

NEUROPTERA OF THE KERMADEC ISLANDS

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Abstract. The species *Cryptoscenea australiensis* (Enderlein, 1906) (Coniopterygidae), *Drepanacra binocula* (Newman, 1838), *Micromus tasmaniae* (Walker, 1860) (Hemerobiidae) and *Chrysopa basalis* Walker, 1853 (Chrysopidae) are recorded, the last being the only natural occurrence of the family Chrysopidae in the New Zealand sub-region.

Of the four species recorded here from the Kermadec Is, only one, *Drepanacra binocula* (Newm., 1838), has previously been recorded (Tillyard 1926, Wise 1963).

Specimens of three species were taken during W. R. B. Oliver's expedition in 1908. Specimens taken in more recent years have been collected by occasional visitors or those associated with the Raoul I Meteorological Station, by a Bernice P. Bishop Museum representative in 1962, and by members of the Ornithological Society of New Zealand Kermadec Islands Expedition, 1967.

Specimens examined are from the collections of Canterbury Museum, Christchurch (C.M.), Dominion Museum, Wellington (D.M.), Entomology Division, Nelson (E.D.), and Bernice P. Bishop Museum, Honolulu (B.P.B.M.). A representative series will be lodged in Auckland Museum.

Family CONIOPTERYGIDAE

Genus *Cryptoscenea* Enderlein, 1914***Cryptoscenea australiensis*** (Enderlein, 1906)

Helicoconis australiensis Enderlein, 1906, Zool. Jb. (Syst.) 23: 232.

Specimens examined. KERMADEC IS. (B.P.B.M.) Raoul I: Slopes, 200 m, light trap, 3-5.X.1962, (1 ♀); N. Slopes Ridge, 200 m, Malaise trap, 22-30.IX. 1962, (1 ♀); G. A. Samuelson.

Previously known from Australia and New Zealand.

Family HEMEROBIIDAE

Genus *Drepanacra* Tillyard, 1916***Drepanacra binocula*** (Newman, 1838)

Drepanapteryx binoculus Newman, 1838, Ent. Mag. 5: 400.

Specimens examined. KERMADEC IS. (D.M.) Kermadec Is: No. 8, 1908, (2). (B.P.B.M.) Raoul I: Blue Lake, N. Shore, 3 m, Malaise trap, 12-25.X.1962, (4); N. Slopes Ridge, 150 m, light trap, 6-11 X.1962, (1); Low Flat, 75 m, in flowers *Meliccytus*, 27.X.1962, (1); Samuelson.

The two specimens in the D.M. collection were apparently taken by Oliver's 1908 expedition.

This species is recorded from Australia, Lord Howe I, Norfolk I, Kermadec Is, New Zealand, and Chatham Is.

Genus *Micromus* Rambur, 1842

Micromus tasmaniae (Walker, 1860)

Hemerobius tasmaniae Walker, 1860, Trans. Ent. Soc. Lond. (N.S.) 5: 186.

Specimens examined. KERMADEC IS. (C.M.) Sunday I: No. 6 (1). (D.M.) Kermadec Is: No. 6, 1908 (2 ♀ ♀). (B.P.B.M.) Raoul I: Sentinel Pk. 200 m, *Ageratum* & *Stenotaphrum*, 7.X.1962, (4 ♀ ♀); N. Beach Ravine, 75 m, sweeping *Ageratum conyzoides*, 27.X.1962, (1 ♂ 2 ♀ ♀); Blue Lake, N. shore, 3 m, Malaise trap, 12 - 25.X.1962, (1 ♀); N. Terrace, 75 m, light trap, 3 - 6.IX.1962, (1 ♂); Low Flat, 30 m, sweeping *Ageratum conyzoides*, 26.IX.1962, (2 ♀ ♀); Low Flats, 10 m, sweeping ?Rubiaceae, 21.IX.1962, (1 ♀); Bell's Ravine, 75 m, sweeping *Coriasia* & *Ageratum*, 10.IX.1962, (1 ♀); Pumice Flat, 5 m, sweeping *Metrosideros* scrub, & *Ageratum*, 9.IX.1962, (1 ♀); Blue Lake, N. shore, 3 m, sweeping ferns & *Ageratum conyzoides*, 3.IX.1962, (1 ♀); Orchard area, 100 m, sweeping *Ageratum conyzoides*, 10.IX.1962, (1 ♀); Bell's Ravine, 75 m, Malaise trap, 13-22.IX.1962, (1 ♀); N.E. Slopes Ravine, 200 m, Malaise trap, 27.X. - 5.XI.1962, (1 ♂); N. Terrace, 100 m, sweeping *Ageratum conyzoides*, 22.IX.1962 (1 ♂ 2 ♀ ♀); Samuelson. S. Meyer I: W. Slopes, 50 m, sweeping, 15.X.1962, (1 ♀); Samuelson.

The three specimens in the C.M. and D.M. collections are mounted in the same style with the same handwriting on the labels, and, presumably, were all taken during Oliver's 1908 expedition.

The species is widespread in Australian and New Zealand areas and is also recorded from Norfolk I, New Caledonia, and New Hebrides.

HEMEROBIID LARVAE

Specimens examined. KERMADEC IS. (E.D.) Raoul I: Denham Bay, swept, 17.XI.1966, (1), J. C. Watt. S. Meyer I. : beaten from *Myoporum laetum*, 28.XII.1966, (3), Watt.

