Description of four new species of the genus *Lyclene* MOORE (Lepidoptera: Arctiidae: Lithosiinae) from India

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Abstract. Four new species of _Lyclene_ MOORE, _L. kishidai_ sp.n., _L. uncalis_ sp.n., _L. hollowai_ sp.n., and _L. goaensis_ sp.n. are described from India.

Key words: Lepidoptera, Arctiidae, Lithosiinae, _Lyclene_, new species, India.

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I. INTRODUCTION

The genus _Lyclene_ was proposed by MOORE (1859) as the objective replacement name for _Cylleone_ WALKER (1854). The type species of _Lyclene_ is _Cylleone humilis_ WALKER, 1854 collected in Burma. HAMPSON (1894) synonymized genus _Lyclene_ with _Miltochrista_ HÜBNER. In 1900, HAMPSON transferred this genus to _Asura_ WALKER as a separate section. STRAND (1922) followed the same nomenclature. ARORA and CHAUDHARY (1982) studied the lepidopterous fauna of Arunachal Pradesh and adjoining areas and stated that two genera i.e. _Asura_ WALKER and _Miltochrista_ HÜBNER are known from India by 42 and 27 species respectively. NIELSEN et al., (1996) revived genus _Lyclene_ MOORE with broader concept and included different species which were previously described in _Asura_ WALKER and _Miltochrista_ HÜBNER. HOLLOWAY (2001) partially followed NIELSEN _et al._ (*loc.cit*) and resurrected the genera _Adites_ MOORE and _Barsine_ WALKER from the synonymy of _Lyclene_ and suggested a stable status for the latter. According to him, the yellow ground colour, an aedeagus vesica with a small number (one or two) of large cornuti, valvae with distal costal and saccular processes are the diagnostic attributes of genus _Lyclene_ MOORE. The new species studied here belong to a homogeneous group and conform to the characterization of _Lyclene_ MOORE and are natural allies of the type species _humilis_ WALKER. It is worth mentioning that in one of the studied species i.e. _L. kishidai_ two patches of spines are present in vesica instead of one or two large cornuti. But the authors are of the view that it is not feasible to shift this species under any other genus on the basis of this single attribute. Hence, it has been retained under _Lyclene_ MOORE. These species could not be identified from the relevant literature and by comparison with the collec-
tions housed in the national museums and Natural History Museum, London. The detailed description of four new species is given in this communication.

II. MATERIAL AND METHODS

The examined material has been collected at light traps in different localities of Western Ghats of India. The method proposed by Common (1970) and advocated by Zimmerman (1978) has been applied for the preparation of permanent slides of fore and hindwings. For the study of external male genitalia, methodology given by Robinson (1976) has been followed, for naming these structures terminology given by Klots (1970) has been used.

III. TAXONOMY

Genus Lyclene Moore


Type species: Cyllene humilis Walker.

Distribution. Palearctic, Ethiopian, Oriental and Australian regions.

Diagnosis. Labial palpi porrect or porrectly downward. Antennae bipectinate with branches short or ciliated in males, simple in females. Forewing with vein R1 anastomoses with Sc and separates to meet costa or running close to Sc; R2 before upper angle of cell; R3, R4 and R5 stalked; M1 from upper angle or stalked with R1, R4 and R5; M2 beyond or from lower angle of cell; M3 from or near lower angle of cell. Hindwing with vein Sc+R1 originating towards angle of cell; Rs and M1 on a long stalk; M2 on a short stalk with M3 or from the same point or beyond lower angle. Male genitalia with uncus long and curved; acrotergite absent; fenestrula present; saccus developed; valvae with tip bifurcated, cucullus and valvula well differentiated; aedeagus with vesica provided with small number (one or two) of large cornuti or with two patches of minute spines (in kishidai); ductus ejaculatorius entering apically or subapically. Female genitalia with corpus bursae of different shapes, containing at least moderate to long spines, amid more general scrobination; ductus bursae short or moderately long.

Lyclene kishidai sp.n.

(Figs 1-9)

Material examined. Holotype. ♂ India: Kerala, Vadasserikkara, 30 m, 7.IX.04 (Coll.N.S. Gill.).

