

## TWO NEW RECORDS OF MARINE WOOD-BORERS OF THE FAMILY TEREDINIDAE (MOLLUSCA) FROM THE WEST COAST OF INDIA

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### ABSTRACT

*Teredo fulleri* Clapp and *Nausitora dunlopei* Wright have been reported for the first time from Okha and Panaji respectively. This is the first record for *T. fulleri* from the mainland west coast and second report for *N. dunlopei* from the west coast of India. Brief description, synonyms and distribution of these species are also included.

**Key-words :** Teredinidae, *Teredo fulleri*, *Nausitora dunlopei*, Okha, Panaji.

### INTRODUCTION

During a survey on the occurrence of marine wood-borers of the west coast of India, three pallets of *Teredo fulleri* Clapp from Okha (Lat. 22°28' N and Long. 69°05' E) in Gujarat and several pallets of *Nausitora dunlopei* Wright from Panaji (Lat. 15°30' N and Long. 73°55' E) in Goa were collected. This being their first record from these localities, details on the same have been presented in this paper together with notes on salient morphological features.

### SYSTEMATICS

*TEREDO FULLERI* Clapp (Fig. 1 A, B).

**Synonyms :** *Teredo (Zopoteredo) fulleri* Clapp 1924; *Teredo indomalaica* Roch 1935; and *Teredo bicorniculata* Roch 1935.

**Diagnosis :** Pallets small, opaque and chalk-white, Blade narrow, longer than wide, more or less parallel-sided and sheathing the stalk. Distal extremity of the blade only slightly cupped and both outer and inner distal margins about equally concave. The distal portion of the blade covered with a narrow fringe of pale yellow periostracum. Distal end of the outer face of the blade with a medial cleft or groove (Fig. 1A).

**Material examined :** Three pallets among the specimens extracted on 21-12-1972 from a beam of a jetty at Okha. Total length of the pallet 3.35 mm; length of blade 1.25 mm.

**Distribution :** World-wide in tropical and sub-tropical areas. Records are available from east coast of Africa, Madagascar, Persian Gulf, Pacific islands, South-east Asia, New Guinea and India.

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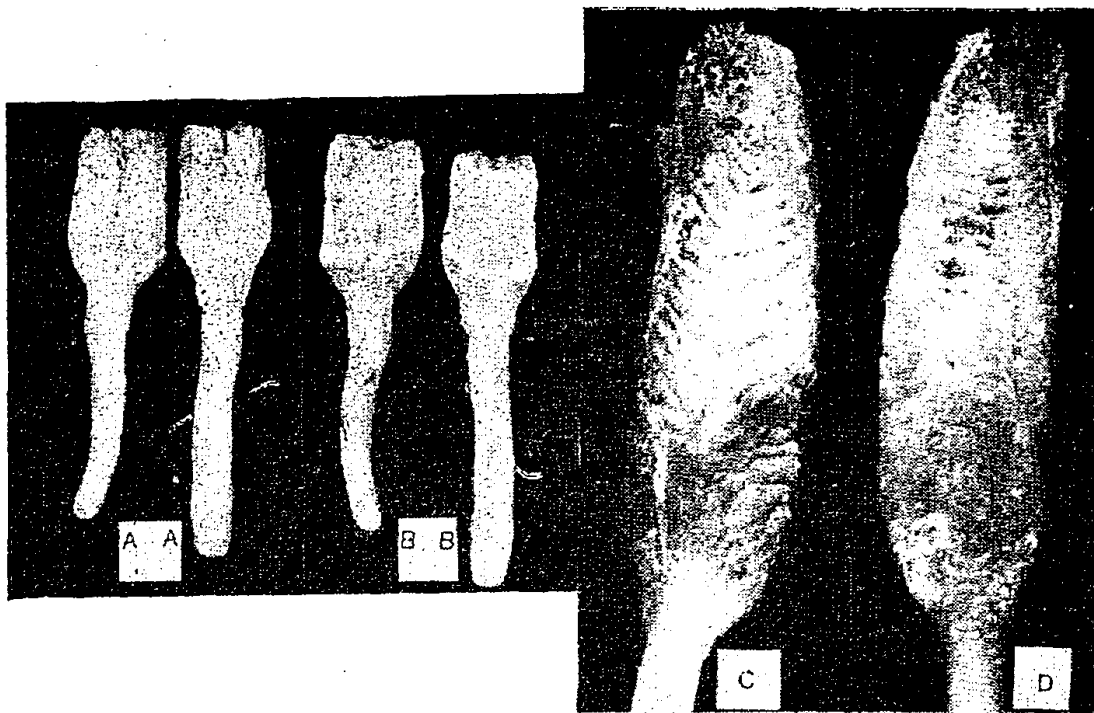


Fig. 1. Pallets of *Teredo fulleri* (A, B) and *Nausitora dunlopei* (C, D). (A, C: outer face; B, D: inner face).

