

## Taxonomic notes on *Stenozygum speciosum* (Dallas) (Pentatomidae: Pentatominae: Strachiini) with new distributional records from North India

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### Abstract

In the present manuscript, one species under genus Genus *Stenozygum* Fieber, 1861 i.e., *Stenozygum speciosum* (Dallas) is a new record from North India (Himachal Pradesh). Earlier it was reported from Palearctic, Ethiopian, Oriental and Australian Regions (Guangxi, Sichuan, Yunnan, Sri Lanka, Sistan & Baluchestan, Iran, Pakistan. From India it has been previously reported from West Bengal, Maharashtra, Uttar Pradesh and South India states. The morphometric details, morphology and illustrations of external female genitalia are also provided with colored images. These new records increase the known country level diversity of Pentatominae in the North India.

**Keywords:** *Stenozygum speciosum*, new record, North India, genitalia, Pentatomidae

### Introduction

The genus was proposed by Fieber (1861) <sup>[8]</sup> based on type species *Stenozygum variegatum* from Palearctic region. Distant (1902) <sup>[7]</sup> reported only a single species *Stenozygum speciosum* Dallas from British India, earlier it was described under genus *Strachia*. The genus is widely distributed, represented by forty four species from the World. Out of these, 43 species have been reported from Southern Palearctic, Ethiopian, Oriental and Australian-Melanesian regions and *Stenozygum jordiribesi* was described from the island of Socotra (Rider, 2021; Carapezza 2011) <sup>[14, 4]</sup>. Only three species under genus *Stenozygum* have been recorded from India (as reported by Distant, 1902 <sup>[7]</sup>, Azim and Shafee, 1986, Azim, 2011) <sup>[2, 3]</sup>. The genus was revised by Ahmad and Khan (1983) <sup>[1]</sup> from the Oriental and Australian regions with their zoogeographical and phylogenetic details along with the redescription of *Stenozygum speciosum* (Dallas) from the Oriental region. *Stenozygum speciosum* (Dallas) is the only known species known from south India (Chatterjee, 1934) <sup>[5]</sup>. Ghauri (1972) <sup>[9]</sup> reported and illustrated *Stenozygum pseudospeciosum* under the subgenus *Setozygum* from Pakistan. The species is characterized in being shining and brilliantly colored. Some members have been reported as minor pest of *Capparis* sp., *Sinapis* sp. and Ker (Haldhar and Maheshwari, 2018) <sup>[11]</sup>. Light traps have been suggested to reduce their population size. It is being reported for the first time from North India in the present paper.

### Materials and Methods

Individuals belonging to this genus were collected from different localities of North Indian states i.e. Punjab, Haryana, Himachal Pradesh, Uttarakhand, NCR region of Delhi and parts of Jammu and Kashmir. For preparing the slides of external female genitalia, the abdomen was potashed in 10% KOH and boiled for 5-10 minutes on a gas burner. The potashed sclerites were removed to expose genital plate and spermatheca. The procedure and nomenclature for female genitalia was adopted (Schudder,

1959). However, the terminology has undergone various modifications by later workers that have been considered in the present manuscript for nomenclature purpose. The photographs of various external genitalic structures were taken by the high-power digital camera of Image Processing Unit. All the measurements are given in millimetres.

### Taxonomic Notes

#### Genus *Stenozygum* Fieber, 1861 <sup>[8]</sup>

*Stenozygum*, Fieber (1861) <sup>[8]</sup> *Eur. Hem.*, p. 345

*Nitilia*, subg. *Minodia*, Mulsant and Ray (1866) *Pun. France, Pent.*, p. 199

*Stenozygum*, Puton (1899) *Cat. Hem. Pal.*, 4: p. 17

### Type Species

*Stenozygum variegatum* Fieber, 1861 <sup>[8]</sup> (= *Cimex coloratus* Klug, 1845)

*Minodia*: *Stenozygum variegatum* Fieber, 1861 <sup>[8]</sup> (= *Cimex coloratus* Klug, 1845)

*Pseumatocoris*: *Pseumatocoris ignitus* Kiritschenko, 1922, (original designation)

### Diagnosis of the Genus

The genus is diagnosed as oval, shining and convex body; head is little deflected; eyes are moderately stylate; lateral margins of head are rounded and sinuate near base; pronotum is transversely depressed, with a little concave, calloused and elevated anterior margin, its lateral margins are entire; scutellum is longer than broad and narrowed towards apex and a little elevated at base; abdomen is unarmed (without any spine); basal joint of antennae do not extend beyond apex of head. Paramere is 3/4th broader, rest is smoothly curved out to form an uncinatate structure with a bunch of stiff hairs at point of curvature.

