

The Family Peloridiidae (Hemiptera) and Its Occurrence in New Zealand

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INTRODUCTION

THIS paper gives an historical account of the family Peloridiidae and records the discovery of further specimens of *Xenophyes cascus* Bergroth in New Zealand. Some features of the habitat are discussed and it is shown that these insects are not necessarily associated with *Nothofagus* species as was previously thought.

HISTORICAL

The primitive family of Peloridiidae has been described as "the rarest and most remarkable of the Hemiptera" (Helmsing and China, 1937). Erected by Breddin (1897) for a single specimen, the family now comprises three genera and six species: the original genus *Peloridium* contains one species, *Xenophyes* one, and *Hemiodoecus* four species.

The original specimen, *Peloridium hammoniorum* Breddin, a macropterous male, was collected in forest at Puerto Toro, Navarin Island, Tierra del Fuego, Magellan Straits, in 1892. The second specimen, a sub-brachypterous female erroneously described as a new species *Nordenskjoldiella insignis* by Haglund (1899), was taken in 1896 under a decaying tree-trunk in forest near Punta Arenas, on the northern shore of the Magellan Strait. Until 1920 these two specimens were the sole representatives of the family.

The next specimens, a male and a nymph, came from New Zealand and were collected in November, 1920, by Mr H. Hamilton when sifting leafmould gathered in the forest at Ohakune, 2,100 ft. The adult was sent to Dr Bergroth, who considered it to be a new Peloridiid and described it in a new genus under the name *Xenophyes cascus* (Bergroth, 1924). The nymph, which was thought to be the same species, was described and figured by Myers in 1926. Attempts were made to obtain more material from the original locality at Ohakune, but without result.

In his paper dealing with the New Zealand species, Bergroth records also a nymph of an unknown species collected at Lord Howe Island. No further specimens have been recorded from this island, but it forms an interesting link in the distribution of the family.

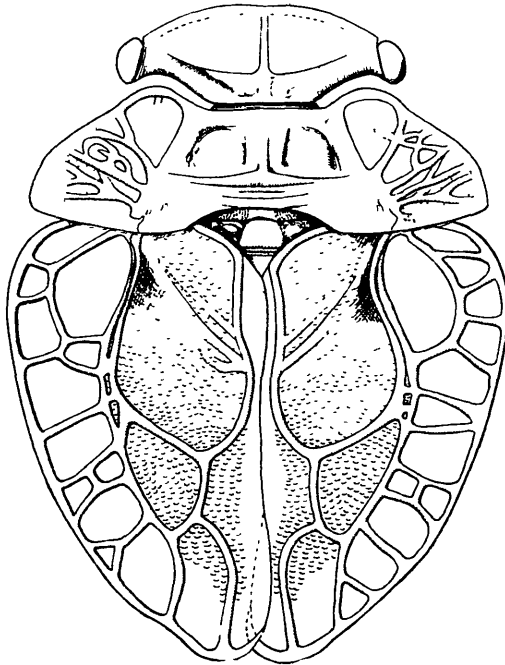
When it was found that the Peloridiidae was represented in Australasia, unworked material in the British Museum was examined and two specimens (one male and one female) were found, these having been collected at Hobart, Tasmania. A new genus was erected for these specimens which were described by China (1924) as *Hemiodoecus leai*. The male of these two specimens was dissected in 1929 and the morphology described for the first time (Myers and China, 1929). From

their work it was concluded that the family could not remain in the Heteroptera, where it had previously been placed, and a new series in the Homoptera, the Coleorrhyncha, was erected to include it. In 1927 a further specimen of *P. hammoniorum* was found in material collected in Argentine Patagonia in 1910. This was a sub-brachypterous male and was described by China (1927).

To the six adult specimens representing the family in the entire entomological collections of the world, three were added in 1932. These had been taken in dense rain forest on the McPherson Range in southern Queensland by Hacker, and were believed to have been beaten from Antarctic beech, *Nothofagus moorei*. They were described by Hacker (1932) as belonging to a new species, *Hemiodoecus veitchi*. The following year the locality was visited by I. W. Helmsing and a number of specimens were collected from the moss *Papillaria kermadecensis*, which grows on dead twigs of Antarctic beech. This was the first time that any member of the family had been associated directly with a host plant (Helmsing and China, 1937). Evans (1936) described a new species, *Hemiodoecus wilsoni*, from "Beech Forest, Victoria," and in the following year (Evans, 1937) he described a further new species, *H. lidelis*, from Tasmania.

