

**A NEW SPECIES OF THE GENUS *PYCNA*  
FROM THE HIMALAYAS  
(HOMOPTERA: CICADIDAE)**

**Masami Hayashi<sup>1</sup>**

*Abstract.* A new cicada, *Pycna verna*, from the eastern Himalayas is described. It is peculiar in such characters as the color pattern of the body and the shape of the pronotal paranotum. The species has been collected only in April. Some remarks on morphological characters and some biological notes are given, and the new species is compared with other Himalayan congeners.

Recently, several papers have been published on the cicadid fauna of the Himalayas (Naruse 1973; Naruse & Takagi 1977; Hayashi 1978a, 1978b, 1978c). More detailed studies are needed for clarification of the fauna. In this paper, a new species of the genus *Pycna* is described and compared with other Himalayan members. Specimens are deposited in Bishop Museum, Honolulu (BISHOP) and Osaka Museum of Natural History, Osaka (OMNH).

***Pycna verna* M. Hayashi, new species**

Fig. 1-10

Head and thorax olivaceous, tinged with green in fresh specimens, with a narrow transverse fascia on vertex including ocelli area, a central small spot on anterior part of pronotum, a central hastate spot on posterior part of pronotum, a few fasciae on pronotal diagonal groove, a pair of central triangular spots at anterior angle of mesonotum, 4 rectangular spots at posterior part of mesonotum and a central spot adjacent to basal part of cruciform elevation, black (Fig. 2); abdomen glossy black with extreme outer margin of tymbal cover, each central part of 2nd and 3rd terga, and each caudal margin of 3rd and 4th terga, dark ochreous. Ventral part of head and thorax dark olivaceous with a central longitudinal concavity of frontoclypeus, a narrow transverse fascia on gena, inner part of lorum, tip of labium and lateral part of metepisternum black or fuscous (Fig. 7); ♂ operculum black with outer lateral part and apical margin dark ochreous; abdomen black with caudal margin of 7th sternum ochreous (Fig. 8); legs olivaceous, sometimes with green tinge, with both ends of fore femur, apex of each tibia, a basal band on mid tibia, most parts of fore and mid tarsi, and basal part of hind tarsus, black. Forewing fuscous at basal  $\frac{1}{2}$  with ochreous base and some transparent parts, as shown in Fig. 9, and remainder transparent slightly tinged with green with 2 oblique, irregularly shaped rows fuscous; hindwing ochreous-orange at basal  $\frac{2}{5}$  and remainder fuscous brown or black, with marginal area transparent; inner margin of marginal area ochreous-orange along veins; vannus (cell 2A of hindwing) entirely ochreous-orange. Body densely clothed with long black hairs; head narrower than base of mesonotum; frontoclypeus more or less depressed and almost as long as wide; rostrum extending far beyond hind coxae to 4th abdominal segment; pronotal paranotum much expanded laterally in shape of rounded trapezoid (triangular in other species from the Himalayas) (Fig. 2-6); cruciform elevation depressed widely at central part; abdomen shorter than length of head plus thorax; ♂ operculum wider,

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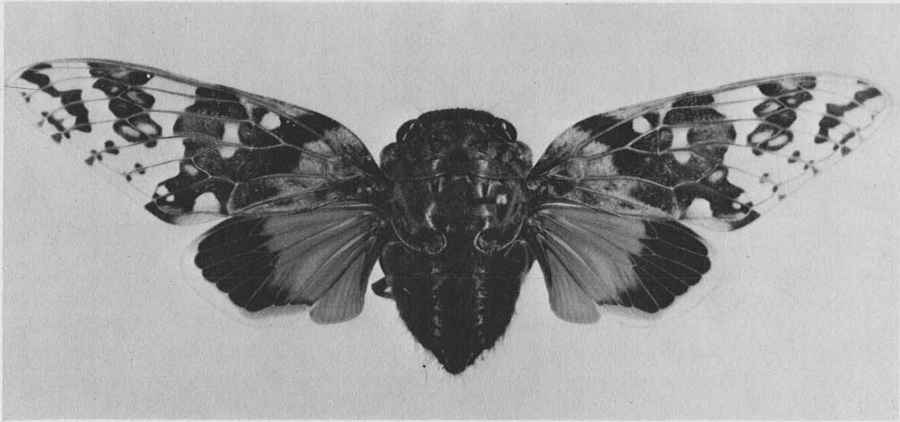


FIG. 1. *Pycna verna*, ♂ (paratype).