### *Stenozygum speciosum* (Dallas)

*Strachia speciosum*, Dallas (1851) *List Hem.*, 1: p. 261.

*Strachia inornata*, Walker (1867) *Cat. Het.*, 2: p. 331-66.

*Stenozygum speciosum* (1985) Datta et al. <sup>[6]</sup>, *Ree. zool.*

Surv. India, Dec. Paper No., 80: 9.

*Stenozygum speciosum*: Distant (1902) <sup>[7]</sup> *Faun. Brit. Ind. Rh.*, 1: p. 193.

*Stenozygum speciosum* (Dallas): Distant (1904) *Fauna Brit. India*, 1: 198.

#### Morphometric Measurements (in mm)

Head length: 1.20; width across eyes: 2.0; interocular space: 1.20; interocellar space: 0.70; preocular distance: 0.55; length of posterior head including eyes: 0.65; antennal segments lengths: I: 0.35, II: 0.40, III: 0.80, IV: 0.80, V: 0.90; pronotal length: 1.50; width across humeral angles: 4.0; scutellar length: 2.88; scutellar width: 2.40; length of abdomen: 3.20; maximum width of abdomen: 4.0; length of rostral segments: I: 0.65, II: 0.70, III: 0.50, IV: 0.50; Distance - base scutellum-apex clavus: 2.125; apex clavus-apex scutellum: 1.0; apex scutellum-apex abdomen including membrane: 1.87.

**Total body length:** 8mm approx. (Fig. 1A).

**Dorsal Coloration:** Body is brownish, head with large central pale yellowish spot, two impunctate, small central orangish-yellow spots on paraclypei and two spots on anterior margin; eyes are black with brown border; ocelli red; antennae are black and hairy; pronotum is blackish, scarcely punctured on its posterior margin, while the anterior margin is black; anterolateral margin (except anterior most portion), a large median fascia, spot behind each humeral angle is pale yellowish; anterior pronotal region is with two indistinct transverse black callosities; scutellum is black and scarcely punctate; scutellar angles are marked with small reddish spots; central scutellar region with longitudinal fascia (extending from pronotum) and subapical triangular patch is pale yellowish with reddish tinge; apex of scutellum is impunctate; clavus and corium are black in color; a discal spot and transverse subapical fascia yellowish red; anterolateral margin and posterior margin of costa is pale yellowish and punctate; hemelytral membrane is black; connexiva is slightly exposed dorsally with alternate anterior black and pale yellowish posterior connexival angles.

#### Ventral Coloration

Labium is pale yellow marked with dark brown infusion and black apex; head is black except the extremities (pale yellow); sternum and abdomen are impunctate and pale yellow; lateral area of sternum is dark chocolate brown, with double series of spots; metathoracic scent gland osteolar peritreme is pale yellowish; abdomen is entirely impunctate, its lateral margin is bordered with brownish-black spots with yellowish red suffusions and dark brown spots inner to it; penultimate abdominal segment is with two large horizontal dark brown spots; connexiva is black with

orangish-yellow spots at connexival angles; legs are pale yellow with black streaks, apices of femora, base of tibia, tarsi are black; spiracles black; genital capsule is pale yellow, with black patches on outer margin of 1<sup>st</sup> gonocoxae.

#### External Morphology

Head (Fig. 1B): Head is distinctly broader than long and strongly declivent; paraclypeal lobes are equal to clypeal lobes, the anterolateral area is reflexed and slightly sinuous above eyes, and narrowed towards apex, clypeus is depressed in the medial region; 1<sup>st</sup> antennal segment is slightly robust, not reaching the apex of head; antennal segmental formula is – I<II<III=IV<V; labium crosses mesocoxae, labial lengths formula is– III=IV<I<II. Pronotum (Fig. 1C) is distinctly wider than long, moderately deflected in the anterior region; anterior and posterior margin is somewhat calloused; anterolateral margin is straight; humeral angles are subprominent; scutellum is longer than broad and slightly elevated at base; frenal region is greater than post frenal region, beyond frena it is narrowed at apex; metathoracic scent gland osteolar peritreme (Fig. 1D) is very small and reaches to about one tenth way to metapleural margin; evaporatorium is broad and covers about one third area of sternite with well-marked anterior and posterior margins, anterior margin is narrowly extended beyond the posterior one. Abdomen is uniformly convex; connexiva is not exposed at repose; ventroanterior margin of VII<sup>th</sup> abdominal sternite is broadly concave and inverted U-shaped, ventroposterior margin is sinuous, somewhat bifurcated, with subrounded posterior angles (Fig. 1E); genital capsule is pilosed and punctate; hemelytral membrane passes slightly beyond the apex of abdominal segment.

