

## FOUR NEW SPECIES OF *NEOSTROMBOCEROS* ROHWER (HYMENOPTERA: SELANDRIINAE) FROM INDIA

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### ABSTRACT

Four species of the genus *Neostromboceros* Rohwer are added new to science from India. The taxonomic validity of these species has been supported by taxonomic description based on morphology and genitalia, illustrations and detailed discussion.

### KEY WORDS

*Neostromboceros albifemur* sp. nov., *N. aranyachali* sp. nov., *N. bhartiya* sp. nov., *N. carbonarius* sp. nov., *Hymenoptera*, *India*, *Selandriinae*

### ABBREVIATIONS

EL - Eye length; IATS - Inner apical tibial spur; ICD - Inter cenchri distance, IDMO - Interocular distance at level of median ocellus, ITD - Inter tegular distance, LID - Lower interocular distance; MB - Metabasitarsus; OATS - Outer apical tibial spur; OCL - Oculoocipital line; OOL - Oculoocellar line; POL - Postocellar line.

Literature based facts reveal that so far this genus is recorded from the Oriental region only. Rohwer (1912) was first to define the genus *Neostromboceros* taking *Stromboceros metallica* Rohwer from Singapore as its type species. Prior to the work by Indian taxonomists 37 species in total of this genus from the Oriental region were on record, and the contribution goes to Cameron (1888, 1899, 1902, 1907), Konow (1898, 1901, 1908), Rohwer (1912, 1915, 1916), Enslin (1912), Enderlein (1919), Takeuchi (1929), Forsius (1925, 1931, 1933), Benson (1935) and Malaise (1944) of these only nine species were known from the Indian faunistic limits, and the credit goes to Cameron (1888, 1899, 1902, 1907), Konow (1898) and Malaise (1944) who described six, one and two species respectively. Enderlein (1919) erected the genus *Stypoza* taking *Stypoza cyanea* as its type species that was brought under *Neostromboceros* by Malaise (1944), while compiling the entire scattered work of this genus in the form of a key from the Oriental region. Following mainly the contribution by Malaise (1944), Vasu *et al.* (1997, 1999), Saini and Vasu (1999a, 1999b), Vasu and Saini (1999a, 1999b, 2000, 2001) and Saini *et al.* (1999, 2001) added 32 species as new to science and four species as first record under this genus from the Indian subcontinent. This genus is now represented by 49 species from India that includes the four species dealt herein as new to science collected from the Himalayan region of northern and northeastern states. The paper deals with the description and illustrations of the new species in question. The species are described following a standardized uniform pattern defined for the selandrine sawflies. Illustrations pertaining to genitalia and other morphological characters of taxonomic importance are provided. The host plants of these species remain unknown.

The members of the genus *Neostromboceros* Rohwer can be identified as: Front wings hyaline, apical half sometimes infuscate or brownish infuscate, rarely entire wing strongly infuscate, and with two radial and three or four cubital cells, first cubital crossvein frequently obliterate; basal vein mostly subparallel

to first recurrent vein and joining subcosta at distance from base of cubitus shorter than first cubital crossvein or, if wanting, its equivalent length; anal cell without crossvein. Hind wings with two closed middle cells and always with sessile anellan cell. Hind orbits carinate a short length from the base of mandibles but rarely as far as halfway to postocellar area; frontal area somewhat roundly elevated; inner margins of eyes subparallel in middle, converging below in female and distinctly converging along the entire length in male; antenna filiform, incrassate or distinctly compressed; scape longer than pedicel, joint three mostly distinctly longer than four but some times may be equal or shorter than fourth one; epicnemium separated from mesopluron by fine, deep or distinct furrow; tarsal claw with large basal lobe, laterally placed subapical tooth shorter, equal or frequently longer than apical one.

The terminology used in this text is after Ross (1937, 1945) and Malaise (1945). The type materials of these species are housed at the Division of Entomology, Pusa National collections, Indian Agricultural Research Institute, New Delhi, India.

### *Neostromboceros aranyachali* sp. nov.

(Figs. 1-5.)