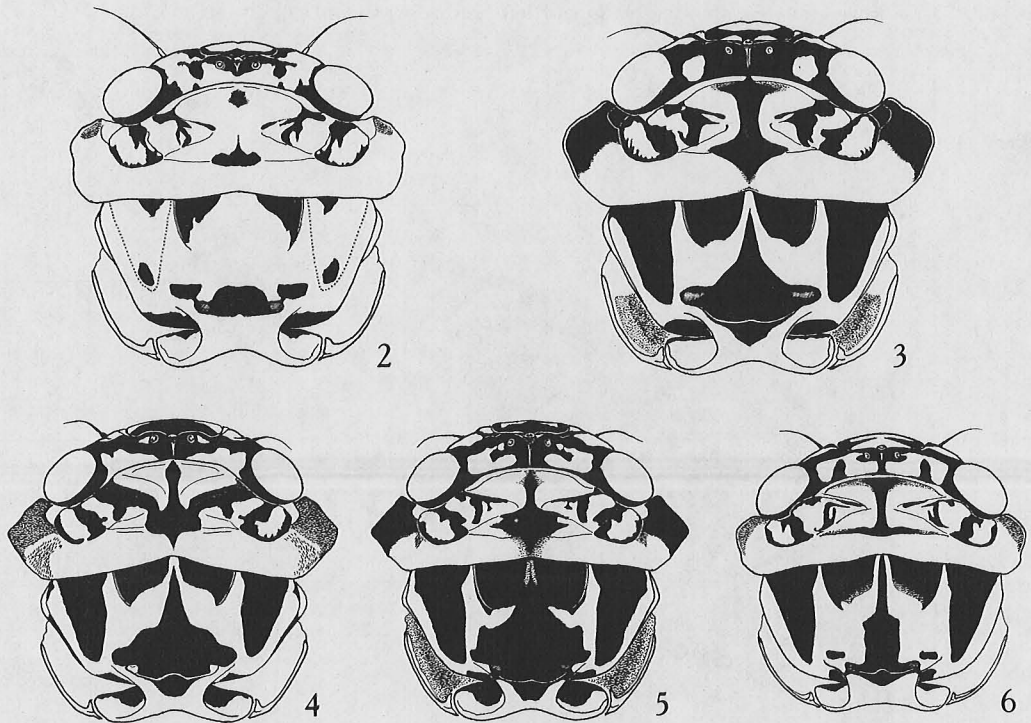


FIG. 2-6. Head and thorax in dorsal view: 2, *Pycna verna*; 3, *P. repanda*; 4, *P. montana* (holotype); 5, *P. himalayana* (paratype); 6, *Suisha formosana* from Taiwan.

