

New records of short-horned grasshoppers (Orthoptera, Acrididae) from Nagaland, India

Amlanjyoti Gautam^{1*} and Rajnish Ranjan²

¹Northeastern Regional Centre, Zoological Survey of India, Shillong 793003, Meghalaya, India.

²Gangetic Plains Regional Centre, Zoological Survey of India, Patna 800026, Bihar, India.

Email: gautamamlanjyoti1994@gmail.com*; rajnish.ranjan2723@gmail.com

ABSTRACT: Three species of short-horned grasshoppers (Orthoptera, Acrididae) - *Patanga succincta*, *Aiolopus thalassinus tamulus*, and *Eucoptacra praemorsa* are reported for the first time from Nagaland, north-east India. These new distributional records are based on specimens collected during surveys conducted in 2024 and examined using standard morphological characters. The findings add to the limited knowledge of Acrididae diversity in the Nagaland region.

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KEY WORDS: Caelifera, morphology, Indo-Burma Biodiversity hotspot, Zunhebeto

Grasshoppers and locusts, members of the family Acrididae, are economically significant orthopteran pests that infest both cultivated and non-cultivated crops. The family Acrididae belongs to the superfamily Acridoidea within the order Orthoptera and is widely distributed throughout India. The superfamily Acridoidea, comprising 11 families, exhibits maximum diversity among orthopteran groups. Acrididae represents the largest and most diverse lineage within this superfamily, encompassing approximately 6,889 species distributed across 28 subfamilies worldwide (Cigliano *et al.*, 2025). The Indian acridid fauna comprises 366 species representing 16 subfamilies (Chand *et al.*, 2025). Members of the family Acrididae can be readily identified by distinctive morphological features (Kirby, 1914). The study of Acrididae and Orthoptera in northeastern India has progressed gradually through a series of important taxonomic and faunistic investigations.

Early contributions by Serville (1838), Stål (1877), Kirby (1914), Chopard (1921, 1924), Uvarov (1927a, 1927b, 1930, 1942), Ramme (1941), Shishodia and Hazara (1985), Willemse (1932), Uvarov (1942), Varshney (1970) laid the foundation for understanding the orthopteran fauna of the region. Subsequent works by Bhowmik *et al.* (1990), Shishodia and Tandon (2000, 2004), Shishodia and Dey (2006, 2007), Usmani and Khan (2010), and later regional taxonomic revisions significantly expanded the knowledge of Acrididae diversity in northeastern India.

Knowledge of the Acrididae fauna of Nagaland is limited compared to that of other Northeastern states. In the earliest work on Acrididae from Northeast India, Bhowmik *et al.* (1990) reported only two species of Acrididae from Nagaland. No exclusive study on the Acrididae fauna of Nagaland has been conducted in recent years; however,

* Author for correspondence

Shishodia and Dey (2006) listed 30 species. In this paper, three species of the Acrididae family from the state were reported for the first time.

The specimens were collected from Wokha and Zunhebeto District of Nagaland during a survey conducted in 2024. The specimens were collected during the early hours of the day by repeated sweeping across grasses, shrubs and low vegetation. The comparatively larger or less agile individuals were collected using fingers. The specimens were killed by benzene vapor in a killing jar, pinned and preserved dry. The specimens were examined using the stereo zoom microscope Leica EZ4E. Measurements were done by using a Vernier Calliper and with a reticule attached to the stereomicroscope. The classification of Cigliano *et al.* (2025) and the terminology of Uvarov (1966) are followed. Species identification is largely based on keys provided by Kirby (1914), Uvarov (1923) and Hollis (1968). Following morphometric parameters have been used (Hill and Weissman, 2025):

Body length: dorsally from the fastigium of vertex to the distal end of the genicular lobe of the hind femur in a parallel plane with the abdomen

Antenna length: measured from the scape to the tip of antenna

Head length: measured from the anterior end of the vertex to the anterior margin of the pronotum

Pronotum length: measured along the midline

Tegmina length: measured from the confluence of the C and Sc veins to the apex

Hind femur length: measured from its base to the tip of the knee

Hind tibia length: excluding the condyle, measured from the base to the dorsal insertion of the external spurs.

Male cercus length: laterally, maximum measurement of the left cercus

Male cercus basal width: laterally, along the point of attachment from the dorsal to ventral margin

Male mid cercus width: laterally, at the mid-length of the left cercus

Aedeagus length: caudally from point where ventral portion of the sheath ends to apex of longest valve (dorsal or ventral)

Female dorsal ovipositor valve: Laterally, from the base to the apex

Female ventral ovipositor valve: Laterally, from the base to the apex

The specimens have been deposited in the National Zoological collections of North Eastern Regional Centre, Zoological Survey of India, Shillong.

