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ON THE WOOD-BORING MOLLUSCS OF SOUTH ANDAMANS, INDIA

By

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(With 1 Text-figure)

INTRODUCTION

A considerable number of papers have been published on the wood-boring molluscs of Mainland India (*see* Nair and Saraswathy, 1968 ; Subba Rao, 1968). But there is no published account on this group from Andamans barring a single paper by Kalyansundaram and Granti (1975) who have simply mentioned the occurrence of 4 species of molluscan wood-borers, namely, *Teredo furcifera* von Martens, *Neoteredo* sp, *Bankia bipalmulata* (Lamarck) and *Martesia (Martesia) striata* (Lamarck) at port Blair, South Andamans. Of course, Rajagopal and Daniel (1972) have reported the occurrence of one species of wood-boring molluscs, *Nausitora dunlopei* Wright, from the mangroves of Great Nicobar.

While studying the mangrove fauna of South Andaman in recent years we have examined a large number of living mangroves and dead stumps in this area for marine wood-borers. Our investigations reveal the presence of 8 species of molluscan borers out of which 7 species belong to the family Teredinidae and one belongs to the family Pholadidae. Incidentally, all these borers under study excepting *Martesia (Martesia) striata* (Lamarck) constitute the first record from Andaman and Nicobar islands.

LIST OF WOOD-BORING MOLLUSCS RECORDED FROM ANDAMAN AND NICOBAR ISLANDS

Class BIVALVIA

Order EULAMELLIBRANCHIATA

Family TEREDINIDAE

1 *Bactronophorus thoracites* (Gould)

2. *Neoteredo* sp.

3. *Dicyathifer manni* (Wright)

4. *Uperotus rehderi* (Nair)
* 5. *Teredo furcifera* von Martens
6. *Lyrodus pedicellatus* (Quatrefages)
7. *Nototeredo edax* (Hedley)
* 8. *Nausitora dunlopei* Wright
9. *Nausitora hedleyi* Schepman
10. *Bankia bipennata* (Turton)
*11. *Bankia bipalmulata* (Lamarck)

Family PHOLADIDAE

12. *Martesia (Martesia) striata* (Lamarck)

(Species with asterik marks are not studied by us)

SYSTEMATIC ACCOUNT

Family TEREDINIDAE

Turner (1966) has revised the family and reassessed the number of species of ship-worms occurring along the Indian coasts. The system followed by her has been adopted in this paper.

Key to the genera of the family Teredinidae occuring in South Andamans

1.	Pallets not segmented	2
—	Pallets segmented	7
2.	Blade composed of a basal cup with an inner element extending like a dagger	*Bactronophorus*
—	Blade composed of a single piece without any inner element	3
3.	Blade composed of a calcareous base and a prominent brown to black periostracal cap in the distal half	*Lyrodus*
—	Blade entirely calcareous, the periostracal covering thin	4
4.	Blade oval to rectangular in outline basal portion of which is nearly smooth and the distal portion with prominent radiating ribs	*Uperotus*
—	Blade variable in shape without any radiating ribs	5
5.	Blade solid, triangular in outline, moderately cupped with partially to almost completely divided medial ridge	*Dicyathifer*
—	Blades variable, not as above	6

6.	Blade large, paddle shapped and cupped in the distal end ; two long fleshy lobes present on the dorsal surface of the posterior end of the animal	*Neoteredo**
—	Blade small, broadly oval to elongate in shape, slightly to deeply cupped ...	*Teredo**
7.	Segments separated as distinct cones ...	*Bankia*
	Segments closely packed and fused ...	8
8.	Blade elongate, often with a calcareous incrustation on the distal end ; siphons short, united at least half their length ...	*Nausitora*
—	Blade oval, entirely covered by a yellowish periostracum ; calcareous incrustation absent ; siphons short and separate ...	*Nototeredo*

Genus **Bactronophorus** Tapparone-Canefri

1. **Bactronophorus thoracites** (Gould)

(Fig. 1 A)

1856. *Teredo thoracites* Gould, *Proc. Boston Soc. Nat. Hist.*, **6** : 15.

