



**Research Paper**

**GENITALIC STUDIES OF *Callambulyx rubricosa* WALKER (SPHINGIDAE: LEPIDOPTERA)**

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**Abstract**

The male and female genitalic features of *Callambulyx rubricosa* Walker (type species) have been studied and illustrated in detail. The genus diagnosis has been updated.

Key words: *Callambulyx*, genitalia, *rubricosa*, sphingidae.

**INTRODUCTION**

While revising the Sphingidae of World, Rothschild and Jordan [11] described a new genus *Callambulyx* with *rubricosa* Walker as its type species which was earlier described under genus *Ambulyx* Westwood (Hampson, [4]). They shifted two more species i.e. *junonia* Butler and *poecilus* Rothschild to it. Presently, this genus is represented by eight species and three subspecies from Palaearctic and Oriental regions. Seitz [10], Bell & Scott [2], D'Abbrera [3], Holloway [6]; Allen [1], Haruta [5], Inoue *et al.*, [7], Pittaway & Kitching [9] and in the present studies the same nomenclature has been followed. In the present studies, the male and female genitalia of *rubricosa* Walker have been studied and the genus diagnosis has also been updated.

**MATERIAL AND METHODS**

During survey tours undertaken in North East India, as many as eighteen adult specimens were collected from Jatinga in North Cachar District of Assam. The collected material was treated as per standardized techniques in Lepidopterology. The terminology for naming different parts of genitalia has been followed after Klots [8]. The diagrams were drawn with the help of graph eye-piece fitted in Stereo-zoom binocular.

**RESULTS**

**GENUS CALLAMBULYX ROTHSCHILD & JORDAN**

Rothschild and Jordan, 1903, *Novit. Zool.*, **9**: 307; Bell & Scott, 1937, *Fauna British India, Moths*, **5**: 228-229.

**Type species:** *rubricosa* (Walker)

**Distribution:** Oriental and Palaearctic regions.

**Diagnosis:** Labial palpus slender, upturned, applied to head, not projecting, larger in male. Antenna strongly compressed, ventrally in male, end segment short, with one or more bristles at tip. Proboscis short and weak. Forewing with apex not produced; basal one-fourth portion of anal forked;  $M_3$  from angle of cell;  $M_2$  from below middle of discocellulars;  $M_1$  from upper angle or stalked with  $R_5$  and  $R_4$  from upper angle; discal cell less than half the length of wing; discocellulars closed. Hind wing with apex rounded;  $Cu_2$  beyond middle;  $Cu_1$  from well before angle;  $M_3$  from angle of cell;  $M_2$  from below middle of discocelulars;  $M_1$  and  $R_s$  from upper angle or may be stalked;  $Sc + R_1$  anastomosing with cell beyond middle; discal cell less than half the length of wing; discocellulars closed. Legs with tibiae simple, not spinose, longer than respective first tarsal segments; mid and hind tibia with one pair of tibial spurs, inner ones long; tarsi spinose; pulvillus present. Abdomen with under scales of tergites partly spiniform. Male genitalia with uncus gradually narrowing towards tip; gnathos reduced; tegumen broad at base of uncus; saccus rounded; valva without friction patch on exterior side, but with small spines on inner side; saccular projection broad, bifid; aedeagus with distal end having sclerotized plate or spurs; vesica without any armature. Female genitalia with corpus bursae without signum; genital plate absent; anterior apophysis shorter than posterior ones; papilla analis triangular and fringed.

### *Callambulyx rubricosa* (Walker)

(Figs. 1-5)

*Ambulyx rubricosa*, Walker, 1856, *List Specimens lepid. Insects Colln. Br. Mus.*, **8**: 122; Hampson, 1892, *Moths India*, **1**:79.

*Callambulyx rubricosa*, Walker; Rothschild and Jordan, 1903, *Novit. Zool.*, **9**: 308; Bell and Scott, 1937, *Fauna British India, Moths*, **5**: 229-230.

**Male genitalia:** Uncus broad at base, of moderate size, gradually narrowing towards tip, nearly membranous, distal half setosed with few setae; gnathos membranous; tegumen broad at base of uncus, inverted U-shaped, semi membranous, almost of same size of vinculum; vinculum narrow, slightly sclerotized ending into dorsally bent saccus; saccus rounded; juxta pendulum shaped, arms moderately sclerotized; transtilla triangular. Valva long, extending beyond uncus; costa semi-membranous, setosed; sacculus well defined, moderately sclerotized, saccular projection broad at base, bifid with one short and one long arm, tips pointed; cucullus and valvula not differentiated, semi membranous distal half; sclerotized spines arranged in semi circular fashion in middle of valva. Aedeagus broad, short, both walls equally sclerotized, distal end having a backwardly directed sclerotized plate having small denticles; vesica without any armature.