### Material examined

**Holotype:** Female, 17.v.1992, Hapoli, Arunachal Pradesh, 1500m, coll. V. Vasu.

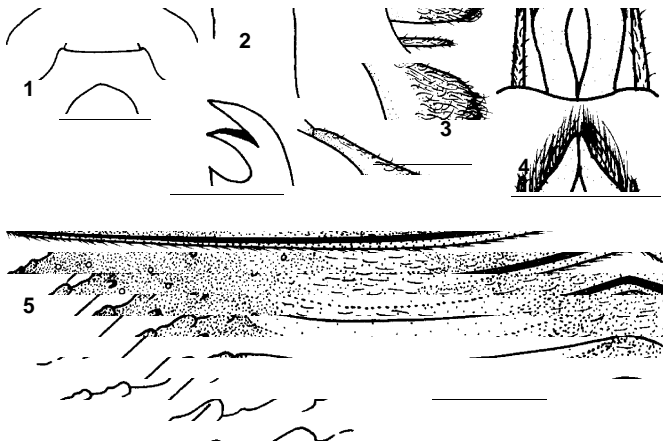
**Paratypes:** Seven females, 2.vi.1989, Bomdila, Arunachal Pradesh, 2500m, coll. M.S. Saini; one female, 27.v.1993, Dirang, 1500m, coll. V. Vasu.

### Individual variation

Tarsi of all legs infuscated, mesepisternum inconspicuously punctate.

### Etymology

Species name is derived from the state of the type locality.



**Figures 1-5. *Neostromboceros aranyachali* sp. nov.**  
 1 - Clypeus and labrum; 2 - Tarsal claw; 3 - Lateral view of ovipositor sheath; 4 - Dorsal view of ovipositor sheath; 5 - Lancet. Scale = 0.5mm

### Diagnostic features

On the basis of some taxonomically significant key characters such as: abdomen entirely black or with few minute whitish markings at least labrum partly or entirely whitish, and clypeus entirely black *N. aranyachali* sp. nov. comes close to *N. laevis* (Konow), but the two can be set aside as: metatibia with black markings in female and with ferruginous markings in male (whitish entirely in both sexes in latter); tarsal claw with subapical tooth shorter than apical one (equal in latter), tegula black (whitish in latter), postocellar furrow absent (distinct in latter), and inner margins of eyes subparallel (distinctly converging downwards in latter). By virtue of a combination of numerous outstanding characters *N. aranyachali* keeps itself distinctly far apart from all other Oriental species that are: Whitish labrum, parapterum, posterior margin of propodeum, anterior aspects of tibiae of front four legs, metatibia except apical  $\frac{1}{4}$  of posterior aspect, front four basitarsi, and following joints; hyaline wings; antenna tapering towards apex and 2.0x head width, flagellum not compressed; clypeus truncate; labrum triangular; POL:OCL = 1.0:1.5; supraantennal pits deep and insignificantly connected; postocellar area wider than long as 6:5; head parallel behind eyes; hindwing vein 1r-m joining at junction of Rs with R+Sc; tarsal claw with subapical tooth slightly shorter than apical one, basal lobe distinct, and lancet having seven serrulae.

### Female:

**Colour:** Body black, whitish are: labrum, pronotal dorsal margin, parapterum, posterior margin of propodeum, all trochanters and adjoining parts of femora and coxae, extreme apices of femora, anterior aspects of tibiae of front four legs, metatibia expect apical  $\frac{1}{4}$  of posterior aspect, front four basitarsi, and following joints. Wings hyaline, venation including costa, subcosta and stigma fuscous.

**Structure:** Length 7.0mm. Antenna tapering towards apex, 2.0x head width, flagellum not compressed, segments three and four as 4:3; clypeus (Fig. 1) almost truncate, labrum (Fig. 1) triangular,

