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Srivari Illam, No. 61, Karthik Nagar, 10th Street, Saravanampatti, Coimbatore, Tamil Nadu 641035, India
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

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Cover: Illuminating the cruelty of Pangolin trade in India for the purpose of black magic, for the sanctity of protection. Using an animal's shell, ripping its armor against the world to protect oneself. When does one become the evil they are trying to ward off? — Acrylic on wood. © Maya Santhanakrishnan.



Confirmation of the presence of Red Pierrot *Talicauda nyseus nyseus* (Lepidoptera: Lycaenidae) in Assam, India

Renu Gogoi¹ , Bijay Basfore² , Roshan Upadhaya³ , Ruksha Limbu⁴ , Anjana Singha Naorem⁵
& Rezina Ahmed⁶

^{1,2,5} Department of Zoology, Cotton University, Guwahati, Assam 781001, India.

³ Police Department of Basar, Leparada, Arunachal Pradesh 791101, India.

⁴ School of Biosciences, RIMT University, Mandi Gobindgarh, Punjab 147301, India.

⁶ Department of Zoology, Rabindranath Tagore University, Hojai, Assam 782435, India.

¹ renugogoi39@gmail.com, ² bijaybasfore108@gmail.com, ³ roshanupadhaya14@gmail.com, ⁴ ruku432121@gmail.com,

⁵ anjanasingha@cottonuniversity.ac.in (corresponding author), ⁶ rezina_2008@yahoo.com

Assam, the second largest state in northeastern India, situated south of the eastern Himalaya along the Brahmaputra and Barak River valleys is a biological hotspot with many rare and endemic plant and animal species (Barooah & Sarma 2016). Guwahati, the largest metropolis in northeastern India and a part of the ecologically significant Indo-Burma global biodiversity hotspot is home to eight reserve forests (RF) (south Kalapahar RF, Fatasil RF, Jalukbari RF, Gotanagar RF, Hengrabari RF, Sarnai Hill RF, Garbhanga RF, and Rani RF) and two wildlife sanctuaries (WS) (Deepor beel WS and Amchang WS) (Bohra & Purkayastha 2021).

The monotypic genus *Talicauda* Moore, 1881 (Type species: *Polyommatus nyseus* Guérin-Ménéville) and its sole species, *Talicauda nyseus* (Guérin-Ménéville 1843) is a small lycaenid butterfly with distinctive white, black, and orange wing colouration. *Talicauda nyseus* currently includes nine recognised subspecies, four of which are found in India: *T. n. nyseus* in southern India (Kunte 2000), *T. n. khasiana* in Khasi Hills (Evans 1925), *T. n. assamica* in Assam (Seitz 1927) and *T. n. delhiensis* in northern India (Kumar et al 2009; Lo et al. 2017). In India,

the nominotypical subspecies *T. n. nyseus* (Figure 1) is known from Maharashtra to Kerala (Skaria et al. 1997), Delhi (Smetacek 2009), Himachal Pradesh (Mahendroo & Smetacek 2011), Uttarakhand and Uttar Pradesh (Varshney & Smetacek 2015), Manipur (Irungbam et al. 2020), Chhattisgarh (Singh et al. 2023), and Arunachal Pradesh (Upadhaya et al. 2024). In recent years, the reports of *T. n. nyseus* in the lower western Himalaya and northeastern India suggest its range expansion which could be an indicator of the changing environment (Singh 2005).

Observation: *Talicauda nyseus nyseus* is a butterfly commonly encountered in Guwahati. Despite its widespread presence, the literature review indicates that there are no records of this subspecies from the state. Therefore, the present study provides the first record of this butterfly subspecies from the state based on the sightings in several places in Guwahati City (Table 1, Image 1).

The present record in Assam and neighbouring states Manipur (Irungbam et al. 2020) and, Arunachal Pradesh (Upadhaya et al. 2024) indicates its distribution

