Agromyzidae (Diptera) from Kermadec Islands, New Zealand

MITSUHIRO SASAKAWA

7-6-7 Korigaoka, Hirakata City, Osaka Pref., 573-0084 Japan. E-Mail: sasakawa@star.odn.ne.jp

ABSTRACT

Five species of agromyzid leaf-miners are recorded for the first time from the Kermadec Islands, New Zealand. Two species, *Ophiomyia cornuta* de Meijere and *Phytoliriomyza tahitiensis* Sasakawa, are new to the fauna of New Zealand.

KEYWORDS

Leaf-miners, Agromyzidae, new records, Kermadec Is., New Zealand

INTRODUCTION

Forty one species of Agromyzidae are known to occur in New Zealand (Watt 1923, 1924; Harrison 1959; Spencer 1976; Martin 2007). I had an opportunity to examine a small collection of agromyzid leaf-miners from Raoul I., Kermadec Islands, collected in September-November 1962 by Dr. G. A. Samuelson (GS), Bishop Museum, Honolulu, U.S.A. The Kermadec Islands are 1000 kms North East of New Zealand and overlap with the Polynesian Island biogeographic zone. The material comprises five species, of which three species: the Australian grass-feeder, *Cerodontha (Cerodontha) australis* Malloch, a leaf-miner on *Myoporum* (Myoporaceae); *Liriomyza citreifemorata* (Watt); and the polyphagous leaf-mining invader, *Chromatomyia syngenesiae* Hardy, are common in New Zealand and on Chatham Is. Two species, *Ophiomyia cornuta* de Meijere which is a widely distributed Oriental/ Australian leaf-miner on *Scaevola* (Goodeniaceae), and the Tahitian *Phytoliriomyza tahitiensis* Sasakawa, are recorded from New Zealand for the first time. Notes on the taxonomy, distribution and biology are provided below.

1. *Ophiomyia cornuta* de Meijere

Ophiomyia cornuta de Meijere, 1910: 161.
Ophiomyia scaevolae Frick, 1953: 209.
Ophiomyia goodeniae Spencer, 1963: 323.

Material examined. Raoul I.: 1♂1♀, Fishing Rock, 5 m, 16 Sept. 1962, swept on *Scaevola gracilis*, GS.

Remarks. Spencer (1976) was surprised by the absence of the genus *Ophiomyia* Braschnikov from New Zealand. However, its presence was confirmed when it was swept from its larval host plant on Raoul Island.

Distribution. Indonesia (Krakatau), Chagos Is., Canton Is., Fiji, Australia, New Zealand (Kermadec Is., new record), Japan (Ryukyus).

2. *Cerodontha* (*Cerodontha*) *australis* Malloch

Cerodontha australis Malloch, 1925: 89; Spencer, 1976: 166.

Material examined. Raoul I.: 1♀, Station, 75 m, 3 Sept. 1962, GS; 2♂3♀, Mt. Moumoukai, 530 m, 4 Sept. 1962, GS; 6♂, N. Terrace, 75 m, 7-11 Sept. 1962, GS, at light; 1♀, Bell's Ravine, 75 m, 13-22 Sept. 1962, GS, Malaise trap; 2♀, N. Terrace, 18 & 23 Sept. 1962, GS, swept from clover, *Cynodon* (Poaceae) and *Kyllinga* (Cyperaceae); 19♂2♀, Station, 21-30 Sept. 1962, GS, at light; 2♂2♀, N. Slopes, 200 m, 3-11 Oct. & 27 Oct.-5 Nov. 1962, GS, Malaise trap.

Remarks. This is one of the commonest agromyzid species in New Zealand, occurring in large numbers in meadows and at roadsides as a grass-miner of ten host species (Poaceae) (Spencer 1976; Martin 2007).

Distribution. Australia, Norfolk I., New Zealand, Chatham Is., Snares Is.

3. *Liriomyza citreifemorata* (Watt)

Agromyza citreifemorata Watt, 1923: 478.

Liriomyza citreifemorata: Harrison, 1959: 323.

Material examined. Raoul I.: 2♀, N. Terrace, 75 m, 3-6 Sept. 1962, GS, at light; 2♀, N. Slopes Ridge, 200 m, 22-30 Sept. 1962, GS, Malaise trap; 3♂2♀, Blue Lake, N. Shore, 3 m, 12-25 Oct. 1962, GS, Malaise trap; 4♀, NE Slopes Ravine, 200 m, 27 Oct.-5 Nov. 1962, GS, Malaise trap.

Remarks. The specimens examined are small, with wing length 1.8-1.9 mm in the males and 1.9-2.4 mm in the females; the postorbit is yellow on the upper half and both vertical bristles arise from the yellow ground; the legs are darker: fore and hind coxae are brown at their base, all femora are brownish-striated to some degree, the mid- and hind-femora are distinctly brownish at bases, all tibiae except for bases and tarsi are brown.

The male genitalia are distinctive in having a pair

of narrow sclerites on the ventro-lateral sides of the mesophallus. *Myoporum kermadecense* is the only *Myoporum* species on the island and is the probable host plant and therefore a new host association.

Distribution. New Zealand.

4. *Phytoliriomyza tahitiensis* Sasakawa, sp. rev.

Phytoliriomyza tahitiensis Sasakawa, 1963: 503.

