New record of Cicadas (Hemiptera: Cicadidae) from Eastern Bhutan

Phurpa Dorji

Abstract
Cicadas in Bhutan were studied intermittently by Distant in 1912 and Hayashi in 1978, and reported fourteen species. Since then no studies were done on Cicadas of Bhutan. This paper reports five new records, Hueschys sanguinea (de Geer, 1773), Polyneura ducalis (Westwood), Tanna thalia (Walker, 1850), Haphsa sulaiyai (Boulard, 2005) and Talainga binghami (Distant, 1890) from Bhutan.

Keywords: New records, Bhutan, Cicadidae

1. Introduction
Cicadas are singing bugs of superfamily Cicadidoidea. Though extensive studies were done in Oriental region, the knowledge of Cicadid fauna of Bhutan is very limited. The first study reported four species from Bhutan [2], Tanna bhutanensis Distant, 1912, Platylomia insignis Distant, 1912, Mata rama (Distant, 1881) and Terpnosia oberthuri Distant, 1912. Studied during the Bhutan-Expedition in 1972, the following ten species were reported [1]: Platyleura assamensis Atkinson, Pycna repanda (Linnaeus, 1758), Gaeana festiva (Fabricius), G. sulphurea (Westwood), Balinta octonotata (Westwood), Pomponia surya Distant, Ternosia andersoni Distant, Euterpnosia madhava (Distant), Oncotympana obnubila (Distant) and Platylomia saturata (Walker). Since then no study has been done on Cicadas of Bhutan. In this paper, five species are reported for the first time from Bhutan in addition to the previous reports.

2. Materials and methods
Only adult specimens were collected during 2014 – 2016 from Tashigang, Mongar, Pema Gatshel and Lhuentse Districts in Eastern Bhutan. Collections were done using insect swift net, killed with ethyl acetate in insect killing jar, dry mounted and preserved. Latitudes and longitudes were provided in degree minute second, and Elevation above sea level (Alt.) noted in meters (m) using Garmin eTrex 10. Photographs were taken with Nikon D3300 with attached AF-S Micro Nikkor 40 mm lens. Measurements were taken with digital Vernier caliper nearest to 0.01 mm. Measurement provided refers to the total body length (Head + Mesosoma + Metasoma). Morphological examinations were done under stereoscopic microscope (VT-II, Olympus, Tokyo). The identification was based on the keys and descriptions provided by [3-11, 13, 14]. Terminology follows that of [12]. Specimens were deposited in the Zoology Museum, Sherubtse College, Kanglung, Bhutan.

3. Results and Discussion
Family: Cicadidae
Subfamily: Cicadettinae
Tribe: Huechysini

3.1 Hueschys sanguinea (de Geer, 1773) (Fig. 1: C & D)
Diagnosis: Following parts black: body and legs, front and face to head, two large spots to mesonotum and abdomen sanguineous, base of abdomen narrowly; frontoclypeus with a central longitudinal groove; tegmina black, opaque; wings shining fuscous with anal area paler; rostrum passing the intermediate coxae. Measurement: 1♀ 17.39 mm.
Materials examined: Nganglam, Pema Gatshel (26°49΄45.24” N, 91°14΄17.60”E, Alt. 349 m): 1♀ collected by Phurpa Dorji, Thinley Gyeltshen & Tshering Nidup on 18.iv.2016 from

Correspondence
Phurpa Dorji
School of Life Science, Sherubtse College, Royal University of Bhutan, Kanglung, Bhutan
Distribution: Bhutan (Pema Gatshel); Taiwan; China; Philippines; Andaman and Nicobar Island; India; Myanmar; Indonesia; Borneo; Malay Peninsula; Tenasserim; Thagata; Vietnam; Timor; \[10, 11, 15\]
Remarks: New record for Bhutan

Subfamily: Cicadinae
Tribe: Polyneurini

3.2 Polyneura ducalis Westwood (Fig. 2: A & B)
Diagnosis: Head including eyes as wide as base of mesonotum; pronotum longer than mesonotum, their lateral margins ampullated and medially shortly angulate; tegmina opaque with dense venation and fuscate, reticulate towards apex; rostrum reaching posterior coxae; tympanal orifices completely covered; operculum short and broad; abdomen longer than space between apex of head and base of cruciform elevation; femora and coxae reddish, base and apices of femora, tibiae and tarsi black.

Materials examined: Bartsham, Tashigang (27°22΄29.42"N, 91°35΄48.60"E, Alt. 1985 m): 1♂ collected by Phurpa Dorji, Thinley Gyeltshen & Tshering Nidup on 09.x.2014 from Jangjang Manee below the road to Bartsham town.
Distribution: Bhutan (Tashigang); Nepal; India; Burma; China (Tibet) \[3, 11\]
Remarks: New record for Bhutan

Fig 1: Polyneura ducalis: A-Frontal view; B-Dorsal view. Huechys sanguinea: C-Frontal view; D-Dorsal view.

