

THE CICINDELID BEETLES OF BARKUDA ISLAND

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The beetles on which the records in this paper are based have either been identified by Dr. Walther Horn, or else very carefully compared with specimens named by him. The assistance he has given us both before and since the war has been of the greatest possible value.

In the fauna of Barkuda the Cicindelinae (s.s.) play an important part, but the Collyrinae, represented by a single species, are very rare. This is not surprising, for the latter subfamily are mostly inhabitants of damp equatorial forests, while many species of *Cicindela*, the only Cicindeline genus represented on Barkuda, love open sandy or gravelly spaces. It is in such situations that five of the eight species taken on the island occur. Of the remaining three, *C. aurovittata* is a jungle form and *C. fastidiosa* is found on damp mud, while *C. haemorrhoidalis* appears to be associated definitely with termites of the genus *Termes* and the subgenus *Odontotermes*, in the walls of the mounds of which its larva burrows.

The majority of the Cicindelinae are most abundant on the island at the end of the dry season and the beginning of the rains. As the soil becomes damp such species as *C. sumatrensis* and *C. catena* almost disappear. *C. haemorrhoidalis*, however, only appears after the wet weather is well established, and apparently only lives in the adult state for a few weeks. It is usually seen either sitting on the termite mounds or flying in open spaces in which the termite mounds exist. Dr. Gravely has found the remains of at least two adult individuals in empty burrows in a mound of *Termes obesus*, in which the larvae are often abundant.

The figures after the name of each beetle denote the page on which it is described in Canon Fowler's volume on the Cicindelidae and Paussidae in the "Fauna of British India" series, while those after it refer to the page number of Annandale and Horn's *Annotated List of the Asiatic Beetles in the Collection of the Indian Museum, Part I, Cicindelinae* (Calcutta, 1909).

Division ALOCOSTERNALIAE.

Subfamily COLLYRINAE.

Neocollyris bonelli, Guer., p. 248.

Barkuda, 2 specimens, 3-19·viii·19 (F. H. G.) and ix·20 (N. A.).

Represented in the collection of the Zoological Survey of India from Kharagpur, Calcutta, Siripur in North Bengal, Sikkim, and Sibsagar and the Kha-i Hills in Assam. Fowler remarks that the Calcutta locality is rather doubtful as it is based on a single specimen in the collection. On Barkuda the species is very scarce but we have seen it flying round shrubs (particularly *Datura*) on several occasions and alighting on the foliage.

Division PLATYSTERNALIAE.

Subfamily CICINDELINAE.

Cicindela (*Tetremytarsa*) *tetrastacta*, Wied., p. 337, p. 8.

Barkuda, 4 specimens, 20 and 21.vii.14 (*Chilka Survey*), and 15-22.vii.16 (*N A* and *F H G.*).

The Indian Museum possesses specimens from Calcutta, Birbhum, the Ganges Valley and Chota Nagpur in Bengal and from Ganta Sila on the Chilka Lake.

A common species on foot-paths and the upper part of the beach of the lake.

Cicindela fastidiosa, Dej., p. 352, p. 11.

Barkuda, 6 examples, vi.20 (*N A.*), 11.6.20 (in puddle at edge of lake, *N A.*), and 3-19.viii.19 (*F. H. G.*).

Represented in the Indian Museum collection from Trincomalee and Anuradhapura (low country) in Ceylon, and Rambha in the Ganjam district of the Madras Presidency.

Three of the six specimens captured are brownish, two are green, and one bluish in colour; the green and blue ones are labelled "aberr." by Dr. Horn. The species is by no means common, but is occasionally found on damp mud at the edge of puddles of water in the rainy season.

Cicindela undulata, Dej., p. 356, p. 11.

Barkuda, 1 example, 25.vii-4.viii.17 (*N A.*).

Represented in the Indian Museum collection from Calcutta, Maldah in East Bengal, Gopkuda Island in Lake Chilka, and Balugaon in the Puri district of Orissa. "Found from Mysore to Ceylon, Bengal" (*Horn*).

Cicindela distinguenda, Dej., p. 358.

Barkuda, 1 specimen, 2.vi.20 (on shore *N. A.*).

This species closely resembles *C. fastidiosa*, but is larger, and a rare insect in collections. Fowler records it from Pondicherry and Ceylon.

Cicindela sumatrensis, Herbst., p. 371, p. 14.

Barkuda, several specimens, 20.vii.14 (*Chilka Survey*), 15-22.vii.16 (*N A* and *F H G.*) and 25.vii-4.viii.17 (*N. A.*).

The Museum possesses specimens from Trivandrum, Calcutta, Damukdia and Chota Nagpur in Bengal, Patan in the Koyna Valley of the Satara district, Bhogpur in the United Provinces, Kumdhik and Maho in Nepal, Siliguri, base of the Eastern Himalayas, Cacara Bay in Portuguese India, Tura in the Garo Hills of Assam, Cherria Island in Lake Chilka, Cuttack in Orissa, Cochin States, and China.

This widely distributed species is the commonest of the Cicindelidae found on the island, often occurring with *C. tetrastacta*.¹

Cicindela aurovittata, Brul., p. 386, p. 24.

Barkuda, several typical examples, 17.vii.14 (*Chilka Survey*), 3-19.viii.19 (*F. H. G.*) and 25.vii-4.viii.17 (*N. A.*).

The only other specimens in the collection of the Indian Museum are from the Andaman Islands, the Chilka Lake, Ganjam, and the Salt Lakes near Calcutta. It is found also in Ceylon, in Madras and Pondicherry, Rangoon, at the Nicobars, and the Philippines.

A jungle species rather common on Barkuda.

Cicindela haemorrhoidalis, Wied., p. 402, p. 24.

Barkuda, eight examples, 21.vii.14 (*Chilka Survey*), 15-22.vii.16 (*N. A.* and *F. H. G.*) and 25.vii-4.viii.17 (*N. A.*).

Canon Fowler does not record the following localities (represented by specimens in the collection of the Indian Museum) in his volume in the "Fauna." Burkul and Angul in Orissa, Ganta Sila on Lake Chilka, Ganjam, and Rawalpindi in the Punjab.

This beetle is usually found in the neighbourhood of termite mounds in the walls of which its larva burrows.²

Cicindela catena, Fabr., p. 426, p. 28.

Barkuda, many specimens 17-20.vii.14 (*Chilka Survey*), 15-22.vii.16 (*N. A.* and *F. H. G.*), and 25.vii-4.viii.17 (*N. A.*).

"Found from Ceylon to Mysore and Bengal, up to Darjiling" (*Horn*). Its occurrence in the localities Ranchi and Cherria Island in Lake Chilka has not we believe been previously noticed. This tiger beetle is not uncommon on the island with *C. sumatrensis* and *C. tetrastacta*.

¹ Cf. Gravely, *Rec. Ind. Mus.* VII, p. 207 (1912) for an account of habits of this and other tiger-beetles from Orissa.

² Cf. Horn, *Deuts. Entom. Zeits.* 1899, pp. 234 and 395.