broader than long as 3:2; malar space linear; LID:IDMO:EL = 1.0:1.3:1.2, POL:OCL:OOL = 1.0:1.5:1.0; supraantennal pits deep and insignificantly connected, anterior one smaller; frontal area insignificantly below level of eyes; median fovea in form of deep pits, one above supraclypeal area and other just anterior to median ocellus; postocellar furrow absent, inter- and circumocellar furrows distinct; lateral furrows distinct, bulging medially and ending well before hypothetical hind margin of head; postocellar area convex, wider than long as 6:5; head parallel behind eyes mesoscutellum almost flat, appendage ecarinate; ICD:ITD = 1.0:4.0; hindwing vein 1r-m joining at junction of Rs with R+Sc; tarsal claw (Fig. 2) with subapical tooth slightly shorter than apical one, basal lobe distinct; metabasitarsus distinctly longer than following three joints combined as 3:2, IATS:MB:OATS:=1.0:4.0:0.9. Ovipositor sheath as in Fig. 3 (lateral view) and Fig. 4 (dorsal view). Lancet (Fig. 5) having seven serrulae.

**Sculpture:** Head and thorax impunctate, shining except a row of large, shallow punctures on posterior border of mesoscutellum; abdomen inconspicuously microsculptured, subshining.

**Pubescence:** Silvery, 0.3x scape length.

**Male:** Yet to be discovered.

### *Neostromboceros bhartiya* sp. nov.

(Figs. 6-12)

### Material examined

**Holotype:** Female, 18.v.1994, Jatinga, Assam, 900m, coll. V. Vasu.  
**Paratypes:** One male, 18.v.1994, Jatinga, Assam, 900m, coll. V. Vasu; one female, five males, 2.v.1994, Riat, Meghalaya, 1450m, coll. V. Vasu.

### Distribution

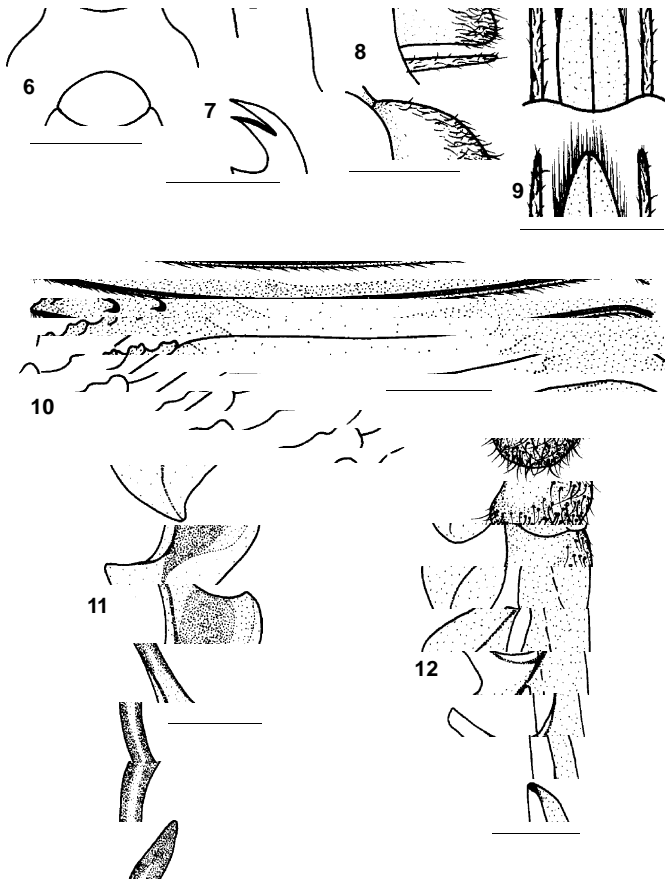
India: Assam, Meghalaya.

### Etymology

Species name is a derivation of the country Bharat.

### Diagnostic features

The characters separating *N. bhartiya* sp. nov. from its allied species *N. rothneyi* (Cameron) are: frontal area smooth and shining (coarsely rugose with subopaque luster in latter), labrum, pronotal dorsal margin and parapterum whitish (head and thorax entirely black in latter), clypeus shallowly emarginated (truncate in latter), postocellar area insignificantly wider than long (distinctly wider in latter), and pubescence 0.6x scape length (0.3x in latter). A combination of several other significant characters sets *N. bhartiya* distinctly aside from all other oriental species that include: basal  $\frac{2}{3}$  of anterior aspects of all tibiae whitish; wings hyaline with infumated apices; antenna subincrassate in middle and 1.8x head width, flagellum not compressed, segments three and four as 4:3; POL:OCL = 1.0:1.8; postocellar area wider than long as 8:7; head narrowing behind eyes; mesoscutellar appendage carinate; hindwing vein 1r-m joining at junction of Rs with R+Sc, tarsal claw with



