mucronata</i>	✓	✓		✓		✓		5	5,6
44	<i>Scaevola taccada</i>	✓	✓		✓		✓	✓	5	7
45	<i>Scyphiphora hydrophyllacea</i>	✓							5	8
46	<i>Sesuvium portulacastrum</i>	✓			✓				6	1
47	<i>Sonneratia griffithii</i>	✓	✓		✓		✓		6	2,3,4
48	<i>Terminalia catappa</i>	✓		✓	✓			✓	-	-
49	<i>Thespesia populnea</i>	✓	✓	✓	✓				-	-
50	<i>Xylocarpus granatum</i>	✓			✓	✓			6	5
	Total	49	10	12	29	7	7	5		

DISCUSSION

Andaman and Nicobar Islands located in Andaman Sea are formed by the summits of a submarine ridge, arching from the Rakhine Yoma in Myanmar (Naskar and Mandal, 1999). Myeik Archipelago is also located in the Andaman Sea. As these islands are included in the same region, most mangroves and associates from Myeik Archipelago are resemble to those of Andaman and Nicobar Islands of Indian territory.

Thailand neighbouring southern Myanmar has a shorter coast on the Andaman Sea and it is concentrated with 75-80% of the country's mangroves. Most of the mangrove plants of that country are also resemble those of Myeik Archipelago.

Cerbera manghas occur in Andaman Island (Blasco, 1975) but the congeneric species, *C. odollam*, enhanced in low saline condition i. e. brackish water condition. Therefore, it would be mentioned that *Cerbera* plant grown in Lampi Island was possible *C. manghas* as the Island is situated on marine water.

Some records from this study are significant although duration was short.

Pemphis acidula was found in Lampi Island mangroves. According to Tomlinson (1986), *P. acidula* were recorded in East Africa but is absent from South India to Sumatra, reappearing at about 137°E in Eastern Malaysia. The occurrence of *P. acidula* in Myanmar waters fills the gap in its distribution.

Regarding to the genus *Bruguiera*, four species namely *B. gymnorhiza*, *B. cylindrica*, *B. sexangula* and *B. parviflora* have already been recorded from our coastal areas. Three *Bruguiera* species could be identified from the study but a species found in Lampi Island is different from the above mentioned four species by root systems and flower colour. It may be another species of *Bruguiera* and further study should be done on this species.

Likewise, in Lampi Island and adjacent areas some sand dune plants growing well closely with mangroves

and a few plants can not be identified with references in hand so far.

A new seagrass species, *Thalassia hemprichii*, for Myanmar was also observed in mangroves area during this study (Plate 6, Fig. 6). Soe-Tun et al. (2001). recorded nine seagrass species, *Cymodocea rotundata*, *C. serulata*, *Halodule pinifolis*, *H. uninervis*, *Syringodium isoetofolium*, *Enhalus acoroides*, *Halophila beccarii*, *H. decipens* and *H. ovalis*, from Myanmar waters. Therefore, the present observation adds one more seagrass species to the record. Seagrass beds are important places for marine organisms especially for dugong. Occurrence of dugong in Tanintharyi coastal area and Myeik Archipelago was also reported from some interviewee during this study though it still needs to verify.

Most of the mangroves growing in tropical and subtropical areas support a unique algal vegetation consisting mainly of the red algal genera *Bostrychia*, *Catenella* and *Caloglossa* (Dawson, 1966; Chapman, 1976; Odum et al., 1982).

In South-western Lampi Island, a red alga, *Bostrychia* is also associated with mangroves especially

those of Rhizophoraceae. It is noted that if the area is influenced by salt water, the mangroves, *Rhizophora* plants and the alga, *Bostrychia* sp. can be found as dominant association.

In addition to *Bostrychia*, if the area is slightly influenced by freshwater, another red alga, *Catenella* sp. can be found. However, it still needs to do further detail study on their association and relation with oceanographic parameters.

Mangrove forests are highly productive and that are nursery or feeding areas of marine and brackish water fauna. Naturally mangroves provide habitats for many species of resident and visiting fauna as well as various epiflora.

The Lampi Island was reported as an outstanding natural area and it was covered with relatively undisturbed forest, and had unusual scenic attraction (FAO, 1983). It was still observed till to the present study.

Mangrove formations are controlled by local climate, geomorphology, salinity and edaphic characteristics (FAO, 1994). On the other hand, inundation frequency and

tidal dynamics govern the local distribution of species and their succession.

Only taxonomic study could be done mainly at the Lampi Island during the study and, therefore, a total of 49 species out of 50 recorded during the study.

However, it still needs to do further study on the mangrove and associates in order to know the species

occurrence, species richness, distribution and ecology of mangrove of Myeik Archipelago particularly at Lampi Island.

Special attention should be paid to the Lampi Island Marine National Park area for further study on flora, fauna and impacts as it is an important place for both regional and global contribution towards the sustainable development.

MANAGEMENT RECOMMENDATIONS

Recommendations were presented by previous surveys (FAO, 1983; Robinowitz, 1995; Fischer, 1996; U Uga, per. Comm.) for conservation and management of the Island.

No commercial timber production was observed in the study area but some were cut for local use.

Lampi Island is not only the one and only Marine National Park but also a cultural heritage site of Myanmar. Khaing (1999) suggested to incorporate with international interest

to develop this Park into a successfully planned protected area system of coastal nature.

However, increase human settlement in this area is a thread to this Park and its neighbouring areas. Khine (1999) also suggested that primary importance should be considered for protection and development should come later.

Public awareness campaign should be done in this area in time in order to maintain the current state of the mangrove forests.