These larvae all have the appearance of *M. tasmaniae* larvae, and *M. tasmaniae* is the only Hemerobiid species so far found on S. Meyer I, but I am not familiar with larvae of *D. binocula* and cannot be certain of their identity.

Family CHRYSOPIDAE

Genus *Chrysopa* Leach, 1815***Chrysopa basalis* Walker, 1853**

Chrysopa basalis Walker, 1853, Cat. Neuropt. Brit. Mus. 2: 239.

Specimens examined. KERMADEC IS. (D.M.) Kermadec Is. : No 5 (1 ♂ 2 ♀ ♀) : no data (1 ♂). Raoul I : 7.V.1940, (1 ♀), Lukins : 21.VI.1944, (1 ♀); 2.VIII.1944 (1 ♀); J. H. Sorenson. (B.P.B.M.) Raoul I : Low Flat, 30 m, beating *Myoporum laetum*, 18.IX.1962 (1 ♀); Pumice Flat, 5 m, sweeping *Metrosideros* scrub & *Ageratum*, 9.IX.1962, (1 ♀); Bell's Ravine, 75 m, sweeping *Coriaria* & *Ageratum*, 10.IX.1962, (2 ♀ ♀); N. Slopes Ridge, 150 m, light trap, 6-11.X.1962, (1 ♂ 3 ♀ ♀); N.E. Crater Slopes 75m, in flowers *Melicytus*, 23.X.1962, (1 ♀); N. Slopes, 200 m, light trap, 13-23.X.1962 (4 ♂ ♂ 9 ♀ ♀); N. Crater rim, 100 m, foliage *Solanum nigrum*, 11.X.1962, (1 ♀); N.E. Slopes Ravine, 200 m, light trap, 27.X-5.XI.1962, (3 ♀ ♀); N. Slopes, 200 m, light trap, 3-11.X.1962, (1 ♂); Samuelson. (E.D.) Raoul I : Denham Bay, swept, 17.XI.1966, (1 ♀); at kerosene lamp, -XI.1966, (1 ♂); beaten from *Melicytus ramiflorus*, 2.XII.1966, (1 ♂); beaten from *Coriaria arborea* var. *kermadecensis*, 8.XII.1966, (3 ♂ ♂ 1 ♀); beaten from *Myoporum laetum*, 8.XII.1966, (1 ♀); Low Flat, in m/v light trap, 3.I.1967, (3 ♀ ♀), 5.I.1967, (1 ♂ 1 ♀); Watt: -1967, (1 ♀), D. E. Crockett : -1967, (1 ♀), A. T. Blake. Meyer I : swept, 30.XII.1966, (1 ♂), Watt.

Immatures. (E.D.) Raoul I : Denham Bay, swept, 17.XI.1966, (1); swept from roadside weeds, 24.XI.1966, (2); beaten from *Metrosideros kermadecensis*, 2.XII.1966, (5); beaten from *Melicytus ramiflorus*, 2.XII.1966, (8); beaten from *Myrsine kermadecensis*, 8.XII.1966, (3); beaten from *Myoporum laetum*, 8.XII.1966, (5); beaten from *Coriaria arborea* var. *kermadecensis*, 8.XII.1966, (1); Low Flat, beaten from *Macropiper excelsum*, 10.XII.1966, (2); beaten from *Bochmenia dealbata*, 21.XII.1966, (1); Bells Flat, forest litter, 3.I.1967, (1); Denham Bay, on *Formes applanatus* on dead *Myoporum laetum* 14.I.1967, (1); Watt : -IX. -X. 1966, (1), A. T. Blake : Denham Bay, -XII.1966, (1), J. Pearl. Meyer I : beaten from *Metrosideros kermadecensis*, 28.XII.1966, (1), Watt.

The three D.M. specimens labelled "Kermadec Is, No. 5" were also apparently collected by the 1908 Oliver expedition.

This is the first record of the family Chrysopidae occurring naturally in the New Zealand sub-region; *C. basalis* is recorded (Adams 1959) throughout the Pacific area from the Philippines in the west to Easter I in the east, including Australia. Of the Pacific Is, the Kermadec Is are the furthest south, although they are only a few degrees further south than Easter I.

There is some variation in the wing venation of this species as indicated by the figures published by various authors (Esbén-Petersen 1928, *C. skottsbergi*, Samoa; Zimmerman 1957, *C. microphyta*, Hawaii; Adams 1959, *C. basalis*, Palau), and that of the Kermadec Is specimens is closest to that figured by Zimmerman from a Hawaiian specimen.

DISCUSSION

Three of the four species recorded, *D. binocula*, *M. tasmaniae* (Hemerobiidae), and *C. basalis* (Chrysopidae), appear to be long established as they are common in other areas, were all taken in 1908, and are still present. The fourth species, *C. australiensis*, although only recorded in New Zealand in 1962 (Kimmins & Wise 1962), is known to have been present in the North I in 1921 (Wise 1963) and has only rarely been taken since. It may similarly be either of more recent introduction or of more restricted occurrence on the Kermadec Is.

The Coniopterygid and Hemerobiid species suggest an Australian-New Zealand influence on the Kermadec Is fauna and the Chrysopid species an Australian-oceanic influence.

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