

TINY DEFENDERS IN YOUR GARDEN:

THE GOOD WASPS OF THE TORRES
STRAIT AND NPA



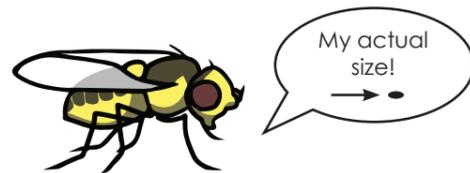
Have you seen this damage on vegetable plants in your garden?

This is caused by the vegetable leafminer fly (VLM), a garden pest found in the Torres Strait and the Northern Peninsula Area.



What is the veggie leafminer fly?

The vegetable leafminer fly (*Liriomyza sativae*, VLM) is a very small black and yellow fly that feeds on vegetable plants, such as tomatoes, melons, lettuces and beans, as well as some flowers including marigolds. It has four life stages: egg, larva (or maggot), pupa, and adult. As larvae, they tunnel through leaves to feed, creating thick white trails, called 'leaf mines'. Heavy leaf mining can reduce plant growth or even kill young plants.



Is VLM a problem in my garden?

VLM has caused devastating losses to farms overseas. However, you will not see them reach such problematic numbers in your garden in the Torres Strait and NPA. This is because VLM are naturally controlled by tiny predators, called parasitoid wasps.



Parasitoid wasps are tiny (almost microscopic) wasps that attack leafminer flies such as the vegetable leafminer fly. These wasps do not harm humans. **In 2018, we found that parasitoid wasps were killing between 40% and 80% of vegetable leafminer fly larvae in the Torres Strait and NPA. This means the flies would be a much bigger pest in your garden, if not for these tiny wasps!**

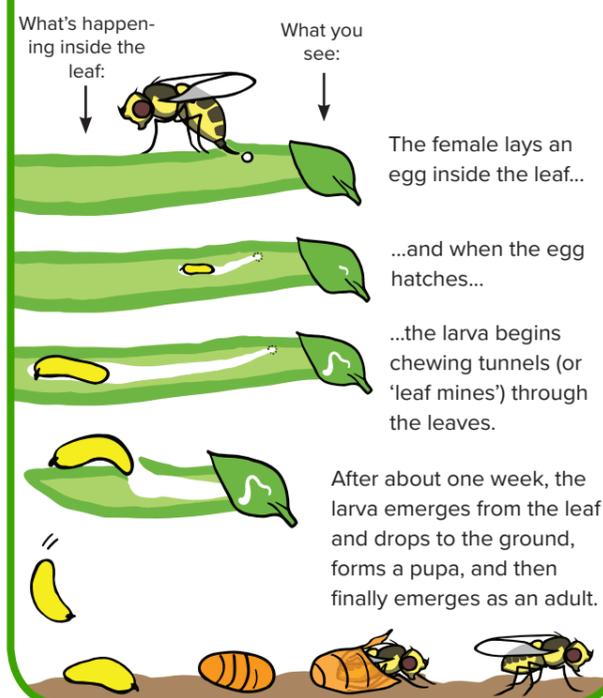
On large farms, where chemicals are frequently sprayed, VLM do become a much bigger problem. This is because VLM are resistant to many chemicals. But their predators, the tiny parasitoid wasps, are very sensitive to chemicals and can be wiped out by a single spray. If that happens, the insect community loses its balance, and the flies are able to grow to extreme numbers, capable of killing entire crops.

How do wasps control VLM?

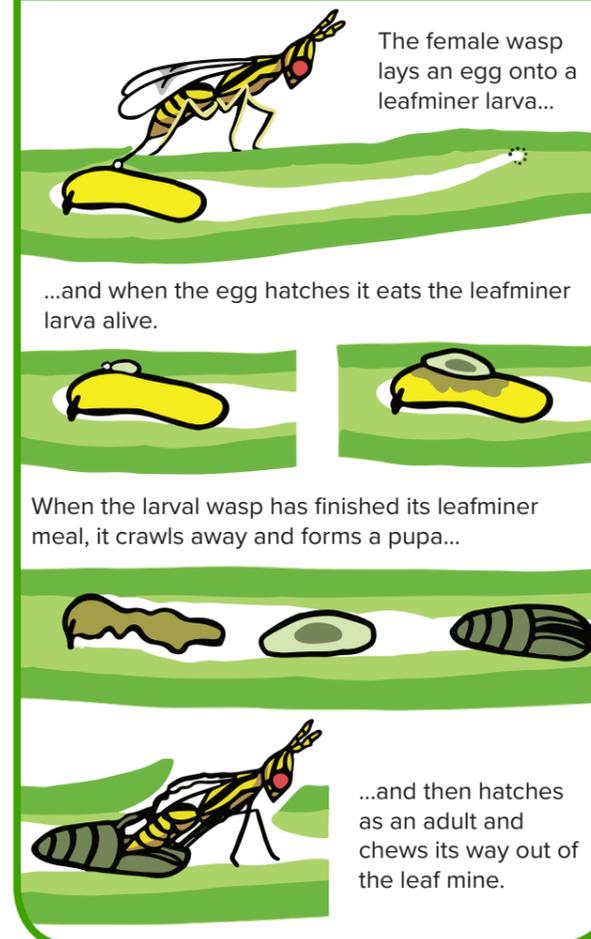
There are many species of parasitoid wasps, and different species have different life cycles. The life cycle of an "ectoparasitoid" wasp (or a wasp which develops on the outside of the fly) is described below:

Female wasps search for fly larvae inside leaf mines. They use a needle like tube to paralyse the fly larvae and inject their eggs onto its back. When the eggs hatch, the wasp larva kills and eats the fly larva, then completes its development and finally emerges from the leaf mine as an adult. As described by a student at the Tagai State College "its babies eating babies!"

