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Taxonomic studies and new faunistic records of two species of the genus *Stictane* HAMPSON (Lepidoptera: Erebidae: Arctiinae) from India

Jagbir SINGH KIRTI, Rahul JOSHI and Navneet SINGH

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Abstract. Male genitalia of *Stictane rectilinea* (SNELLEN) and *S. fractilinea* (SNELLEN) are described. Further, *S. rectilinea* (SNELLEN) is reported for the first time from India, while the recognition of *S. fractilinea* (SNELLEN) from Ganeshgudi (Karnataka) is its first record from the Western Ghats of India. An updated checklist of all the Stictane species is also provided.

Key words: Stictane, new records, India, taxonomy, external genitalia.

Jagbir SINGH KIRTI, Department of Zoology and Environmental Sciences, Punjabi University, Patiala-147002, Punjab, India. E-mail: prjagbir2005@gmail.com

Rahul JOSHI, Department of Agriculture, Baba Farid College, BFGI, Deon, Bathinda-151001, Punjab, India.
E. mail: inspiratiidaa@amail.acm

E-mail: joshiarctiidae@gmail.com

Navneet SINGH, Zoological Survey of India, Gangetic Plains Regional Centre, Bahadurpur Housing Colony, Sector-8, Patna-800 026, Bihar, India. E-mail: nsgill007@gmail.com

I. INTRODUCTION

HAMPSON (1900) erected the genus *Stictane* for its type species, *Pitane fractilinea* SNELLEN, 1880 from Sumatra. Beside this, two more species, *Pitane rectilinea* SNELLEN and *Stictane obliquilinea* HAMPSON were also studied under genus *Stictane* by Hampson (1900). STRAND (1922) and FANG (2000) synonymised *Stictane* HAMPSON with *Manoba* WALKER. However, HOLLOWAY (2001) restored the generic status of *Stictane* HAMPSON and described six new species, *S. serrata* HOLLOWAY, *S. parvipectinata* HOLLOWAY, *S. ciliata* HOLLOWAY, *S. filiformis* HOLLOWAY, *S. pectinata* HOLLOWAY and *S. muara* HOLLOWAY, from Borneo along with advocating the inclusion of four other species, i.e. *S. obliquilinea* HAMPSON, *S. fusca* HAMPSON, *S. bipunctulata* VAN EECKE, and *S. umbrata* VAN EECKE. ÈERNÝ & PINRATANA (2009) reported *S. rectilinea* (SNELLEN) and *S. fractilinea* (SNELLEN) from Thailand. BUCSEK (2012) described five new species, *S. kualabohi* BUCSEK, *S. elegans* BUCSEK, *S. pectenicorniculum* BUCSEK, *S. gemina* BUCSEK and

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S. mlcochi BUCSEK from Malaysia. DUBATOLOV et al. (2012) raised *S. chinesica* DRAUDT, previously considered a form of *S. rectilinea* (SNELLEN), to the species level. Thus, the genus is presently known by eighteen species, listed in Table 1.

Table I

1.	Stictane fractilinea (SNELLEN)	India: Sikkim; Sumatra; Java; Sri Lanka; Thailand; China.
2.	Stictane rectilinea (SNELLEN)	China; Singapore; Thailand; Sulawesi; India.
3.	Stictane obliquilinea HAMPSON	Sri Lanka
4.	<i>Stictane fusca</i> HAMPSON	Sri Lanka
5.	Stictane bipunctulata (VAN EECKE)	Sumatra
6.	Stictane umbrata (VAN EECKE)	Sumatra, Peninsular Malaysia
7.	Stictane serrata HOLLOWAY	Borneo, Peninsular Malaysia
8.	Stictane muara HOLLOWAY	Borneo
9.	Stictane pectinata HOLLOWAY	Borneo
10.	Stictane filiformis HOLLOWAY	Borneo, Peninsular Malaysia
11.	Stictane ciliata HOLLOWAY	Borneo
12.	Stictane parvipectinata HOLLOWAY	Borneo
13.	Stictane chinesica DRAUDT	China
14.	Stictane kualabohi BUCSEK	Malaysia
15.	Stictane elegans BUCSEK	Malaysia
16.	Stictane pectenicorniculum BUCSEK	Malaysia
17.	Stictane gemina BUCSEK	Malaysia
18.	Stictane mlcochi BUCSEK	Malaysia

An updated Checklist of *Stictane* species

In the present manuscript two species, viz. *S. rectilinea* (SNELLEN) and *S. fractilinea* (SNELLEN), are redescribed. Because taxonomic information of the studied species is scattered in different publications, morphological features have also been added herein along with genitalic attributes, so as to provide a complete set of information of these two species for future workers. Both these species possess male genitalia typical of the genus. Valvae resemble other described species of *Stictane* but vary in shape and structure of the costal and saccular processes.