Figures 6-12. *Neostromboceros bhartiya* sp. nov.  
6 - Clypeus and labrum; 7 - Tarsal claw; 8 - Lateral view of ovipositor sheath; 9 - Dorsal view of ovipositor sheath; 10 - Lancet; 11 - Penis valve; 12 - Gonoforceps.  
Scale = 0.5mm

subapical tooth shorter than apical one; lancet with five serrulae, and silvery pubescence 0.6x scape length.

#### Female:

**Colour:** Body black, whitish are: labrum, pronotal dorsal margin, parapterum, posterior margin of propodeum and tergite 2, all trochanters and adjoining parts of coxae and femora, basal  $\frac{2}{3}$  of anterior aspects of all tibiae. Wings hyaline with infumated apices, venation including costa, subcosta and stigma fuscous.

**Structure:** Length 8.0mm. Antenna subincrassate in middle, 1.8x head width, flagellum not compressed, segments three and four as 4:3; clypeus (Fig. 6) shallowly emarginate, labrum (Fig. 6) broader than long as 3:2 with rounded anterior margin; malar space linear; LID:IDMO:EL = 1.0:1.3:1.1, POL:OCL:OOL = 1.0:1.8:1.2; supraantennal pits deep, double and not connected, anterior one smaller; frontal area almost at level of eyes; median fovea in form of deep pit just above supraclypeal area and in form of broad shallow depression just anterior to median ocellus; postocellar furrow absent, inter- and circum-ocellar furrows distinct; lateral furrows sunken, bulging medially and ending just before hypothetical hind margin of head; postocellar area convex, wider than long as 8:7; head narrowing behind eyes;

mesoscutellum subconvex, appendage carinate; ICD:ITD = 1.0:4.0; hindwing vein 1r-m joining at junction of Rs with R+Sc; tarsal claw (Fig. 7) with subapical tooth shorter than apical one, basal lobe distinct; metabasitarsus longer than following three joints combined as 6:5, IATS:MB:OATS = 1.0:2.4:0.9. Ovipositor sheath as in Fig. 8 (lateral view), Fig. 9 (dorsal view). Lancet (Fig. 10) having five serrulae.

**Sculpture:** Head and thorax impunctate, shining except a row of large, shallow punctures on posterior border of mesoscutellum; abdomen inconspicuously microsculptured, subshining.

**Pubescence:** Silvery, 0.6x scape length.

**Male:** Average length 6.5mm. Similar to female except basal  $\frac{1}{2}$  of metatibia whitish only. Genitalia: Penis valve (Fig. 11), gonoforceps (Fig. 12).

#### *Neostromboceros albifemur* sp. nov.

(Figs. 13-17)

#### Material examined

**Holotype:** Female, 14.v.1994, Meghalaya, Badapani, 1100m, coll. M.S. Saini.

#### Distribution

India: Meghalaya.

#### Etymology

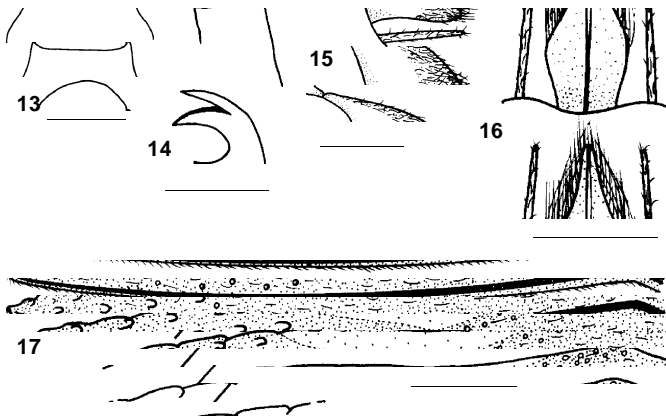
Species name pertains to whitish femur of metaleg.