Systematic Account:

Subfamily: Cyrtacanthacridinae; Tribe: Cyrtacanthacridini; Genus: *Patanga* Uvarov, 1923

1. *Patanga succincta* (Johannson, 1763)

1763. *Gryllus locusta succinctus* Johannson, Centuria Insectorum rariorum. Amoenitates Academicæ, 6: 383.

2007. *Patanga succincta*, Chandra *et al.*, Zoos' Print Journal, 22(5): 2686.

Diagnosis: A comparatively large species, exhibiting a generally pale appearance, varying from greyish to brownish, sometimes nearly uniform. The vertex bears a broad median yellow to reddish-brown stripe, which extends posteriorly onto the pronotum. Pronotum relatively short and robust, with posterior margin obtusely angular to almost truncate. Hind femur with supero-median carina weakly serrulate, the denticulations few in number and widely spaced. Male cerci conspicuously stout, broad and incrassately compressed. The prosternal tubercle is not recurved posteriorly (Fig. 1).

Materials examined: 1 Male, Nagaland, Wokha Dist., Forest Campus, Doyang Village, 26.22458 N; 94.24871 E, 264 m, 1.8.2024, Coll. Dr. B. Sinha & party; 1 Female, Nagaland, Wokha Dist., Pangti Village, 26.25894 N; 94.31890 E, 932 m, 1.8.2024, Coll. Dr. B. Sinha & party.

Measurements: Male: (mm) - body length = 43.47; antenna length = broken; head Length = 8.53;

pronotum length = 9.01; tegmina length = 38.43; hind femur length = 22.63; hind tibia length = 22.01; cerci length = 1.50; basal width of cercus = 1.01; mid width of cercus = 0.5; Aedeagus length = 1.26. **Female:** (mm) - body length = 53.46; antenna length = 21.42; head length = 11.47; pronotum length = 12.27; tegmina length = 51.53; hind femur length = 22.63; hind tibia length = 28.05; dorsal ovipositor valve length = 2.99, ventral ovipositor valve length = 2.98.

Distribution in India: Andhra Pradesh (Mandal and Yadav, 2007), Arunachal Pradesh (Mandal *et al.*, 2006), Assam (Bhowmik *et al.*, 1990), Bihar (Bhowmik *et al.*, 1990), Chhattisgarh (Chandra *et al.*, 2007), Delhi (Shishodia, 2000), Goa (Chandra *et al.*, 2007), Himachal Pradesh (Tandon and Shishodia, 1995), Jammu & Kashmir (Bhowmik *et al.*, 1990), Kerala (Shishodia and Kulkarni, 2001), Lakshadweep Islands (Chandra *et al.*, 2007),

Maharashtra (Bhowmik *et al.*, 1990), Manipur (Shishodia and Tandon, 2004), Meghalaya (Hazra *et al.*, 1995), Odisha (Dey and Hazra, 2003), Rajasthan (Chandra *et al.*, 2007), Tamil Nadu (Shishodia and Kulkarni, 2001), Tripura (Shishodia and Tandon, 2000), Uttarakhand (Tandon and Shishodia, 1995), Uttar Pradesh (Tandon and Shishodia, 1995) and West Bengal (Hazra *et al.*, 1993).

Habitat: Common in grasslands, cultivated fields, forest edges and gardens.

Subfamily: Oedipodinae, Tribe: Epacromiini, Genus: *Aiolopus* Fieber, 1853

2. *Aiolopus thalassinus tamulus* (Fabricius, 1798)