**Remarks:** The present materials closely correspond with the original description of the species (Clapp, 1924). This species has been previously reported from India only from the Gulf of Mannar along the east coast (Nair, 1965; Nair and Dharmaraj, 1980), where it causes serious damage to timber structures used in aquaculture farms. Recently, Nair and Dharmaraj (1983) have recorded this species from the Lakshadweep Islands in the Arabian Sea, where it is the most dominant borer causing severe destruction to fixed timber structures and wooden boats. However, this is the first record of this species from the mainland west coast of India. Since it is very rare at Okha, it appears that it has not yet established along the west coast.

*NAUSITORA DUNLOPEI* Wright (Fig. 1 C, D).

**Synonyms:** *Nausitora dunlopei* Wright 1864; *Calobates fluviatilis* Hedley 1898; *Bankia (Nausitora) smithi* Bartsch 1927; *Bankia triangularis* Sivickis 1928; *Bankia quadrangularis* Sivickis 1928; *Bankia globosa* Sivickis 1928; *Nausitora messeli* Iredale 1932; *Nausitora schneideri* Moll 1935; *Nausitora madagassica* Roch 1935; *Bankia pennaanseris* Roch 1935; *Nausitora queenlandica* Iredale 1936; *Bankia (Nausitora) madrasensis* Nair 1954, and *Nausitora lanceolata* Rajagopalaiengar 1964.

**Diagnosis:** Stalk of the pallet much shorter than the blade. Blade greatly elongate with segments closely packed and fused but distinct. Blade usually broader at base. Periostracal margins and lateral awns usually clearly

evident at the basal portion of the blade. The central stalk often visible on outer face of the blade. Calcareous incrustations at the distal end of the blade, small and usually not evident.

**Material examined:** Numerous pallets collected on 3-1-1984 from test panels of *Araucaria cookii*, *Maesopsis eminii*, *Acacia auriculiformis* and *Hevea brasiliensis* exposed at Betim, near Panaji in the Mandovi estuary, from 20-5-1983 to 3-1-1984. The largest pallet measured 9.40 mm in total length, with a stalk of 3.15 mm.

**Distribution:** *N. dunlopei* is well distributed in the Indo-Pacific from tropical to warm temperate region. It has been reported from Siam, Philippines, Bismarck Archipelago, Fiji islands, Australia, Madagascar and India.

**Remarks:** The present materials show some variations from the general characteristics of the pallets of this species. For example, the calcareous incrustations on the outer distal face of the blade has been found to be very extensive and in few cases papillose (Fig. 2A to E). Normally, in this species, such incrustation is small and may not be evident at all. Further, in most of the present specimens, the segments of the blade have been found fused on the inner face to such an extent that the demarcation of the cones is either indistinct or sometimes absent giving the blade the appearance of a single

