

## Short Communication

# First report of Patridge Sundial Snail *Architectonica perdix* (Hinds, 1844) from Northern part of East Coast of India

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### Abstract

*Architectonica perdix* (Hinds, 1844); the Patridge sundial snail is reported first time from Digha coast of West Bengal state, which is also the first report from Northern part of East coast of India. This species is formerly reported from Tamil Nadu coast and Andaman and Nicobar Islands.

**Keywords:** Coastal Fauna, Digha Coast, Molluscs Diversity, New Records

### Introduction

The Sundial snails are the marine gastropod of family Architectonicidae with a worldwide distribution mainly in subtropical and tropical waters. This is the only family of gastropods possessing heterostrophic sinistral protoconchs, and teleoconchs broadly conical, umbilicate, and dextrally coiled (Bieler, 1993). The architectonicids are well known for having an extended veliger stage enabling larvae to live in the planktonic stage for comparatively longer periods for which covers great distances with the ocean currents which ensures the wide distributional ranges. All the architectonicids shows a visible growth mark in the initial third of the first teleoconch whorl and marking the end of the early post-larval phase. The majority of shells have a well defined colour pattern of brown flecks at least on the peripheral ribs. The representative protoconch of architectonicids consists of planispirally coiled embryonic shell which is usually low-trochispiral, sinistrally coiled larval shell (Bieler, 1993). The protoconch is more often smooth, glossy, transparent or some time white or yellowish to dark brown pattern of blotches. The periostracum of shell consists of a relatively thin yellowish or transparent conchiolin layer, which swells strongly when wet. In dried condition it shrinks and flakes off in whitish or brownish scales. The operculum is corneous in all recent members

of this family (Bieler, 1993). Exploration of molluscan fauna of the northern part of east coast of India started in late 19<sup>th</sup> and early 20<sup>th</sup> century. Numerous studies have already been made to inventories the marine and estuarine mollusca of east coast by Eliot (1910), Annandale and Prashad (1919), Subba Rao *et al.* (1983; 1992; 1995), Choudhury *et al.* (1984), Chandrasekhara Rao and Misra (1986), Mandal and Nandi (1989), Goswami (1992), Khan (2003), Ramakrishna *et al.* (2003; 2005), Subba Rao (2003; 2017), Khalua *et al.* (2003), Dey *et al.* (2005), Dey and Mitra (2005), Dey (2006, 2016), Roy *et al.* (2008), Ramakrishna and Dey (2010), Tudu *et al.* (2013; 2015; 2017a, b; 2018a, b) and Yennawar and Tudu (2014). The family Architectonicidae Gary, 1850 comprises of 11 genera and 140 extant species worldwide (Bieler and Petit, 2005) and the genus *Architectonica* Röding, 1798 having 20 valid species (Mollusca Base, 2018). In Indian waters only seven species reported so far, viz *Architectonica laevigata* (Lamarck, 1816), *A. maculata* (Link, 1807), *A. modesta* (Philippi, 1849), *A. perdix* (Hinds, 1844), *A. perspectiva* (Linnaeus, 1758), *A. picta* (Philippi, 1849) and *A. purpurata* (Hinds, 1844) (Bieler, 1993; Subba Rao, 2003 and Dey, 2016). The *A. perdix* (Hinds, 1844) was reported from Puducherry (Dey, 2016), Tamil Nadu coast and Andaman group of Island (as shown in the map by Bieler, 1993) and hence, the present report is the first

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ever report of this species from northern part of east coast India (West Bengal).

## Material and Methods

During the regular survey along the east coast, authors have collected one live specimen (Reg. no. MARC/ZSI/M5409; date 08.12.2017) and one more empty shell (Reg. no. MARC/ZSI/M5351; date 27.12.2017) (collected by P.C. Tudu) from the intertidal zone of New Digha (21°36' 51.084" N and 87°29' 39.958" E) towards Odisha border and are deposited at National Zoological Collections of Marine Aquarium and Regional Centre, Zoological Survey of India, Digha. Live animal was narcotized by menthol crystal in sea water and preserved in 4% formaldehyde solution. Identification and classification follows Garrard (1978), Bieler (1993), Bieler and Petit (2005) and Bouchet *et al.* (2017). The description and diagnostic characters adopted from Bieler (1993).