The reporting of *S. rectilinea* (SNELLEN) from North East India represents its first record from India, thus extending its distributional range out of China and Thailand up to India. The species is reported from lowland forests of Meghalaya and Mizoram. Another species, *S. fractilinea* (SNELLEN), has been recorded for the first time from Ganeshgudi (Karnataka) of the Western Ghats of India. An updated checklist of all the stictane spevies is also provided.

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II. MATERIAL AND METHODS

The studied material was collected from different localities in India. The collected material was treated as per standardized techniques in Lepidopterology. COMSTOCK (1918) and KLOTS (1970) have been followed for study of wing venation and genitalia. Adult moths were photographed using a digital camera. Photography of external male genitalia was done with the help of an image processing unit in the Department of Zoology & Environmental Sciences, Punjabi University, Patiala.

Material is deposited in the Punjabi University, Patiala/ Rahul JOSHI Collection (PUP/RJ).

A b b r e v i a t i o n s. A₁: first anal vein, AED: aedeagus, CO.PR: costal process, CRN: cornutus, Cu₁: first cubital vein, Cu₂: second cubital vein, DU.EJ : ductus ejaculatorious, JX: juxta, M₁: first median vein, M₂: second median vein, M₃: third median vein, RS: radial sector, R₁: first radial vein, R₂: second radial vein, R₃: third radial vein, R₄: fourth radial vein, R₅: fifth radial vein, Sc+R₁ : stalk of Sc, SA: saccus, SL.PR : saccular projection, TG: tegumen, UN: uncus, VES: vesica, VIN: vinculum.

III. SYSTEMATICS

Genus Stictane HAMPSON

Figs 1-7

HAMPSON, 1900, Cat. Lepid. Phal. Br. Mus., 2: 258.

D i a g n o s i s. Proboscis well developed. Labial palpi upturned, slender, and reaching vertex of head. Antennae of male serrate and fasciculate; tibiae with spurs moderate. Male genitalia with uncus long, slender. Valvae with saccular process usually shorter; costal process apically modified. Aedeagus vesica contains cornuti which may be long or short.

Type species: Pitane fractilinea SNELLEN.

Stictane fractilinea (SNELLEN)

Pitane fractilinea SNELLEN, 1880, In VETH., Midd.- Sum. Lep., 4 (2): 38.

Eugoa multipuncta HAMPSON, 1893, Ill. Het. Br. Mus., 9: 81.

Stictane fractilinea (SNELLEN); HAMPSON, 1900, Cat. Lep. Phal. Br. Mus., 2: 259.

Manoba fractilinea (SNELLEN); DRAUDT, 1914, In SEITZ, Macrolep. World, 10: 196.

Manoba fractilinea (SNELLEN); FANG, 2000, Fauna Sin., Ins., 19: 187.

Stictane fractilinea (SNELLEN); ČERNÝ & PINRATANA, 2009, Moths of Thailand, 6:6.

Material examined. India, Karnataka: Ganeshgudi, 13.09.2007 (1 male) Coll. Navneet SINGH; Assam: Jatinga, 11.09.2009 (1 male). Coll. Rahul JOSHI. (PUP/RJ - 158).

R e d e s c r i p t i o n (Figs 1-7). Head with frons fuscous; vertex whitish. Antennae serrate, brown, whitish at base. Labial palpi fuscous, upturned, reaching vertex of head. Proboscis long, coiled.

Thorax fuscous, patagia and tegulae whitish, slightly tinged with fuscous. Forewing (Figs 1, 2) whitish, more or less strongly tinged with brown; Costa black towards base;

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Figs 1-7. *Stictane fractilinea* (SNELLEN): 1 – Adult male. 2 – Forewing. 3 – Hindwing. 4 – Male genitalia. 5 – Uncus (enlarged). 6 – Valva. 7 – Aedeagus.

a curved antemedial series of three black spots on the veins; a medial line with fuscous band on its outer edge, excurved from below costa to submedian fold and interrupted in cell; two discoidal black spots; a curved postmedial series of black points from below costa to above inner margin, with a slight fuscous mark on costa beyond it; a terminal series of black points. Hindwing pale, terminal half suffused with fuscous. Venation typical of the genus (Fig. 2, 3). Legs whitish, fore legs fuscous; hind leg with two pairs of tibial spurs.