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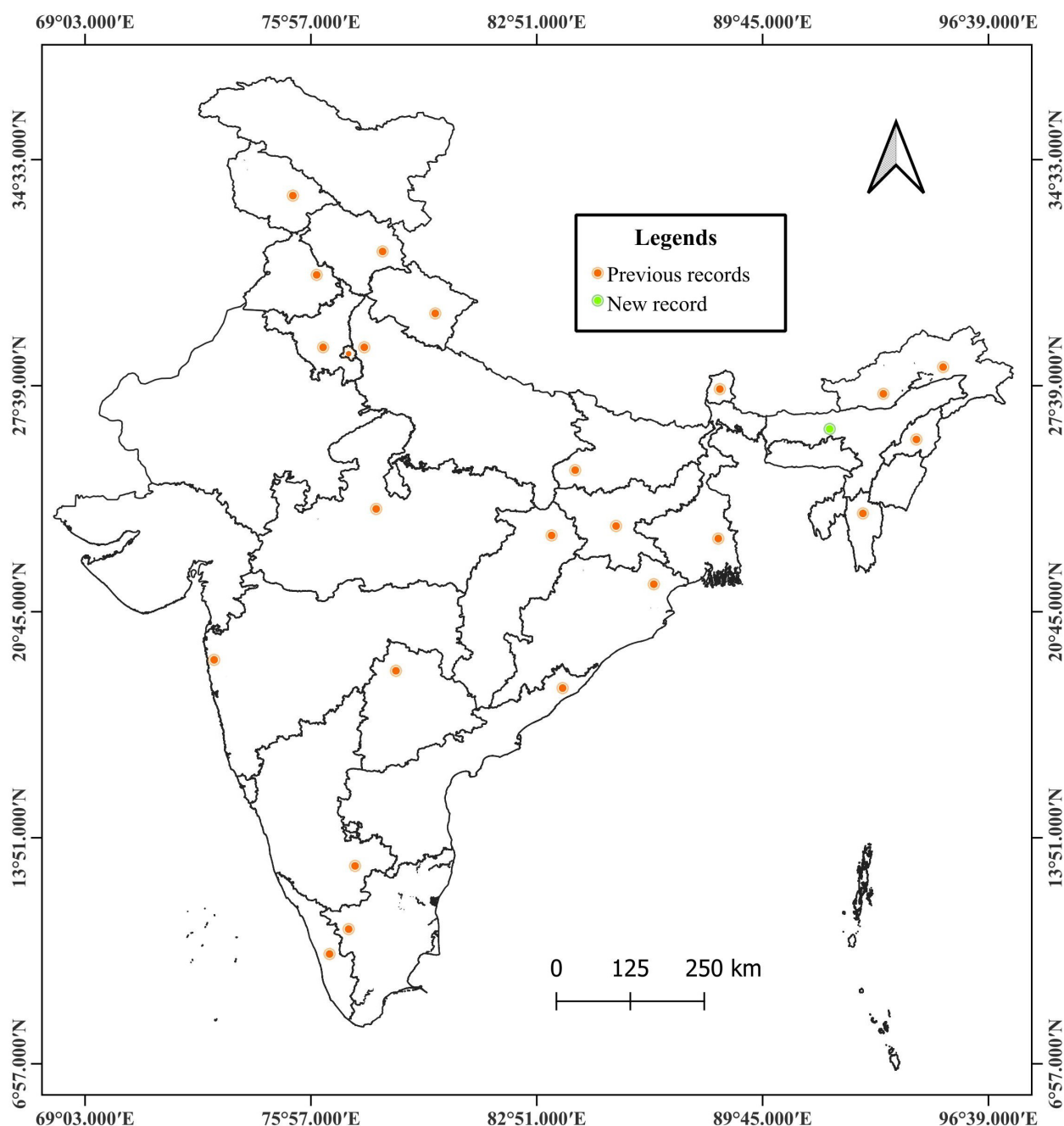


Figure 1. Records of *Talioada nyseus nyseus* from India.

expansion to northeastern India. Such range expansion of insects is often associated with climate change, globalisation, or anthropogenic activities (Lopez-Vaamonde et al. 2010; Pureswaran et al. 2018; de Boer & Harvey 2020). Leaf damage and the presence of eggs and pupae (Image 2) were also observed on the Cotton University campus on 6 June 2023 (26.187°N, 91.749°E) on the *Kalanchoe* plant. The egg was laid at the base of a leaf, while pupation was noted on less-damaged leaves,

likely as a strategy to avoid predators. On campus, the host plants are found on both the ground floor and the first-floor balcony. Despite this distribution, butterflies predominantly selected ground-level host plants for oviposition. These butterflies were commonly observed in gardens near the host plant *Kalanchoe*, as well as nectaring plants such as *Melampodium* spp. and *Emilia sonchifolia* (L.).