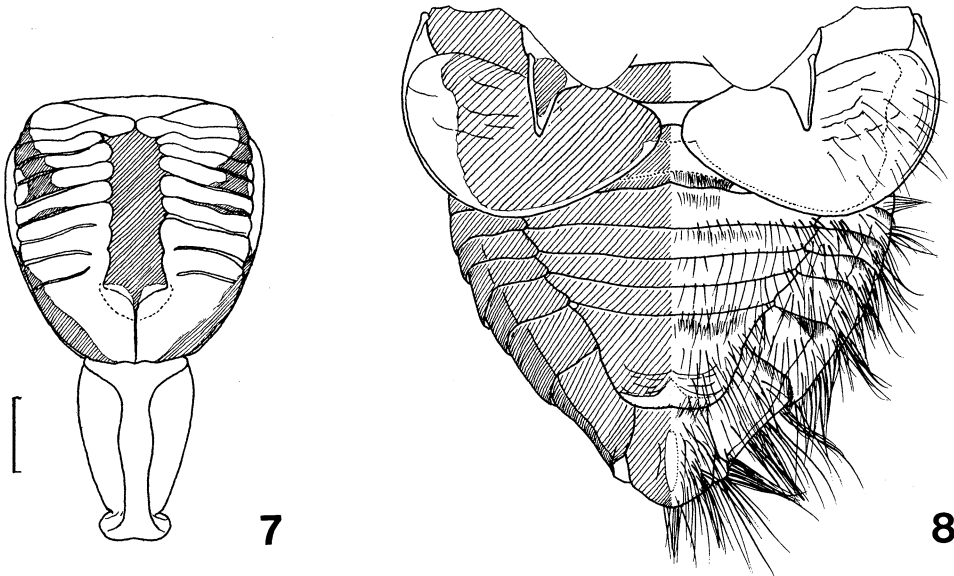


FIG. 7-8. 7. Frontoclypeus and clypeus of *Pycna verna*. Scale 1 mm. 8. Abdomen and opercula of *P. verna* in ventral view, showing black part (left  $\frac{1}{2}$ , shadowed) and pilosity (right  $\frac{1}{2}$ ).



FIG. 9. Right wings of *Pycna verna*.



FIG. 10. Male genitalia of *Pycna verna* in ventral (left) and lateral (right) views. Scale 0.5 mm.

globose beyond lateral margin of abdomen, both opercula not overlapping each other, slightly separated; forewing wider, with costal margin more or less recurved and outer margin nearly straight; costal membrane developed and arched; veins C and Sc+R apart from each other.

*♂ genitalia* (Fig. 10). Pygofer elongate and barrel-shaped, ca. 2× as long as wide in ventral view, widened behind middle with obtuse dorsal stylus clothed with sparse curled hairs; uncus lobe rather wide with rounded apex, and curved inwards at ca. 130° in lateral view; theca evenly cylindrical.

*Body length.* 20.6–22.5 mm (excl. forewing), 34.7–38.2 mm (incl. forewing). Expanse of forewings, 71.3–75.0 mm.

Holotype ♂, INDIA: Bengal, Darjeeling, 21.IV.1938, T.C. Maa (BISHOP 11,978). Paratypes: 2♂, same data as holotype (BISHOP); 3♂, NEPAL: Kathmandu Val, Gokarna Forest, 1370 m, 29.IV.1979, M. Umano (OMNH); 1♂, same data except N. Doi (OMNH); 1♂, same data except K. Katsura (OMNH).

*Distribution.* NE India (Darjeeling) and C Nepal (Kathmandu Val) (see Fig. 11).

*Remarks.* Five species of the genus *Pycna* are now known from the Himalayas: *repanda* (Linné), *minor* Liu, *himalayana* (Naruse), *montana* M. Hayashi, and *verna*. *P. verna* is distinguished morphologically from other Himalayan species by the color-

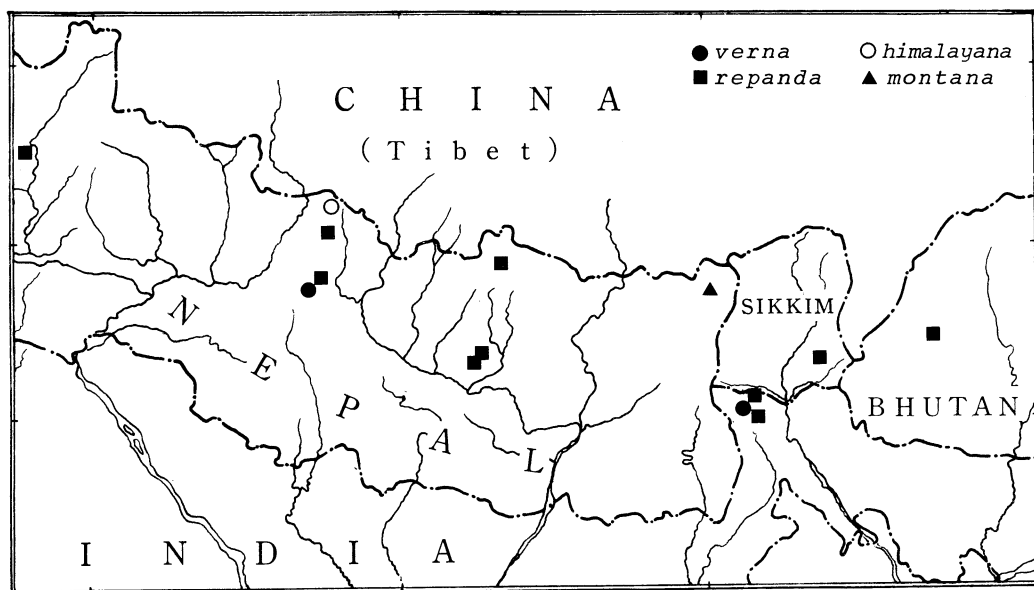


FIG. 11. Localities of the *Pycna* species in the eastern Himalayas.

