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Addition of *Erionota thrax* (Linnaeus, 1767) to the Butterfly (Lepidoptera: Rhopalocera) Fauna of Chhattisgarh State.

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Abstract:

During field visits to the Udanti –Sitanadi Tiger Reserve (USTR) and habitats in Gariaband and Dhamtari districts of Chhattisgarh state, we observed *Erionota thrax* (Linnaeus, 1767), commonly known as the Acute Palm Redeye or Banana Skipper in Deobhog on 01.ii.2021. This species had not been previously documented in earlier reports on butterfly diversity in the Chhattisgarh state.

Introduction:

Erionota thrax, commonly known as the Banana Skipper Butterfly, belongs to the family Hesperiidae¹, is a significant pest affecting banana plants^{3,4,5}. The adult butterfly is brown with three distinct yellow-white markings on the front of its wings and has a wingspan of approximately 7 cm². This species is most active in the early evening, exhibiting a fast, darting, and skipping flight pattern, and is notably attracted to light. The larvae of *E. thrax* are particularly destructive to banana plants⁹. They shred the leaves, causing them to roll up to 15 cm in length. The larvae have shiny black heads, narrow necks, and pale green bodies covered in a white waxy powder, and they grow to about 6 cm in length. The larvae feed on the leaves of *Musa* species, especially *Musa textilis*. It has also been recorded on *Cocos nucifera* and other

palm species. The pupae, which are also covered in this white waxy powder, can be found inside the leaf rolls. The eggs of *E. thrax* are small and yellow; lay singly or in batches of up to 25 on the underside of banana leave¹². The plant damage caused by this pest is characterized by the presence of rolled-up leaves and a fine white powdery substance within these rolls, which can severely impact the health and productivity of banana crops.

Native to Southeast Asia, *Erionota thrax* has been spreading to other regions, including various parts of India. It is found almost everywhere in Indonesia where cultivated or wild *Musa* plants are grown¹². The most detailed information on the distribution of *E. thrax* is provided in Evans (1949). The most detailed information on the distribution of *Erionota thrax* and its range in India and neighboring countries, noting that it extends from Dun to Calcutta, Assam, and Myanmar, and is very rare in southern India^{13,14}.

Study Area:

The Udanti-Sitanadi Tiger Reserve (USTR) in Chhattisgarh is a crucial biodiversity hotspot, covering approximately 1,872 square kilometers¹⁵. Formed by merging the Udanti and Sitanadi Wildlife Sanctuaries¹⁶, the reserve is a key conservation area, particularly for Tigers. The reserve, strategically located in the southwest of Raipur, extends into the Gariaband and Dhamtari districts. The integration of these sanctuaries was driven by ecological needs, ensuring a more extensive and connected habitat, which enhances the conservation of numerous species, including tigers, and reflects a holistic approach to environmental protection. The reserve's landscape is defined by its tropical climate and significant hydrological features, notably the Udanti and Sitanadi rivers, which are central to the area's ecological identity.

The core zones of USTR, which include the Udanti and Sitanadi sanctuaries, are complemented by buffer zones that extend into various forest ranges across Gariaband and Dhamtari districts. These zones, located within the Deccan Peninsula Biogeographic zone, are characterized by diverse ecosystems, ranging from dry to moist deciduous forests, supporting a wide variety of species¹⁷. The reserve also plays a crucial role in the conservation of purebred buffaloes, with dedicated efforts to increase their population¹⁵. The tropical climate, marked by distinct wet and dry seasons, and significant rainfall during the monsoon, further enhances the ecological richness of the region¹⁶.

Materials and Methods

On February, 2021, butterflies were photographed at habitats of Udanti Sitanadi Tiger Reserve and around the reserve including the campus of Govt. College Deobhog in Gariaband (19 19.893093°N, 82.658651° E). The images were captured digitally using a Canon EOS 1300D, Nikon P1000, and mobile camera. Identification of the butterflies was based on key characteristics such as color patterns and wing spots, following standard literatures^{2,13,14,18,19}. Confirmation was made through online assistance from the Butterflies of India website www.ifoundbutterflies.org.

Results and Discussion

The sighting marks the first recorded instance of *Erionota thrax* in Chhattisgarh.

Family:Hesperiidae

Erionota thrax (Linnaeus, 1767) - Banana Skipper or Palm Redeye

Specimen Photographed:

Known Distribution: Karnataka; Kerala; Sikkim to N.E. India¹⁹. Uttarakhand, Sikkim – Arunachal².

Host plants: *Cocos nucifera*, *Metroxylon sp.*, *Musa x paradisiaca*, *Chrysopogon sp.*, *Saccharum sp.*, *Ravenala madagascariensis*⁸.

Remarks: The identification was confirmed by its distinct morphological characteristics: robust body, dark brown wings with a distinctive yellow discal band on the forewings, and the peculiar wing shape typical of skippers. The forewing apex is pointed with an almost straight outer edge. The upper hind wing is dark brown, with indistinct whitish scaling along the outer edge near the apical area, which distinguishes it from *E. torus*.

Forewing (FW) Apex: In *E. thrax*, the apex is rounded with a convex outer edge, unlike the more pointed and straight-edged apex of *E. torus*.

Whitish Scaling: *E. thrax* lacks whitish scaling along the outer edge and apical area of the forewing, whereas *E. torus* displays indistinct whitish scaling along the outer edge near the apical area.

Under Hindwing (UNH) Markings: *E. thrax* has a pale, indistinct central area on the under hindwing, which is less prominent in *E. torus*.

Antennal Club: *E. thrax* features a white antennal club with a long black tip, a detail that can help differentiate it from *E. torus*.

Erionota thrax had not been recorded in previous reports on butterfly diversity in Chhattisgarh state^{21,22,23,24,25,26,27,28}. The presence of *E. thrax* in Chhattisgarh has both ecological and agricultural importance. Ecologically, it enriches the butterfly diversity of the region, highlighting the state's potential as a habitat for varied lepidopteron species. Agriculturally, this species is known to be a pest of banana crops, as its larvae feed on banana leaves, causing significant damage. Its close relative, *Erionota torus*, is also recognized as a pest of banana. This pest has been observed to cause significant damage to banana crops, with losses ranging from 8-30%, by rolling the leaves and consuming the entire leaf, leaving only the midribs, depending on the cultivar⁹.

Conclusion:

The documentation of *Erionota thrax* in Chhattisgarh is a significant addition to the state's butterfly records. This finding necessitates further monitoring to assess the butterfly's population dynamics and potential impact on local banana cultivation. Awareness and management strategies should be developed to mitigate any negative agricultural impacts while promoting butterfly conservation. This short communication serves to inform researchers, conservationists, and agriculturists about the new occurrence of *Erionota thrax* in Chhattisgarh, urging further studies and proactive measures.

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Image 1: *Erionota thrax* - Palm Redeye ©Ramanand Agrawal