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NEW TO THE FAUNA OF INDIA LADYBIRD BEETLES (COLEOPTERA: COCCINELLIDAE)

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Summary. *Aspidimerus birmanicus* (Gorham, 1895), *Cryptogonus nepalensis bhutanensis* Bielawski, 1979, *Henosepilachna processa* Li et Cook, 1961, *Sticholotis punctata* Crotch, 1874, and *Synona consanguinea* Poorani Ślipiński et Booth, 2008 are reported for the first time from India. The diagnosis, illustrations and the map of distribution of these species are also provided.

Key words: Coccinellinae, Aspidimerini, Coccinellini, Epilachnini, Sticholotidini, distribution, fauna, new records, Northeast India.

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Резюме. Впервые для фауны Индии указываются *Aspidimerus birmanicus* (Gorham, 1895), *Cryptogonus nepalensis bhutanensis* Bielawski, 1979, *Henosepilachna processa* Li et Cook, 1961, *Sticholotis punctata* Crotch, 1874 и *Synona consanguinea* Poorani Ślipiński et Booth, 2008. Для всех видов также приведены диагнозы, иллюстрации и карты-схемы распространения.

INTRODUCTION

The ladybird beetles belonging to family Coccinellidae, globally comprise over 6,000 species (Robertson *et al.*, 2015), of them nearly 550 species are recorded from India (Poorani, 2019), that is only 9.1% of the global diversity. Ladybird beetles being directly associated with many plants (considering the phytophagous tribe Epilachnini) and their associated pests (aphids, mites, scale insects etc.) is expected to procure more number of species. This biologically important group is often misidentified because of cryptic variations. Herein, five species of subfamily Coccinellinae in four tribes are reported from India for the first time with illustrations and remarks on their distribution.

MATERIAL AND METHODS

Specimens examined were deposited at National Zoological Collection of Zoological Survey of India, Kolkata NZSI]. These specimens were examined using a Nikon SMZ25

stereo zoom–microscope, and the photos were taken using DS–Ri2 camera attached with it, and they were processed with NIS Elements BR 5.10.00 imaging software. Minor image corrections were conducted using Adobe Photoshop 7 software. Kolkata.

NEW RECORDS

Subfamily Coccinellinae Latreille, 1807

Tribe Aspidimerini Mulsant, 1850

Genus *Aspidimerus* Mulsant, 1850

REMARKS. So far, a single species of this genus (*A. spencei* Mulsant, 1850) was recorded from Assam and Meghalaya in India (Poorani, 2002).

***Aspidimerus birmanicus* (Gorham, 1895)**
Figs 1–7

Cryptogonus birmanicus Gorham, 1895: 691.
Aspidimerus birmanicus: Kapur, 1948: 84, figs. 4A (habitus, male), 4B (male genitalia), 4C (siphonal capsule); Poorani, 2002: 343 (checklist); Huo *et al.*, 2013: 71 (checklist).

MATERIAL EXAMINED. **India**: Assam, Kaziranga, V.1961, 1♀, coll. G. Scherer [NZSI].

DIAGNOSIS. Body length 3.8–5.0 mm, width 2.8–3.8 mm. Body elongate-oval; head reddish brown, finely punctate in females; pronotum black (brown in females) excluding anterolateral margins; scutellum black; elytra black (reddish brown in females) with two subrounded spots on disc, more or less extended up to lateral margin, located near apex base; ventrites black to dark brown; legs and abdominal sternites reddish brown.

DISTRIBUTION. India (**new record**), Myanmar (Kapur, 1948) and Thailand (Huo *et al.*, 2013).

REMARKS. Kapur (1948) illustrated the male habitus, male genitalia and siphonal capsule based on the specimens from Mongphu and Maymyo (Myanmar). *A. birmanicus* can be distinguished from closely related species by the following characters: the colour of elytra black with two spots, dorsum moderately convex and densely pubescent, penis relatively long, curved almost in a circle in the whole length. Penis guide symmetrical with apex arcuate or truncate in ventral view (Huo *et al.*, 2013). Here *A. birmanicus* is reported for the first time from India, based on the female specimen. The female habitus, antennae, labium, mandible, maxilla and maxillary palpi are illustrated for the first time.

Genus *Cryptogonus* Mulsant, 1850

REMARKS. The fauna of India consists of 14 species (Kapur, 1948; Poorani, 2002, 2019).