Description: To aid in identification, two adults

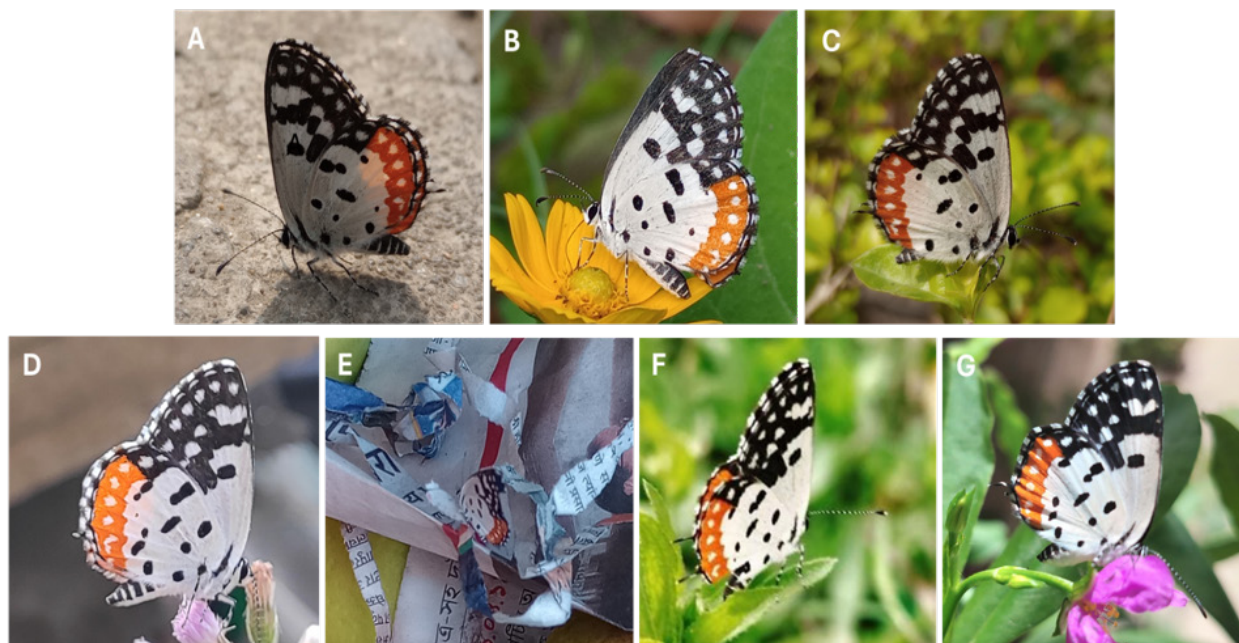


Image 1. Photographic evidence of *Talicaada nyseus nyseus*: A–C—in Cotton University Campus | D—Geeta Nagar, Zoo Road | E—Ganeshguri market | F—Lankeshwar Temple | G—Gauhati University Campus, Guwahati, Assam. © Renu Gogoi & Bijay Basfore.



Image 2. A—Host plant *Kalanchoe* | B—Single egg at the base of the leaf | C—Pupa of *Talicaada nyseus nyseus*. © Renu Gogoi.

Table 1. The sighting records of the *Talicaada nyseus nyseus* in the Guwahati city area.

	Sighting locality	GPS co-ordinates	Date of sighting
1	Cotton University Campus	26.186°N, 91.749°E	02.ii.2023
2	Cotton University Campus	26.186°N, 91.749°E	03.ii.2023
3	Cotton University Campus	26.186°N, 91.749°E	30.v.2023
4	Zoo Road	26.175°N, 91.802°E	17.iii.2023
5	Ganeshguri Market	26.149°N, 91.785°E	04.vi.2023
6	Lankeshwar Temple	26.144°N, 91.647°E	26.v.2024
7	Gauhati University Campus	26.152°N, 91.655°E	23.vi.2024

were collected from the Cotton University campus and brought to the laboratory for taxonomic analysis. Head and eyes dark, antennae clubbed, black with white bands. The wingspan measured 3.8 cm, with the thorax and abdomen dorsally black, and ventrally white with lustrous hair. The underside of both wings is white with a prominent series of white spots at the end of each vein. Hindwing with a black basal spot; three sub-basal, three medial; wing tail is black, tipped with white lunules. Forewing with a broad black outer band, intersected by two submarginal series of white spots and a marginal lunular line: a black spot at the end of the cell. The upperside of both wings is blackish-brown except hindwing which displays a broad orange outer

