

## Late Quaternary *Bankia*

(Bivalvia : Teredinidae)

### from Humboldt County, California

LIBRARY  
LOS ANGELES COUNTY MUSEUM  
EXPOSITION PARK

BY

GEORGE L. KENNEDY<sup>1</sup>, ANTHONY D'ATTILIO<sup>2</sup>, SAMUEL D. MORRISON<sup>3</sup>,  
AND KENNETH R. LAJOIE<sup>1</sup>

(1 Text figure)

Fossil teredinids (Mollusca: Bivalvia) occur only sporadically in Tertiary and Quaternary marine deposits along the Pacific margin of the western United States. Most occurrences are of the typical (but generically unidentifiable) calcareous tubes and associated sediment-filled burrows most often found in fossilized wood. Shells and pallets, however, are extremely rare and have been reported previously only by DURHAM & ZULLO (1961: 1; figs. 1-3), from the Oligocene [= upper Eocene, Refugian Stage] Lincoln Formation of western Washington (*Bankia lincolnensis*), and by KERN (1973: 82), from the lower Pliocene Towsley Formation of southern California (*Bankia* sp. cf. *B. setacea*). We report here a third occurrence, of *Bankia* sp. cf. *B. setacea* (Tryon), from a Holocene marine terrace south of Cape Mendocino, southern Humboldt County, California (LACMIP loc. 5814 and USGS Cenozoic loc. M7298).

Species of *Bankia* can be separated from all other teredinids by their cone-in-cone pallets. However, identification of fossil teredinids is tenuous because the periostracal ornamentation on the calcareous part of the pallets is not preserved in fossils, although it is the periostracal part that is largely used in distinguishing living teredinid species, particularly in the genus *Bankia* (TURNER, 1966: 14). As an example, pallets of *Bankia lincolnensis* Durham and Zullo, from the late Eocene, do not exceed the limits of variation seen in dried pallets of modern *B. setacea* (TURNER, 1966: 16). Although these taxa undoubtedly do not

represent the same biologic species, it is not possible to separate them on the basis of their pallet morphology alone. The Humboldt County specimen is also indistinguishable from specimens of *B. setacea*. Because of the similarity of pallets and because the only *Bankia* found living along the northeast Pacific margin is *B. setacea* (Tryon, 1863), we tentatively assign our specimen (Figure 1) to that species.

The specimen of *Bankia* was discovered in a well-rounded piece of driftwood within a sparsely fossiliferous basal conglomerate lying directly on a terrace abrasion platform about 4 m above sea level. The specimen was associated with an invertebrate fauna of approximately 25 to 30 species, mainly mollusks, all of which are found today along the Humboldt County coast. Only *Cryptomya californica* (Conrad, 1837), *Macoma inquinata* (Deshayes, 1855), and *Tresus capax* (Gould, 1850) were found *in situ* and several paired valves of each species were found. Periostracum was still present on all three species, as were ligaments on the *Macoma*.

The piece of unidentified driftwood containing the *Bankia* was approximately 7-8 cm long and contained only one burrow, extending from one end to the other and doubling back on itself at least once. The average burrow diameter was 5-7 mm. The short calcareous part of the tube was plugged by carbonate-cemented debris. One pallet was partly cemented into the debris plug, and individual cones from the pallets were loose in the burrow, probably dislodged by disturbance after collection. A piece of one pallet is illustrated in Figure 1.

Both valves of the *Bankia* were found nestled together in perfect condition at the opposite end from the calcareous tube, but were both damaged during their excavation.

<sup>1</sup> U. S. Geological Survey, Menlo Park, California 94025

<sup>2</sup> San Diego Natural History Museum, San Diego, California 92112

<sup>3</sup> Department of Geology, Humboldt State University, Arcata, California 95521

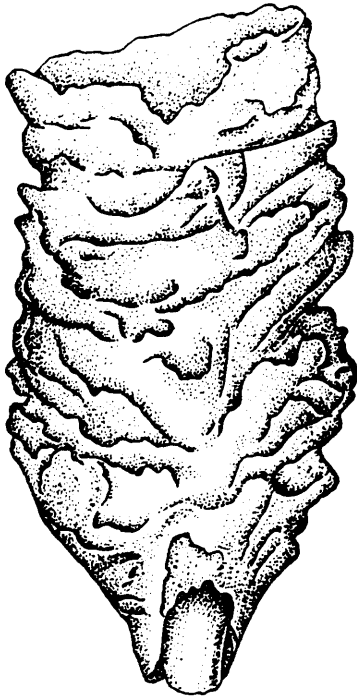


Figure 1

LACMIP hypotype 4943, segments of cone-in-cone pallet of *Bankia* sp. cf. *B. setacea* (Tryon), from south of Cape Mendocino, Humboldt County, California (LACMIP loc. 5814). Height of incomplete specimen ~4 mm, oriented with posterior (apertural) end up. Illustration by A. D'Attilio

The valves, and a small piece of the wood showing part of the burrow, have been retained with the pallets. The re-

mainder of the wood was used for radiocarbon dating to establish the Holocene age of the marine terrace ( $3130 \pm 100$  years BP; University of Miami radiocarbon laboratory, UM-1587).

### ACKNOWLEDGMENTS

We are grateful to Warren O. Addicott, John M. Armentrout, Ellen J. Moore, Ruth D. Turner, and an anonymous reviewer for commenting on the manuscript.

### LOCALITY

LACMIP loc. 5814 and USGS Cenozoic loc. M7298. Holocene emergent marine terrace. Sparsely fossiliferous basal conglomerate lying on abrasion platform and exposed in low sea cliff on west side of Mattole Road ~2.93 km S  $17.25^\circ$  E of Cape Mendocino lighthouse and ~1.0 km N  $28^\circ$  W of Devils Gate, Humboldt County, California (USGS Cape Mendocino, Calif. quad., 1969 ed., 7.5' ser., scale 1:24,000). Elevation ~4 m (13.35 feet) above sea level (MHWL) and ~1.5 m above back edge of beach. Latitude  $40^\circ 24' 53.7''$  N, longitude  $124^\circ 23' 44.1''$  W. Collected by G. L. Kennedy, S. D. Morrison, and K. R. Lajoie, 15 February 1979.

### Literature Cited

- DURHAM, JOHN WYATT & VICTOR AUGUST ZULLO  
1961. The genus *Bankia* Gray (Pelecypoda) in the Oligocene of Washington. *The Veliger* 4 (1): 1-4; 3 text figs. (1 July 1961)
- KERN, JOHN PHILIP  
1973. Early Pliocene marine climate and environment of the eastern Ventura basin, southern California. *Univ. Calif. Publ. Geol. Sci.* 96: i-viii + 117 pp.; 27 figs. (30 March 1973)
- TURNER, RUTH DEBOW  
1966. A survey and illustrated catalogue of the Teredinidae (Mollusca: Bivalvia). i-x+1-265 pp.; pls. 1-64; text figs. 1-25; 1 table *Mus. Comp. Zool., Harvard Univ., Cambridge, Mass.* (4 March 1966)