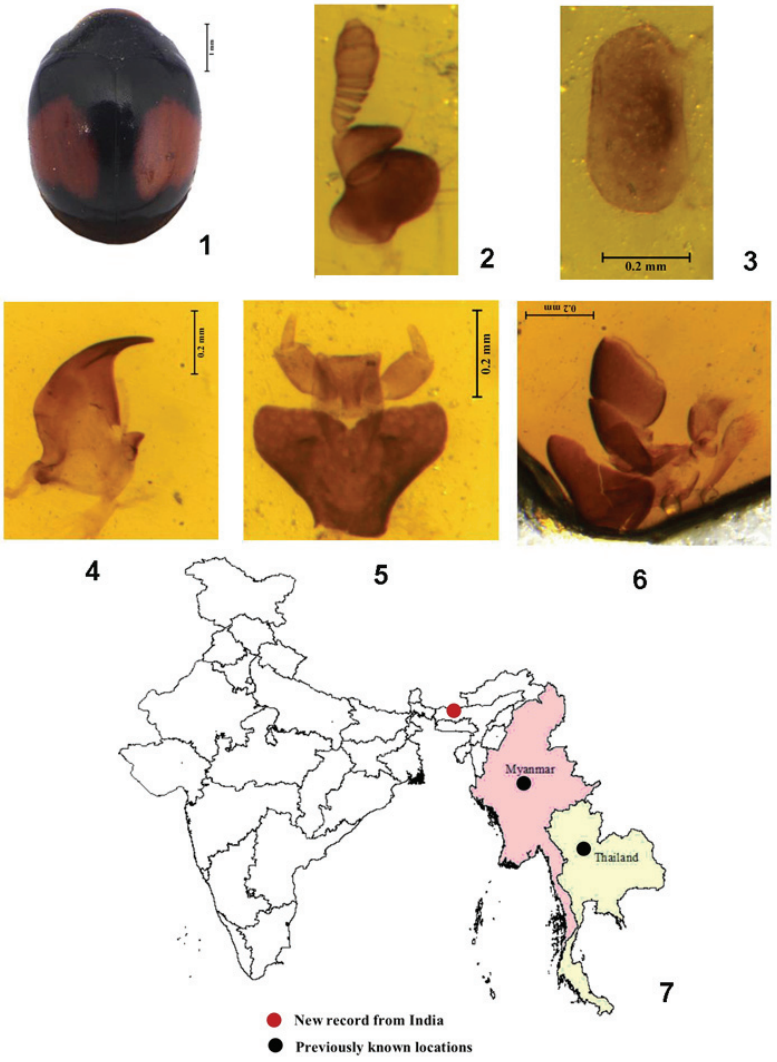
***Cryptogonus nepalensis bhutanensis* Bielawski, 1979**
Figs 8–13

Cryptogonus nepalensis bhutanensis Bielawski, 1979: 109, fig. 96; Poorani, 2002: 345 (checklist); Huo *et al*., 2015: 209; Dorji *et al.*, 2019: 502 (checklist).

MATERIAL EXAMINED. **India**: Meghalaya, Jaintia Hills, Jawai, 20.IX 1988, 2♂, 3♀, coll. V.D. Srivastava [NZSI].

DIAGNOSIS. Body length: 2.3–2.5 mm, width: 1.7–2.0 mm. Body round, convex; head yellow, finely punctate in males and coarsely punctate in females, pubescent; pronotum black, anterior margins yellow; scutellum black; elytra yellowish brown, first black spot subrounded on lateral half, a second spot located parallel with first on suture, joined to form a complete round, third spot smaller that others on posterior half of elytron; ventrite black; legs brownish.

DISTRIBUTION. India (**new record**), Bhutan and China (Bielawski, 1979; Huo *et al.*, 2015; Dorji *et al.*, 2019).



Figs 1–7. *Aspidimerus birmanicus*. 1 – habitus, dorsal view; 2 – antennae; 3 – labium; 4 – mandible; 6 – maxilla; 6 – maxillary palpi; 7 – distribution map.

REMARKS. Bielawski (1979) characterized this subspecies by follow: head yellowish, pronotum and scutellum black, base and apex of elytron rather widely black with two large black spots on each elytron and one spot common to both. *C. nepalensis bhutanensis* in colour pattern and male copulatory apparatus are almost identical with the nominotypical subspecies, but can be distinguished from latter by fissures at the end of the penis marked feebly (Bielawski, 1972: figs. 53, 61). The male genitalia of our specimens (Figs 10–12) are identical to the description given by Bielawski (1979).

Figs 8–13. *Cryptogonus nepalensis bhutanensis*. 8 – habitus, dorsal view; 9 – abdomen; 10 – tegmen, inner; 11 – tegmen, lateral; 12 – penis; 13 – distribution map.

Tribe Coccinellini Latreille, 1807

Genus *Synona* Pope, 1989

REMARKS. The genus includes 3 species from India (Poorani, 2002; Poorani *et al.*, 2008).

