

## A REVISION OF THE GENUS *NIPHE* STÅL (PENTATOMIDAE : PENTATOMINAE : CARPOCORINI) FROM INDO-PAKISTAN SUB-CONTINENT

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The genus *Niphe* Stål along with *N. elongata* (Dallas), *N. subferruginea* (Westwood) and *N. vittativentris* Stål is redescribed from the Indo-Pakistan sub-continent with special reference to their metathoracic scent gland complex, and male and female genitalia. A key is given to separate the above species and their relationships are briefly discussed.

**Key words:** Revision, *Niphe*, Indo-Pakistan.

### Introduction

Stål [1] established a new genus *Niphe* to accommodate *Pentatoma elongata* Dallas. Later Stål [2] described a new species *N. vittativentris* from the Philippines. Atkinson [3] listed *N. elongata* and *N. cephalus* Dallas (a synonym of *N. subferruginea*) from Indonesia, Burma, India and the Philippines. Distant [4] redescribed two species *N. subferruginea* and *N. vittativentris* from Khasi hills, Bombay, Travancore; Burma: Karenee, Palon and Philippines. In the same work *N. elongata* was redescribed under the genus *Aenaria* from North India, Burma: Teinzo, Rangoon, Tenasserim, Kawkareet and Philippines under an altogether different division (tribe) Mecidaria. He used only colour, a dorsal view diagram, the metathoracic scent gland complex, the venter of abdomen and the female terminalia of *N. elongata* and *N. subferruginea* in his descriptions. Kirkaldy [5] catalogued six species, i.e. *N. aethiopica* Bergroth from Ivory Coast; *Aenaria assimulans* Distant from Japan (transferred to *Lagynotomus* Breddin 1906, Wien Ent. Zeit. 25: 245); *N. elongata* from North India, Burma, Philippines [and also from China (Hsiao et al. 11)], *N. praecursor* Breddin from Clebes, *N. subferruginea* from India, Burma, Thailand, Indonesia [and China (Hsiao et al. 11)] and *N. vittativentris* from India and Philippines. It is clear from the above that the male and female genitalia have never been described in these taxa.

Here we redescribe *Niphe* along with its three species i.e. *N. elongata*, *N. subferruginea* and *N. vittativentris* from Indo-Pakistan area with special reference to their male and female genitalia. For the inflation of aedeagi the technique of Ahmad [6] was followed. For the dissection of female spermatheca and for measurements, descriptions and diagrams the conventional techniques, especially those used by present authors [7] were generally followed. All measurements are given in mm and all diagrams are to the given scale.

*Niphe* Stål 1867

*Niphe* Stål [1]. 516; Atkinson [3]: 19; Distant [4]: 150;

Bergroth [8]: 2; Kirkaldy [5]: 45; Hsiao et al. [11]: 326; Stål [12]. 73.

*Pentatoma* Westwood [9]: 35; Dallas [10]: 245; (in part). *Aenaria* Distant [4]: 141; [15]: 421; and [13]: 432; (in part).

Type Species *Niphe subferruginea* (Westwood)

**Head.** Paraclypei usually longer than clypeus; anteocular distance longer than remainder of head; basal antennal segment not longer than length of head; antenniferous tubercles visible from above; labium with 4th segment usually shortest.

**Thorax.** Pronotum wider than length; anterior angles toothed, posterior margin substraight; scutellum longer than broad; mesosternum slightly carinate; metathoracic scent gland well developed, peritreme elongate, evaporatoria distinct; membrane of hemelytra usually longer than abdomen.

**Abdomen.** Usually longer than broad, unarmed; 7th abdominal sternum usually concave.

**Male genitalia.** Pygophore usually as long as broad, lateral lobes round; paramere usually L-shaped; inflated aedeagus with thecal appendages, usually with two pairs of membranous conjunctival appendages.

**Female genitalia.** First gonocoxae broad with posterior margins almost straight; fused posterior margin of 8th paratergites sinuate; posterior margins of arcus concave; spermatheca with proximal spermathecal duct usually shorter than distal spermathecal duct.

**Comparative note.** This genus is closely related to *Halyomorpha* in having lateral margins of paraclypei sinuate, spermathecal bulb with finger-like processes; it can easily be separated by peritreme of metathoracic scent gland not reaching to apex of evaporatoria and inflated aedeagus with two pairs of membranous conjunctival appendages; *Halyomorpha* has the peritreme of metathoracic scent gland almost reaching to apex of evaporatoria and inflated aedeagus with three pairs of appendages.

