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Notes on flax spider mite, *Tetranychus moutensis* (Acari: Tetranychidae), a herbivore of New Zealand flax, *Phormium* species (Hemerocallidaceae)

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The tetranychid mite associated with New Zealand flax, *Phormium tenax* (Hemerocallidaceae) was first mentioned by Cumber (1954) in a paper about the insects and mites associated with New Zealand flax. He reports that Dr F.J. Newhook found the mites in 1949 at the Phormium Research Station, Paiaka near Shannon and that the mites were common. They were initially identified as *Septanchus* or *Tetranychus* species. The mites were rediscovered in 1969 in a flax plantation on the Moutoa Estate, near Shannon in southern North Island. The mites were abundant and caused a skin irritation on many workers cutting flax leaves. This rediscovery led to the formal description and naming of *Tetranychus moutensis* (Manson 1970).

Tetranychus moutensis has only been found in southern North Island and in the Auckland Region, but it is probably found throughout the country where its host plants grow. It has been found on both species of New Zealand flax, *P. tenax* and *P. cookianum*. The mites live in sheltered sites on the underside of leaves, often starting a colony around the moulted skin of a plant hopper or by a scale insect (Fig. 1). Mite feeding creates a pale area of leaf. The colonies sometimes appear red due to the high density of eggs (Fig. 2).



FIGURE 1. Colony of *Tetranychus moutensis* formed by passion vine hopper (*Scolypopa australis*) moulted skins on a leaf of New Zealand flax, *Phormium tenax* (Hemerocallidaceae) (photograph by Tim Holmes, copyright Plant & Food Research).

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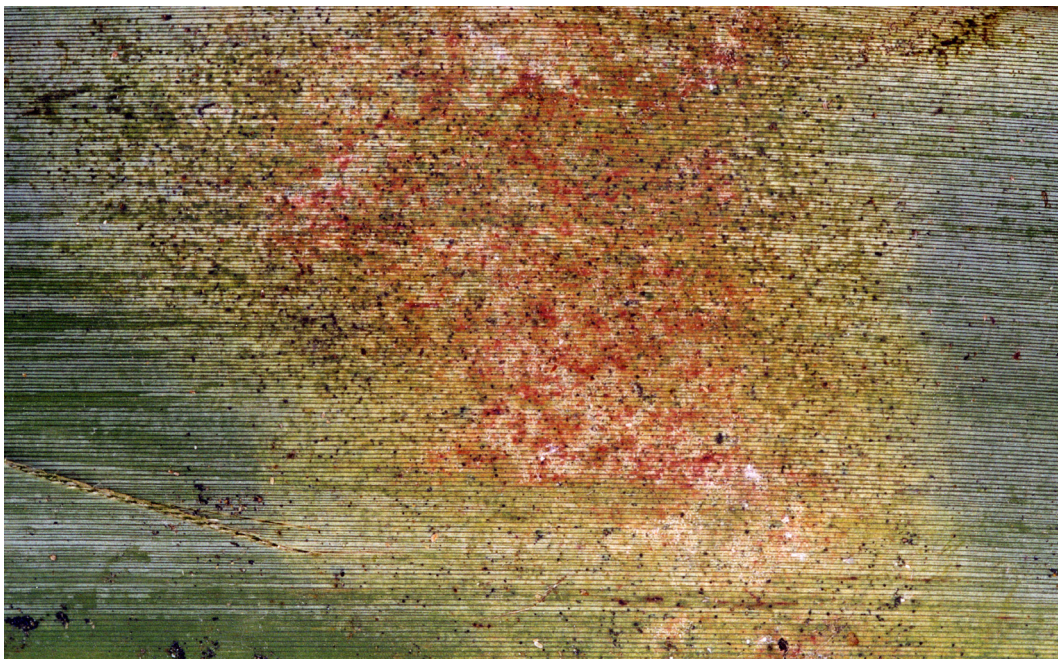


FIGURE 2. Colony of *Tetranychus moutensis* (Acari: Tetranychidae) on a leaf of New Zealand flax, *Phormium tenax* (Hemerocallidaceae) (photograph by Nicholas A. Martin, copyright Plant & Food Research).

Adult female mites are 0.6–0.8 mm long (Fig. 3C). Males are slightly smaller and have a pointed end to their abdomen (Fig. 3B). Adult mite bodies have large lateral dark areas and a brownish green background colour. The legs are whitish or tinted orange. The spherical eggs are pale orange. The larva lacks the reddish colour and black spots while the nymphs have lateral black spots (Fig. 3A).

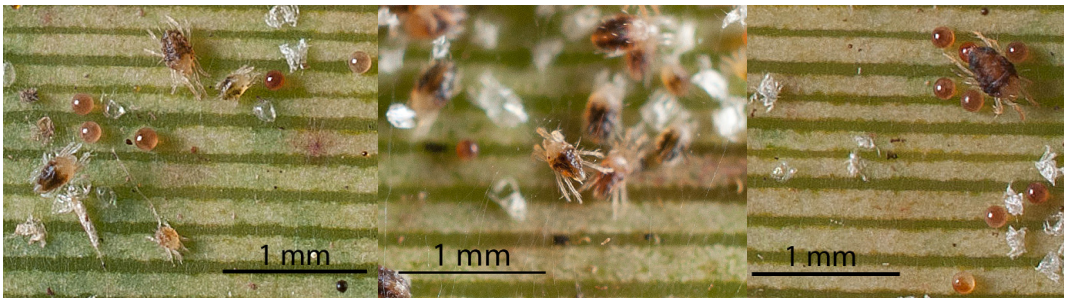


FIGURE 3. *Tetranychus moutensis* (Acari: Tetranychidae) on leaf of New Zealand flax, *Phormium tenax* (Hemerocallidaceae). A, Eggs, larvae and nymphs of flax spider mite B, Male. C, adult female with red spherical eggs and white moulted skins of juvenile mites (photographs by Tim Holmes, copyright Plant & Food Research).

Two predators of the flax spider mite have been found in colonies around urban Auckland. *Phytoseiulus persimilis* (Acari: Mesostigmata: Phytoseiidae), a predatory mite released into New Zealand to assist with biological control of two-spotted mite, *Tetranychus urticae* (Thomas & Walker 1989). The other predator is one of the several *Stethorus* species (Coleoptera: Coccinellidae) found in New Zealand.

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Maori, the Polynesian settlers of New Zealand, used the leaves of flax for weaving mats and other things such as bags. They also extracted the fibre from leaves which was used to make cloth (King 2003). After contact with Europeans, flax fibre was exported for use in rope nets, sacks and canvas sails (King 2003). After European settlement, further plantations of flax were established for the production of fibre (Ayson 1977). This continued until the late 1960s (Cumber 1954, Manson 1970). *Tetranychus moutensis* was discovered in commercial plantations (Cumber 1954, Manson 1970) though feeding by the mites appears to cause only superficial damage to leaves. High numbers of mites on leaves can, however, cause skin irritation to workers cutting and handling leaves (Manson 1970). It was, apparently, the squashed mites smeared onto exposed skin that caused considerable "itching" to susceptible persons. In some cases medical treatment was required.

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