1798. *Gryllus tamulus* Fabricius, Entomologia systematica Suppl.: 195

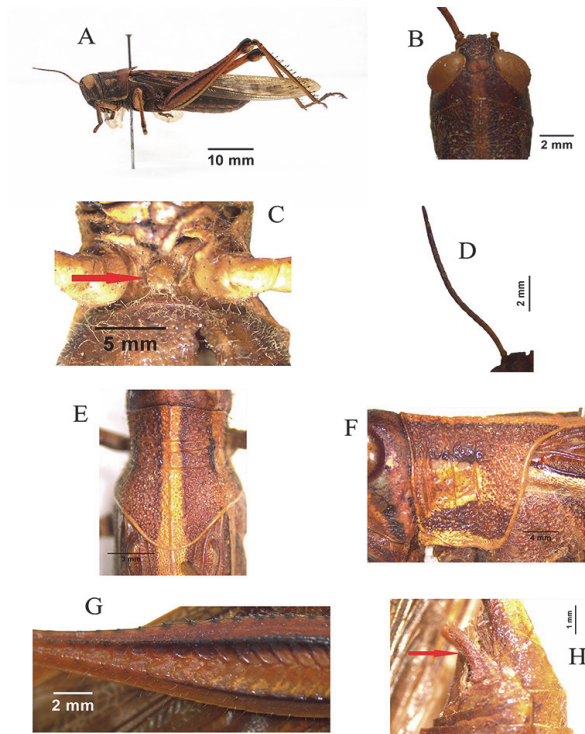


Fig. 1 A- Lateral view of *Patanga succincta* (Male), B-Head and Vertex (Dorsal view), C- Prosternal process, D- Antennae, E- Pronotum (dorsal view), F- Pronotum (lateral view), G- Hind femur, H- Male cerci

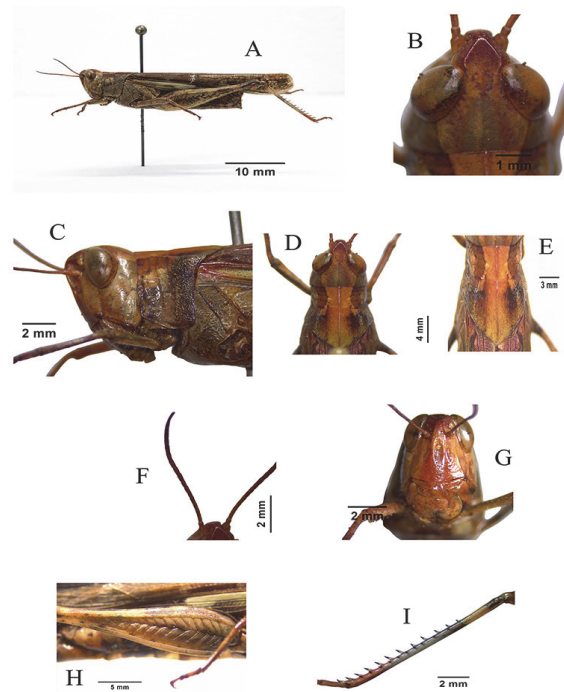


Fig. 2 A- Lateral view of *Aiolopus thalassinus tamulus* (Female), B-Head and Vertex (Dorsal view), C-Head and Pronotum (lateral view), D- Head and Pronotum (dorsal view), E-Pronotum (dorsal view), F- Antennae, G- Frontal ridge, H- Hind femur, I- Hind tibia

2007. *Aiolopus thalassinus tamulus*, Mandal *et al.*, Pictorial handbook on Indian short-horned grasshopper pests, (Acridoidea: Orthoptera) (Zool. Surv. India): 51.

Diagnosis: A species of medium size. Antennae elongate, approximately equal in length to the combined length of head and pronotum. Fastigium with an anterior angle distinctly acute. Pronotum weakly saddle-shaped, posterior margin rounded, disc sparsely punctate. Foveolae are narrowly trapezoidal, about twice as long as broad. Frontal ridge gradually constricted upwards, becoming nearly angular near the fastigial apex. Hind femur is uniformly coloured, lacking oblique fasciae. Posterior tibiae with apical region usually red, this area being widely separated from the basal black band by a broad bluish-grey zone (Fig. 2).

Materials examined: 1 Female, Nagaland, Wokha Dist., Forest Campus, Doyang Village, 26.22458 N; 94.24871 E, 264 m, 1.8.2024, Coll. Dr. B. Sinha & party; 1 Male, Nagaland, Zunhebeto Dist., Aphukhomi Village Forest, 26.07007 N; 94.54482 E, 1525 m, 4.8.2024, Coll. Dr. B. Sinha & party.

Male: (mm) - body length = 14.82; antenna length = 5.82; head Length = 3.91; pronotum length = 2.87; tegmina length = 17.32; hind femur length = 9.57; hind tibia length = 8.94; cerci length = 0.51; basal width of circus = 0.17; mid width of cercus = 0.17; Aedeagus length = 0.43. **Female:** (mm) - body length = 21.53; antenna length = 6.13; head length = 5.59; pronotum length = 3.68; tegmina length = 19.39; hind femur length = 10.87; hind tibia length = 10.53; dorsal ovipositor valve length = 1.19, ventral ovipositor valve length = 1.18.

