Cover: Mugger Crocodile basking on the banks of Savitri River at Mahad in Maharashtra, India. © Utkarsha M. Chavan.

continued on the back inside cover
A new species of genus *Neocerura* Matsumura, 1929 (Notodontidae: Lepidoptera) from India

Amritpal Singh Kaleka¹ & Rishi Kumar²

¹ Department of Zoology, Punjabi University, NH 64, Patiala, Punjab 147002, India.
² Department of Zoology, DAV College, Mahatma Hans Raj Marg, Jalandhar, Punjab 144008, India.

¹ apskaleka@gmail.com (corresponding author), ² jagotarishi@gmail.com

Abstract: A new species *Neocerura convergata* under the genus *Neocerura* Matsumura, 1929 has been described and illustrated. This species is closely related to *N. liturata* Walker, 1855 (type species) and completely conforms to the characterization of the genus. The wing maculation, larger size, and genitalic features make it distinct. The taxonomic account of *N. liturata* Walker, 1855 has also been included. The revival of the genus *Neocerura* Matsumura, 1929 has also been justified.

Keywords: *Neocerura convergata* sp. nov., *Neocerura liturata*, new species, Notodontidae.

Abbreviations: 1A—First anal vein | 2A—Second anal vein | AED—Aedeagus | CU₁—First cubital vein | CU₂—Second cubital vein | GN—Gnathos | JX—Juxta | M₁—First Medial vein | M₂—Second Medial vein | M₃—Third Medial vein | R₁—First Radial vein | R₂—Second Radial vein | R₃—Third Radial vein | R₄—Fourth Radial vein | R₅—Fifth Radial vein | Rs—Radial sector | Sc—Subcosta | Sc+R₁—Subcosta and first radial vein | TG—Tegumen | UN—Uncus | VES—Vesica | VIN—Vinculum | VLV—Valva.

Matsumura (1929) established the genus *Neocerura* with *liturata* Walker as its type species. Gaede (1934), Kirikoff (1964, 1968), Holloway (1983), Schintlmeister & Pinratana (2007), and Schintlmeister (2008) followed the same nomenclature. Schintlmeister (1997, 2001), and Wu & Fang (2002) treated it as a subgenus under genus *Cerura* Shrank, 1802. Schintlmeister (2008) revived it as a distinct genus and distinguished it from other two genera i.e., *Cerura* Shrank, 1802 and *Kamalia* Kocak and Kemal, 2006 on the basis of distinct male genitalia features. The distal end of aedeagus is simple in *Cerura* Shrank, 1802 and with sclerotized processes in *Kamalia* Kocak & Kemal, 2006 but in the present genus, i.e., *Neocerura* its distal end is bifurcated. In the present studies, the same nomenclature has been adopted and *N. liturata* Walker, 1855 (the type species) along with a new species, namely, *N. convergata* has been described and illustrated in detail under this genus. The new species is closely related to *N. liturata* (Walker, 1855) but can be easily differentiated due to its bigger size and distinct black markings on wings. The male genitalia such as less curved uncus, narrower gnathos and converging distal processes of aedeagus further makes it a distinct species from other species of this genus. While dealing with Indonesian Notodontidae, Schintlmeister (2020) also added a new species, i.e., *N. longinquus* Schintlmeister, 2020 to the present genus and remarked that this genus is represented by five species.

**MATERIAL AND METHODS**

The material examined was collected from different...
Addition to Neocerura from India

**Kaleka & Kumar**

**Journal of Threatened Taxa** | www.threatenedtaxa.org | 26 November 2022 | 14(11): 22184–22189

Localities of northeastern India by using vertical sheet method. The collected specimens were killed, stretched and preserved after proper labeling in Lepidoptera Lab, Punjabi University, Patiala. The external morphological characters were studied from the stretched specimens. The dissections were carried out to explore the male and female genitalia features (Robinson 1976). The permanent slides of fore and hindwings were prepared to study wing venation (Zimmerman 1978). The terminology for naming various genital parts follows Klots (1970).

**RESULTS & DISCUSSION**

**Genus Neocerura Matsumura, 1929**

*Neocerura* Matsumura, 1929, *Ins. Mats.*, 4: 89; Gaede, 1934, *Lep. Cat.*, 59: 60; Kiriaikoff, 1964, *Genera Insectorum Fasc.*, 217a: 65; id., 1968, *Genera Insectorum Fasc.*, 217C: 113; Schintlmeister & Pinratana, 2007, *Moths of Thailand*, 5: 108; Schintlmeister, 2008, *Palaearctic Macrolepidoptera*, 1: 123.

