

Fossil Land Snails from Minami-jima, Bonin Islands

Tadashige Habe*

Abstract

Six species of land snails of Pleistocene age are described from Minami-jima, Bonin Islands, and of them, 3 are new to science.

Minami-jima is an islet near the southern part of Chichi-jima, Bonin Islands and is composed of limestone of Oligocene age. On the sand dune of this islet, there are scattered many land snails of Pleistocene age. The materials collected from the sand dune by Drs. Mutsuo Kato (1970) and Minoru Imajima (1969) and by the writer (1970) consist of six species of which three are new to science as described herewith.

Class Gastropoda
Subclass Pulmonata
Order Stylommatophora
Family Camaenidae
Genus *Mandarina* Pilsbry, 1894
Mandarina mandarina (Sowerby)
Pl. 4, figs. 6-8

Helix mandarina Sowerby, 1839, Zool. Beechey's Voy., p. 143, pl. 34, fig. 2, pl. 38, fig. 3.

Helix mandarina: Reeve, 1852, Conch. Icon., sp. 401.

Euhadra mandarina: Pilsbry, 1890, Man. Conch., Ser. 2, v. 6, p. 24, p. 124, pl. 31, fig. 32.

This is one of the common land snails in the Bonin Islands. Shell is conically elevated, very solid, reddish brown with two narrow light yellowish bands above and below the peripheral reddish brown band. Spire consists of 5 convex whorls. Aperture is semicircular and outer margin is rounded and thick. Umbilicus is closed by the dilation of the collumellar callus.

Height 16.1 mm and breadth 21.8 mm (figured specimen: NSMT Mo 42233a)

Height 17.5 mm and breadth 22.0 mm (NSMT Mo 42233b)

Remarks: - Many fossil specimens of this species are found together with two other *Mandarina* species on the sand dune at the central part of this islet.

Mandarina luhuana (Sowerby)
Pl. 4, figs. 1-3

Helix luhuana Sowerby, 1839, Zool. Beechey's Voy., p. 143, pl. 35, fig. 4.

Nanina ruschenbergeri Pilsbry, 1890, Proc. Acad. Nat. Sci. Phila., p. 186, Nautilus, v. 4, p. 64, text-fig. 1.

Mandarina luhuana Pilsbry, 1928, Proc. Malac. Soc. London, v. 18, p. 132.

This is an extinct species of this genus and had been frequently confused with *Euhadra herklotsi* (v. Martens, 1861) of Kyushu. Shell is large for the genus, solid, reddish

* National Science Museum, Tokyo

brown with a white narrow peripheral band and has the widely perforated umbilicus.

Height 22.2 mm and breadth 42.7 mm (figured specimen; NSMT Mo 39224a)

Height 21.5 mm and breadth 42.0 mm (NSMT Mo 39224b)

Remarks:- Many fossil specimens of this species are found on the sand dune. The extinct species, *Mandarina pallasiana* (Pfeiffer, 1850) (fig. 4) collected from Fukurodani, Chichi-jima is a species closely related to the present one in general features, but has the margined peripheral cord on the body whorl.

Mandarina hirasei Pilsbry

Pl. 4, figs. 9-11

Mandarina hirasei Pilsbry, 1902, *Nautilus*, v. 15, p. 141.

This is an unicolored white, low conic shell with narrowly but deeply perforated umbilicus.

Height 13.5 mm and breadth 20.2 mm (figured specimen: NSMT Mo 42234a)

Height 13.5 mm and breadth 22.5 mm (NSMT Mo 42234b)

Remarks:- Though this species had been reported from Chichi-jima, Muko-jima and Nakano-shima, the writer has never examined the specimens from these islands but only from this islet as the extinct species. *Mandarina exoptata* Pilsbry from Haha-jima resembles this species in shape but differs in having an angular periphery on the body whorl.

Family Enidae

Genus *Boninena* Habe, 1955

Boninena hataii sp. nov.