Material examined. Raoul I.: 2♂5♀, Bell's Ravine, 75 m, 13-22 Sept. 1962, GS, Malaise trap; 1♀, Blue Lake, 3 m, 12-25 Oct. 1962, GS, Malaise trap; 1♂, NE Slopes, 200 m, Ravine, 27 Oct.-5 Nov. 1962, GS, Malaise trap.

Remarks. This species was described from a single male from Fautaua, Tahiti. The specimens from Kermadec Is. provide the first record for New Zealand.

On the basis of the original description and figures (Sasakawa 1963: figs. 5a, b), Spencer (1965) synonymized *P. tahitiensis* with *P. australensis* Spencer, 1963, a species known from Australia, Nepal, Sri Lanka and Thailand. Spencer (1977) also believed that the membranous, coiled distal tubules of the distiphallus were overlooked in *tahitiensis*. This synonymy is rejected because examination of two males from Kermadec Islands confirm that the short tubules, which are 3/4 length of the phallapodeme, are never coiled distally. Similar short distiphallic tubules are seen in the phallus of Australian *Phytoliriomyza collessi* Spencer (1977: figs. 242, 243), *P. pittosporocaulis* (Hering, 1962), and *P. pittosporophylli* (Hering, 1962) (cf. Spencer 1977: figs. 260-4 for phallus and epandrium). *P. tahitiensis* can be distinguished from these three species by the epandrium having only one spine in the posterior ventral corner, while in the other three species the epandrium is densely spinose (12-20 spines) along the inner margin.

P. tahitiensis is smaller, with wing length less than 1 mm (in *australensis* 1.4-1.5 mm), the mesoscutum is brownish testaceous and slightly gray-dusted (in *australensis* matt gray), and the ultimate section of CuA_1 is twice as long as the penultimate (in *australensis* shorter, about 1.3 times). The host plant is unknown.

Distribution. Tahiti, New Zealand (new record).

5. *Chromatomyia syngenesiae* Hardy

Chromatomyia syngenesiae Hardy, 1849: 391.

Phytomyza syngenesiae: Griffiths, 1967: 177.

Material examined. Raoul I.: 2♀, Station, 75 m, 21-30 Sept. 1962, GS, at light; 10♂ 15♀, N. Crater Rim, 100 m, 17 Oct. 1962, reared from puparia on *Sonchus*, GS.

Remarks. This is a well-known exotic leaf-miner on the Asteraceae in New Zealand as *Phytomyza albiceps* Meigen (Watt 1923) and as *Phytomyza atricornis* Meigen (Harrison 1959), introduced probably from Europe.

Distribution. Europe, Canada, U.S.A., Australia, New Zealand.

ACKNOWLEDGMENTS

I wish to express my sincere gratitude to Mr. John Charles, Scientific Editor of the New Zealand Entomologist, for his kind consideration in acceptance of this paper. Also I thank two anonymous reviewers for their useful comments.

REFERENCES

Frick KE. 1953. Further studies on Hawaiian Agromyzidae (Diptera) with descriptions of four new species. *Proceedings of Hawaiian Entomological Society 15:* 207-215.

Griffiths GCD. 1967. Revision of the *Phytomyza syngenesiae* group (Diptera: Agromyzidae), including species hitherto known as "*Phytomyza atricornis* Meigen". *Stuttgarter Beiträge zur Naturkunde No. 177:* 1-28.

Hardy J. 1849. On the primrose leaf-miner; with notice of a proposed new genus, and characters of three species of Diptera. *Annals and Magazine of Natural History (3)4:* 385-392.

Harrison RA. 1959. *Acalypterate Diptera of New Zealand.* New Zealand Department of Scientific and Industrial Research Bulletin 123: vii+382 pp. Whitcombe & Tombs Ltd., Christchurch.

Hering EM. 1962. Galls of Agromyzidae (Dipt.) on *Pittosporum undulatum* Andr. *Proceedings of the Linnean Society of New South Wales 87:* 84-91.

Malloch RA. 1925. Notes on Australian Diptera. No. VI. *Proceedings of the Linnean Society of New South Wales 50:* 80-97.

Martin NA. 2007. Ecological observations on grass leaf mining flies in New Zealand. *New Zealand Entomologist 30:* 35-39.

Meijere JCH. de. 1910. Studien über südostasiatische Dipteren. IV. Die neue Dipteren-fauna von Krakatau. *Tijdschrift voor Entomologie 53:* 59-190.

Sasakawa M. 1963. A revision of Polynesian Agromyzidae (Diptera). *Pacific Insects 5:* 489-506.

Spencer KA. 1963. The Australian Agromyzidae (Diptera, Insecta). *Records of Australian Museum 25:* 305-354.

Spencer KA. 1965. Agromyzidae. In Diptera from Nepal. *Bulletin of the British Museum (Natural History) Entomology 16:* 25-31.

Spencer KA. 1976. The Agromyzidae of New Zealand (Insecta: Diptera). *Journal of the Royal Society of*

New Zealand 6: 153-211.

Spencer KA. 1977. A revision of the Australian Agromyzidae (Diptera). *Western Australian Museum, Special Publication No. 8:* 1-255.

Watt MN. 1923. The leaf-mining insects of New Zealand, Part III – Species belonging to the genera *Agromyza* (Fallén) and *Phytomyza* (Fallén). *Transactions of the New Zealand Institute 54:* 465-489.

Watt MN. 1924. The leaf-mining insects of New Zealand, Part V. *Transactions of the New Zealand Institute 55:* 674-687.