*Neocerura* Kiriaikoff: Holloway, 1983, *Moths of Borneo*, 4.

**Type species:** *Cerura liturata* Walker, 1855

**Distribution:** India (throughout), Nepal, Bangladesh, Myanmar, Sri Lanka, China, Taiwan, Indochina, Malay, Borneo, Philippines, Sumatra, Java, Bali, Lombok, Flores, Sumba, Sulawesi, Samatra, Peleng Island, Salayer Island and as a remote point in Taninbar (Holloway 1983; Schintlmeister & Pinratana 2007; Schintlmeister 2008, 2020).

**Diagnosis:** Small- to medium-sized moths; ground colour white with black markings. Labial palpi porrect. Antennae bipectinate, pectinations along entire length of the flagellum. Forewing with black wavy bands; M1 of cell; Sc+R2 from three-fourth of cell, not reaching apex; Sc from base of wing, not reaching apex. Hindwing whitish. Legs hairy; fore-tibia with an epiphysis; mid-tibia and hind-tibia, each with a pair of tibial spurs. Male genitalia with uncus hood-like; gnathos petiolate; tegumen, vinculum and valvae weakly sclerotized; aedeagus small with distal end bifurcated.

*Cerura liturata* Walker, 1855

**Wing venation:** Forewing with discal cell more than half the length of the wing, closed; 1A from base of wing, anastomosing with 2A, covering one-third of anal margin; 2A from base of wing, reaching tornus; 3A absent; Cu2 beyond two-third of cell; Cu1 well before lower angle of cell; M1 from lower angle of cell; M2 above middle of discocellulars; M1-R2 well stalked from upper angle of cell; R1 before upper angle of cell, sending a bar to common stalk of R1-R2 to form an areole; Rs from three-fourth of cell, not reaching apex; Sc from base of wing, not reaching apex. Hindwing with discal cell more than half the length of the wing, closed; 1A from base of wing, running parallel to anal margin, not reaching tornus; 2A from base of wing, reaching tornus; 3A absent; Cu2 beyond two-third of cell; Cu1 just before lower angle of cell; M1 from lower angle of cell; M2 just above middle of discocellulars; M1 and Rs well stalked from upper angle of cell; Sc+R2 from base of wing, sending a bar to cell before its middle, not reaching apex.

**Wing expanse:** Male: 38–50 mm; Female: Not examined.

**Body length:** Male: 24–26 mm.

**Male genitalia:** Uncus of moderate size, moderately sclerotized, setosed, distal half broad, curved, ventral side with a setosed projection, making snake-hood like appearance, distal end narrow, rounded; gnathos moderately sclerotized, more than half length of uncus, both projections robust, leaf-like; tegumen U-shaped, weakly sclerotized, each arm narrowing towards both...
Image 1–9. *Neocerura liturata* (Walker, 1855).
1—Forewing | 2—Hindwing | 3—Male genitalia (ventral view) | 4—Lateral view | 5—Uncus & Gnathos | 6—Juxta | 7—Valva | 8 & 9—Aedeagus (bar line=1mm).
Material examined: India, Meghalaya: PUP-NT-29a-b, Umtors, 15.ix.2014, two males (25.8284° N, 91.8493° E); Mizoram: PUP-NT-29c, Thenzawl, 06.ix.2015, one male (23.2808° N, 92.7741° E); Sikkim: PUP-NT-29d, Dodak, 06.v.2014, one male (27.1734° N, 88.1708° E).

Distribution: India: Throughout India; Nepal, Bangladesh, Myanmar, Sri Lanka, China, Taiwan, Indochina, Malaya, Borneo, Philippines, Sumatra, Java, Bali, Lombok, Flores, Sumba; Sumbawa; Sulawesi; Sumatra, Peleng Island, Salayer Island (Holloway 1983; Schintlmeister & Pinratana 2007; Schintlmeister 2008, 2020).

Remarks: This species was originally described by Walker (1855) under genus Cerura Shrank and Hampson (1892) followed the same nomenclature. Matsumura (1929) established a new genus Neocerura for its proper placement and the same has been followed in the present studies.