NEW ZEALAND SPECIES

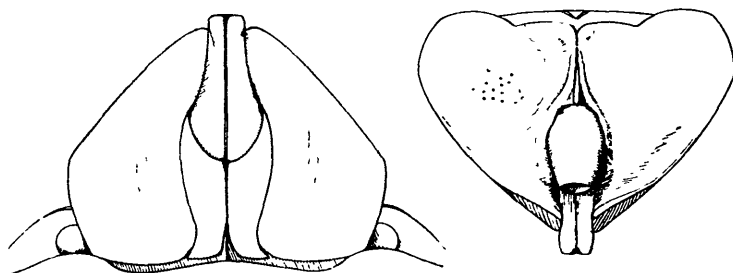
Although the Australian genus *Hemiodoecus* is now fairly well represented, the single adult male and one nymph have represented the New Zealand genus *Xenophyes*. This paper records the discovery of the first female to be collected, two males and six nymphs from Mount Egmont.



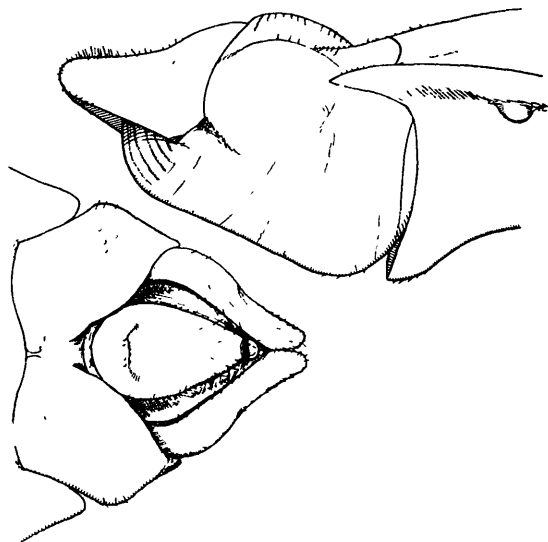
TEXT-FIG. 1—Adult female, *X. cascus* Berg. Length 3.3 mm.

On 12th November, 1945, while collecting in dense *Weinmannia* forest in the vicinity of Dawson's Falls on Mount Egmont, at approximately 3,000 ft., a curious hemipteron was taken from a patch of wet moss on a tree-trunk about 3 ft. from the ground. On examination the insect proved to be a nymphal Peloridiid. The original locality has not been revisited, but in April, 1946, a search was made in a similar situation on the northern side of the mountain at about 4,000 ft. Many tree-trunks were examined without success, and leaf-mould also yielded nothing. The author was accompanied by Miss B. E. G. Molesworth, Botanist of the Auckland Museum, who later discovered a Peloridiid specimen in moss, *Psilopilum crispulum*, which she had collected on the ground in heavy forest. The specimen proved to be a female *Xenophyes*. Further examination of the moss produced four nymphs, unfortunately in a damaged condition. On 7th April, 1947, the vicinity was revisited, and the author collected two adult males and one nymph from a clump of mosses growing on a stone at the base of a large *Weinmannia racemosa*.

The type specimen of *Xenophyes cascus* was not available for comparison, but the Mount Egmont specimens appear from Bergroth's



TEXT-FIG. 2—Female genitalia · Left-ventral aspect; Right-dorsal aspect.



TEXT-FIG. 3—Male genitalia · Top-lateral aspect; Bottom-dorsal aspect.

description to belong to that species. The genitalia of both sexes are figured for the first time in Text-figs. 1-3. It will be seen that the areolae differ slightly on the pronotal paranota and that the venation is not identical in the two tegmina. The males collected also show these slight variations and differ from one another and from the type. This is consistent with variation found in the Australian species and discussed by China (1932).

DISCUSSION

All Mount Egmont specimens were collected in heavy forest where the dominant tree was *Weinmannia racemosa*, the situation sheltered and still, and the atmosphere cold and dark. This agrees with the description given by Helmsing and China (1937) of the environment where they collected *H. veitchi*, except for the different vegetation. It also confirms the statement made by Evans (1941) that "the necessary requirement for their (Peloridiidae) existence is moss growing in a situation where it remains moist all the year round."

Up to the present time the family has been directly associated with *Nothofagus* species. Evans (1941) says "it is certain that in general Peloridiidae and *Nothofagus* have an identical distribution," and Helmsing and China (1937) state "the Peloridiidae are muscivorous insects, attached only to mosses in association with *Nothofagus* species." This is not correct for the New Zealand species. Myers (1926) gives *Weinmannia racemosa* as being the dominant tree in the area at Ohakune where the type specimen was collected, but it has been thought overseas that *X. cascus* might be associated with *Nothofagus fusca*, which is present at Ohakune. However, no species of *Nothofagus* occur at Mount Egmont, and it can no longer be presumed that the Peloridiidae are associated solely with those trees.

The specimens collected at Mount Egmont are in the collection of the Plant Diseases Division, Department of Scientific and Industrial Research, Auckland.

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