

**BURSIDAE**

**Frog shells**

**Diagnostic characters:** Shell ovate to slightly elongate, often dorsoventrally compressed. Sculpture coarsely knobbed to finely beaded, with 2 strong axial varices per whorl. Varices frequently aligned up sides of spire. Periostracum obsolete to absent, not hairy or shaggy. Aperture with a short anterior siphonal canal and a distinct, slot-like posterior canal. Outer lip usually thick and denticulate inside, inner lip more or less calloused, with transverse ridges or granules (rarely smooth). Operculum corneous, its nucleus at the mid-inner margin or at the anterior end. Head with an extensible, distally flattened snout, and slender filiform tentacles bearing eyes at their outer bases. Foot rather short and thick. Mantle with a short respiratory siphon anteriorly and a very short, permanent anal siphon posteriorly.

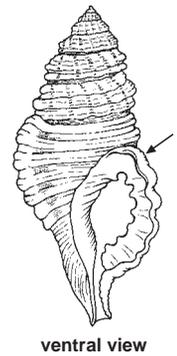
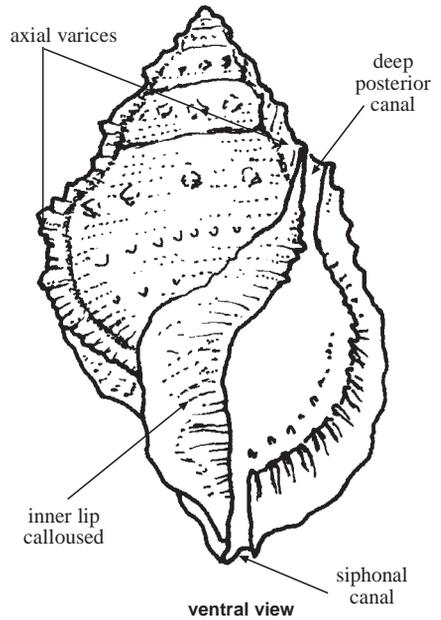
**Habitat, biology, and fisheries:** Active predators, living on tropical, shallow water coral reefs and rocks, to deeper waters on the continental shelf, on sand and mud bottoms. Mainly feeding on sedentary polychaete worms, which are anaesthetized with an acidic saliva, removed from their tubes and swallowed whole. Sexes separate, fertilization internal. Eggs laid in a gelatinous matrix, sometimes brooded by the female with its foot, hatching as free-swimming planktonic larvae. Locally collected for food and shell trade, either at low tide or with trawls, depending on the species.

**Similar families occurring in the area**

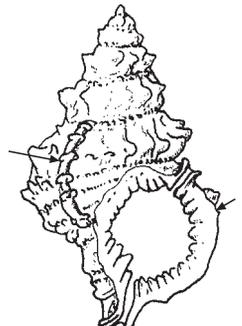
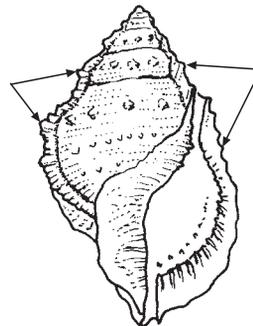
Ranellidae (= Cymatiidae): periostracum often conspicuous, fibrous to hairy; aperture without a posterior canal.

**Key to species of interest to fisheries occurring in the area**

- 1a. Shell dorsoventrally compressed; axial varices every 180°, then aligned up sides of spire (Fig. 1a) . . . . . → 2
- 1b. Shell not dorsoventrally compressed; axial varices every 240°, then not aligned up sides of spire (Fig. 1b) . . . . . → 4
- 2a. Shell thick, with coarse knobbed sculpture; nucleus of the operculum near the anterior end . . . . . *Bursa bufonia*
- 2b. Shell rather thin, with fine beaded sculpture; nucleus of the operculum near the middle of inner margin . . . . . → 3
- 3a. Anterior siphonal canal relatively long; columellar callus poorly developed . . . . . *Bufonaria rana*
- 3b. Anterior siphonal canal relatively short; columellar callus well developed . . . . . *Bufonaria crumena*
- 4a. Shell moderately large (up to 11 cm in length); aperture reddish in colour, with 2 rows of denticles inside the outer lip . . . . . *Tutufa rubeta*
- 4b. Shell very large (up to 30 cm in length); aperture whitish in colour, with only 1 row of denticles inside the outer lip . . . . . *Tutufa bubo*



**Ranellidae**



**Fig. 1 distribution of axial varices along the spire**

### List of species of interest to fisheries occurring in the area

The symbol  is given when species accounts are included.

