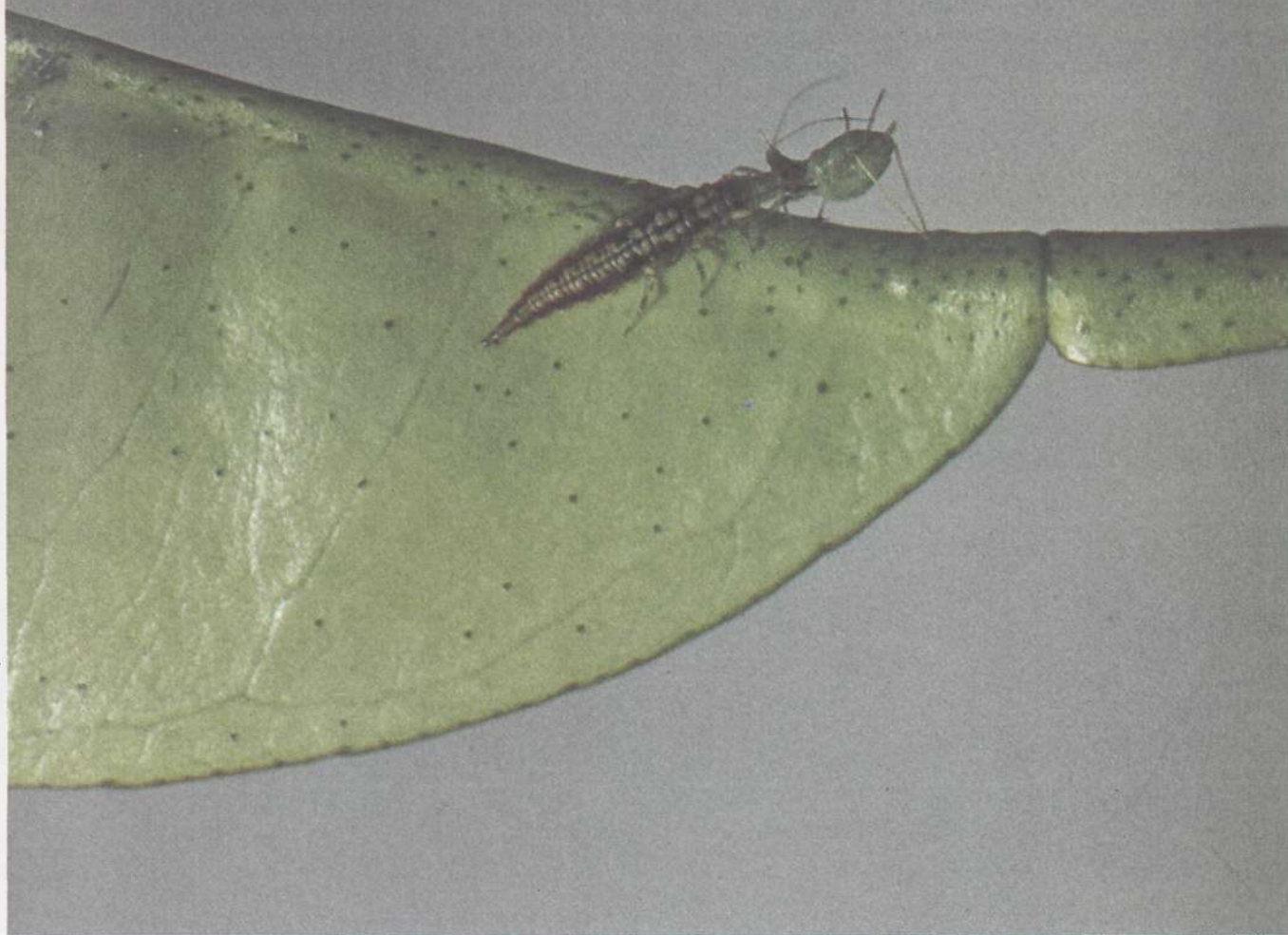


Lacewings



J. H. Green

The lacewings are pretty insects but because they are often either uncommon or small, are not very well known. The wings in most species have many veins and cross-veins which give them the lacy appearance from which their common name is derived.