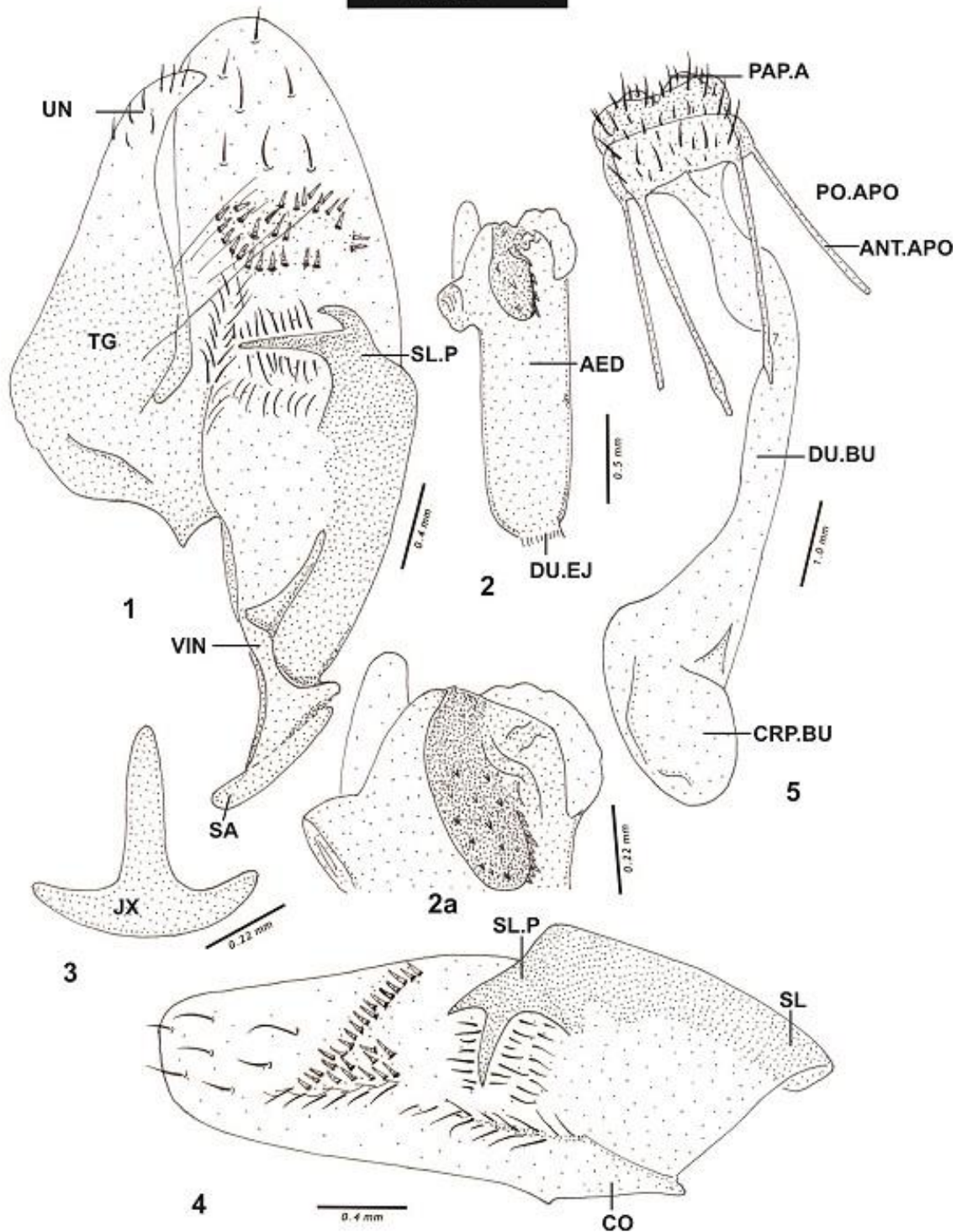
**Female genitalia:** Corpus bursae small, semisclerotized; signum absent; ductus bursae quite long, semisclerotized; genital plate absent; ductus seminalis originating near ostium bursae; anterior apophysis slightly shorter than posterior ones; posterior apophysis long and narrow; apices slightly dilated before tip; papilla analis triangular, broad, densely fringed with small and large setae.

**Wing Expanse:** Male: 122-132 mm; Female: 144 mm.

**Material Examined:** Assam: North Cachar Hills, Jatinga, 03.IX.1991, 3♂♂; 04.IX.1991, 1♂; 5.IX.1991, 2♂♂; 14.IX.1991, 5♂♂; 15.IX.1991, 3♂♂, 1♀; 16.IX.1991, 3♂♂.

**Distribution:** India: Assam, Sikkim; Else-where: Bhutan, China, Java, Korea, Nepal, Thailand and Vietnam.

**PLATE - 1**



*Callambulyx rubricosa* (Walker)

1. Male genitalia - lateral view; 2. Aedeagus; 2a. Aedeagus - distal end (enlarged);  
3. Juxta - Ventral view; 4. Valva - Ventral view; 5. Female genitalia

**Remarks:** The striking green forewings and bright pink hindwings are definitive for this species.

#### ABBREVIATIONS

AED: Aedeagus; ANT. APO: Anterior apophyses; CO: Costa; CRP. BU: Corpus bursae; DU. BU: Ductus bursae; DU. E]: Ductus ejaculatoris; JX: Juxta; PAP. A: Papilla analis; PO. APO: Posterior apophyses; SA: Saccus; SL: Sacculus; TG: Tegumen; UN: Uncus; VIN: Vinculum.

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