ation of the body, the shape of the lateral dilation of the pronotum (pronotal paranotum), the depression of cruciform elevation, the well-developed costal membrane, and the submarginal ochreous-orange band on hindwing. In *verna*, the black area is much more reduced, while in other species,<sup>2</sup> the black area is more developed and the markings and coloration are similar to each other; the shape of the pronotal paranotum is rather triangular in *repanda*, *minor*, *himalayana* and *montana* but is rounded trapezoidal in *verna* (Fig. 2-6); the cruciform elevation is much depressed only in *verna* as it is in species of the genus *Suisha* Kato; an ochreous-orange narrow band along the marginal vein of the hindwing is present only in *verna*, being absent in all the others. Judging from some characters, such as the shape of the pronotal paranotum, the central depression of the cruciform elevation, the costal area of the forewing, etc., this species looks like a member of the allied genus *Suisha* (Fig. 2, 6). However, some other characters, e.g., the relative width of the head, the size of the pronotal paranotum, and the male genitalia (length of uncus lobe), place this species in the genus *Pycna* beyond any doubt (cf. Hayashi 1978c).

It is worthy of note that *P. verna* has been collected only in the vernal season (April); other Himalayan congeners appear in aestival and/or autumnal seasons (July–October). The months of occurrence, altitude of localities, and distribution of all the *Pycna* species occurring in the Himalayas are shown in Table 1.

2. I was unable to examine any specimen of *Pycna minor* from NW India.

TABLE 1. Collection months, altitudes and distribution of *Pycna* species in the Himalayas.

SPECIES	COLLECTION MONTHS	ALTITUDE (m)	DISTRIBUTION
<i>repanda</i>	Sept.–Oct.	ca. 300–4000	India, Nepal, Sikkim, Bhutan, Burma, China and Pakistan
<i>himalayana</i>	Sept.	ca. 3000	C Nepal
<i>montana</i>	July	3900–4550	E Nepal
<i>verna</i>	Apr.	ca. 1400	NE India and C Nepal
<i>minor</i>	?	?	NW India

*Biological notes.* According to Mr Y. Miyatake (OMNH), a member of the research trip to Nepal 1979, this cicada was found at the Gokarna Forest in the Kathmandu Valley and seems to be restricted to a narrow area in the vicinity of Kathmandu in Nepal. It was met with in rather thick and humid evergreen forests, mainly composed of 2 fagaceous (*Quercus*) and a lauraceous species, sitting on tree trunks more than 1 m above the ground. Cicadas were almost always singing in the daytime, sometimes with aggregations of several males. Mr Miyatake also informed me of the difficulty in capturing this cicada because it was so agile. It readily flew away when approached within 5–6 m.

*Acknowledgments.* I wish to express my deep gratitude to Mr Gordon M. Nishida of the Bishop Museum and Mr Yorio Miyatake of the Osaka Museum of Natural History for the loan of valuable material.

