

## The genus *Testudinella* (Eurotatoria: Gnesiotrocha: Testudinellidae) in North-Eastern India

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### Abstract

Nine species and subspecies of the genus *Testudinella* are reported from North-Eastern India. Of these, six are new to India and eight to the North-Eastern region. Remarks are made on their distribution.

### Introduction

Little is known about the distribution of *Testudinella* species (Family: Testudinellidae) in India, only four species (*T. patina*, *T. incisa*, *T. mucronata*, *T. emarginula*) having been reported from this country.

The author's collections from North-Eastern region revealed nine species and subspecies. Six are new to India and eight new to this region. All taxa are briefly described and illustrated and comments are made on their distribution.

### Material and methods

Material was collected from a wide range of habitats from various localities in North-Eastern India (cf. Sharma & Sharma, 1987). Recent collections from the states of Assam, Meghalaya and Tripura were also analysed. All samples were preserved in 5% formalin. Individual specimens were mounted in Polyvinyl alcohol-lactophenol. Illustrations are made with a Leitz-Dialux phase contrast microscope using a drawing-tube. Measurements are in micrometers.

### Systematic notes

*Testudinella patina patina* (Hermann, 1783) (Fig. 1)

Lorica almost circular, dorso-ventrally compressed and convex in cross-section. Anterior dorsal margin rounded. Foot-opening nearly circular, located in the middle or behind the middle region of lorica on its ventral side.

*Measurements:* Lorica length 165–178; maximum width 150–158.

Reported earlier from Kashmir, Gujarat, Rajasthan, Andhra Pradesh, West Bengal, Orissa, Assam and Meghalaya; examined in several periphytic and planktonic samples from different states of North-Eastern region.

*Testudinella patina intermedia* (Anderson, 1889) (Fig. 2)

Differs from typical *T. patina* by a lobe-like projection on the anterior dorsal margin. Lorica in examined material not entirely circular but identical with drawing by Koste (1978, T. 195: 1b).

*Measurements:* Lorica length 170–172; maximum width 152–154.