 *Bufonaria crumena* (Lamarck, 1816)

 *Bufonaria rana* (Linnaeus, 1758)

 *Bursa bufonia* (Gmelin, 1791)

 *Tutufa bubo* (Linnaeus, 1758)

 *Tutufa rubeta* (Linnaeus, 1758)

### References

Beu, A.G. 1981. Australian gastropods of the family Bursidae. Part 1. The families of Tonnacea, the genera of Bursidae, and revision of species previously assigned to *Tutufa* Jousseaume, 1881. *Rec. Aust. Mus.*, 33(4-5):248-324.

Beu, A.G. 1985. A classification and catalogue of living world Ranellidae (= Cymatiidae) and Bursidae. *Conchol. Amer. Bull.*, 13(4):55-66.

Beu, A.G. 1987. Taxonomy of gastropods of the families Ranellidae (= Cymatiidae) and Bursidae. Part 2. Descriptions of 14 new modern Indo-West Pacific species and subspecies, with revisions of related taxa. *N.Z. J. Zool.*, 13(2):273-355.

Cernohorsky, W.O. 1967. The Bursidae, Cymatiidae and Colubrariidae of Fiji (Mollusca : Gastropoda). *Veliger*, 9(3):310-329.

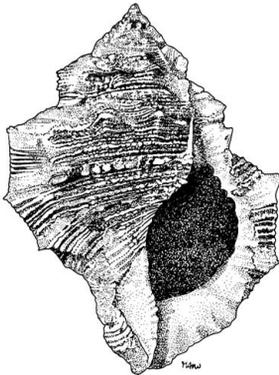
Cossignani, F. 1994. *Bursidae of the world*. Ancona, L'Informatore Piceno, 119 p.

#### *Bufonaria crumena* (Lamarck, 1816)

**Frequent synonyms / misidentifications:** *Bufonaria crumenoides* (Valenciennes, 1832); *Bursa crumena* (Lamarck, 1816); *Ranella cavitensis* Reeve, 1844 / None.

**En** - Purse frog shell; **Fr** - Ranelle bourse.

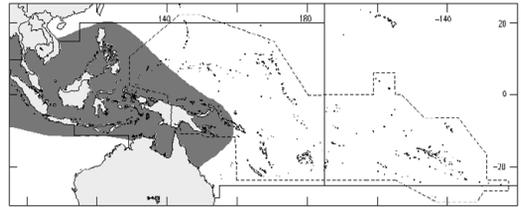
Maximum shell length 9 cm, commonly to 6 cm. On sand or mud, often among protected, submerged rocks. Sublittoral, from shallow water to a depth of about 50 m. Collected in trawls. Indo-West Pacific, from East and South Africa to Melanesia; north to the Philippines and south to Queensland.



ventral view



dorsal view



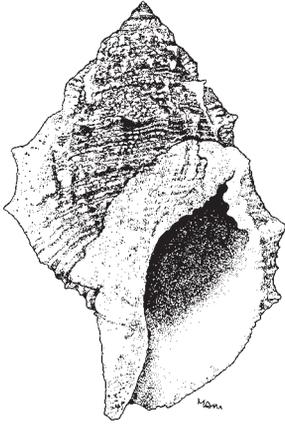
(after Beu, 1987)

***Bufo*** *Bufonaria rana* (Linnaeus, 1758)

**Frequent synonyms / misidentifications:** *Bursa rana* (Linnaeus, 1758); *Gyrineum rana* (Linnaeus, 1758) / *Gyrineum cavitensis* (Reeve, 1844) (= *Bufonaria crumena* (Lamark, 1816)).

**En** - Common frog shell; **Fr** - Ranelle commune.

Maximum shell length 9 cm, commonly to 7.5 cm. Mud and muddy-sand bottoms. Sublittoral and continental shelf. Commonly collected in trawls. Tropical West Pacific, from Indonesia to Polynesia; north to Japan and south to southern Queensland; apparently not in the Philippines.

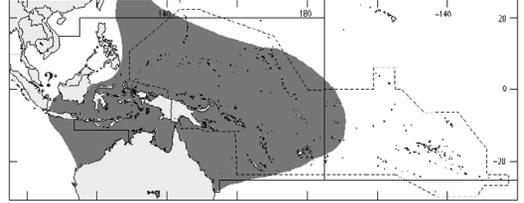


ventral view



dorsal view

(after Beu, 1987)

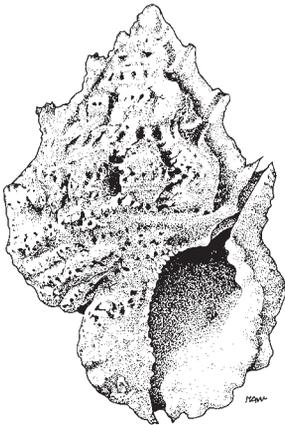


***Bursa*** *Bursa bufonia* (Gmelin, 1791)

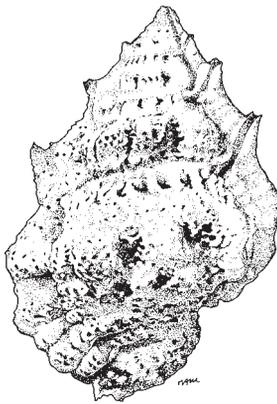
**Frequent synonyms / misidentifications:** *Bursa mammata* Röding, 1798 / None.