#### Diagnostic features

The characters separating *N. albifemur* sp. nov. from its allied species *N. nigrifemur* Saini & Vasu are: metafemur whitish (black in latter), antennal segments three and four as 4:3 (5:3 in latter), lateral furrows bulging medially and ending just before hypothetical hind margin of head (Parallel and well before hypothetical hind margin of head in latter), body with bluish-green tinge on head only (on both head and thorax in latter), POL:OCL:OOL = 1.0:1.8:1.4 (1.0:1.5:1.0 in latter); supraantennal pits not connected (confluent in latter) and tarsal claw with subapical tooth longer than apical one (almost equal in latter). A combination of some significant characters such as: tegula, narrow posterior margins of propodeum and tergite 2-8, medial spot on tergites 8-9, basal half and entire anterior aspects of front four tibiae whitish; wings hyaline with subinfumated apices; antenna incrassate in middle, 1.6x head width, flagellum with apical five segments compressed; head parallel behind eyes; mesoscutellar appendage ecarinate; hindwing vein 1r-m joining Rs away from junction with R+Sc, and tarsal claw with subapical tooth longer than apical one keeps this species distinctly far apart from all other species described so far under this genus.

#### Female:

**Colour:** Body black with bluish tinge on head, whitish are: labrum, broad dorsal margin of pronotum, tegula, parapterum, extreme narrow posterior margins of propodeum and tergite 2-



Figures 13-17. *Neostromboceros albifemur* sp. nov.  
13 - Clypeus and labrum; 14 - Tarsal claw; 15 - Lateral view of ovipositor sheath; 16 - Dorsal view of ovipositor sheath; 17 - Lancet. Scale = 0.5mm

8, medial spot on tergites 8-9; prothorax and adjoining parts of coxa and femur, apical half of mesocoxa, mesothorax and adjoining part of femur, mesocoxa except extreme base, apices of front four femora, metafemur except subinfumated basal part, basal half and entire anterior aspects of front four tibiae, metatibia except apical one fourth. Wings hyaline with subinfumated apices, venation including costa, subcosta and stigma fuscous.

**Structure:** Length 8.0mm. Antenna incrassate in middle, 1.6x head width, flagellum with apical five segments compressed, segments three and four as 4:3; clypeus (Fig. 13) shallowly incised with pointed lateral teeth, labrum (Fig. 13) broader than long as 3:2 with rounded anterior margin; malar space linear; LID:IDMO:EL = 1.0:1.3:1.0. POL:OCL:OOL = 1.0:1.8:1.4; supraantennal pits deep, double and not connected; anterior one smaller; frontal area almost at level of eyes; median fovea in form of deep pits, one above supraclypeal area and other anterior to median ocellus; postocellar furrow absent, inter- and circum-ocellar furrows distinct; lateral furrows distinct, bulging medially and ending just before hypothetical hind margin of head; postocellar area convex, as wide as long; head parallel behind eyes; mesoscutellum subconvex, appendage ecarinate; ICD:ITD = 1.0:4.0; hindwing vein 1r-m joining Rs away from junction with R+Sc; tarsal claw (Fig. 14) with subapical tooth longer than apical one, basal lobe distinct; metabasitarsus longer than the following three joints combined as 4:3, IATS:MB:OATS = 1.0:2.2:0.9. Ovipositor sheath as in Fig. 15 (lateral view), Fig. 16 (dorsal view). Lancet (Fig. 17) having six serrulae.

**Sculpture:** Head and thorax impunctate, shining except a row of deep, distinct punctures on posterior border of mesoscutellum; abdomen faintly microsculptured, subshining.

**Pubescence:** Silvery, 0.3x scape length.

**Male:** Yet to be discovered.

***Neostromboceros carbonarius* sp. nov.**  
(Figs. 18-24)

**Material examined**

**Holotype:** Female, 09.v.1995, Sikkim, Rangrang, 1400m, coll. V. Vasu.

**Paratypes:** One female, one male, 09.v.1995, Sikkim, Rangrang, 1400m, coll. V. Vasu; one female, one male, 28.iv.1994, Nongpoh, Meghalaya, 800m, coll. M. S. Saini; three females, one male, 16.vi.1994, Mandal, Uttaranchal, 2200m, coll. V. Vasu.