Material examined.—South Andamans : (1) Guptapara 7. vi. 78, 3 ex. ; 4.x.78, 13 ex. ; (2) Wright Myo, 3.viii.78, 9 ex. ; 20. viii. 78, 2 ex. ; (3) Sippighat, 18.ix.78, 2 ex. (4) Wandoor, 11.viii.78, 2 ex. ; (5) Chidyatapu. 17.x.78 ; 3 ex. ; (6) Rangachan, 18.x.78, 16 ex. ; (7) Lohabari, 25.x.78, 2 ex.

Distribution.—INDIA : Sundarbans, Mahanadi Estuary, Visakhapatnam and Bombay. Elsewhere : Indian Ocean islands, BURMA, MALAYASIA, INDONESIA, AUSTRALIA and NEW ZEALAND.

Remarks.—*B. thoracites* is the most common molluscan wood-borer in the entire mangrove area of South Andamans. It is one of the largest species in the family Teredinidae. The specimens collected from South Andamans range from 13.3 to 56 cm in length.

Genus **Dicyathifer** Iredale

2. **Dicyathifer manni** (Wright)

(Fig. 1 B)

1866. *Kuphus ? mannii* Wright, *Trans. Linn. Soc.* London, **25** : 565, pl. 65, figs. 1-8.

Material examined.—South Andamans : (1) Wright Myo 2.vii.78, 2 ex. ; (2) Sippighat, 18.ix.78 ; 3 ex. ; (3) Guptapara, 4.x.78, 2 ex. ; (4) Lohabari, 25.x.78, 10 ex.

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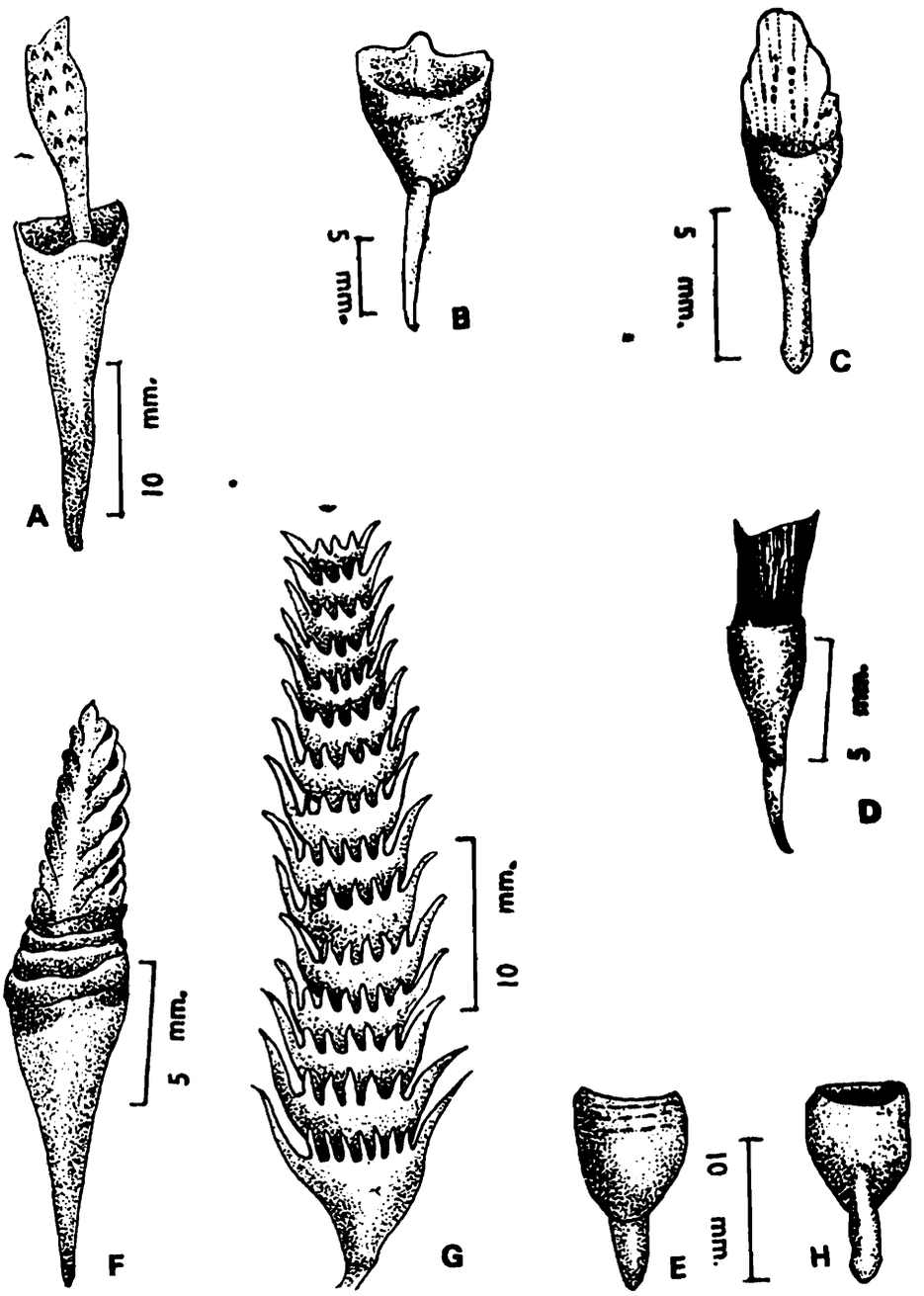
* not studied by us