Distribution in India: Andaman & Nicobar Islands (Chandra and Rajan, 2004), Andhra Pradesh (Mandal and Yadav, 2007), Arunachal Pradesh (Mandal *et al.*, 1999), Bihar (Bhowmik *et al.*, 1990), Chhattisgarh (Tandon *et al.*, 1995), Delhi (Shishodia, 1997), Haryana (Shishodia, 1997), Himachal Pradesh (Tandon and Shishodia, 1995), Karnataka (Shrinivasan and Muralirangan, 1992), Kerala (Shishodia and Kulkarni, 2001), Madhya Pradesh (Tandon *et al.*, 1995), Maharashtra (Kulkarni and Shishodia, 2005), Manipur (Shishodia

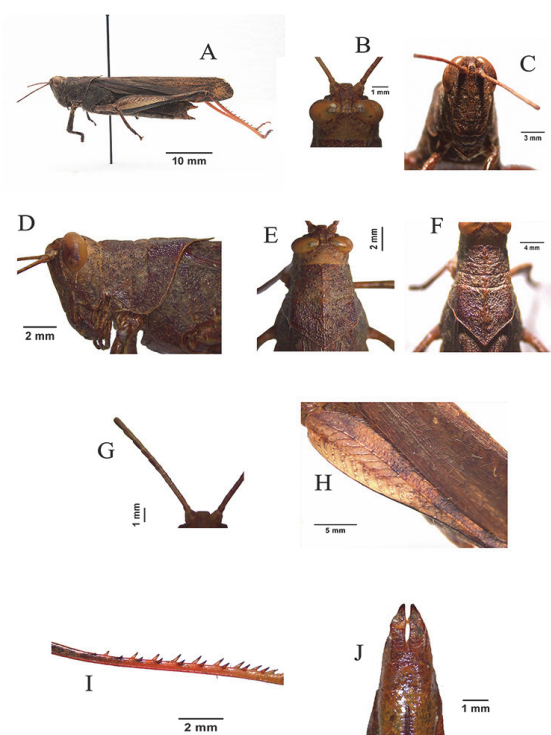


Fig. 3 A- Lateral view of *Eucoptacra praemorsa* (Female), B-Head and Vertex (Dorsal view), C-Frontal ridge, D- Head and Pronotum (lateral view), E- Head and Pronotum (dorsal view), F- Pronotum (dorsal view), G- Antennae, H-Hind femur, I- Hind tibia with spines, J-Last abdominal tergite showing the subgenital plate of female

and Tandon, 2004), Meghalaya (Hazra *et al.*, 1995), Odisha (Dey and Hazra, 2003), Punjab (Bhowmik *et al.*, 1990), Rajasthan (Shishodia, 2004), Tamil Nadu (Shrinivasan and Muralirangan, 1992), Tripura (Shishodia and Tandon, 2000), Uttarakhand (Tandon and Shishodia, 1995), Uttar Pradesh (Tandon and Shishodia, 1995) and West Bengal (Hazra *et al.*, 1993).

Habitat: Inhabits moist grassy habitats (paddy fields, marshes, wet meadows and riverbanks)

Subfamily: Coptacrinae; Genus: *Eucoptacra* Bolivar, 1902

3. *Eucoptacra praemorsa* (Stal, 1861)

1861. *Acridium (Catantops) praemorsum* Stal,

Kongl. Svensk. Fregat Eugen. Res. Omkring Jorden, 3: 330.

2007. *Eucoptacra praemorsa*, Saini & Mehta, Bionotes, 9(3): 76.

Diagnosis: Frontal ridge between the antennae approximately twice as wide as the inter-ocular distance; frontal costa distinctly widened between the antennae and broader than the vertex between the eyes. Principal sulcus of the pronotum is situated slightly anterior to the middle. Tegmina elongate, extending beyond the apex of the hind femora, with a faintly indicated whitish callous fascia near the middle of the median field. General colouration brownish testaceous. Hind femora yellowish brown to dark brown; area supra with two indistinct, faintly marked transverse dark spots and an additional spot at the base; inner area distinctly red; area supra externa without a distinct black spot in or near the median region. Hind tibiae red. Female subgenital plate with posterior margin broadly rounded or triangularly produced (Fig. 3).

Materials examined: 3 Female, Nagland, Wokha Dist., Pangti Village, 26.25894 N; 94.31890 E, 932 m, 1.8.2024, Coll. Dr. B. Sinha & party; 1 Male, Nagaland, Zunhebeto Dist., Baimho Village, 26.01367 N; 94.56057 E, 1009 m, 5.8.2024, Coll. Dr. B. Sinha & party.