Described from Calcutta (Anderson, 1889) as

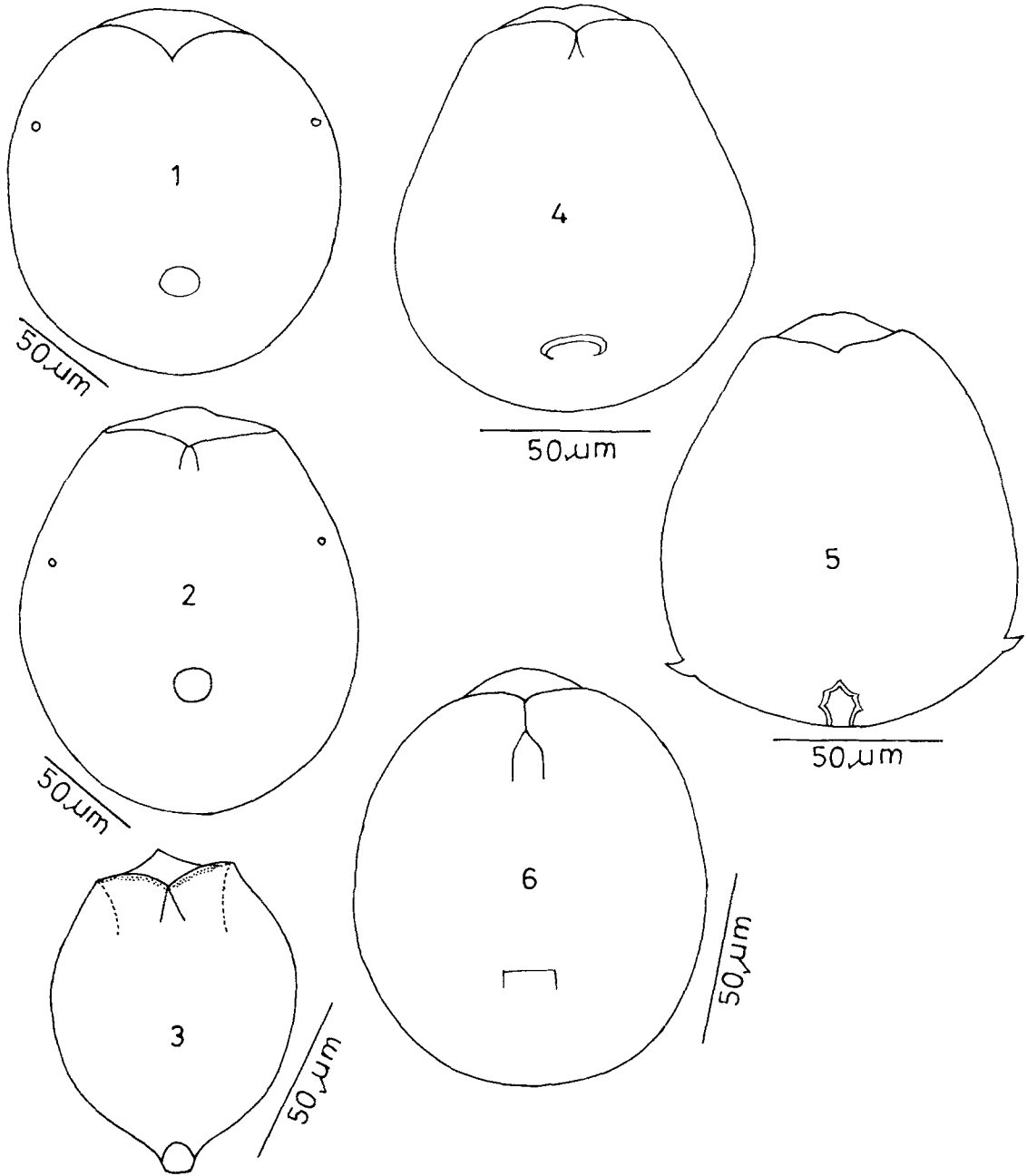


Fig. 1. Ventral view; *Testudinella patina patina* (Hermann).

Fig. 2. Ventral view; *T. patina intermedia* (Anderson).

Fig. 3. Ventral view; *T. brevicaudata* (Yamamoto).

Fig. 4. Ventral view; *T. parva parva* (Ternetz).

Fig. 5. Ventral view; *T. parva bidentata* (Ternetz).

Fig. 6. Ventral view; *T. parva semiparva* (Hauer).

*Pterodina intermedia*; five specimens were observed from a paddy-field in Tihu (Nalbari district), Assam State.

*Testudinella brevicaudata* (Yamamoto, 1951) (Fig. 3)

Lorica broadly oval, with maximum width in its middle and produced posteriorly into a rectangular projection. Anterior dorsal margin broadly conical; ventral margin with sloping sides and a median spine. Foot-opening almost semicircular and ventrally located at posterior projection of lorica.

*Measurements*: Lorica length 94–96; maximum width 72–74; anterior width 40–42.

A new record from India. Three specimens from a nursery tank in Gauhati city (Assam State); these are smaller and less broad than those from West Africa (Koste & Tobias, 1987).

*Testudinella parva parva* (Ternetz, 1892) (Fig. 4)

Lorica pear-shaped and with maximum width behind its middle. Anterior dorsal margin with shallow depression; anterior ventral margin relatively broader and with median spine. Foot-opening elliptical and situated at short distance from posterior margin of lorica.

*Measurements*: Lorica length 112–116; maximum width 98–104.

New record for India; examined in twenty-five samples from paddy-fields in Jaintia Hills district of Meghalaya State; also collected from four paddy-fields in Kokrajhar and Nalbari districts of Assam State.

*Testudinella parva bidentata* (Ternetz, 1892) (Fig. 5).

Differs from nominate subspecies in shape of anterior ventral margin, presence of a pair of postero-lateral triangular spines, and shape of posteriorly located foot-opening.

*Measurements*: Lorica length 109–118; maximum width 95–103.

*T. parva bidentata* is new to India; examined in eighteen samples from East Khasi and Jaintia Hills districts of Meghalaya State.

*Testudinella parva semiparva* (Hauer, 1938) (Fig. 6).