## REFERENCES

- Chen, K.-F.** 1943. New genera and species of Chinese cicadas with synonymical and nomenclatorial notes. *J. N.Y. Entomol. Soc.* **51**: 19–49, 2 pls.
- Distant, W. L.** 1906. Homoptera. *Fauna British India, Rhynchota* **3**: 1–503.
- Fraser, F. C.** 1940. The cicadas of northern Bengal and Sikkim. Part II. *J. Bengal Nat. Hist. Soc.* **15**: 20–29.
- Hayashi, M.** 1978a. The Cicadidae (Homoptera, Auchenorrhyncha) from East and Central Nepal. Part I. *Bull. Natl. Sci. Mus., Tokyo Ser. A*, **4**: 164–95.
- 1978b. Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel. Homoptera: Fam. Cicadidae. *Entomol. Basiliensia* **3**: 57–65.
- 1978c. The Cicadidae (Homoptera, Auchenorrhyncha) from East and Central Nepal. Part II. *Bull. Natl. Sci. Mus., Tokyo Ser. A*, **4**: 267–79.
- Liu, G. K.-C.** 1940. New Oriental Cicadidae in the Museum of Comparative Zoölogy. *Bull. Mus. Comp. Zool.* **87**: 73–117, 7 pls.
- Mathur, R. N.** 1953. Order Hemiptera. A systematic catalogue of the main identified entomological collection at the Forest Research Institute, Dehra Dun. *Indian For. Leaflet* (Entomol.) **121**(3): 138–87.
- Miyatake, Y.** 1979. Cicadidae collected in early summer in Kathmandu Valley, Central Nepal. *Rostraria* (31): 287–90. (In Japanese.)
- Naruse, K.** 1973. Cicadidae collected from Central Nepal. *Proc. Jpn. Soc. Syst. Zool.* **9**: 36–40.
- Naruse, K. & S. Takagi.** 1977. Records of six species of Cicadidae from Nepal, with description of a new species (Homoptera). *Insecta Matsumurana* (NS) **11**: 73–80.
- Singh, S., H. N. Bajjal & K. Mathew.** 1956. Entomological survey of the Himalaya. Part XVIII. Notes on some insects collected by the Second Entomological Expedition to North West Himalaya, with description of three new species of Collembola. *Agra Univ. J. Res., Sci.* **5**: 369–76.

**A NEW SPECIES OF *HETEROMURUS (ALLOSCOPUS)* FROM  
PAPUA NEW GUINEA AND DESCRIPTIVE NOTES FOR  
THE OTHER SPECIES OF THE SUBGENUS  
(COLLEMBOLA: ENTOMOBRYIDAE: ORCHESELLINAE)**

José A. Mari Mutt<sup>1</sup>

*Abstract.* The new species *Heteromurus (Alloscopus) multispinatus* is described from specimens collected in Papua New Guinea. Complementary notes to previous descriptions of *H. (A.) tetracanthus* and *H. (A.) tenuicornis* are included; these are based on specimens from Micronesia, Samoa, and Australia (Queensland). Also included is a key to the species of the subgenus *Alloscopus* and a description of a specimen (tentatively identified as *H. (A.)* cf. *strebali*) from an Ecuadorean cave that, excluding the Galapagos Islands, represents the first record of Collembola from Ecuador. A peculiar postantennal structure was found in the new species.

Through the courtesy of Ms Penelope Greenslade, South Australian Museum, Adelaide, I have received 6 specimens of *Heteromurus (Alloscopus)* from Papua New Guinea, Samoa, and Australia (Queensland). Material from the latter localities belongs to *H. (A.) tetracanthus* but that from Papua New Guinea represents a new species, *H. (A.) multispinatus*, distinguished by the large number of dental spines present in these individuals.

The correct identification of the aforementioned material was facilitated by comparisons with *H. (A.) tetracanthus* and *H. (A.) tenuicornis* obtained during the Insects of Micronesia survey. Such comparisons led to the discovery of additional differences between these 2 species and have allowed me to clarify or correct some details of their previous descriptions (e.g., Mari Mutt 1978).

Dr Kenneth A. Christiansen, Grinnell College, Iowa (USA), has kindly forwarded a springtail collected in a cave in Ecuador. It represents the first record of Collembola from that country (Galapagos Is excluded) and may belong to *Alloscopus strebali* Winter, 1966, a species described from Peru that Mari Mutt (1978) transferred to *Indoscopus* Prabhoo. The specimen is described below and its probable identity with *I. strebali* is discussed.

Morphological abbreviations used throughout this paper are as follows: Ant. 1, Th. 1, Abd. 1, etc. = 1st antennal segment, 1st thoracic segment, 1st abdominal segment, etc.

The lack of macrochaetae on the posterior ½ of the head, number and arrangement of the S group of setae, and the chaetotaxy of Abd. 1–Abd. 4 are shared by all the members of the subgenus. The latter features are illustrated only for *H. (A.) multispinatus*.

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