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REDESCRIPTION OF *CREATONOTUS GANGIS* L. (LEPIDOPTERA:ARCTIIDAE:ARCTIINAE) RECORDED FROM COASTAL AREA OF SINDH AS MANGROVES AND RICE PEST

SYED VIQAR ALI

Sindh Coastal Community Development Project, Sindh Coastal Development Authority, Government of Sindh, Karachi-Pakistan

Abstract

Creatonotus gangis L. is recorded from Coastal Area of Sindh, Pakistan as mangroves & rice pest and redescribed in detail with special reference to its head appendages, venation of fore and hind wings, and male and female genitalia.

Introduction

Hübner (1816) described *Creatonotus* and placed it under the Family Bombicidae. Walker (1854) redescribed *Creatonotus* as *Aloa* and placed the same genus under the Family Bombacidae. Cotes and Swinhoe (1888) gave a check list of Indian moths and listed genus Cretonotus alongwith its two species viz. *C. Interrupter*, *C. rubricaosta* recorded from Bombay, Karachi and Hyderabad and placed it in Arctiidae. Hampson (1894) identified *Creatonotus* and placed the same species under the family of Arctiidae. Chaudhry *et. al.* (1970) recorded *C. transiens* from Chittagong hill and Peshawar with the note that the larvae were found feeding on the leaves of Teak – *Tectona grandis* at Kaptai and other places and placed it under the family Arctiidae. Watson *et al.* (1980) listed genus *Creatonotus* with his type species *Phalaena interrupta* L., recorded from South Africa under the subfamily Arctiinae of family Arctiidae. Hashmi and Tashfeen (1992) gave a check list of Lepidoptera of Pakistan and listed *Cratonotus* under the subfamily Arctiinae of Family Arctiidae. Kamaluddin *et al.* (2007) published a checklist of moths of Pakistan, listed two species of genus *Creatonotus* alongwith *C. gangis* L. recorded from Sindh, Pakistan as rice pests and placed them under the family Arctiidae, subfamily Arctiinae.

Materials and Methods

The adult specimens of *Creatonotus gangis* L. were collected with the help of light trap from Keti Bunder village Peutan (Hajamro Creek) and Golarchi, Sindh province of Pakistan and were identified with the help of available literature as mentioned in references. For the study of sex genital complex the abdomen was excised at the base and boiled in 10% KOH solution for about 5-minutes and then washed with tap water. The genitalia were removed from the abdomen for detail examination and later individual elements of the genitalia and the associate structures were removed as required and examined. Dissection were done using ocular grid leitz weitzler dissection microscope. Drawings were made on graph paper, which later were transferred on drawing sheet and finalized with pelican ink. All the diagrams are to the given scale.

Results

Genus: *Creatonotus* Hübner 1816: *Cretonotos* Hübner, 1816, *Verz. Bekannter Schmett.* : 170; Hampson, 1894, *Faun. Brit. Ind. 2*: 26; Watson *et al. Brit Mus.*(*Nat. Hist.) 2*: 46; Goodger and Watson, 1995, *Nat. Hist. Mus.* :7
Rhodogastria Hubner, 1816, *Verz. Bekannter Schmett.* : 172
Aloa Walker, 1855, *Cat. 3* : 699
Savara Walker, 1864, *Cat. 31* : 320
Bucala Walker, 1866, *Cat. 35* : 1983

Diagnostic features: Proboscis moderate or short, fore wings with a distict horizontal fascia continous or discontinous, in males dorsal surface of uncus at base with a process, uncus unilobed or laterally bilobed, parameres very large, arm-like, apex bilobed very large, finger-like, in females corpus bursae with dot-like or spine-like cornuti.

Comparative note: This genus is most closely related to *Diacrisia* Hübner in having proboscis moderate or short, in males dorsal surface of uncus at base with a process, uncus unilibed or laterally bilobed, in females corpus bursae without cornuti or spine-like cornuti, but it can easily be separated from the same in having fore wings with a distinct horizontal fascia continuous or discontinous, in males parameres very large, arm-like, apex

bilobed very large finger-like, corpus bursae with spine-like cornuti in contrast fore wings with veins R_1 to R_5 stalked to each other and originate from upper angle of cell by stalk, in males membranous conjuctiva bilobed without cornuti, apex of parameres broad hammer-shaped in *Diacrisia* and by the other characters as noted in the key and description.