Lorica more circular than preceding two subspecies. Anterior opening relatively small; anterior dorsal margin rounded.

Foot-opening rectangular and located at some distance from posterior margin of lorica.

*Measurements*: Lorica length 116–118; maximum width 98–101.

This subspecies is also new to India; two specimens were studied from a weed-infested pond in Lakhimpur, Assam State.

*Testudinella tridentata* (Smirnov, 1931) (Figs. 7 & 8).

Lorica vase-shaped, strongly compressed dorso-ventrally, with maximum width in its middle, then tapering gradually to a lobate posterior end. Anterior dorsal margin with long median spine, two small spines on either side and external angles produced into distinct outcurving spines. Foot-opening elongated, located at posterior ventral end of lorica. Foot-annulated, with ciliated tip.

*Measurements*: Total length 126–130; anterior width 48–52; median dorsal spine 12–16; maximum width 70–73.

New record for India; six specimens observed in two ponds in Sonitpur district of Assam State and two specimens from a paddy-field in Kailashaher (North Tripura).

*Testudinella greeni* (Koste, 1981) (Fig. 9 & 10).

Syn.: *T. tridentata curvata* (Wulfert): Fernando & Zankai, 1981, p. 215–216, Fig 36.

Lorica elongate-oval, strongly curved dorsally, maximum width in its middle region, produced posteriorly into a tubular angulated end. Anterior dorsal margin with distinct, long, median spine and produced external angles; ventral margin with median notch, bounded by two spines. Foot-opening inverted v-shaped, situated at posterior end of lorica.

*Measurements*: Total length 383–386; lorica length 325–326; maximum width 198; anterior width 86; median dorsal spine 60; length of foot-opening 20; width of foot-opening 32.