Measurements: Male: (mm) - body length = 15.29; antenna length = 7.57; head Length = 4.35; pronotum length = 3.68; tegmina length = 17.57; hind femur length = 10.87; hind tibia length = 9.65; cerci length = 0.50; basal width of circus = 0.16; mid width of circus = 0.16; Aedegus length = 0.42. **Female:** (mm) - body length 17.90; antenna length 7.80; head length 5.61; pronotum length 4.55; tegmina length 20.77; hind femur length 11.84; hind tibia length 11.74; dorsal ovipositor valve length 1.0, ventral ovipositor valve length 1.0.

Distribution in India: Andhra Pradesh (Mandal and Yadav, 2007), Arunachal Pradesh (Mandal *et al.*, 2006), Assam (Bhowmik *et al.*, 1990), Chhattisgarh (Kulkarni and Shishodia, 2005), Himachal Pradesh (Tandon and Shishodia, 1995), Karnataka (Bhowmik, 1986), Kerala (Shishodia and Hazra, 1985), Madhya Pradesh (Bhowmik *et al.*,

1990), Maharashtra (Kulkarni and Shishodia, 2005), Manipur (Shishodia and Tandon, 2004), Meghalaya (Hazra *et al.*, 1995), Odisha (Hazra *et al.*, 1993), Sikkim (Shishodia *et al.*, 2003), Tamil Nadu (Bhowmik, 1986), Tripura (Shishodia and Tandon, 2000), Uttar Pradesh (Tandon and Shishodia, 1995), Uttarakhand (Tandon and Shishodia, 1995) and West Bengal (Hazra *et al.*, 1993).

Habitat: Inhabits in dry leaf litter on the forest floor, grassy areas, forest fringes and scrublands.

Bhowmik *et al.* (1990) produced one of the earliest comprehensive faunistic accounts of Acrididae from northeastern India and reported numerous new state records from the region. Later, Shishodia and Tandon (2000) documented 50 species of Acridoidea and Eumastacoidea from Tripura, including several new records for India and the state. Their subsequent work on Manipur recorded 54 species belonging to 41 genera, with many species reported for the first time from the state. Similarly, Shishodia and Dey (2006) reported 34 species under 24 genera and two families from Nagaland based mainly on collections preserved in the Zoological Survey of India, while Shishodia and Dey (2007) documented 40 species from Mizoram. Usmani and Khan (2010) further emphasized the rich but insufficiently explored orthopteran diversity of northeastern India by documenting 53 species representing 36 genera from the region. Later taxonomic investigations demonstrated that northeastern India is an important centre of diversity for Acrididae. Ingrisch *et al.* (2004) described one new genus and several new species from Meghalaya, Manipur, Mizoram, and Tripura. Kumar *et al.* (2018a, b, 2019), Gupta *et al.* (2019), and Chandra *et al.* (2019) described additional new genera and species from the eastern Himalaya and northeastern states, highlighting the presence of highly localized and endemic acridid fauna in the region. Gupta and Chandra (2019), reported 108 species of Acrididae family under 62 genera from the North-East Zone. Kumar *et al.* (2024) documented the first confirmed record of *Oxytauchira aurora* (Brunner von Wattenwyl, 1893) from India, specifically from Nagaland.

The distributional pattern of *P. succincta*, *A.*

thalassinus tamulus, and *E. praemorsa* across northeastern India further reflects the wide ecological adaptability within the Indo-Burma biogeographic region. *Patanga succincta* has previously been reported from Arunachal Pradesh (Mandal *et al.*, 2006), Assam (Bhowmik *et al.*, 1990), Manipur (Shishodia and Tandon, 2004), Meghalaya (Hazra *et al.*, 1995), and Tripura (Shishodia and Tandon, 2000), whereas *A. thalassinus tamulus* is known from Arunachal Pradesh (Mandal *et al.*, 1999), Manipur (Shishodia and Tandon, 2004), Meghalaya (Hazra *et al.*, 1995), and Tripura (Shishodia and Tandon, 2000). Similarly, *E. praemorsa* was documented from Arunachal Pradesh (Mandal *et al.*, 2006), Assam (Bhowmik *et al.*, 1990), Manipur (Shishodia and Tandon, 2004), Meghalaya (Hazra *et al.*, 1995), Sikkim (Shishodia *et al.*, 2003), and Tripura (Shishodia and Tandon, 2000). The present study documents *P. succincta*, *A. thalassinus tamulus*, and *E. praemorsa* as new distributional records from the state of Nagaland.

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