Type species: *Phalaena interrupta* L. 1767

Distribution: Eithopean and Oriental regions.

Key to the species of the genus *Creatonotus* Hübner

1. Head convex, fore wings with R_1 not originates from radius vein, R_4 and R_5 stalked, M_2 originates from upper angle of cell, M_3 and Cu_1a anastomosing and originate from lower angle of cell, hind wings with Rs and M_1 anastomosing and originate from upper angle of cell, veins M_3 and Cu_1 not stalked, two anal veins present, uncus broad, aedeagus somewhat straight, membranous conjunctiva broad, plate-like broad and dentate cornuti…..… …….. …C. *transiens* Walker.

----- Head depressed, fore wings with vein R_1 originates from radius vein, R_3 and R_4 stalked, M_1 originates from upper angle of cell, M_3 originates from lower angle of cell, hind wings with veins Rs and M_1 not anastomosing and only M_1 originates from upper angle of cell, M_3 and Cu_1 stalked, one anal vein present, uncus narrowed, aedeagus hook-like, membranous conjunctiva narrowed, a series of spine-like cornuti……..C. *gangis.* L.

***Creatonotus gangis* L.** (Figs.1-8)
Creatonotus gangis L., 1766, *Linn. Syst. Nat.*

Colouration: Head thorax light brown except black median vertical line, abdomen reddish except a line of median black patches (Fig.1).

Head: Eyes (Fig.2) large, frons broadly rounded, maxillary palpi with 2nd segment about 2X the 3rd, proboscis short and coiled.

Fore wings: Fore wings (fig.3) large, apically sub-rounded, light brown with median large broad strip and sub-apical small triangular black patch, vein Sc parallel to radius vein, vein R_1, R_3 and R_4 largely stalked, later unite to R_5 by a large stalk, further meeting and originate from upper angle of cell, M_3 parallel to M_2 and originate from lower angle of cell, veins Cu_1 and Cu_2 wide apart, only one anal vein (1A) is present.

Hind wings:

Hind wings (Fig.4) broad, outer margin straight, smooky with apical margin dark, vein Sc+R_1 parallel to Rs, M_1 originates from upper angle of cell, M_3 and Cu_1 stalked and originate from lower angle of cell, only one anal vein (1A) is present.

Wing expansion: Body size is 40-42mm with wing expansion (Fig.1).

Male genitalia: Tegumen (Figs.5 and 6) oblong, semisclerotized, medially raised into a crest, saccus curved and narrowed at base without process, uncus albow-like with inner margin sinuated, with acute apex, gnathos developed and membranous, paramere large, apically bifurcated, inner lobe large with outer margin entire, outer lobe with narrowed apex, aedeagus (Fig.7) apically distinctly curved into plate-like structure, apically truncated thecal plate, membranous conjunctival lobe with four bunch of spine-like cornuti arrange in rows and a bunch of spine-like cornuti arrange in circle at base, apex dilated beset with fine spines.

Female genitalia: Papillae anales somewhat rectangular with outer margin sinuated, apophysis posteriors broad at base slightly longer than narrowed apophysis anterior, ductus bursae narrowed tubular, highly sclerotized, corpus bursae circular with a bunch of spine-like cornuti arrange in lunar-shaped and a bunch of 3-large spines (Fig.8).

Material examined: Fifteen males and twenty five females, Pakistan: Keti Bunder, Golarchi, 10.7.2011 and 11.7.2011, Syed Viqar Ali, on light, lodged at authors collection.