New record from India; two specimens (par-

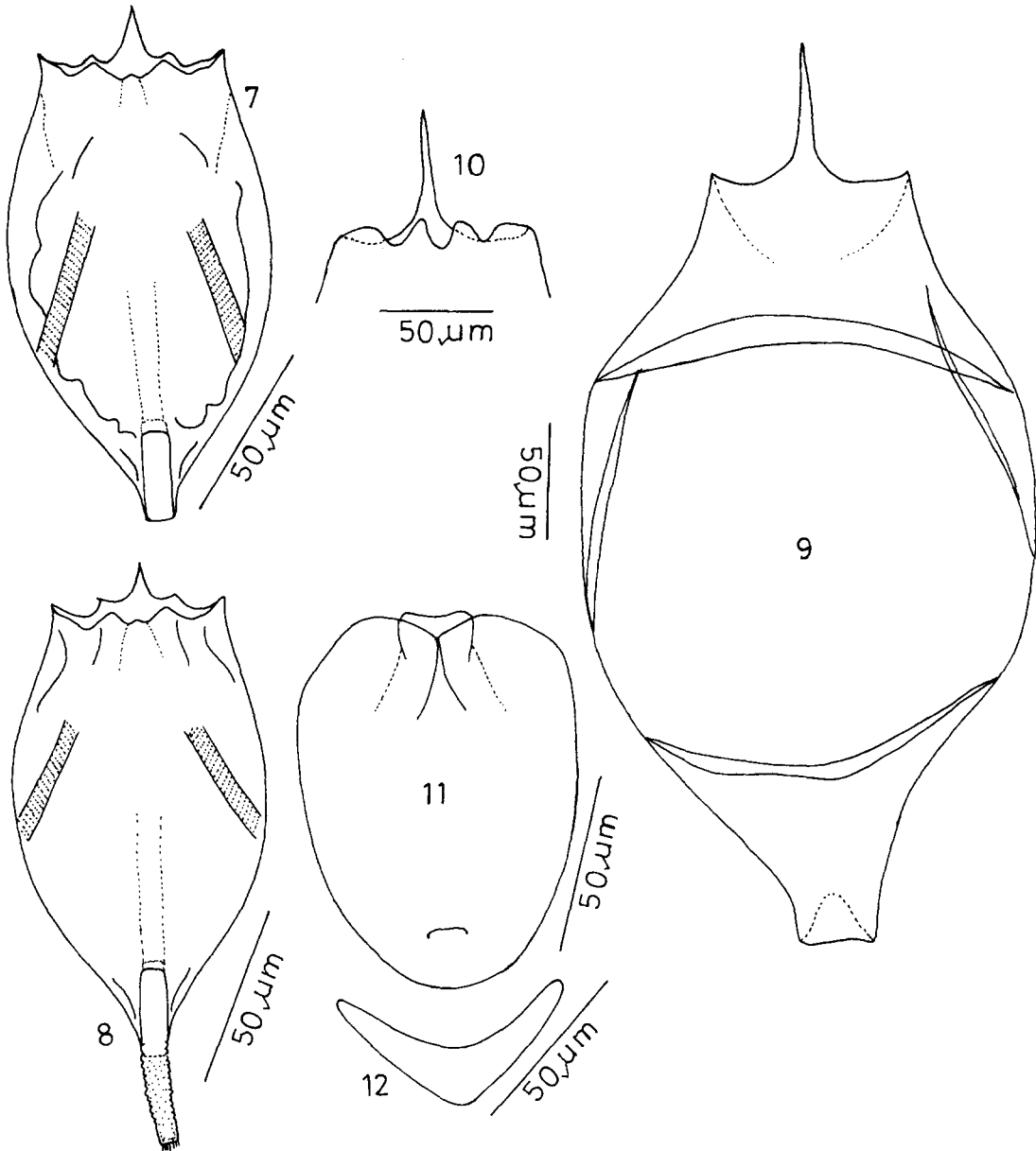


Fig. 7. Ventral view; *Testudinella tridentata* (Smirnov),  
 Fig. 8. with foot (Ventral view).  
 Fig. 9. dorsal view (partially compressed); *T. greeni* (Koste),  
 Fig. 10. anterior end (Ventral view).  
 Fig. 11. Ventral view; *T. emarginula* (Stenroos),  
 Fig. 12. cross section.

tially compressed) examined from a tectonic lake (Sone beel) in Cachar Valley of Assam State.

The specimens resemble those described by Koste (1981) except for their smaller size and differences in the posterior end of lorica and that

of foot-opening. They are, however, identical with Malaysian material (Fernando & Zankai, 1981) designated as *T. tridentata curvata* (Wulfert). *T. greeni* is the largest known species of this genus.

*Testudinella emarginula* (Stenroos, 1898) (Fig. 11 & 12).

Lorica elliptical and with maximum width slightly behind its anterior region; dorsal surface convex and ventral surface with distinct median keel. Foot-opening slit shaped, located ventrally some distance from posterior end of lorica.

*Measurements*: Lorica length 97–103; maximum width 70–74.

Reported previously in India from Delhi only; common in samples from Meghalaya State, in seven samples from the Brahmaputra valley in Assam State, and in two samples from paddy-fields in Dharamnagar (North Tripura).

### Remarks

The present study increases the number of known Indian species of *Testudinella* to eight (twelve taxa). *T. brevicaudata*, *T. greeni*, *T. parva parva*, *T. parva bidentata*, *T. parva semiparva* and *T. tridentata* are new in India. *T. brevicaudata* was previously considered to be a Japanese species but has now been reported from Mali in West Africa (Koste & Tobias, 1987) and Borneo (Koste, 1988). *T. greeni*, described from Australia (Koste, 1981), was subsequently found in Malaysia (Fernando & Zankai, 1981), and presently also from North-Eastern India. Koste (*loc. cit.*) examined some specimens from the river Sokoto, Nigeria (collected by Prof. Green). *T. parva semiparva* is another element so far reported only from Java and Poland (Koste, 1978).

*T. brevicaudata*, *T. parva semiparva*, *T. tridentata* and *T. greeni* are presently examined from Assam State while *T. parva bidentata* is observed in the adjoining state of Meghalaya. *T. patina* is widely distributed in India, while *T. emarginula* was so far on record from Delhi (Sarma, 1988)

but has also been examined by the author in collections from the state of Orissa and West Bengal. Except for the eurytopic *T. patina patina*, various other species and subspecies seemed restricted to slightly acidic waters (pH 5.6–6.8).

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