**En** - Warty frog shell; **Fr** - Ranelle mamelonnée.

Maximum shell length 8 cm, commonly to 6.5 cm. Common on coral reefs. Low tide levels and shallow sublittoral zone to about 20 m. Locally collected for food and shell trade. Indo-West Pacific, from East Africa, to Polynesia; north to Japan and Hawaii, and south to Queensland.

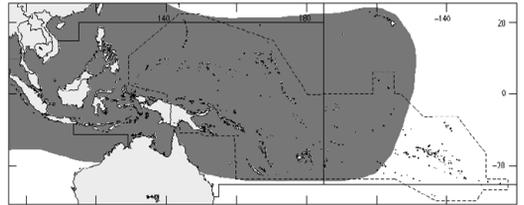


ventral view



dorsal view

(after Beu, 1986)

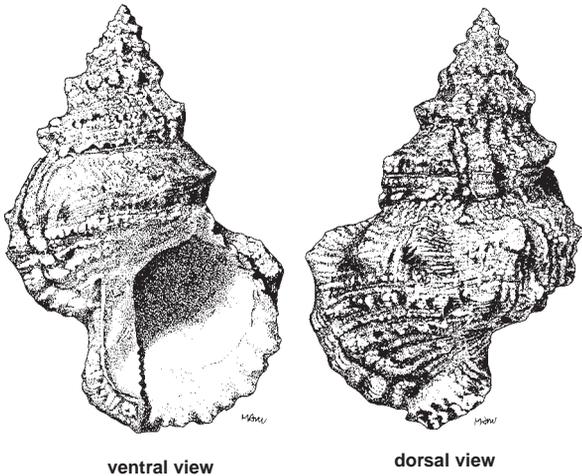


***Tutufa bubo*** (Linnaeus, 1758)

**Frequent synonyms / misidentifications:** *Bursa bubo* (Linnaeus, 1758); *B. subbeta gigantea* (E.A. Smith, 1914) / *Triton lampas* (Linnaeus, 1758)(= *Charonia lampas* (Linnaeus, 1758)).

**En** - Giant frog shell; **Fr** - Ranelle hibou.

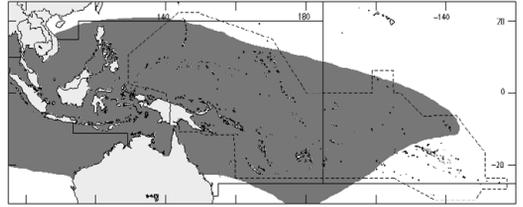
Maximum shell length 30 cm, commonly to 18 cm. On coral reefs, but also in deeper water on sandy bottoms. Intertidal and sublittoral to a depth of about 50 m. Most common in shallow subtidal waters. Collected at low tide on reefs, by snorkeling or scuba diving, or occasionally in trawls and dredges. Widespread in the Indo-West Pacific, from East Africa, including the Oman Gulf, to eastern Polynesia; north to the Philippines and south to Queensland and Kermadec Islands.



ventral view

dorsal view

(after Beu, 1987)

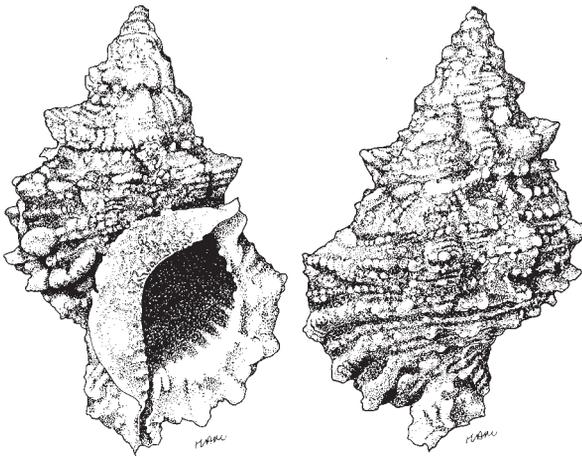


***Tutufa rubeta*** (Linnaeus, 1758)

**Frequent synonyms / misidentifications:** *Bursa bubo rubeta* (Linnaeus, 1758); *B. rubeta* (Linnaeus, 1758) / None.

**En** - Reddish frog shell.

Maximum shell length 11 cm, commonly to 9 cm. Common on coral reefs. Intertidal and shallow sublittoral zones. Collected by divers in shallow water. Indo-West Pacific, from the Mascareign Islands to western Polynesia; north to Taiwan Province of China and south to northern New South Wales.



ventral view

dorsal view

(after Beu, 1987)