**Key to the Species of *Niphe***

1. Antennae with 2nd, 4th and 5th segments not

subequal, labium reaching to hind coxae, humeral angles of pronotum acute. ....2

- Antennae with 2nd, 4th and 5th segments subequal, labium passing beyond middle coxae but not reaching to hind coxae, humeral angles of pronotum subacute.....*elongata* (Dallas)

2. Head longer than broad, labium with 2nd segment longest, 9th paratergites reaching to fused posterior margin of 8th paratergites.....*vittativentris* Stål.

- Head almost as long as broad, labium with basal segment ongest, 9th paratergites not reaching to fused posterior margin of 8th paratergites.....*subferruginea* (Westwood).

*Niphe elongata* (Dallas)

*Pentatoma elongata* Dallas [10]:246

*Aenaria elongata* Distant [4]:141,

*Niphe elongata* Stål [1]:516; [2]:625; [12]:73; Atkinson [3]:20; Distant [13]:432; Kirkaldy [5]:45; Hsiao *et al.* [11]:326 fig. 318.

*Colouration.* Body ochraceous except antennae red with 4th and 5th antennal segments and a small spot near coxae black.

*Head.* Shorter than pronotum; lateral margins of paraclypei almost straight, antennae with 2nd segment longer than 3rd, length of antennal segments I 0.45, II 1.0, III 0.7, IV 1.0, V 1.05; antennal formula 1 < 3 < 2 = 4 = 5; labium passing beyond middle coxae but not reaching to hind coxae; length anteocular distance 1.0; length of remainder of head 0.7; width 2.4; interocular distance 1.7; interocellar distance 1.0.

*Thorax.* Width of pronotum 2 1/2x wider than length, anterior angles toothed, directed anteriad, anterior margin concave, humeral angles subacute, lateral margins almost straight; length of pronotum 2.2, width 5.5; scutellum distinctly more than 2 x longer than width, more than 3 x

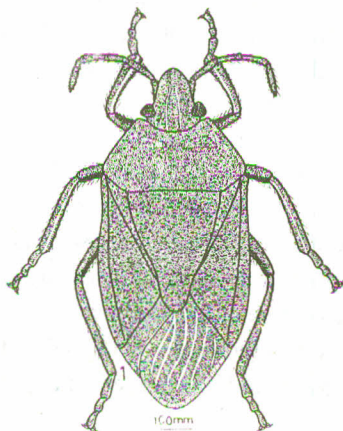


Fig. 1 *Niphe elongata* Dallas (dorsal view).

longer than length of head, apex of apical lobe round; length of scutellum 5.2, width 2.3; metathoracic scent gland ostiole (Fig. 4) large, ovate, peritreme elongate, passing beyond half of evaporatoria; membrane of hemelytra distinctly passing beyond abdomen; length base of scutellum-apex of clavus 3.9; apex of clavus-apex of corium 2.1; apex of corium-apex of abdomen including membrane 3.9; apex of scutellum-apex of abdomen including membrane 3.7.

*Abdomen.* Distinctly longer than broad; 7th abdominal sternum deeply concave, total body length male 12.8.

*Material examined.* Holotype North India from Capt. Boys's Collection in BMNH, London. Other material 1 male, north India 1899, leg Distant, in same museum as holotype.

*Comparative note.* This species is closely related to *vittativentris* in having general body shape and size but it can easily be separated by antennae with 2nd, 4th and 5th segments subequal, labium passing beyond middle coxae but not reaching to hind coxae and humeral angles of pronotum

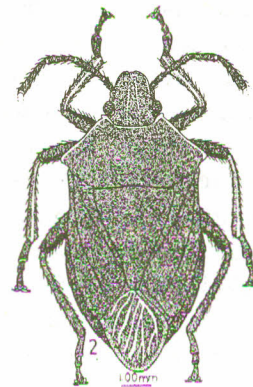


Fig. 2 *Niphe subferruginea* (Westwood) (dorsal view).

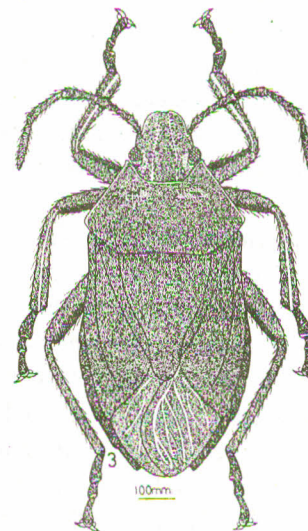


Fig. 3 *Niphe vittativentris* Stål (dorsal view)

subacute; in *vittiventris*, antennae with 2nd, 4th and 5th segments not subequal, labium reaching to hind coxae and humeral angles of pronotum acute.