Fig. 1

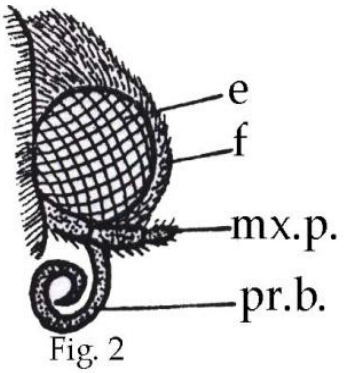

Fig. 2

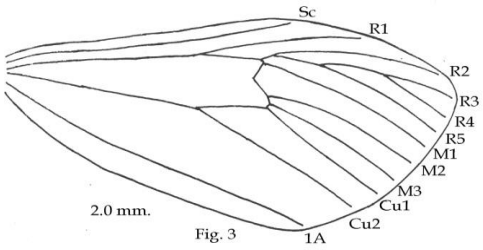

Fig. 3

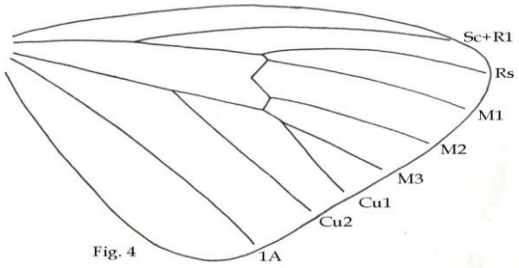

Fig. 4

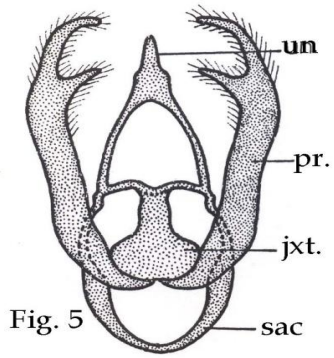

Fig. 5

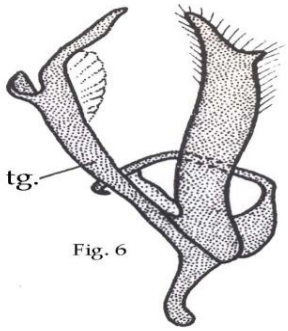

Fig. 6

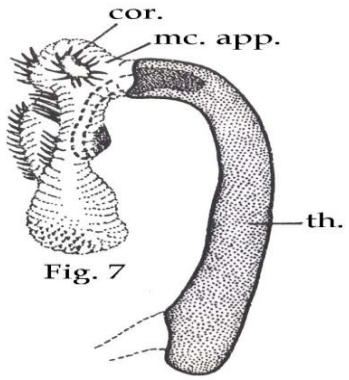

Fig. 7

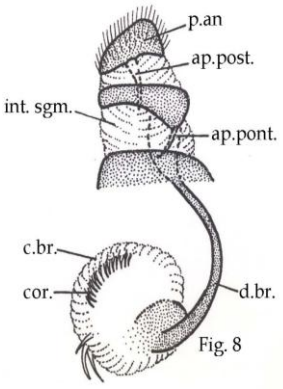

Fig. 8

Illustration of Figures: Figs.1-8. *Cretonotos gangis* L., 1. adult, entire dorsal view; 2. head, lateral view; 3. fore wing, dorsal view; 4. hind wing, dorsal view; 5. tegumen lateral view, 6. tegumen ventral view, 7. adeagus, 8. female genitalia.

Key to the laterings: ant. (antenna), e. (eye), fr. (frons), gn. (gnathos), jxt. (juxta), mcl.(membranous conjuctival appendage), mx.p. (maxillary palpi), 1A - 3A. (anal vein 1, 2 and 3), Cu_1 & Cu_2 (cubital vein 1 and 2), M_1-M_3 (median vein 1 to 3), R_1-R_5 (radius vein 1 to 5), Rs.(radio-suctorial vein), Sc.(sub-costal vein), Sc+R_1(sub-costal and radius vein 1).

Discussion

This species is most closely related to *C. transiens* Walker in having fore wings with a distinct horizontal fascia continous or discontinuous, in males parameres very large, arm-like, apex bilobed very large, finger-like, corpus bursae with spine-like cornuti, but it can easily be separated from the same in having head depressed, fore wings with vein R_1 originates from radius vein, R_3 and R_4 stalked, M_1 originates from upper angle of cell, M_3 originates from lower angle of cell, hind wings with veins R_5 and M_1 not anastomosing and only M_1 originates from upper angle of cell, M_3 and Cu_1 stalked, one anal vein present, uncus narrowed, aedeagus hook-like, membranous conjuctiva narrowed with a series of spine-like cornuti and by the other characters as noted in the key and description. This species is recorded from Shah Bunder and Hyderabad. The population is very large during July and August and very less recorded in December and January. The temperature is 36^oC during summer and 21^0C in winter, while average annual temperature is 27^oC. Amount of precipitation is between 50-60mm or sometimes to about 100mm. The average relative humidity (mean) at 1200 UTC is 46%. In this area the dominant plants and vegetation are mangroves, rice, sun flower, sugarcane etc.

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