**Individual variation**

Pale stripe on posterior margin of tergites of some specimens missing.

**Distribution**

India: Meghalaya, Sikkim, Uttaranchal

**Etymology**

Species name alludes to its general colour of body.

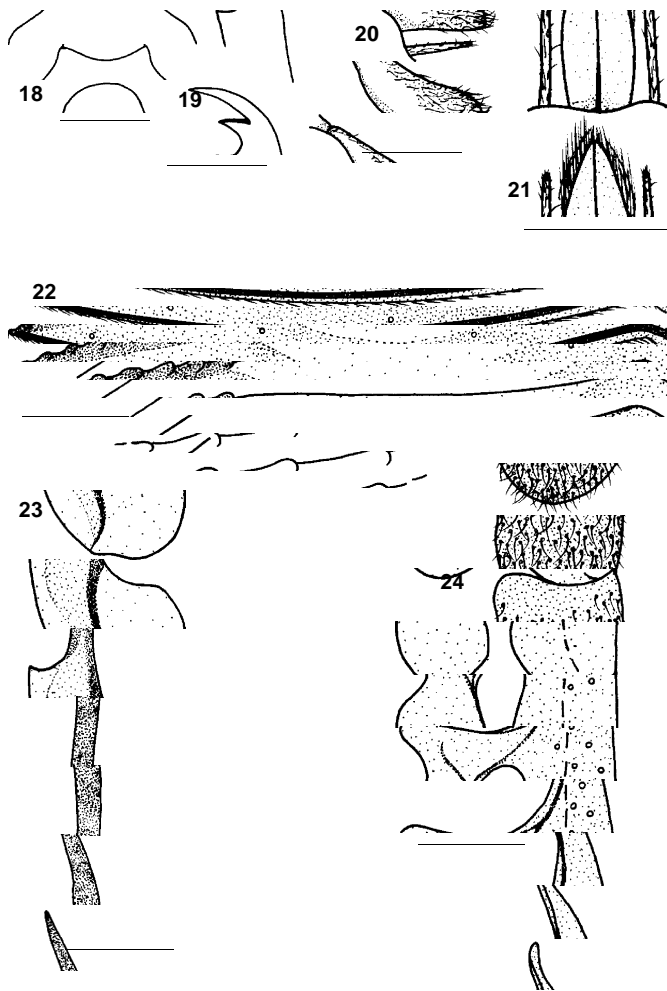
**Diagnostic features**

On the basis of some outstanding key characters such as: abdomen black at least above, tegular and clypeus entirely black, labrum partly or entirely whitish, hindwing vein 1r-m joining Rs away from junction with R+Sc. *N. carbonarius* sp. nov. is allied to *N. caeruleiceps* (Cameron), but they can be separated as: body without any tinge (bluish tinge in latter); flagellum not compressed (compressed in middle in latter), segments three and four as 8:7 (4:3 in latter); postocellar area absent (distinct in later), postocellar area wider than long (as long as wide in latter), and narrow posterior margins of propodeum and tergites 2-8 whitish (black in latter). Some other characters in combination such as: body black without any tinge, basal  $\frac{2}{3}$  of metatibia whitish, wings hyaline; antenna incrassate before apex, segments three and four as 8:7; POL:OCL:OOL = 1.0:1.6:1.4; postocellar area wider than long as 8:7; head narrowing behind eyes; mesoscutellar flat, appendage ecarinate; hindwing vein 1r-m joining Rs away from junction with R+Sc; tarsal claw with subapical tooth distinctly shorter than apical one; lancet with eight serrulae and pubescence 0.3x scape length, sets *N. carbonarius* distinctly aside from rest of the species described under this genus.

**Female:**

**Colour:** Body black, whitish-yellow are: labrum, dorsal margin of pronotum, parapterum, extreme narrow posterior margins of propodeum and tergites 2-8, tergite nine except lateral sides; all trochanters and adjoining parts of coxae and femora, apices of all femora, basal  $\frac{1}{3}$  of front four tibiae, basal  $\frac{2}{3}$  of metatibia. Wings hyaline, venation including costa, subcosta and stigma fuscous.