*Niphe subferruginea* (Westwood)

*Pentatoma subferruginea* Westwood [9]:35,

*Penatoma cephalus* Dallas [10]:245.,

*Pentatoma lateralis* Walker [14]:301

*Niphe subferruginea* Distant [4]: 151; Kirkaldy [5]:45;,  
Hsiao et al. [11]: 326, fig. 319

**Colouration.** Body ochraceous except lateral margins of pronotum, basal margin of corium and apex of scutellum pale ochraceous; margins of exposed connexiva and eyes black; ocelli red, legs and antennae light yellowish brown.

**Head.** Distinctly shorter than pronotum, lateral margins of paraclypei sinuate, distinctly longer than clypeus; antennae with 2nd segment distinctly longer than 3rd, length of antennal segments I 0.55-0.6, II 1.45-1.55, III 1.1-1.2, IV 1.4, V mutilated; labium reaching to hind coxae, 3rd segment slightly shorter than 2nd; length labial segments I 1.5, II 1.2-1.3, III 1.1-1.2, IV 1.0; labial formula  $4 < 3 < 2 < 1$ ; length of anteocular distance 1.3-1.4; length of remainder of head 1.3; width 2.7-2.75; interocular distance 1.7; interocellar distance 1.1.

**Thorax.** Width of pronotum distinctly more than 2x wider than length, anterior angles toothed, directed laterad, anterior margin concave, humeral angles acute, lateral margins substraight; length of pronotum 2.8-2.95, width 6.8-7.0; scutellum distinctly longer than broad, distinctly more than 1 1/2x longer than length of head, apex of apical lobe acute; length of scutellum 4.8-5.0, width 4.3-4.5; metathoracic scent gland ostiole (Fig. 5) large, ovate, peritreme elongate, of lunar shape, passing beyond half of the evaporatoria; membrane of hemelytra passing beyond abdomen; length base of scutellum-apex of clavus 4.0-4.3; apex of clavus-apex of corium 2.4-2.7; apex of corium-apex of abdomen including membrane 2.3-2.4; apex of scutellum-apex of abdomen including membrane 3.6-3.7.

**Abdomen.** Longer than broad; 7th abdominal sternum concave; connexiva slightly exposed at repose; total body length, female 14.35-14.80.

**Female genitalia.** (Fig. 11): First gonocoxae broad, quadrangular; 2nd gonocoxae longer than broad; 8th paratergites triangular with posterior margin medially slightly concave; 9th paratergites lobe like, not reaching to fused posterior margin of 8th paratergites, spermatheca mutilated.

**Material examined.** Holotype female India in Oxford Museum. Other material: 2 female, Tonkin: Hangiang, May, 1914, leg. R.V. desalvaza, in BMNH, London.

**Comparative note.** This species is closely related to *vittiventris* in general body shape and labium reaching to

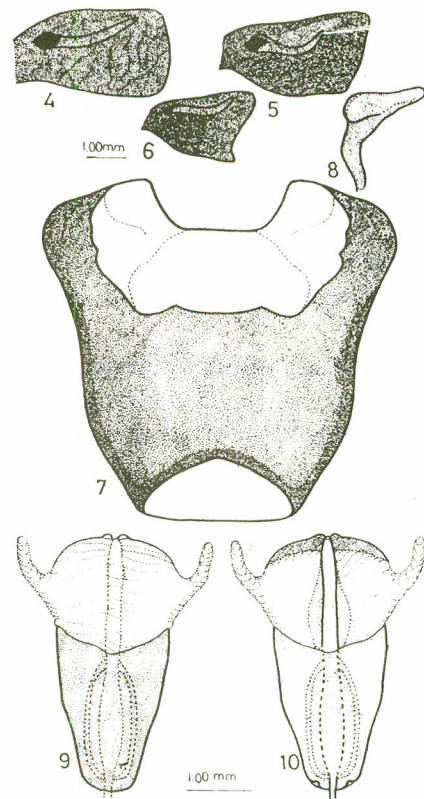


Fig. 4-10

4. Scent gland (ventral view), 5. Scent gland (ventral view), 6. Scent gland (ventral view), 7. Pygophore (dorsal view), 8. Paramere (inner view), 9. Aedeagus (dorsal view), 10. Aedeagus (ventral view).

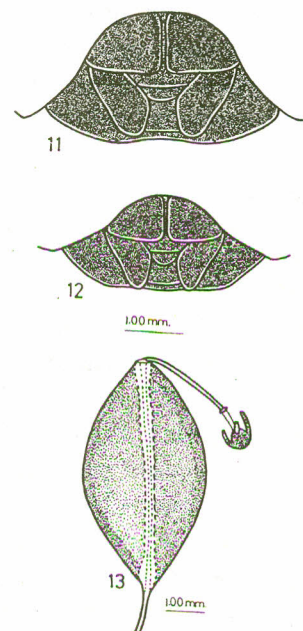


Fig. 11-13

11. Female terminalia (ventral view), 12. Female terminalia (ventral view), 13. Spermatheca (dorsal view).

hind coxae, humeral angles of pronotum acute but it can easily be separated in having head almost as long as broad, labium with 1st segment longest and 9th paratergites not reaching to the posterior margin of 8th paratergites. In *vittiventris*, head is longer than broad, labium with 2nd segment longest and 9th paratergites reaching to posterior margin of 8th paratergites.