Pl. 4, fig. 5

Shell is solid, light brown, fusiform in shape with a highly conical spire of 7 whorls. Apex is rather large smooth and polished as the embryonic whorls. Succeeding whorls are weakly convex and only marked by fine growth lines. Body whorl is large, about half of shell height, roundly convex to the base. Aperture is ovate in shape. Outer margin is roundly arcuate, thickened and expanded while the columellar margin is short but slightly curved and dilated over the small umbilicus.

Height 13.2 mm and breadth 6.2 mm (type specimen collected by Dr. M. Kato and preserved in the National Science Museum, NSMT Mo 42235)

Remarks:- This new species differs from the living boninenid species in having a solid shell with conically elevated spire and large blunt apex. The name is dedicated to Dr. Katora Hatai who gave the specimens collected by Dr. M. Kato to the writer's disposal.

Family Endodontidae

Genus *Hirasea* Pilsbry, 1902

Hirasea minamijimana sp. nov.

Pl. 4, figs. 12-14

Shell is small, ashy white and has a conically elevated spire of 4.5 whorls which are slightly overhanging on the succeeding one. Surface is ribbed by distantly placed rough growth lines of about 20-25 in number and faint spiral striae between each two growth ribs on the body whorl. Periphery is serrated by the ending of growth ribs. The base of body whorl is slightly convex and marked by growth lines and faint spiral striae.

Umbilicus is closed by the dilation of the parietal callus. Aperture is angular at the outer margin by the ending of the peripheral keel. Callus extends over the parietal wall.

Height 5.6 mm and breadth 3.5 mm (type specimen collected by Dr. M. Kato and preserved in the National Science Museum, NSMT Mo 42236)

Height 6.4 mm and breadth 3.3 mm (paratype specimen, NSMT Mo 42237)

Height 5.4 mm and breadth 3.5 mm (paratype specimen, NSMT Mo 42238)

Remarks:- Only five specimens were collected by Dr. M. Kato. This new species is characterized by the rough growth ribs on the surface.

Subgenus *Fametesta* Pilsbry, 1902

Hirasea (*Fametesta*) *kato* sp. nov.

Pl. 4, figs. 15-17

Shell is very flat, opercular in shape with extremely depressed spire and sharply marginated periphery appearing as biconvex lens shape. Spire consists of 6 whorls. The base of body whorl is weakly convex and marks faint growth lines. Aperture is narrow and umbilicus is not perforated.

Height 3.0 mm and breadth 9.0 mm (type specimen collected by Dr. M. Kato and preserved in the National Science Museum, NSMT Mo 42239)

Height 3.0 mm and breadth 8.0 mm (paratype specimen, NSMT Mo 42240)

Remarks:- Only two specimens were obtained by Dr. M. Kato. It is a pleasure to name this interesting species in honor of Dr. Mutsuo Kato who collected the specimens. *H. (F.) operculina* (Gould, 1859) from Chichi-jima and *H. (F.) mirabilis* Pilsbry, 1902 from Chichi-jima, Haha-jima and Ani-jima, are the only known species of this subgenus. This new species differs from those two species in having the slightly convex base instead of the slightly excavated base of the body whorl.

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Plate 4

- Figs. 1-3. *Mandarina luhuana* (Sowerby). Height 22.2 mm and breadth 42.7 mm.
Fig. 4. *Mandarina pallasiana* (Pfeiffer). Height 23.2 mm and breadth 40.6 mm.
Fig. 5. *Boninena hataii*, sp. nov. (type specimen). Height 13.2 mm and breadth 6.2 mm
Figs. 6-8. *Mandarina mandarina* (Sowerby). Height 16.1 mm and breadth 21.8 mm.
Figs. 9-11. *Mandarina hirasei* Pilsbry. Height 13.5 mm and breadth 20.2 mm.
Figs. 12-14. *Hirasea minamijimana*, sp. nov. (type specimen). Height 5.6 mm and breadth 3.5 mm.
Figs. 15-17. *Hirasea (Fametesta) katoi*, sp. nov. (type specimen). Height 3.0 mm and breadth 9.0 mm.