Deposited in the Zoology Museum, Department of Zoology, Punjabi University, Patiala.

Paratypes. 1♂, 2 ♀ ♀ India: Kerala, Chendruni, 70 m, 3.IX.04, 2 ♀ ♀; Vithura, 120 m, 4.IX.04, 1 ♂.

Diagnosis. Head with frons and vertex ochreous. Antennae ciliated in male, simple in female; scape, pedicel and shaft brown, suffused with yellow scales. Eyes black with pale linings. Labial palpi porrect, reaching slightly beyond frons; covered with ochreous scales; third segment short.

Thorax and tegula ochreous, spotted with black; collar and pectus orange yellow. Forewing with ground colour ochreous; two subbasal spots; four antemedial spots; black band beyond series of antemedial black spots; highly dentate postmedial band; submarginal series of black spots; undersides same with markings obsolete; fringe yellow; vein R1 not anastomoses with Sc; R2 from cell; R3, R4 and R5 stalked; M1 from upper angle; M2 from lower angle; M3 near angle of cell; Cu1 before angle of cell; Cu2 from middle of cell. Hindwing with ground colour ochreous; undersides and fringe same; vein Sc+R1 originating from middle of cell; Rs and M1 on a long stalk; M2 towards middle of discocellulurs; M3 and Cu1 from lower angle; Cu2 from middle of cell. Legs ochreous, suffused with fuscous scales; hind tibia with two pair of spurs. Abdomen orange yellow.
New species of Lyclene

Male genitalia. Uncus sickle shaped, long and broad, setosed with scattered setae, sclerotized, slightly curved towards distal end, frequently ending to a pointed tip; acrotergite absent; fenestrala small spot like; tegumen longer than uncus, v-shaped; vinculum longer than tegumen, u-shaped, weakly sclerotized; saccus present. Valvae with costa narrow and linear; sacculus setosed with small setae, proximal region strongly sclerotized, saccular process present; ampulla present; cucullus membranous, covered with short setae; valvula ending to a horn like structure. Transtilla membranous; juxta small, triangular; aedeagus strongly built, short and broad; vesica membranous, two patches of spines present; ductus ejaculatorius entering apically.

Female genitalia. Corpus bursae triangular, opaque, posterior region more sclerotized, signum not distinct; ductus bursae short and moderately narrow, weakly sclerotized; ductus seminalis entering corpus bursae; anterior apophyses longer than posterior apophyses; papilla analis setosed with short setae.

Wingspan. Male 30 mm; female 36 mm.

Remarks. Lyclene kishidai is closely allied to Miltochrista ocellata Hampson, 1907 on the basis of general maculation. However, the markings on forewing of the new species are very prominent and presence of subbasal series of four spots on the forewing clearly separate it from ocellata Hampson.

Etymology. The name of the new species is dedicated to an eminent scientist Yasuori Kishida from Japan, working on family Arctiidae.

Lyclene uncalis sp.n.

(Figs 10-18)

Material examined. Holotype. ♂ India: Karnataka, Medikeri, 1100 m, 25.IX.03, (Coll. N.S. Gill.)

Deposited in the Zoology Museum, Department of Zoology, Punjabi University, Patiala.

Paratypes. 10♂♂, 2♀♀. India: Karnataka, Bhagamandala, 900 m, 15.VII.04 – 1♀, 31.VII.04 – 1♂. Tamil Nadu, Gudalur, 900 m, 28.IX.03 – 1♂, 15.XI.05 – 4♂♂, 16.XI.05 – 1♂. Kerala, Vallakadavu, 780 m, 9.IX.04 – 2♀♀, 1♀; Mucali, 560 m, 20.IX.05 – 1♂.

Diagnosis. Head with frons and vertex ochreous. Antennae ciliated in male, simple in female; scape, pedicel and shaft covered with ochreous scales. Eyes fuscous green, spotted with black. Labial palpi porrect, not reaching frons; covered with ochreous scales, with fuscous suffusion.