Neocerura convergata sp. nov. (Image 10–19)

Material examined: Holotype: PUP-NT-28a, 11.v.2013, male, India, Arunachal Pradesh, Sessa (27.1074° N, 92.5254° E).

Paratypes: PUP-NT-28b, 11.v.2013, one male, India, Arunachal Pradesh, Sessa (27.1074° N, 92.5254° E); PUP-NT-28c-d, 08.ix.2013, three males, Sikkim, Golitar (27.2299° N, 88.4933° E).

Diagnosis: The wing maculation and genitalic features particularly the shape and size of uncus, gnathos, aedeagus, and distal processes of aedeagus makes it distinct from other known species of genus Neocerura. Forewing with 31 mm length, distinctly marked medial and postmedial fascia, median fascia with costal streak to postmedial lines and hindwing with costal region having black patches are the main diagnostic features of the present species. The splendid white colour of forewing with more prominent medial spot and medial fascia without any costal streak to postmedial lines differentiates N. thomsai Schintlmeister from it. The absence of brown filled antemedial fascia with a black spot near dorsum and discal spot of forewing differentiates the present species from N. multifasciata Schintlmeister and N. longinquus Schintlmeister respectively. Male genitalia is with wedge shaped gnathos which is quite robust in N. liturata Walker and N. longinquus Schintlmeister. The distal bifurcate processes of aedeagus are of moderate breadth with rounded apices whereas these are broader in N. longinquus Schintlmeister and narrower in other species. The distal processes are quite narrower and longer with pointed apices in N. multifasciata Schintlmeister than in all other species.

Description: Head with vertex white; frons black. Labial palpi porrect, dressed with black scales. Antenna bipectinate along entire length of the flagellum; scape covered with white scales; flagellum black, pectinations black. Thorax, collar and tegula white; thorax and tegula spotted with black; underside whitish with few black scales. Legs hairy, covered with black and white scales; fore-tibia with an epiphysis; mid-tibia and hind-tibia, each with a pair of tibial spurs. Abdomen black with white median streak; distal end with a white patch having a black ring on it; underside white.

Wing maculation: Forewing with ground colour white; basal area with small black streaks; costa with black streaks; a postmedial wavy band; medial and postmedial regions with black wavy lines; veins black in marginal area; a black patch on costa near apex; outer margin chequered with black and white cilia; underside whitish with almost same pattern as on upper side. Hindwing white; costal region having black patches; anal area with few black scales; outer margin banded with black and white cilia; underside whitish.

Wing venation: Forewing with discal cell more than half the length of the wing, closed; 1A from base of wing, anastomosing with 2A, covering one-third of anal margin; 2A from base of wing, reaching tornus; 3A absent; Cu₁ from lower angle of cell; M₁ from lower angle of cell; M₃ well above middle of discocellulars; M₄ from upper angle of cell; R₃ from R₄ stalked before upper angle of cell, their common stalk anastomosing with M₅ to form a small areole; R₃ well before upper angle of cell, not reaching apex; Sc from base of wing, not reaching apex. Hindwing with discal cell more than half the length of wing, closed; 1A from base of wing running parallel to anal margin, not reaching tornus; 2A from base of wing, reaching tornus; 3A absent; Cu₁ well before lower angle of cell; Cu₂ and M₃ minutely stalked from lower angle of cell; M₄ from middle of discocellulars; M₅ and Rs well stalked from

...
Image 10–19. *Neocerura convergata* sp. nov.
10—Forewing | 11—Hindwing | 12—Male genitalia (ventral view) | 13—Dorsal view | 14—Lateral view | 15—Uncus & Gnathos | 16—Juxta | 17—Valva | 18 & 19—Aedeagus (bar line=1mm).
Addition to Neocerura from India

Kaleka & Kumar

Key to the studied species of genus Neocerura Matsumura, 1925:

1. Wings weakly marked with black. Male genitalia with gnathos robust leaf-like; aedeagus with distal processes diverging outwardly ............................................ Neocerura liturata Walker, 1855
   - Wings distinctly marked with black. Male genitalia with gnathos narrow, wedge-shaped; aedeagus with distal processes converging inwardly ......................................................... Neocerura convergata sp. nov.

upper angle of cell; Sc+R₁ from base of wing, conjoined in middle of discal cell, not reaching apex.

Wing expanse: Male: 66 mm; Female: not examined.

Body length: Male: 23 mm.