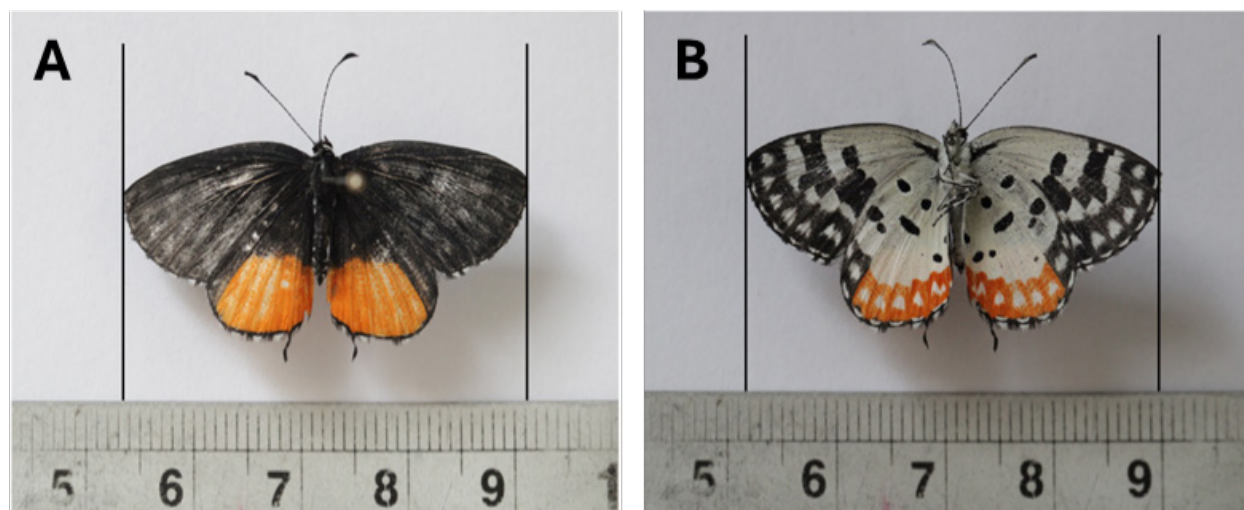


Image 3. *Talicauda nyseus nyseus*: A—Dorsal view | B—Ventral View. © Renu Gogoi.

band (Image 3).

The four sub-species reported from India can be distinguished based on the band and the spot pattern present on the wings.

Forewings: The underside of the forewings of *T. n. nyseus* and *T. n. delhiensis* have a broad black distal band that almost merges with the marginal band whereas in *T. n. khasiana* distal black band is narrow and in *T. n. assamica*, it is narrower than *khasiana* and this band is not merging with the marginal band in the latter two sub-species (Evans 1925; Seitz 1927; Kehimkar 2016). The gap between the marginal band and the distal band is wide in the case of *T. n. assamica* but narrow in the case of *T. n. khasiana*. The white spots in the discal region of the distal band form a clear broad chain in *T. n. assamica* (Seitz 1927) but in *T. n. khasiana* this chain of white spots is narrow and in *T. n. nyseus* and *T. n. delhiensis* the white spots do not form a continuous chain.

Hindwings: *T. n. nyseus* and *T. n. delhiensis* have a broad orange patch on the upperside of the hindwing whereas the same region is comparatively narrow in *T. n. assamica* and, *T. n. khasiana* (Evans 1925; Seitz 1927; Kehimkar 2016; Kumar et al. 2009). On the underside of the hindwings of *T. n. nyseus* and *T. n. delhiensis*, a few scattered black spots are present near the discal and basal region while in *T. n. assamica* and *T. n. khasiana* the number of spots is many. These spots are much larger in *T. n. khasiana* but small in *T. n. assamica*. The orange band in the margin on the underside is broader in *T. n. khasiana* than in the rest of the three subspecies where the band width appears almost the same. This orange band is almost continuous with the black marginal line in *T. n. nyseus*, *T. n. delhiensis*, and *T. n. khasiana* but there

is a clear gap between the marginal line with that of the orange band in *T. n. assamica*.

These characters can be used to easily distinguish between *T. n. nyseus* and *T. n. delhiensis* from that of *T. n. assamica* and *T. n. khasiana* but no sufficient literature support exists to differentiate between *T. n. nyseus* and *T. n. delhiensis* except for the size differences. The wingspan of *T. n. nyseus*, *T. n. delhiensis*, and *T. n. khasiana* are reported to be 3.0 cm, 3.26 cm, and 3.0 cm, respectively (Kumar et al. 2009). It is seen that the *T. n. nyseus* of Assam are larger (3.8 cm) than the ones reported by Kumar et al. (2009) and slightly larger than the range of 3.0–3.6 cm suggested by Kehimkar (2016).

Conclusion: The earlier records of the butterflies from Assam (Gogoi 2013; Bhuyan et al. 2014; Deb et al. 2015; Modak et al. 2018; Bishaya et al. 2021; Bohra & Purkayastha 2021; Gogoi et al. 2023; Mahananda et al. 2023) do not have records of *T. n. nyseus*. The present records from Guwahati City, confirm the presence of this subspecies in Assam and its range expansion towards the eastern part of India.

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ravi@threatenedtaxa.org & ravi@zooreach.org

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