**Structure:** Length 7.5mm. Antenna incrassate before apex, 1.7x head width, flagellum not compressed, segments three and four as 8:7; clypeus (Fig. 18) shallowly emarginated, labrum (Fig. 18) broader than long as 2:1 with deflexed rounded anterior margin; malar space linear; LID:IDMO:EL = 1.0:1.3:1.1, POL:OCL:OOL =



**Figures 18-24. *Neostromboceros carbonarius* sp. nov.**  
 18 - Clypeus and labrum; 19 - Tarsal claw; 20 - Lateral view of ovipositor sheath; 21 - Dorsal view of ovipositor sheath; 22 - Lancet; 23 - Penis valve; 24 - Gonoforceps.  
 Scale = 0.5mm

1.0:1.6:1.4; supraantennal pits deep, double and not connected, size similar; frontal area almost at level of eyes; median fovea in form of deep pits, one just above supraclypeal area and other anterior to median ocellus; postocellar furrow absent, inter- and circumocellar furrows distinct; lateral furrows distinct, bulging medially and ending just before hypothetical hind margin of head; postocellar area convex, wider than long as 8:7; head narrowing behind eyes; mesoscutellum almost flat, appendage ecarinate; ICD:ITD = 1.0:4.0; hindwing vein 1r-m joining Rs away from junction with R+Sc; tarsal claw (Fig. 19) with subapical tooth distinctly shorter than apical one, basal lobe distinct; metabasitarsus longer than following three joints combined as 3:2, IATS:MB:OATS = 1.0:2.6:1.0. Ovipositor sheath as in Fig. 20 (lateral view), Fig. 21 (dorsal view). Lancet (Fig. 22) having eight serrulae.

**Sculpture:** Head impunctate, shining; mesonotum with fine, scattered punctures; mesoscutellum with a row of deep, pit like, isolated punctures on posterior border; appendage

impunctate; mesepisternum with dense, inconspicuous punctures; mesosternum impunctate; abdomen faintly microstriated, subshining.

**Pubescence:** Silvery, 0.3x scape length.

**Male:** Average length 6.5mm. Similar to female except blackish part of tibiae ferruginous. Genitalia: Penis valve (Fig. 23), gonoforceps (Fig. 24).

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## EMERALD OR BRONZE-WINGED DOVE, *CHALCOPHAPS INDICA* IN SARANDA FOREST DIVISION, JHARKHAND

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This note concerns the occurrence and status of Emerald Dove in Saranda Forest Division. Emerald Dove *Chalcophaps indica* (Linn.) is known to occur <1800m mainly in evergreen and moist deciduous forests, commonly in many parts of India. The Saranda Forest Division located in West Singhbhum area of Jharkhand state has both moist and deciduous forests. The important forest types of this division as per Champion and Seth classification are: moist peninsular sal (c<sub>2</sub>e), northern dry mixed deciduous forest (5B/Cie), dry peninsular sal forests (5B/Cie), moist mixed deciduous forest, (3c/c), northern tropical wet evergreen forest (B/2B). This division is reckoned to be among the Important Bird Areas of Jharkhand. The threatened Purple Wood Pigeon *Columba punicea* locally known as *Gara Putam* is known to occur in the area. Emerald Dove also known locally as *Gara Putam* has not been well recorded in the area and its status is little known.

During my posting in Saranda Forest Division (from 1 May 2001 till date) I found Emerald Dove in almost every part of the division. Most sightings of the dove occurred on forest road from Kiriburu to Jaraikerla, a stretch of 70km and even along the PWD Road from Baraiburu to Ghatkuri. The bird was noticed mostly single or in pairs feeding on the ground along the road and vanishing into the forest with a swift, strong and straight flight. The frequent sighting of this species in different parts of Saranda Forest Division and sightings throughout the year indicates its fair distribution in this division.

In the Chotanagpur area the Emerald Dove was found to be extremely rare; only on one occasion this species was found in a forest in the neighbouring Gangpur and only once in the Rajmahals hills. The nearest wildlife reserve of significance is Palamau Tiger Reserve which is separated by a distance of around 1,000km, but has well connected blocks of forest and surprisingly there is no mention of the occurrence of Emerald Dove in the Palamau Tiger Reserve.