*Niphe vittiventris* Stål

*Niphe vittiventris* Stål [11]: 625; Distant [4]:151; Kirkaldy [5]: 45.

**Colouration.** Body uniformly ochraceous except basal margin of scutellum and corium of hemelytra dark, apex of 3rd and anterior half of 4th antennal segments and eyes black; ocelli pink.

**Head.** Slightly shorter than pronotum, lateral margins of paraclypei substraight, slightly longer than clypeus; antennae with 2nd segment slightly longer than 3rd, length of antennal segments I 0.4, II 1.0, III 0.85-0.90, IV 1.05-1.1 V 1.2; antennal formula  $1 < 3 < 2 < 4 < 5$ ; labium reaching to hind coxae, 3rd segment distinctly shorter than 2nd; length of labial segments I 1.3, II 1.4-1.5, III 0.9-1.0, IV 0.8; labial formula  $4 < 3 < 1 < 2$ ; length antecular distance 1.0-1.05; remainder of head 0.97- 1.0; width 2.35-2.4; interocular distance 1.4-1.5; interocellar distance 0.9.

**Thorax.** Width of pronotum distinctly more than 2x wider than length; anterior angles toothed, directed anteriorly, anterior margin concave, humeral angles acute, lateral margins entire, length of pronotum 2.2, width 5.0- 5.3; scutellum distinctly longer than broad, distinctly more than 1 1/2x longer than length of head, apex of apical lobe subround; metathoracic scent gland ostiole (Fig. 6) large, ovate, peritreme elongate, curved, passing beyond half of the evaporatoria; membrane of hemelytra slightly longer than abdomen; length base of scutellum-apex of clavus 3.4-3.5; apex of clavus-apex of corium 2.1-2.2; apex of corium-apex of abdomen including membrane 2.0-2.3; apex of scutellum-apex of abdomen including membrane 2.9-3.0.

**Abdomen.** Slightly longer than broad; 7th abdominal sternum round; total body length male 11.47, female, 11.15.

**Male genitalia.** Pygophore (Fig. 7) as long as broad, dorsoposterior margin medially depressed, lateral lobes round, ventroposterior margin sinuate; paramere (Fig. 8) L-shaped, blade with round apex, outer margin sinuate, inner margin sinuate; inflated aedeagus (Figs. 9, 10) with pointed nodelike thecal appendages, lobelike dorsal membranous conjunctival appendage, pair of ventral membranous conjunctival appendages apically sclerotized, vesica short, not passing beyond dorsal membranous conjunctival appendage.

**Female genitalia.** (Fig. 12): First gonocoxae broad, quadrangular; 2nd gonocoxae almost as long as broad; 8th

paratergites triangular with posterior margin straight; 9th paratergites elongate, reaching to fused posterior margin of 8th paratergites; spermatheca (Fig. 13) with proximal spermathecal duct distinctly shorter than distal spermathecal duct, pump region more than 2x shorter than distal spermathecal duct, spermathecal bulb round with three finger like processes.

**Material examined.** 1 male, 1 female Indochina; Tonkin, 1917, leg. R. V. desalvaza at BMNH, London.

**Comparative note.** This species is closely related to *subferruginea* in general body shape, labium reaching to hind coxae, and humeral angles of pronotum acute. It can easily be separated by head longer than broad, labium with 2nd segment longest and 9th paratergites reaching to fused posterior margin of 8th paratergites. In *subferruginea* head is almost as long as broad, labium with basal segment longest, and 9th paratergites not reaching to fused posterior margin of 8th paratergites.

### Discussion

The representatives of *Niphe* have sister group relationships with that of *Halyomorpha* in having the synapomorphy of spermathecal bulb with fingerlike processes. *Niphe* species are considered here more derived in having the autapomorphies of triangular head with narrow apex and short vesica. The species appear to follow two lines of evolution. The first line is represented by *N. elongata* having the autapomorphy of lateral margins of paraclypei sinuate. The second group includes *N. subferruginea* and *N. vittiventris* are a sister group sharing the apomorphy of antecular distance almost equal to remainder of head. *N. subferruginea* has the autapomorphy of peritreme of metathoracic scent gland complex deeply curved and *N. vittiventris* has autapomorphies of head length almost equal to its pronotal length and 9th paratergites reaching to fused posterior margin of 8th paratergites.

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