Abdomen fuscous. Male genitalia (Fig. 4-7) with uncus (Fig. 5) long, slender, weakly sclerotized; tegumen as long as uncus, inverted V-shaped, covered with long seate; vinculum as long as tegumen, V-shaped, arms further from each other; vinculum twisted on each side where it meets tegumen. Valvae (Fig. 6) well differentiated into long costal and short sacculus process; valvae slender, rounded apically; saccular process ends into an elongate spine; costa heavily setosed with setae beyond saccular process; long spine like process in centre of costa; dorsal ridge on costa, opposite to spine; small spine arising immediately near the tip of saccular spine. Juxta broad, inverted cup shaped; saccus present; transtilla membranous. Aedeagus (Fig. 7) slightly shorter than genitalia; broad and globular at base, slightly narrow apically; weakly sclerotized; vesica membranous, (not everted) having one large cornutus and another bundle of large, thin spines joined together to form another cornutus, ductus ejaculatorius entering laterally.

Wing span: male 14 mm.

Distribution. Sri Lanka; Sumatra; Sulawesi; China; India; Philippines; Borneo; Thailand.

R e m a r k s. The idenitifcation of the species *S. fractilinea* (SNELLEN) from Ganeshgudi (Karnataka) is the first record from Western Ghats of India.

Stictane rectilinea (SNELLEN)

Figs 8-14

Pitane rectilinea SNELLEN, 1879, Tijd. v. Ent., 22: 91.

Hemonia rectilinea (SNELLEN); KIRBY, 1892, Cat. Het., 1892: 364.

Manoba rectilinea (SNELLEN); DRAUDT, 1914, In SEITZ, Macrolep. World, 10: 196.

Stictane rectilinea (SNELLEN); HAMPSON, 1900, Cat. Lep. Phal. Br. Mus., 2: 258-259.

Stictane rectilinea (SNELLEN); FANG, 1982, Icon. Het. Sin., 2: 194.

Manoba rectilinea (SNELLEN); FANG, 2000, Fauna Sin. Ins., 19: 187-188.

Stictane rectilinea (SNELLEN); ČERNÝ & PINRATANA, 2009, Moths of Thailand, 6:7.

M a t e r i a l e x a m i n e d. India. Mizoram: Lengpui, 16.09.2008 (11 males) coll. Navneet SINGH; India. Mizoram: Thingsul, 13.09.2008 (1 male) coll. Rahul JOSHI; India. Meghalaya: Garampani, 06.09.2008 (1 male) coll. Rahul JOSHI. (PUP/RJ - 159).

R e d e s c r i p t i o n. (Figs 8-14). Head with frons and vertex greyish white. Antennae blackish, bipectinate up to middle, rami longer, serrate beyond middle. Labial Palpi black, upturned, reaching beyond frons. Proboscis long, coiled.

Thorax with patagia and tegulae greyish black. Forewing (Fig. 8,9) with costal edge black towards base; antemedial black spots on subcostal and median nervures and vein A1; almost straight medial oblique black line with broad area of fuscous suffusion beyond it;

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Figs 8-14. *Stictane rectilinea* (Snellen): 8 – Adult male. 9 – Forewing. 10 – Hindwing. 11 – Male genitalia. 12 – Uncus (enlarged). 13 – Valva. 14 – Aedeagus.

black spot at lower angle of cell; postmedial series of black points excurved from below costa to submedian fold, and with a fuscous patch beyond it on costa; terminal series of black points. Hindwing pale brownish. Venation typical of the genus (Fig. 8-10). Legs grey, forelegs fuscous from front; hind leg with two pair of tibial spurs, each pair with one long spur and one shorter.

Abdomen greyish with yellowish tinge at anal tuft. Male genitalia (Fig.11-14) with uncus long, slender, apically pointed (Fig. 12); tegumen as long as uncus, inverted V-shaped; vinculum broader, cup-shaped, twisted on each side where it meets tegumen. Valvae (Fig. 13) truncate, with well developed costa and sacculus; costal edge excurved dorsally in the middle, curved apically into broad spine like process; setosed with long setae; saccular spine long reaching tip of valvae apex; thumb-like projection in middle of sacculus, sparsely setosed with setae. Juxta broad, sclerotized apically; transtilla membranous. Aedeagus (Fig. 14) short, broad, narrow apically. Vesica membranous (not everted); with a simple long, robust spine; almost 3/4th the length of aedeagus; ductus ejaculatorius entering apically.

Wing span: male 14-16 mm.

Distribution. China; Singapore; Thailand; Celebes; India.

R e m a r k s. The reporting of species from two states of India i.e. Meghalaya and Mizoram is its first record from India.

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