Text-fig. 1. Pallets of Teredinids (Outer face) : A—*Bactronophorus thoracites* B—*Dicyathifer manni* ; C—*Uperotus rehderi* ; D—*Lyrodus pedicellatus*, E—*Nototeredo edax* ; F—*Nausitora hedleyi* ; G—*Bankia bipennata*, H—*Nototeredo edax*.

Distribution.—INDIA : Sundarbans, Mahanadi Estuary, Visakhapatnam, Madras Harbour, Pulicat Lake, Cochin and Bombay. Elsewhere : World-wide in tropical and temperate seas.

Remarks.—Specimens collected from South Andamans range from 8.3 to 23.4 cm in length.

Genus **Uperotus** Guettard

3. Uperotus rehderi (Nair)

(Fig. 1 C)

1954. *Teredo (Teredora) rehderi* Nair, *Rec. Indian Mus.*, **52** : 408, fig. 9 a-d.

Material examined.—South Andamans : (1) Rangachan, 18.x.78, 1 ex.

Distribution.—Madras Harbour, INDIA.

Remarks.—This species has so far been recorded from the vicinity of Madras, east coast of India. According to Turner (1966) *U. rehderi* is probably an ecologic wood-boring form of *U. clavus*. But she also asserted *(op. cit.)* that it is yet to be shown experimentally that 'the young *clavus* (nut borer) when boring into wood mature to look like *rehderi*.

Genus **Lyrodus** Gould

4. Lyrodus pedicellatus (Quatrefages)

(Fig. 1 D)

1849. *Teredo pedicellatus* Quatrefages, *Ann. Sci. Nat. Zool.* (3) **11** : 26, pl. 1, fig. 2.

Material examined.—South Andamans : (1) Chidyatapu, 25.v.78, 1 ex. ; 17.x.78, 12 exs. (2) Rangachan, 18.x.78, 1 ex.

Distribution.—INDIA : Mahanadi Estuary, Visakhapatnam, Madras Harbour, Cochin and Bombay. Elsewhere : World-wide in tropical and temparate seas.

Remarks.—Pallets of this species composed of a calcareous base and a distinct blackish periostracal cap. The specimens examined from South Andamans measured from 10 to 32.01 cm in length.

Genus **Nototeredo** Bartsch

5. Nototeredo edax (Hedley)

(Fig. 1 E, H)

1895. *Teredo edax* Hedley, *Proc. Linn. Soc.*, New South Wales (2) **9** : 501, pl. 32, figs. 1-5.

Material examined.—South Andamans : (1) Chidyatapu, 17.x.78 ; 3 exs.

Distribution.—INDIA : Visakhapatnam and Madras Harbour.

Elsewhere : Indian ocean islands, BURMA, MALAYASIA, INDONESIA, AUSTRALIA and NEW ZEALAND.

Remarks.—This species has been collected from the dead stumps of the mangrove area of Chidyatapu, South Andamans.

Genus **Nausitora** Wright

6. **Nausitora hedleyi** Schepman

(Fig. 1 F)

1919. *Nausitora hedleyi* Schepman, *Nova Guinea Res. Exped Scient.*, **13**, Zoologie : 195, pl. 7, fig. 3.

