

GENERAL NOTE

LEPIDOPTERA FEEDING AT STREAM MARGINS IN NEW ZEALAND

The phenomenon of butterflies and moths feeding at wet mud is well known in North America and the tropics (Downes 1973, *J. Lepid. Soc.* 27: 89-99). Mud feeding by butterflies has also been recorded from Europe (Stallwood 1973, *Bull. Amat. Ent. Soc.* 32: 64-72) and Australia (Common & Waterhouse 1972, *Butterflies of Australia*, Angus & Robertson, Sydney). There are no published records of Lepidoptera feeding from damp ground in New Zealand except for one record of *Bassaris gonerilla* (Fabricius) feeding from wet moss and liverworts beside a stream (Gaskin 1966, *The Butterflies and Common Moths of New Zealand*, Whitcombe & Tombs, Christchurch).

Observations in the summer of 1969-1970 and 1974 revealed that three out of the nine endemic New Zealand butterfly species feed at wet mud and sand beside streams. Males of *Argyrophenga antipodium* Doubleday, *Lycaena boldenarum* (White) and *Zizina oxleyi* (Felder) were often observed feeding at damp mud and sand beside streams at Woolshed Creek, Dunstan Mts., Central Otago, South Island (44°56' S, 169°42' E; 500-650 m). The feeding of male *L. boldenarum* and *Z. oxleyi* involved congregations of from 3-10 individuals in a space of about 20 cm². Male *A. antipodium* were observed feeding less frequently and then only singly or at the edge of the lycaenid concentrations. At Lake Taupo, in the North Island, huge swarms of *Zizina otis labradus* (Godart) have been observed feeding at damp mud and sand (G. W. Gibbs, pers. comm.). This species has been recorded feeding on moist soil in Australia (Common & Waterhouse, *op. cit.*).

On the summit of the Dunstan Mts. (44°53' S, 169°40' E; about 1700 m) males of the day flying geometrids *Dasyuris anceps* (Butler) and *Notoreas anthracias* (Meyrick) were observed drinking water from damp moss beside a mountain spring in December 1969. While water feeding is a well documented phenomenon for butterflies I believe this latter record to be the first observation of this type of supplementary feeding in diurnal temperate Geometridae.

Supplementary feeding at wet mud is usually found only amongst male Lepidoptera (Downes, *op. cit.*). The New Zealand species exhibiting this behaviour are no exceptions. Arms, Feeny and Lederhouse (1974, *Science* 185: 372-374) have shown that *Papilio glaucus* L. males are attracted by sand containing sodium salts and suggest that the need to acquire sodium ions, which are at low levels in many plants, is the major factor governing mud feeding. Downes (*op. cit.*) suggested that the greater flight activity of male Lepidoptera may necessitate higher nutrient levels. The essential role played by sodium in the neuromuscular system of herbivorous insects may thus explain the preponderance of male Lepidoptera in mud feeding congregations.

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