Male genitalia: Uncus of medium size, weakly sclerotized, setosed, proximal half narrow, distal half laterally dilated making globular appearance, slightly curved near narrow and blunt tip; gnathos narrow, wedge-shaped, moderately sclerotized, dorsally setosed, both projections narrow, almost half the length of uncus, outer walls corrugated; tegumen broad, U-shaped, weakly sclerotized, narrowing towards vinculum; vinculum narrow, slightly produced proximally on both sides, saccus absent; juxta oblong in shape, weakly sclerotized, proximal area with sclerotized triangular projection. Valva simple, weakly sclerotized, setosed; proximal half narrow, distal half broad with rounded apex. Aedeagus small, well sclerotized; ductus ejaculatorius entering from proximal end; distal end with two finger-like, highly sclerotized projections with rounded apices; vesica with a large prominent nail-like sclerotized patch having dentate walls representing cornuti.

Distribution: India: Arunachal Pradesh, Sikkim

Etymology: The present species has been named after the converging distal processes of aedeagus.

Bionomics: It is known only by five specimens from two localities, i.e., Sessa and Golitar in the states of Arunachal Pradesh and Sikkim.

REFERENCES

Gaede, M. (1934). Notodontidae in E. Strand (ed.), Lepidopterorum Catalogus 59: 1–351. Berlin: W. Junk.
Hampson, G.F. (1892). The fauna of British India, Moths, including Ceylon and Burma. 1: 162. Taylor and Francis Ltd., London.
Holloway, J.D. (1983). The Moths of Borneo: family Notodontidae. Malayan Nature Society 4: 1–107.
Kirikoff, S.G. (1964). Familia Notodontidae, pars prima: genera aethiopica et malgassica. In P. Wytsman (ed.), Genera Insectorum, Lepidoptera Fascicle 217a: 1–238.
Kirikoff, S.G. (1968). Familia Notodontidae, pars tertia: genera Indo-Australica. In P. Wytsman (ed.). Genera Insectorum. Lepidoptera. Fascicle 217c: 1–269.
Klots, A.B. (1970). Lepidoptera in "Taxonomist’s Glossary of genitalia in Insects", pp. 115–130. (Ed. Tuxen, S.L.). Munksgaard. Copenhagen.
Matsumura, S. (1929). New species and genera of Notodontidae. Insecta Matsumurana 4: 36–48.
Robinson, G.S. (1976). The preparation of slides of Lepidoptera genitalia with special reference to Microlepidoptera. Entomologists Gazette Gaz. 27: 127–132.
Schintlmeister, A. (1997). Moths of Vietnam with special reference to Mt. Fan-si-pan Family: Notodontidae Supplement 9. Entomofana 4: 33–248.
Schintlmeister, A. (2001). Resto, gen. n. and Resomera, gen. n., two new Oriental genera with description of four new species (Insecta: Lepidoptera: Notodontidae). Reichenbachia 34: 175–180.
Schmidt, A. (2008). Palaearctic Macrolepidoptera: Volume 1 Notodontidae. Apollo Books, Stenstrup. Denmark, 482 pp.
Schmidt, A. (2020). Notodontidae of the Indonesian Archipelago (Lepidoptera). E.J. Brill., 441 pp.
Schmidt, A. & A. Pinratana (2007). Moths of Thailand: Volume 5 Notodontidae. Brothers of Saint Gabriel in Thailand, Bangkok, 320 pp. + 45 pls.
Walker, F. (1855). List of the Specimens of Lepidopterous Insects in the Collection of the British Museum. I: Edward Newman, London, 977–1258 pp.
Wu, C.S. & C.L. Fang (2002). Lepidoptera Notodontidae. Fauna Sinica, Insecta 31. Beijing: Science Press, 952 pp.
Zimmerman, E.C. (1978). Microlepidoptera Insects of Hawaii. University Press Hawaii, Honolulu, 1903 pp.
The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under Creative Commons Attribution 4.0 International License unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

November 2022 | Vol. 14 | No. 11 | Pages: 22039-22206

Date of Publication: 26 November 2022 (Online & Print)
DOI: 10.11609/jott.2022.14.11.22039-22206

Communications

New records of pteridophytes in Mount Matutum Protected Landscape, South Central Mindanao, Philippines with notes on its economic value and conservation status
- Christine Dawn Galope-Obemio, Inocencio E. Buot Jr. & Maria Celeste Banatcilla-Hilario, Pp. 22039–22057