How plants are damaged:



How wasps kill flies:



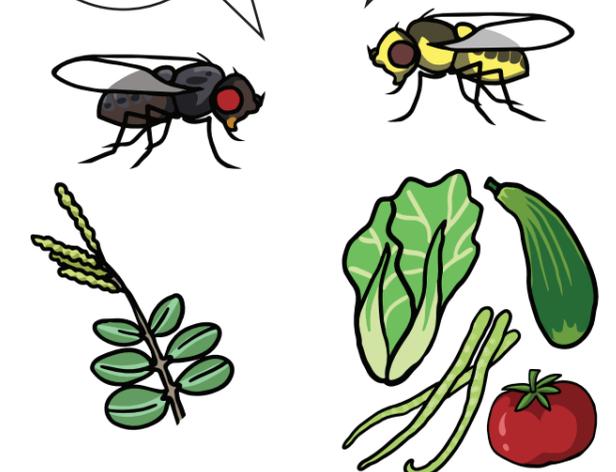
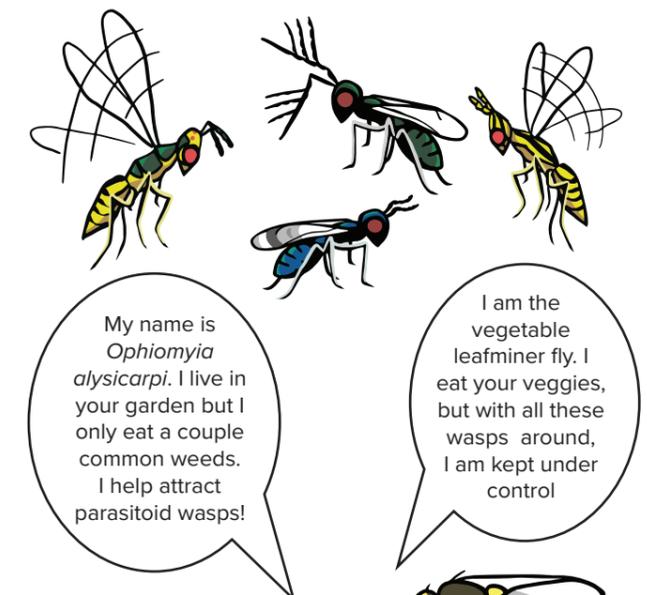
Where did the wasps come from?

VLM only arrived in the Torres Strait relatively recently, but the wasps have been around much longer. So what were the wasps eating before VLM arrived? Within the Thursday Island group and the NPA, these wasps also eat at least three other species of leafminer flies that have also been around long before VLM arrived. When VLM arrived in the Torres Strait and the NPA in 2015, they were quickly attacked by wasps that were already living here.



Are all leafmining flies bad?

Most of the native leafminer flies that live in the Torres Strait and NPA could actually be quite good for your garden! This is because most do not like to feed on garden crops, but they still attract the good wasps that also like to eat VLM. For example, *Ophiomyia alysicarpi* flies are found all over the Cape York Peninsula and the Thursday Island group. But they only like to eat specific weeds (*Alysicarpus* and *Desmodium*) which grow commonly along roadsides and in gardens. These *Ophiomyia* flies won't hurt your veggies, but having them in the weeds nearby will keep the parasitoid wasps around to protect your veggies.



So who are the good wasps in my garden?

Meet them on the next page...

THE GOOD WASPS OF THE TORRES STRAIT AND NPA

Get to know the good wasps that protect your garden!

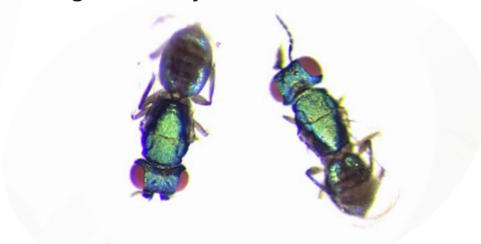
Here are four of the most common parasitoid wasps protecting gardens in the Torres Strait and NPA



Zagrammosoma latilineatum is the most common parasitoid wasp in Seisia, Thursday Island and Horn Island. It has bright yellow and black stripes, and red, sparkling eyes.



Cirrospilus ambiguus has a bright yellow head and an iridescent green body.



Closterocerus miribalis is iridescent green all over, and its name means 'beautiful'.



Hemiptarsenus varicornis male wasps have antennae that look like antlers.



Left: *Closterocerus miribalis* resting near a leaf mine. Right: *Zagrammosoma latilineatum* hunting a vegetable leafminer larvae inside a leaf mine.

**Hort
Innovation**

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If you have any questions about vegetable leafminer or parasitoid wasps, please get in touch with:

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