Thorax, collar and tegula yellowish rufus, thorax and tegula spotted with black; pectus orange yellow. Forewing with ground colour reddish orange; base of costa black; basal black spot; submarginal band; broad medial black band, bifurcated towards costa; marginal series of fuscous spots; underside same with markings obsolete; fringe ochreous; vein R₁ from Sc; R₂ from cell; R₃, R₄ and R₅ from a common stalk; M₁ from upper angle of cell; M₂ and M₃ from lower angle; Cu₁ and Cu₂ from cell. Hindwing with ground colour yellowish orange, irroration with pink scales; a medial diffused band; black spot at apex; underside same; fringe yellowish orange; vein Sc+R₁ originating near upper angle of cell; Rs and M₁ on a long stalk; M₂ and M₃ from lower angle; Cu₁ and Cu₂ from cell. Legs covered with ochreous scales; hind tibia with two pair of spurs. Abdomen covered with brown scales; underside and tuft orange yellow.

Male genitalia. Uncus long and narrow, broad at central region, from ventral side looks like hood of cobra snake, strongly curved, well sclerotized, tip pointed; acrotergite absent; fenestrala triangular; tegumen shorter than uncus, broad v-shaped; vinculum longer than tegumen, trough shaped, well sclerotized; saccus developed. Valvae with costa linear, narrow, well sclerotized; sacculus well developed, produced to an outgrowth towards proximal end, saccular process developed to a small hook like spine with dense and small setae; harpe+ampulla simple, concave plate like; cucullus curved, sclerotized horn like; valvula membranous flap like, setosed with moderately long setae, tip blunt. Transtilla weakly sclerotized; juxta triangular; aedeagus moderately long and
broad, curved, coecum penis well developed; vesica membranous, cornuti double spined; ductus ejaculatorius entering slightly before tip of coecum penis.

Female genitalia. Corpus bursae obliquely rounded, anterior region weakly sclerotized with ir- roration of small spines, posterior region more sclerotized, conical signa with corrugated edges; ductus bursae moderately long and broad, well sclerotized; ductus seminalis entering corpus bursae; anterior apophyses longer than posterior apophyses; papilla analis fringed with short setae.

Wingspan. Male 20 mm; female 22 mm.

Remarks. The new species is closely allied to Lyclene congerens FELDER in respect to external morphological characters. Reddish orange ground colour of forewing, a diffused discoidal spot, marginal series of fuscous spots and distinct male and female genitalia make it different and distinct from L. congerens.

Etymology. The name of species is derived from its unique uncus which is like the head of snake.

Lyclene hollowai sp.n. (Figs 19-26)

Material examined. Holotype. ♂. India: Gujarat, Saputara, 970 m, 29.IX.05 (Coll. N.S. Gills). Deposed in the Zoology Museum, Department of Zoology, Punjabi University, Patiala.

Paratypes. 1 ♂. India: Gujarat, Ahwa, 520 m, 28.IX.05 – 1 ♂.

Diagnosis. Head with frons and vertex rufus. Antennae ciliated in male, simple in female; scape, pedicel and shaft covered with ochreous scales. Eyes black with fuscous linings. Labial palpi porrect; covered with ochreous scales.

Thorax, collar and tegula rufus; prothorax and tegula spotted with black; pectus rufus. Forewing with ground colour pinkish red; subbasal region irrorated with fuscous scales; a spot at end of cell; a medial black band; postmedial series of black specks, almost conjoined to meet medial band under cell and than again excurved, in some specimens series of specks conjoint to give appearance of complete band; marginal series of black spots; underside same with markings obsolete; fringe ochreous pink; vein Sc and R₁ anastomoses and separates to meet costa; R₂ from cell; R₃ and R₄ and R₁ stalked; M₁ from upper angle of cell; M₂ towards discocellulars; M₃ from lower angle; Cu₁ and Cu₂ from cell. Hindwing with ground colour pinkish rufus; underside and fringe same; vein Sc₊R₊ originating toward angle of cell; Rₛ and Mₛ stalked; Mₛ beyond lower angle; M₅ from angle of cell; Cu₁ and Cu₂ from cell. Legs covered with rufus scales; hind tibia with two pair of spurs. Abdomen covered with ochreous scales; underside and tuft same.