***Synona consanguinea* Poorani, Ślipiński et Booth, 2008**
Figs 14–19

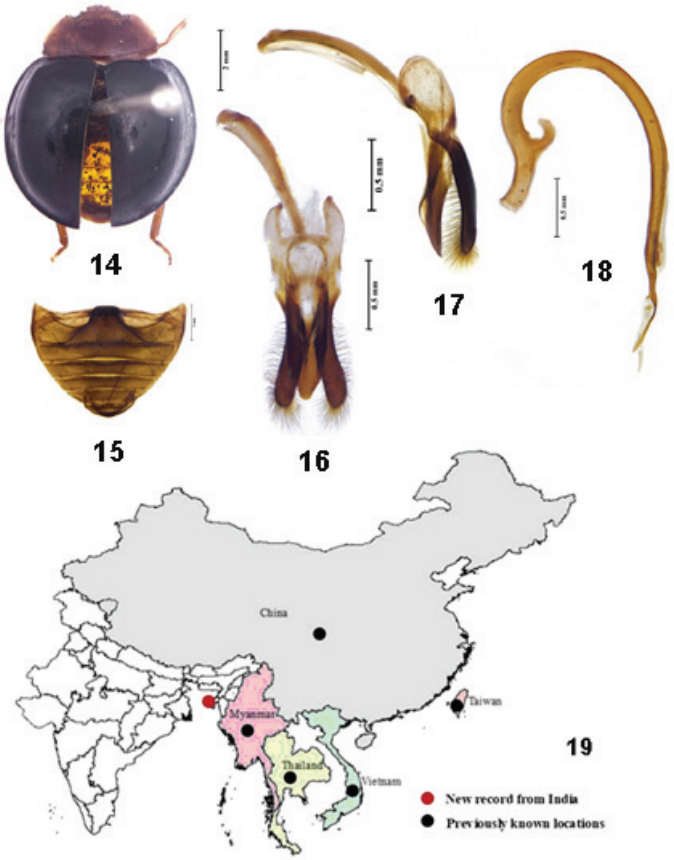
Synona consanguinea Poorani *et al.*, 2008: 592, figs. 5-6 (habitus), 43-50 (male genitalia), 55-56 (female genitalia).

MATERIAL EXAMINED. **India**: Tripura, West Tripura, Ishanchandra Nagar, 28.III 2018, 1♂, 1♀, coll. Priyanka Das [NZSI].

DIAGNOSIS. Body length: 4.9–5.1 mm, width: 4.9–5.0 mm. Body elongate oval to round, convex, glabrous; pronotum yellow–orange; scutellum yellow; elytra black; ventrite pale orange yellow; epipleura black.

DISTRIBUTION. India (**new record**), China (including Taiwan), Myanmar, Thailand, and Vietnam (Poorani *et al.*, 2008).

REMARKS. Our specimens are identical to the description and illustrations provided by Poorani *et al.* (2008).



Figs 14–19. *Synona consanguinea*. 14 – habitus, dorsal view; 15 – abdomen; 16 – tegmen, inner; 17 – tegmen, lateral; 18 – penis; 19 – distribution map.

Tribe Epilachnini Mulsant, 1846

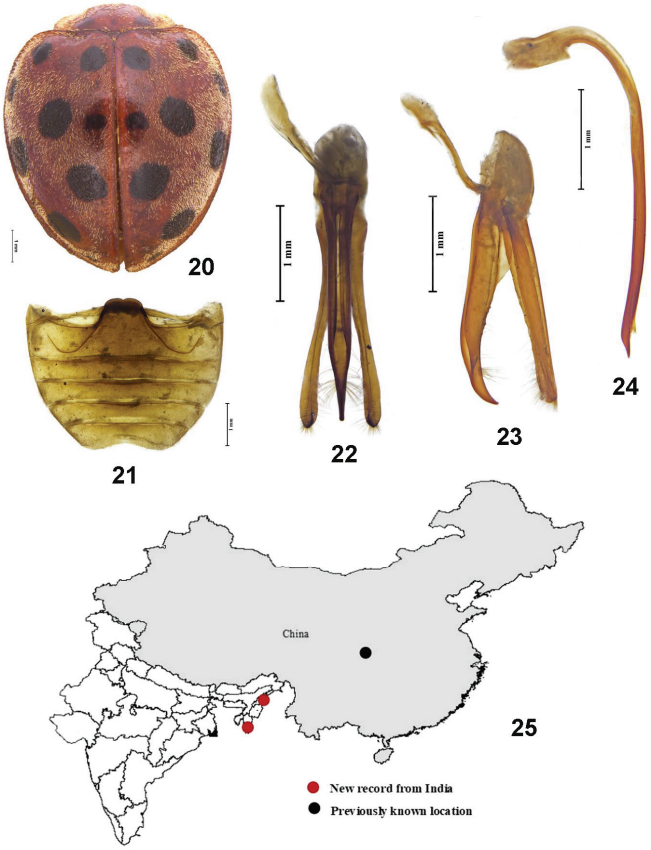
Genus *Henosepilachna* Li, 1961

REMARKS. There are 24 species of this genus recorded from India (Poorani, 2004).