Present situation does not support to declare the Lampi Island and its neighbourhood as a no-intake

area. Establishment of an office at the Island is an urgent need for administration and enforcement for sustainable use of the Island.

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Fig. 1. *Acanthus ilicifolius* (Kayar).



Fig. 2. *Acrosticum aureum* (Hgnat Kyi Taung).



Fig. 3. *Acrosticum speciosum* (Hgnat Kyi Taung)



Fig. 4. *Aegiceras corniculatum* (Kayar).



Fig. 5. *Aegiceras corniculatum* (Kayar).



Fig. 6. *Avicennia marina* (Thame).

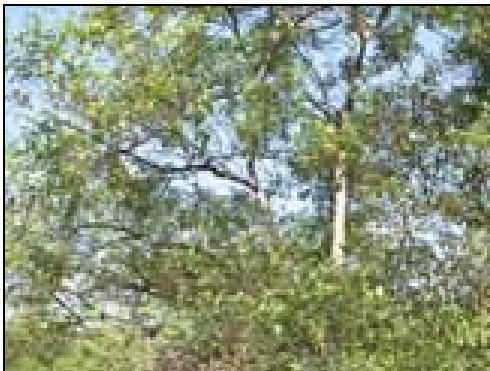


Fig. 7. *Avicennia officinalis* (Thamet Ywet Wyne).



Fig. 8. *Barringtonia asiatica* (Pinle Kyee).



Fig. 1. *Bruguiera cylindrica* (Byu Kyettet).



Fig. 2. *Bruguiera parviflora* (Byu).



Fig. 3. *Bruguiera parviflora* (Byu).



Fig. 4. *Bruguiera* sp.



Fig. 5. *Caesalpinia crista* [Ahlolay (Ayeyawady);
Myaukdoe (Rakhine)].



Fig. 6. *Casuarina equisetifolia* (Pinle Kabwee).



Fig. 7. *Cerbera manghas* (Ye Zalat).



Fig. 8. *Cerbera manghas* (Ye Zalat).

Appendix (III).

PLATE 3



Fig. 1. *Cerbera manghas* (Ye Zalat).



Fig 2. *Ceriops decandra* (Madama).



Fig. 3. *Ceriops tagal* (Madama).



Fig. 4. *Ceriops tagal* (Madama).



Fig. 5. *Clerodendrum inerme* (Pinle Kyaung Ban).



Fig. 6. *Crinum* sp.



Fig 7. *Cynometra ramiflora* (Myinnka).



Fig. 8. *Derris scandans* (Migyaung Nwe).

Appendix (IV).

PLATE 4



Fig. 1. *Excoecaria agallocha* (Thayaw).



Fig. 2. *Finlaysonia maritima* (Gyo Nwe).



Fig. 3. *Flagellaria indica* (Myauk Kyein).



Fig. 4. *Heritiera littoralis* (Kanazo).



Fig. 5. *Hibiscus tiliaceus* (Thinban Shaw).



Fig. 6. *Hibiscus tiliaceus* (Thinban Shaw).



Fig. 7. *Ipomaea pes-caprae* (Pinle Kazun).



Fig. 8. *Lumnitzera littorea* (Dawei Hmaing).



Fig. 1. *Nypa fruticans* (Dani).



Fig. 2. *Pandanus tectorius* (Sathaphoo).



Fig. 3. *Pemphis acidula*.



Fig. 4. *Rhizophora apiculata* (Byu Chaedauk Ywetchun).



Fig. 5. Natural regeneration of *Rhizophora mucronata* at Lampi Island.



Fig. 6. *Rhizophora mucronata* (Byu Chaedauk Ywet Wyne).



Fig. 7. *Scaevola taccada* (Yephawbin).

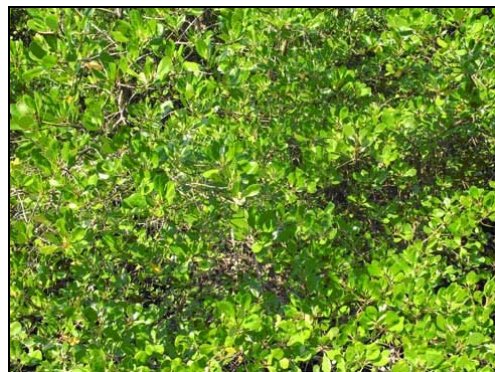


Fig. 8 *Scyphiphora hydrophyllacea*



Fig. 8. *Sesuvium portulacastrum* (Myaypyit, Kye Shar).

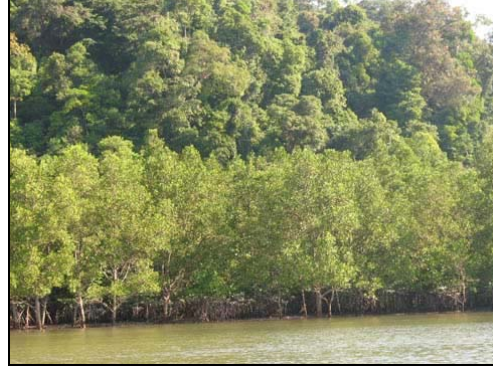


Fig. 2. *Sonneratia griffithii* forest at Crocodile River, Lampi Island.



Fig. 3. *Sonneratia griffithii* (Lamu).



Fig. 4. *Sonneratia griffithii* (Lamu).



Fig. 5. *Xylocarpus granatum* (Pinle Ohn).



Fig. 6. A seagrass. *Thalassia hemprichii*.



Fig. 7. A good mangrove forest of Lampi Island.