#### Female External Genitalia

1<sup>st</sup> gonocoxae of genital plate is large, plate-like, distinctly sinuate on inner and posterior margins and placed wide apart; 2<sup>nd</sup> gonocoxae is fused in the middle region, anteriorly sinuate and convex posteriorly; 9<sup>th</sup> paratergites are broad, lobular and do not reach the posterior fused margins of 8<sup>th</sup> paratergites (Fig. 1F); spermatheca (Fig. 1G) is with distinct proximal and distal flanges; its pump region is tubular with proximal sclerotization and membranous at the distal region; bulb of spermatheca is elongated and finger like, without any additional processes; distal spermathecal duct distinctly shorter, equivalent to about one third of proximal duct; medial dilation is proximally dilated.

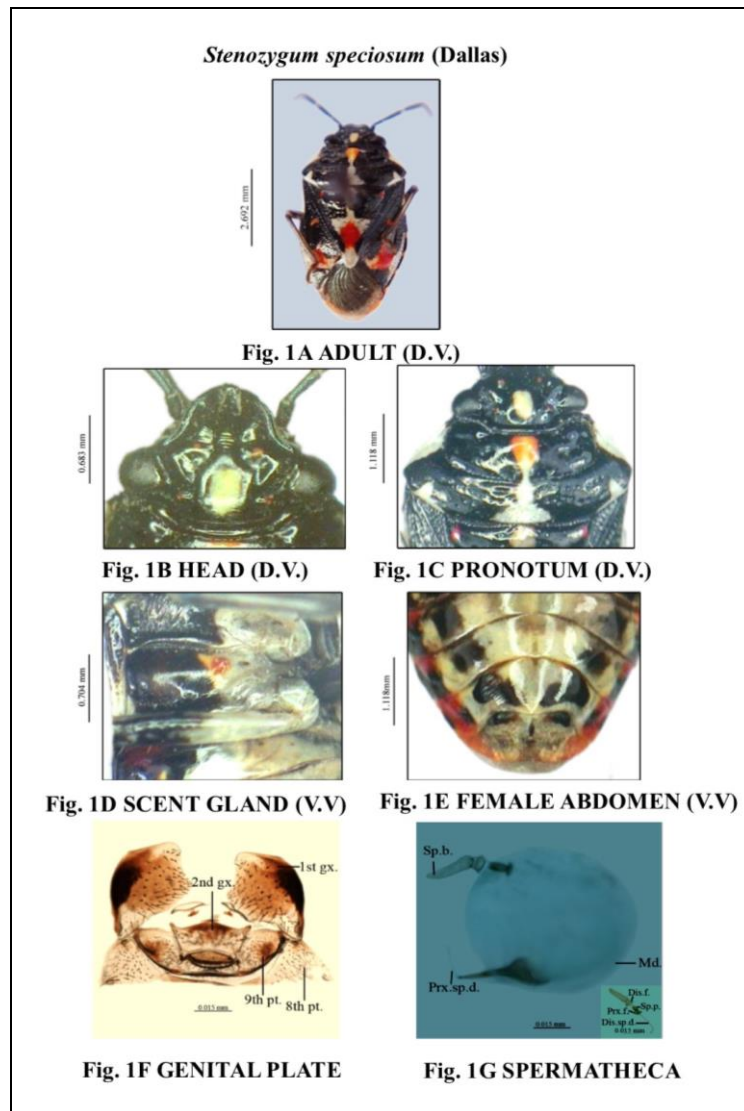


Fig 1

### Previous Distribution

Palaearctic, Ethiopian, Oriental and Australian Regions (Guangxi, Sichuan, Yunnan, Sri Lanka, Sistan & Baluchestan, Iran, Pakistan (Rider *et al.*, 2002, Rider 2006; Seidenstücker 1957; Hoberlandt 1959; Kiritschenko 1966) [16, 15, 12, 13]. From India it has been previously reported from West Bengal, Maharashtra, Uttar Pradesh and South India states. (Datta *et al.*, 1985; Ghosh, 2008) [6, 10].

**New distribution:** New record from North India (Shimla: Himachal Pradesh).

**Material Examined:** Himachal Pradesh: Shimla, 13. viii. 2010 - 2♀.

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### Abbreviations

8<sup>th</sup> pt. - Eight paratergites; 9<sup>th</sup> pt. - Ninth paratergites; Sp. b. - Spermathecal bulb; Dis. f. - Distal flange; Prx. f. - Proximal flange; Dis. sp. d. - Distal spermathecal duct; Prx. sp. d. - Proximal spermathecal duct; Md. - Median dilation; Sp. p. - Spermathecal pump.

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