Lacewings belong to the Order Neuroptera, which in the past, has been used to include many insect groups because of their similar general appearance. A book published in 1904, *New Zealand Neuroptera*, by G. V. Hudson, included birdlice, termites, booklice, stoneflies, dragonflies, mayflies, the

dobsonfly, lacewings and caddisflies, most of which have now been separated into Orders equivalent to the Neuroptera. The closely related alderflies and dobsonflies have sometimes been retained in the Neuroptera, but are now better placed in a separate Order, the Megaloptera.

The life-history of lacewings is completely metamorphic. There are the immature stages, eggs, larva, pupa, and the winged adult stage, the imago. The eggs may be inserted in crevices, stuck on a surface or even raised on a stalk. The larvae are all predatory and feed voraciously on



G. W. Batt

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1 A lacewing larva, *Micromus tasmaniae*, eating an aphid.

2 The larva of the aquatic dobsonfly has biting mouthparts, large mandibles, and a dark, strongly-encased thorax and head.

other insects or small invertebrates. They have sucking mouthparts and the mouth opening is non-functional for taking in food. There are two slender external jaws, each with a canal through which digestive juices are pumped into the prey; the partially pre-digested food is later sucked back in liquid form through the canals directly into the internal digestive system. Some larvae have a characteristic habit of raising the head while feeding, so the prey, impaled on the end of the jaws, is raised in the air. The posterior segment of the abdomen is modified and is often used as a foot to help movement; it is also used as a spinneret, secreting silk through the anus. Most species spin a typical two-layered cocoon — one cocoon inside another. Inside this, the larva changes to a pupa from which the

winged adult eventually emerges. Adults, which are also predators, have normal biting mouthparts.

Eleven Species

There are 11 true lacewing species and one dobsonfly in New Zealand. A green lacewing, *Chrysopa basalis*, a widespread oceanic species, is also found in the New Zealand sub-region at the Kermadec Islands; attempts have been made recently to establish a North American green lacewing species in New Zealand.

The dobsonfly, *Archichauliodes diversus*, is an aquatic species. Eggs are laid on stones in streams and rivers just above the water surface. The larvae, after hatching, drop into the water. Commonly called toe-biters or black creepers, the larvae

are recognisable by the long filaments down both sides of the abdomen, the dark, strongly-encased thorax and head, and the large, strong mandibles. They have biting mouthparts to feed on other aquatic insects and small invertebrates.

Larvae pupate in a cell in damp soil or among stones near the water. The adult has brown speckled forewings with a wingspan of 60-80 mm.

The largest lacewing, *Weeleus acutus*, is one of the world's best-known lacewings because of its larva, known as the ant-lion. This larva inhabits dry dusty or sandy soils and digs a conical pit in which it lies, ready to seize in its long curved jaws any ant or other wandering insect which may fall in. The adult wingspan is 65-80 mm; the wings are long and thin and





Both photos by R. R. Forster

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mainly clear with some brown spotting.

The middle-sized group of lacewings comprises three species of *Kempynus* and one of *Euosmylus*. Their larvae are not aquatic but inhabit the edges of streams and may feed on both aquatic and terrestrial insects. The larvae have long, needle-like jaws. The adult wings are brown and variously speckled; wingspans are 300-600 mm.

The small brown lacewings, with wingspans of 10-20 mm, are usually associated with vegetation because the larvae are predatory on aphids, mealy-bugs and other small insects. The species *Wesmaelius subnebulosus* is a common European lacewing but was long thought to be a native of New Zealand under the name of *Boriomyia maorica*. The common species, *Micromus tasmaniae*, is widespread, from Australia and the

New Hebrides to New Zealand, the Chatham Islands in the east and Auckland Islands in the south. The larvae are commonly known as aphid-lions and help control aphid pests on crops. *Drepanacra binocula*, another widespread species, has broad wings with very variable markings. There is also one native species of *Micromus* and one of *Protophiella*. A small Australian species, as yet unnamed, has recently been recorded in New Zealand.

One uncommon tiny species, *Cryptosceneae australis*, with a wingspan of only 5-6 mm, is also found in Australia. Adults have a white coating of a mealy substance, similar to that on mealy-bugs, on the wings and body. The species has been found associated with mealy-bugs on rushes, and has also been found on fruit trees.

K. A. J. W.

1 A common species of lacewing, whose larvae are called aphid-lions.

2 Lacewing larvae are all predatory and feed voraciously on small insects and other invertebrates. This *Micromus tasmaniae* larva is seen in a colony of aphids, its common prey.