Male genitalia. Uncus strongly built, sickle shaped, well sclerotized, curved, setae absent, tip sharply pointed; acrotergite absent; fenestra triangular; tegumen longer than uncus, v-shaped; vinculum shorter than tegumen, broad u-shaped, well sclerotized; saccus present. Valvae with costa narrow, curved, well sclerotized; sacculus well developed, produced to an outgrowth towards proximal end; saccular process well sclerotized, leaf like; harpe+ampulla concave plate like; cecul- lus well developed, sclerotized, tip corrugated with a small spine; valvula membranous flap like, se-
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Figs 1-9. 1 - *Lyclene hataki* sp.n.♂ (Holotype) 2 – forewing, 3 – hindwing, 4 – male genitalia, 5 – aedeagus, 6 – valva (right), 7 – uncus with tegumen (dorsal view), 8 – uncus with tegumen (lateral view), 9 – female genitalia.
Figs 10–18. 10 – *Lycenea uncalis* sp.n. (Holotype), 11 – forewing, 12 – hindwing, 13 – male genitalia, 14 – aedeagus, 15 – valva (right), 16 – uncus with tegumen (dorsal view), 17 – uncus with tegumen (lateral view), 18 – female genitalia.
New species of *Lyclene*

Figs 27-35. 27—Lycosea geosminus p.n. (Holotype), 28—forewing, 29—hindwing, 30—male genitalia, 31—aedeagus, 32—valva (right), 33—uncus with tegumen (dorsal view), 34—uncus with tegumen (lateral view), 35—female genitalia.
New species of *Lyclene*

**Material examined.** Holotype. ♂. India: Goa, Keri, 90 m, 26.II.04 (Coll. N.S. Gill.)
Deposited in the Zoology Museum, Department of Zoology, Punjabi University, Patiala.

Paratypes. 3♂♂, 3♀♀. India: Goa, Keri, 90 m, 26.II.04 – 1♂; Ponda, 85 m, 28.II.04 – 2♂♂, 29.II.04 – 3♀♀.

**Diagnosis.** Head with frons and vertex covered with rufus scales. Antennae ciliated in males, simple in females; scape, pedicel and shaft covered with dull ochreous scales. Eyes fuscous, densely spotted with black. Labial palpi porrect, furnished with rufus scales.

Thorax, collar and tegula rufus, thorax and tegula spotted with black; pectus rufus. Forewing with ground colour pinkish red; a basal black spot; antemedial black band, not reaching costa; a speck at end of cell; an obliquely placed medial band; a post medial band incurved below cell to meet medial band and again excurved to form structure of K; marginal series of black specks; underside same with markings obsolete; fringe rufus; vein R₁ anastomoses with Sc and separates to meet costa; R₂ from cell; R₃, R₄ and R₅ stalked; M₁ from upper angle; M₂ and M₃ from lower angle; Cu₁ near angle of cell; Cu₂ from middle of cell. Hindwing with ground colour pinkish red; underside and fringe same; vein Sc+R₁ near upper angle of cell; Rs and M₁ on a long stalk; M₂ towards middle of discocellulars; M₃ from lower angle; Cu₁ near angle of cell; Cu₂ from middle of cell. Legs covered with rufus scales; hind tibia with two pair of spurs. Abdomen covered with rufus scales; underside and tuft same.

Male genitalia. Uncus short and narrow, covered with short setae, sclerotized, tip ending to a small spine; acrotergite absent; fenestralia triangular; tegumen longer than uncus, v-shaped; vinculum shorter than tegumen, narrow, v-shaped, sclerotized; saccus developed. Valvae with costa narrow, curved, sclerotized; sacculus well developed, setosed with short setae, saccular process curved, spine like; harpe+ampulla concave plate like, well sclerotized; cucullus strongly sclerotized, curved rod like, tip blunt; valvula membranous flap like, setosed with long setae. Transtilla membranous; juxta small plate like; adeagus long and broad coecum penis absent; vesica membranous, cornuti double spined; ductus ejaculatorius entering apically.