## Results

### Systematic Position

Class: GASTROPODA

Order: HETEROBRANCHIA

Super family: ARCHITECTONICOIDEA Gray, 1850

Family: ARCHITECTONICIDAE Gray, 1850

Genus: *Architectonica* Röding, 1798

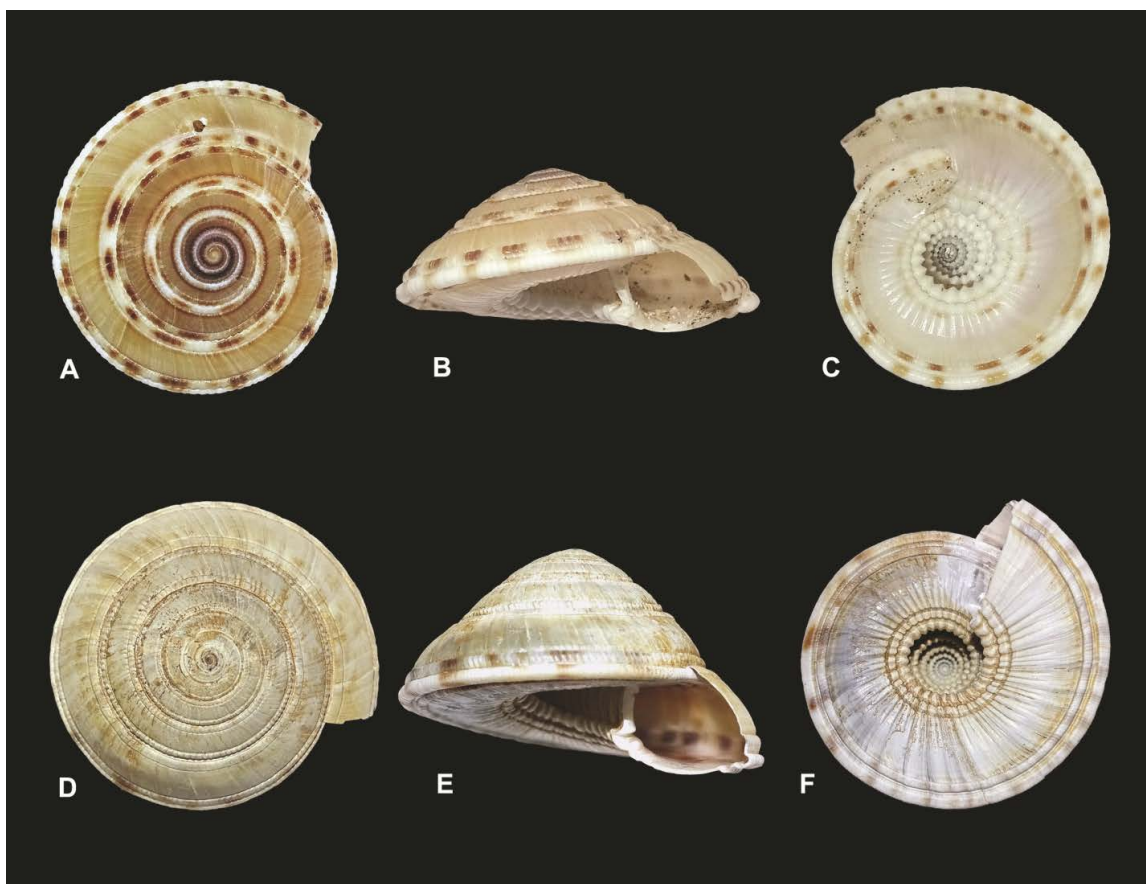
*Architectonica perdix* (Hinds, 1844) (Figure 1) Patridge Sundial Snail

### Synonym

*Solarium perdix* Hinds, 1844, *Proc. zool. Soc. Lond.*, p. 22.

*Architectonica (Architectonica) perdix*, Garrard, 1978. A revision of Australian Architectonicidae 31(13), p.514, Figure 1(13-15).

*Architectonica perdix* Bieler, 1993, Architectonicidae of the Indo-Pacific, p.48, Figure 35-38.



**Figure 1.** A-F, Morphological variations of *Architectonica perdix* (Hinds, 1844); collection locality New Digha, West Bengal (A-C, MARC/ZSI/M5351 and D-F, MARC/ZSI/M5409).

### Diagnosis characters

Shell large, thick-walled, diameter 16.3-26.5mm, height 7.7-16.65mm and 6½-7¼ whorls. Shape of shell moderately depressed to fairly high-spined cone-shaped, with whorls somewhat inflated (especially on upper side); umbilicus moderately wide. Upper side with fine and closely-spaced axial growth lines; subsutural ribs distinctly separated; midrib area not separated into individual ribs; upper peripheral ribs and lower peripheral ribs strong, of approximately equal strength, without additional spiral ribs; upper point of whorl attachment usually on upper edge of lower peripheral ribs, thereby forming a narrow suture; upper side and periphery crossed by narrow-spaced, weakly incised oblique axial grooves, resulting in formation of many elongate oblique segments, becoming smooth on midrib area of body whorl of larger specimens. Infraperipheral ribs strong; rarely one additional narrow spiral rib between lower peripheral ribs and infraperipheral ribs; basal field without spiral ribs; stronger towards umbilicus; two distinctly separated nodulose spiral ribs surrounding umbilicus, with umbilical crenae wider and with uniformly shaped nodules; columellar wall forming an almost straight inner lip with plications for support of the columellar muscle, with deepest groove in umbilical crenae overhanging umbilicus; no spiral sculpture on umbilical side of wall.

Colour whitish with regular brown pattern; midrib area with diffuse light brown spiral band. Basal field and proxumbilical ribs patterned with shades of mauve colour or often additional blotches of light-brown and umbilical crenae light brown colour are observed.

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**Geographical distribution:** Common in eastern Indian Ocean and western to central Pacific Ocean; In India it reported from Puducherry (Dey, 2016), Tamil Nadu and Andaman and Nicobar Islands (Bieler, 1993) and present report extends its range to West Bengal coast.

### Discussion

Earlier researcher has reported two species, *Architectonica laevigata* and *A. perspectiva* from the present collection locality (Subba Rao, 2003; Yennawar and Tudu, 2014; Dey, 2016). *A. perdix* is similar with the *A. purpurata* and *Adelphotectonica reevei*, because of similar size, more or less similar axial sculpture and light brown colour pattern. But *A. purpurata* having additional spiral ribs at the lower peripheral ribs, unlike the *A. perdix* which clearly distinguishes the two species. The possible characters that distinguish between the *A. perdix* and *Adelphotectonica reevei* are the position of the upper point of attachment of the whorls, and the protoconch. Previous literature confirms that the present species, *A. perdix* is not reported from Digha coast (West Bengal) as well as northern part of east coast of India and this reports extends its range of distribution.

### Acknowledgements

Our sincere thanks to Dr. Kailash Chandra, Director, Zoological Survey of India for his support, guidance and consent for using the laboratory and collections of Marine Aquarium and Regional Centre, Digha.

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