Material examined.—South Andamans : (1) Chidyatapu, 25.v.78, 1 ex. ; 17.x.78, 2 exs. ; (2) Wright Myo, 20.vii.78, 1 ex. ; (3) Sippighat, 18.x.78, 3 exs. ; (4) Rangachan, 18.x 78, 4 exs.

Distribution.—INDIA : Mahanadi Estuary, Madras Harbour and Cochin. Elsewhere : Indian Ocean Islands, BURMA, MALAYASIA and INDONESIA.

Remarks.—This is a tropical estuarine ship-worm whose most suitable salinity range for early development seems to be between 11 and 15‰ as noted by Nair and Saraswathy (1968).

Genus **Bankia** Gray

7. **Bankia bipennata** (Turton)

(Fig. 1 G)

1819. *Teredo bipennata* Turton, *A Conchological Dictionary of the British Islands* : 184, figs. 38-40.

Material examined.—South Andamans : (1) Chidyatapu, 17.x.78, 18 exs. ; (2) Rangachan, 18.x.78, 2 exs.

Distribution.—INDIA : Visakhapatnam and Madras Harbour. Elsewhere : Indian Ocean islands.

Remarks.—The specimens examined from South Andamans contained both the young and mature forms. The maximum length recorded is 19 cm in length.

Family PHOLADIDAE

Genus **Martesia** Sowerby

8. **Martesia (Martesia) striata** (Linnaeus)

1758. *Pholas striata* Linnaeus, *Syst. Nat.* ed. 10 : 669.

Material examined.—South Andamans : (1) Wright Myo, 20.vii.71, 5 ex. ; (2) Kadakachang, 20.vii.78, 12 ex.

Distribution.—India : Throughout entire east and west coast. Elsewhere : Pacific, Indo-Pacific and Western Atlantic.

Remarks.—This species is cosmopolitan in distribution. It can tolerate a wide range of salinity from nearly 35‰ during April and May and 0.5‰ during the rainy months (Balasubramanyan, 1968). The normal abodes of these pholadids are the floating logs and submerged timber structures.

REMARKS ON DISTRIBUTION

Out of 8 species of molluscan borers dealt with in this paper 3 species, namely, *Dicyathifer manni, Lyrodus pedicellatus* and *Martesia (Martesia) striata* ars cosmopolitan in distribution, 2 species, namely, *Bactronophorus thoracites* and *Nototeredo edax* are distributed in India and Indian Ocean islands, Burma, Malayasia, Indonesia, Australia and New Zealand and the rest 3 species — *Uperotus rehderi, Nausitora hedleyi* and *Bankia bipennata,* have so far been recorded from India and Indian Ocean islands.

Our present investigation reveals that there is no host specificity or host preference for any of these borers under discussion. They prefer dead stumps and floating logs than the living mangroves and their species-assemblage in a particular abode seems to be random as shown in Table 1.

TABLE 1. Showing species-assemblage of molluscan wood-borers in a particular abode in South Andamans

Locality	Habitat	Nature of species assemblage in a particular abode
Chidya tapu	Dead stumps of mangroves	1. *Lyrodus pedicellatus* and *Nausitora hedleyi*
	—do—	2. *Lyrodus pedicellatus* and *Bankia bipennata*
	—do—	3. *Lyrodus pedicellatus* and *Bactronophorus thoracites*
	—do—	4. *Lyrodus pedicellatus, Bactronophorus thoracites, Nausitora hedleyi* and *Nototeredo edax*

Locality	Habitat	Nature of species assemblage in a particular abode
Rangachan	—do—	1. *Nausitora hedleyi* and *Bactronophorus thoracites*
	—do—	2. *Nausitora hedleyi*, *Bankia bipennata* and *Bactronophorus thoracites*
	—do—	3. *Nausitora hedleyi*, *Dicyathifer manni*, *Bactronophorus thoracites* and *Lyrodus pedicellatus*
Wright Myo	—do—	1. *Nausitora hedleyi* and *Bactronophorus thoracites*

Summary

Eight species of molluscan wood-borers under eight genera belonging to two families collected from South Andamans, India are dealt with. Out of these seven species are new records from Andaman and Nicobar islands.

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