Female genitalia. Corpus bursae irregular, anterior region opaque, posterior region much sclerotized with irration of small spines; ductus bursae moderately long and broad, membranous posteriorly and sclerotized anteriorly; ductus seminalis entering corpus bursae; anterior apophyses longer than posterior apophyses; papilla analis fringed with small setae.

**Wingspan.** Male 20 mm; female 24 mm.

**Remarks.** *Lyclene goaensis* is closely allied to *L. rubricosa* MOORE but is different with respect to markings of the forewings, which are comparatively not prominent and the wing span is

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**Lyclene goaensis** sp. n.

(Figs 27-35)

**Materials examined.** Holotype. ♂. India: Goa, Keri, 90 m, 26.II.04 (Coll. N.S. Gill.)
Deposited in the Zoology Museum, Department of Zoology, Punjabi University, Patiala.

Paratypes. 3♂♂, 3♀♀. India: Goa, Keri, 90 m, 26.II.04 – 1♂; Ponda, 85 m, 28.II.04 – 2♂♂, 29.II.04 – 3♀♀.

**Diagnosis.** Head with frons and vertex covered with rufus scales. Antennae ciliated in males, simple in females; scape, pedicel and shaft covered with dull ochreous scales. Eyes fuscous, densely spotted with black. Labial palpi porrect, furnished with rufus scales.

Thorax, collar and tegula rufus, thorax and tegula spotted with black; pectus rufus. Forewing with ground colour pinkish red; a basal black spot; antemedial black band, not reaching costa; a speck at end of cell; an obliquely placed medial band; a post medial band incurved below cell to meet medial band and again excurved to form structure of K; marginal series of black specks; underside same with markings obsolete; fringe rufus; vein R₁ anastomoses with Sc and separates to meet costa; R₂ from cell; R₃, R₄ and R₅ stalked; M₁ from upper angle; M₂ and M₃ from lower angle; Cu₁ near angle of cell; Cu₂ from middle of cell. Hindwing with ground colour pinkish red; underside and fringe same; vein Sc+R₁ near upper angle of cell; Rs and M₁ on a long stalk; M₂ towards middle of discocellulars; M₃ from lower angle; Cu₁ near angle of cell; Cu₂ from middle of cell. Legs covered with rufus scales; hind tibia with two pair of spurs. Abdomen covered with rufus scales; underside and tuft same.

Male genitalia. Uncus short and narrow, covered with short setae, sclerotized, tip ending to a small spine; acrotergite absent; fenestralia triangular; tegumen longer than uncus, v-shaped; vinculum shorter than tegumen, narrow, v-shaped, sclerotized; saccus developed. Valvae with costa narrow, curved, sclerotized; sacculus well developed, setosed with short setae, saccular process curved, spine like; harpe+ampulla concave plate like, well sclerotized; cucullus strongly sclerotized, curved rod like, tip blunt; valvula membranous flap like, setosed with long setae. Transtilla membranous; juxta small plate like; adeagus long and broad coecum penis absent; vesica membranous, cornuti double spined; ductus ejaculatorius entering apically.

Female genitalia. Corpus bursae irregular, anterior region opaque, posterior region much sclerotized with irration of small spines; ductus bursae moderately long and broad, membranous posteriorly and sclerotized anteriorly; ductus seminalis entering corpus bursae; anterior apophyses longer than posterior apophyses; papilla analis fringed with small setae.

**Wingspan.** Male 20 mm; female 24 mm.

**Remarks.** The species is closely allied to *Lyclene rubricosa* MOORE but can be differentiated from it on the basis of forewing markings. An antemedial and postmedial bands are comparatively thinner than that of *rubricosa* MOORE. Besides this, terminal series of fuscous specks is also absent in the new species. *L. hollowai* can also be differentiated from *rubricosa* MOORE on the basis of distinct male genitalic characters like the shape of valva and uncus.

**Etymology.** The name of the species is dedicated to eminent lepidopterist Dr Jeremy D. Holloway.
also less than that of *rubricosa* MOORE. The new species is also distinct from *rubricosa* MOORE with respect to external male genitalic attributes like trifid valvae and evenly curved uncus.

**Etymology.** The name of the species pertains to its type locality.

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**REFERENCES**