Some threatened woody plant species recorded from forests over limestone of the Philippines
- Inocencio E. Buot Jr., Marne G. Origenes, Ren Divien R. Obeña, Elaine Loreen C. Villanueva & Marjorie D. delos Angeles, Pp. 22058–22079

Status of mangrove forest in Timaco Mangrove Swamp, Cotabato City, Philippines
- Cherie Cano-Mangaoang, Zandra Caderon Amino & Baingan Brahims Mastur, Pp. 22080–22085

A comparative analysis of the past and present occurrences of some species of *Pophiopedium* (Orchidaceae) in northeastern India using MaxEnt and GeoCAT
- Debonina Dutta & Aparajita De, Pp. 22086–22097

Foraging activity and breeding system of *Avicennia officinalis* L. (Avicenniaceae) in Kerala, India
- K. Vinaya & C.F. Binoy, Pp. 22098–22104

Diversity patterns and seasonality of hawkmoths (Lepidoptera: Sphingidae) from northern Western Ghats of Maharashtra, India
- Aditi Sunil Shere-Kharwar, Sujata M. Magdum, G.D. Khedkar & Supriya Singh Gupta, Pp. 22105–22117

Population trends of Mugger Crocodile and human-crocodile interactions along the Savitri River at Mahad, Maharashtra, India
- Utkarsha Manish Chavan & Manoj Ramakant Borkar, Pp. 22118–22132

Paresis as a limiting factor in the reproductive efficiency of a nesting colony of *Lepidochelys olivacea* (Eschscholtz, 1829) in La Escobilla beach, Oaxaca, Mexico
- Alejandra Buenrostro-Silva, Jesús García-Grajales, Petra Sánchez-Nava & María de Lourdes Ruiz-Gómez, Pp. 22133–22138

Notes on the nesting and foraging behaviours of the Common Coot *Fulica atra* in the wetlands of Viluppuram District, Tamil Nadu, India
- M. Pandian, Pp. 22139–22147

Population abundance and threats to Black-headed Ibis *Threskiornis melanocephalus* and Red-naped Ibis *Pseudibis papillosa* at study sites in Hajjar district, Haryana, India
- Anjali & Sarita Rana, Pp. 22148–22155

Crop raiding and livestock predation by wildlife in Khapadt National Park, Nepal
- Ashish Bashtyal, Shyam Sharma, Narayan Koirala, Nischal Shrestha, Nischit Aryal, Bhupendra Prasad Yadav & Sandeep Shrestha, Pp. 22156–22163

Review

An annotated checklist of odonates of Amboli-Chaukul-Parpoli region showing new records for the Maharashtra State, India with updated state checklist
- Dattapradas Sawant, Hemant Ogale & Rakesh Mahadev Deulkar, Pp. 22164–22178

Short Communications

The new addition of Blue Pimpernel of Primulaceae to the state flora of Assam, India
- Sushmita Kalita, Barnali Das & Namita Nath, Pp. 22179–22183

A new species of genus *Neocerura* Matsumura, 1929 (Notodontidae: Lepidoptera) from India
- Amritpal Singh Kaleka & Rishi Kumar, Pp. 22184–22189

Rediscovery of an interesting preying mantis *Deiphobella laticeps* (Mantodea: Rivetinidae) from Maharashtra, India
- Gauri Sathaye, Sachin Ranade & Hemant V. Ghathe, Pp. 22190–22194

Camera trapping records confirm the presence of the elusive Spotted Linsang *Prionodon pardicolor* (Mammalia: Carnivora: Prionodontidae) in Murlen National Park (Mizoram, India)
- Amit Kumar Bal & Anthony J. Giordano, Pp. 22195–22200

Notes

First sighting record of the Orange-breasted Green-Pigeon *Treron bicinctus* (Aves: Columbiformes: Columbidae) from Chittaranjan, West Bengal, India
- Shahbaz Ahmed Khan, Nazneen Zehra & Jamal Ahmad Khan, Pp. 22201–22202

Book Reviews

Decoding a group of winged migrants!
- Review by Priyanka Iyer, Pp. 22203–22204

First steps of citizen science programs in India
- Review by Aishwarya S. Kumar & Lakshmi Nair, Pp. 22205–22206

Publisher & Host

WILDThreatened Taxa