***Henosepilachna processa* Li et Cook, 1961**
Figs 20–25

Henosepilachna processa Li & Cook 1961: 45, figs. 2 (abdominal sternite), 15-16 (elytra), 30-32 (male genitalia), 49-50 (abdominal tergite in dorsal and ventral view), 51 (female genitalia in ventral view); Dorji *et al*., 2019: 518 (checklist).

MATERIAL EXAMINED. **India**: Mizoram, Aizawl, University Campus, 28.III 2018, 2♂, coll. Priyanka Das (25702/H4A) [NZSI]; Nagaland, Zuheboto, Maromi, 22.VII 1991, 1♂, 2♀, coll. Y.P. Sinha (26048/H4A) [NZSI].



Figs 20–25. *Henosepilachna procera*. 20 – habitus, dorsal view; 21 – abdomen; 22 – tegmen, inner; 23 – tegmen, lateral; 24 – penis; 25 – distribution map.

DIAGNOSIS. Body length: 8.5–9.0 mm; width: 7.3–7.7 mm. Body oval, convex, pubescent; antennae 0.5–1.0 of head width; pronotum black with edges dark yellow; scutellum reddish brown; Elytra dark orange to reddish brown, with black maculae; hypomeron finely punctate; prosternum without carinae; metaventral postcoxal lines joined or almost so on metaventral process in somewhat W-shaped line in middle; tibial spurs: 1–2–2; tegminal basal piece with a pair of spines on inner margin near base of tegminal strut.

DISTRIBUTION. India (**new record**), Bhutan (Dorji *et al*., 2019), China (Li & Cook, 1961).

Tribe Sticholotidini Weise, 1901

Genus *Sticholotis* Crotch, 1874

REMARKS. The genus includes 21 species from India (Poorani, 2002).

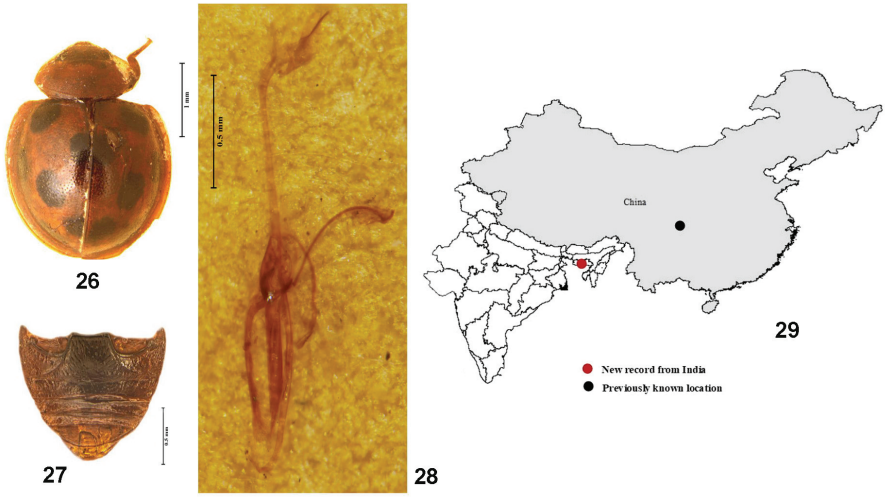
Sticholotis punctata Crotch, 1874

Figs 26–29

Sticholotis punctata Crotch, 1874: 201; Mader, 1955: 820–821, fig. 10; Sasaji, 1971: 73; Ren *et al*., 2009: 34; Wang *et al*., 2017, 25 figs. 1-10 (body parts), 59-61 (habitus), 197-200 (male genitalia), 299 (distribution map).

Sticholotis rufosignata Weise, 1885: 239.

MATERIAL EXAMINED. **India**: Meghalaya, Shillong, Cherrapunji, 24.XII 1958, 1♂, col. A.P. Kapur [NZSI].



Figs 26–29. *Sticholotis punctata*. 26 – habitus, dorsal view; 27 – abdomen; 28 – tegmen and penis; 29 – distribution in India and China.

DIAGNOSIS. Body length: 2.1–2.5 mm; width: 1.7–2.0 mm. Body nearly round, hemispherical, strongly convex, glabrous; head dark yellow; pronotum black with edges dark yellow; scutellum reddish brown; elytral dark yellow to reddish brown, margins wide, visible from above, 6 large black rounded spots, first pair on the humeral calli reaching basal margin, second pair on disc slightly posteriad of half length of elytron, third largest on 2/5 length of elytral suture; fourth just before sutural apex; underside dark brown, with elytral epipleuron and legs yellow.

DISTRIBUTION. India (**new record**), China, Japan, Malaysia, the Philippines (Ren *et al*., 2009; Wang *et al.*, 2017).

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