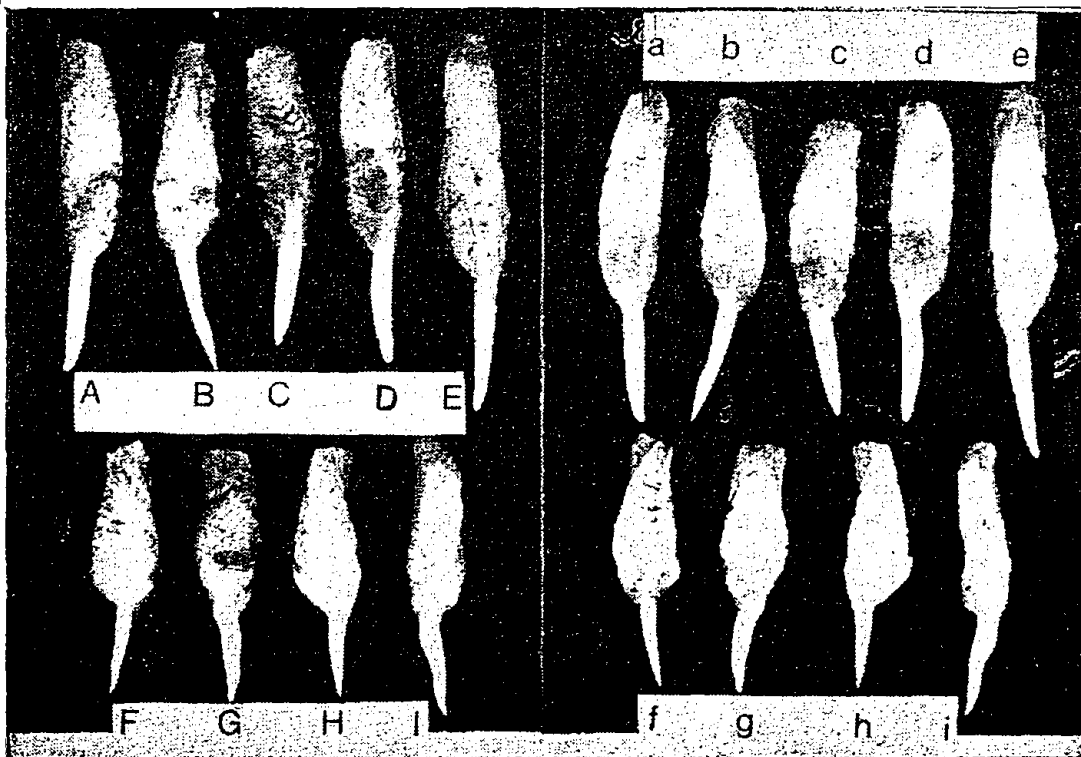


Fig. 2. *Nausitora dunlopei*, a series of pallets to show variations in incrustations and segmentation. (A to I: outer face; a to i: inner face)

piece (Fig. 2b, c, d, e, g, h, i). In some, the inner face of the blade showed a series of medially arranged excavations (Fig. 2f). According to Ruth D. Turner (personal communication dated 14-5-1984), these variations are due to the borers growing under poor conditions. It may be mentioned here that this is the first report of this species from the west coast of India as occurring in large numbers. The only other locality record for this species along the west coast is Cochin, that too based on two specimens (Mohan, 1981). Even in Goa waters, extensive survey prior to January, 1984, did not yield a single specimen of this species, but the borer suddenly appeared in large numbers and test panels recovered on 3-1-1984 were heavily damaged by them together with *Nausitora hedlevi* Schepman and *Martesia striata* (Linnaeus). Its efforts to establish itself after an abrupt introduction in a new locality and its growth inside heavily destroyed panels might have been responsible for the variations noticed in the nature of the pallets.

It is difficult to explain how this species has been transported and introduced in Goa waters. Probably, some infested timber might have been brought from Cochin by currents during October-November, 1983, or the dispersal might have occurred through the agency of wooden sail-boats plying between Panaji, Mangalore and Cochin. It may be mentioned here that northerly currents do occur during October-November months.

According to Turner (personal communication dated 9-11-1984), population explosion of any given species of teredinid, especially oviparous species, is not an unusual phenomenon. Perhaps a drift-wood or a wooden boat, infested with pregnant animals ready to spawn, came into the Goa waters, when hydrographic conditions were just right during the ensuing period for the development and settlement of larvae. This type of dispersal of such economically important organisms calls for continuous monitoring of borer species with test panels. Over the years, there ought to be surprising variations in the composition of species responsible for the destruction of timber. In fact, species may literally come and vanish over a period of years at a given test station.

*N. dunlopei* is a common species along the east coast of India and has been recorded from Pamban, Madras, Visakhapatnam, Mahanadi estuary, Sundarbans, Hoogly River (Calcutta) and Nicobar islands (Subba Rao, 1968; Rajagopal and Daniel, 1972; Srinivasan and Chandramohan, 1973; Santhakumaran, 1976). This species is essentially a brackish water form and is most active and breeds at salinity below 10‰ (Watson, 1936; Smith, 1963). Therefore, the conditions in the various estuaries of Goa are conducive to its continued activity and it is quite likely that the species, already noticed in considerable numbers, might soon spread along the Goa coast.

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\*Original not seen.

