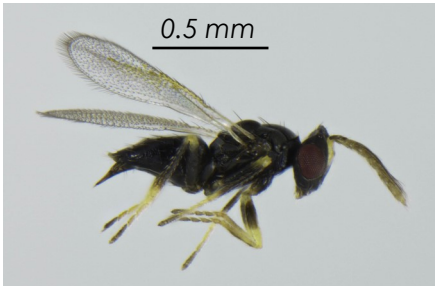
Tamarixia triozae

A biological control agent of Tomato Potato Psyllid

- *Tamarixia triozae* is a parasitoid and predator of tomato potato psyllid (TPP) and **kills TPP nymph hosts** through it's larvae developing on the nymphs, or by adult parasitoids feeding on the nymphs.
- In 2016 approval was given by the EPA to release *Tamarixia* as a biological control agent (BCA) of TPP in New Zealand.



Tamarixia triozae female
(Photo: J. Poulton, PFR)

- An MPI SFF-funded research project is now underway to release *Tamarixia* in NZ horticultural areas. This project will enable industry to understand how well *Tamarixia* will establish and control TPP, and how *Tamarixia* can be used in industry pest management programmes. This release programme will be for 3 years, starting in April 2017, once biosecurity clearance to release *Tamarixia* has been given by MPI.

How does *Tamarixia* control TPP?

1. A female *Tamarixia* lays a single egg on the underside of the psyllid nymph, between the nymph and the leaf, gluing the egg to the underside of the nymph.
2. The parasitoid larva will feed on the TPP nymph and kill it.
3. The parasitoid larva becomes an adult within the remains of the TPP nymph. It chews a hole through the TPP nymph shell to emerge as an adult.

Tamarixia triozae about to parasitise a TPP nymph
(Photo: P Workman, PFR)

A healthy TPP nymph alongside a parasitised nymph (showing the exit hole)
(Photo: G. Avila, PFR)

***Tamarixia* BCA programme supporters:**

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4. The parasitoid larva will feed on the nymph and kill it.
5. You can tell if a TPP nymph has been parasitized by the distinctive round exit hole.
6. Female *Tamarixia* prefer to lay eggs on 4th and 5th instar psyllid nymphs.
7. *Tamarixia* adults are also **predators** and **feed** on 1st and 2nd instar nymphs.

The remains of a tomato potato psyllid (TPP) with the exit hole where the *Tamarixia triozae* adult emerged. (Photo: G. Avila, PFR)

- A single female can lay up to 165 eggs during her lifetime.
- Under rearing conditions of 26°C, 60% RH, with adult *Tamarixia* fed TPP nymphs and honey;
  - Average development time (egg to adult): 12 days
  - Average adult female life span (honey-fed only): 47 days
  - Average number TPP eaten per day: 3
  - Average number TPP parasitised per day: 3 to 7
- Parasitised TPP nymphs died 4 days after the *Tamarixia* egg was laid but it could take up to 12 days to see the exit holes.

Management and monitoring of *Tamarixia* releases

- *Tamarixa* is sensitive to some insecticides. Use of 'softer chemistry' is recommended to preserve *Tamarixia* and other beneficial insects .
- Monitoring of *Tamarixia* releases will involve surveys of release sites, and where possible, the use of 'sentinel' plants (plants with psyllid host placed at release sites) for monitoring biological control of TPP.

A predated TPP nymph with its upper and underside views together. Predated nymphs appear shrunken and sucked dry. (Photo: G. Avila, PFR)

Healthy tomato potato psyllid (TPP) nymph (Photo: G. Avila, PFR)

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