Subfamily: Cicadinae
Tribe: Leptopsaltriini

3.3 Tanna thalia (Walker, 1850) (Fig. 2: C & D)
Diagnosis: Body slender with the following parts black: mesonotum with a central longitudinal fascia, on each of which is a short inwardly curved fascia, and two spots in front of cruciform elevation, pronotum with two central fasciae united anteriorly and posteriorly, incisures and a spot at posterior angles, subapical spot to femora, bases and apices of tibiae, and apices of tarsi and rostum black; wings hyaline; fore wings with bases of 2nd and 3rd apical cells narrowly infuscated; each lateral surface of the male 3rd abdominal sternum possess a tubercle-like projection, and the corresponding area of male 4th sternum is strongly sclerotized, not discernible as a projection; opercula not extending beyond 2nd sternite. Measurement: 1♀ 19.15 mm; 2♂ 25.22 mm.
Materials examined: Lhuentse (27°40΄26"N, 91°11΄10"E, Alt. 1260 m): 2♂ & 1 ♀ collected by Phurpa Dorji, Thinley Gyeltshen & Kinzang Chophel on 08.v.2016 below the Dzong area.
Distribution: Bhutan (Lhuentse); Nepal; India; China (Tibet); Pakistan \[3, 14\]
Remark: New record for Bhutan

Fig 2: Haphsa sulaiyai: A. Dorsal view; B. ventral view. Tanna thalia: C-Frontal view; D-Dorsal view

Subfamily: Cicadinae
Tribe: Dundubiini

3.4 Haphsa sulaiyai (Boulard, 2005) (Fig. 2: A & B)
Diagnosis: Pronotal collar very narrow posteriorly; body broad, shorter than 3.2x as wide as III abdominal tergite; forewing with fuscous spot at bases of second and third apical cells; only minimum gap between timbal cover and cruciform; male abdomen about as long as head and thorax together; male operculum long, extending to posterior margin of abdominal sternite VI, not covering lateral margin of corresponding timbal cover in lateral view. Measurement: 4♂ 24.85 mm.
Materials examined: Lhuentse (27°40΄26"N, 91°11΄10"E, Alt. 1260 m): 2♂ & 1 ♀ collected by Phurpa Dorji, Thinley Gyeltshen & Kinzang Chophel on 08.v.2016 below the Dzong area; Fawan, Lheuntse (27° 29' 8.016"N and 91° 10' 58.008"E, Alt. 565 m): 1♂ collected by Phurpa Dorji, Thinley Gyeltshen & Kinzang Chophel on 08.v.2016 from Dam area.
Distribution: Bhutan (Lhuentse, Mongar); Thailand \[13\]
Remark: New record for Bhutan

Subfamily: Cicadinae
Tribe: Talaingini

3.5 Talainga binghami Distant, 1890 (Fig. 3)
Diagnosis: Body and legs black; eyes ochraceous with posterior margins pale sanguineous; tympanal orifices largely exposed; tympanal covering little narrower and much shorter than the orifices and anterior margins convex; pronotal lateral margins and a curved fascia on lateral areas behind eyes pale sanguineous, posterior margin narrowly ochraceous; segmental margin of abdomen more or less

Fig 2: Haphsa sulaiyai: A. Dorsal view; B. ventral view. Tanna thalia: C-Frontal view; D-Dorsal view

Subfamily: Cicadinae
Tribe: Talaingini
greyishly pilose; forewing semi-opaque, t alc-like, creamy-o ocraceous, venation reticulate and black, ulnar and apical areas broken up into numerous smaller cells which are black margined, basal cell shaded black; hind wing pale bluish-green, venation at apical areas more or less reticulate with black margins. Measurement: ♀ 25.79 m.

Materials examined: Kanglung, Tashigang (27°16′47.42″N, 91°30′48.71″E, Alt. 1969 m): 1♀ collected by Phurpa Dorji on 20.v.2015 from Thragom village above the highway; 1♂ & 1♀ collected by Phurpa Dorji and Kinzang Chophel on 22.v.2016 from Thragom village above the highway.

Distribution: Bhutan (Tashigang), Vietnam, India, Burma

Remarks: New record for Bhutan

Fig 3: Talainga binghami: A. Dorsal view; B. Frontal view

4. Acknowledgement
The author is deeply indebted to Mr. Tshering Nidup, Mr. Thinley Gyeltshen and Mr. Kinzang Chophel for the collection of the specimens studied in this paper. Very special thanks to Sherubtse College, Royal University of Bhutan, Kanglung, Bhutan for funding the publication.

5. References