

Plant it and they will come

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In December 2021, for the very first time since we have been on our property, in Tolga, we were blessed with the arrival of dozens of Five-Bar Swordtails (Figs 1, 2). At first, I thought they had just flown in but after females were seen ovipositing near the top of the tree, it was noticed that the foliage on most of the higher branches had been eaten, so some females must have visited a month or so earlier and these butterflies must have emerged in our garden. This is the only part of the plant that was producing new growth. It seems that if the ends of the branches are not stripped by larvae, no more new growth is produced for that season, so the larvae actually make the next flush come for the following brood.

The Five-Bar Swordtail (*Graphium aristeus*) is rarely observed and most butterfly enthusiasts have rarely seen it, even living in the tropics. This butterfly prefers two types of habitats, one being drier, semi-deciduous to deciduous rainforest amongst granite boulders, and in higher rainfall rainforest on the east coast, on lower sections of streams that flow from the hills or mountains to the west. One exception is the very special rainforest at Shipton's Flat, near Cooktown on the property of the Roberts family. In the dry rainforest their host plant is *Miliusa traceyi* while in the moist coastal areas, host plants are *M. brahei* and *M. horsfieldii*.

In the dry rainforests the larvae do not appear to pupate on the tree as it is deciduous. Graham Wood (Wondecla) reported finding pupae under the boulders in leaf litter on Mt White, which is on Lochinvar Station, near Coen, Cape York Peninsula. This would offer the pupae protection, as it is assumed that, like the Four-Bar Swordtail, they can skip seasons.

Lewis Roberts, from Shipton's Flat, has observed this butterfly fairly closely, as they breed most years on his property and he has passed his observations on to me. The most interesting behaviour of the females is that they mostly lay their eggs in batches, rather like the White Nymph (*Mynes geoffroyi*) does. This is the only swallowtail butterfly in Australia that does this. The small larvae are gregarious at first, then start to spread out as they get larger.

The pupae are attached very flimsily, with a girdle that breaks easily and the cremaster separates easily from the silken pad. Lewis has found pupae under the leaves of the host plant but many of over-wintering pupae will end up in the leaf litter underneath the tree. As *M. traceyi* and *M. horsfieldii* shed all their leaves each season, before flowering and flushing with new growth, pupae attached to leaves will eventually drop to the ground. Male butterflies seem to be aware of this and



Fig. 1. Five-Bar Swordtail (*Graphium aristeus*)

therefore spend time cruising over leaf litter under the host plants, only a few centimetres from the ground, searching for freshly emerged females. They did this for over a week under our tree at Tolga and Lewis also observes this behaviour during each brood at Shipton's Flat. He has observed once only, *G. aristeus* at Shipton's flat reach such large numbers, that all the host plants in the rainforest were stripped of their leaves and thousands of larvae were crawling down the trunks, looking for more host plant. A large number of these would have ultimately perished.



Fig. 2. Five-Bar Swordtail mating

The Five-Bars spread out on migratory flights following a good brood and can be seen feeding on nectar or mud puddling, as they refuel, before continuing on their way. They have been seen at least 200 km from known breeding sites. Most of the females never find a host plant to oviposit on but if you are lucky enough to have one growing in your garden, when they pass by, they will certainly lay eggs. The resulting adults do not usually remain but move on. Occasionally they are seen on Mt Archer, near Rockhampton, but the nearest *Miliusa* plants are about 200 km to the north of this site.

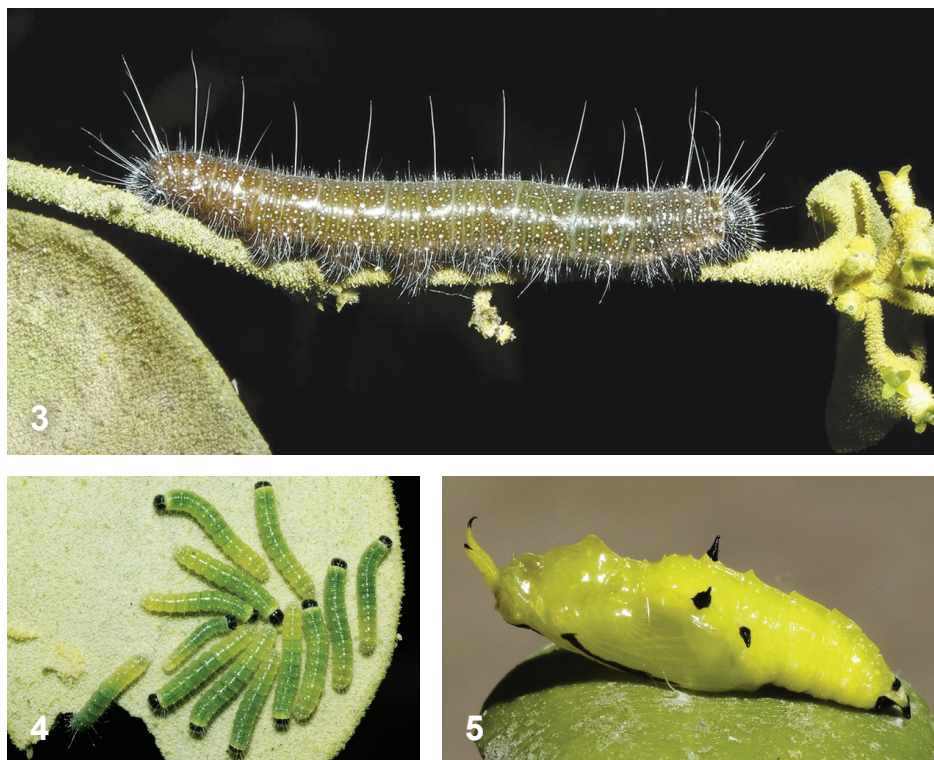
When my wife (Nada) and I moved from Mt Tamborine to Tolga in 1982, we left about 2000 plants in tubes with a friend of ours, who owned a large wholesale nursery on the mountain. These were later shipped to us in 1983, when we had established bush houses to hold them. Most of these plants were butterfly host plants, which were our primary interest at that time. Thus, we planted the first *M. traceyi* plants in 1984, and in 1985, planted the one which the *G. aristeus* females laid eggs on this season. It is on a bank just behind the house and is now about 15 m tall. This species is deciduous and in about mid-October, after the first storm, all the leaves fall and then thousands of small yellow flowers appear all along the branches. When the flowers are almost mature, a flush of soft green new growth starts. Sometime, over the next month or so, the *G. aristeus* will emerge from these dormant pupae and the first brood has a mass of fresh foliage to feed on.

When we started planting our host plants in the garden, the growth rate was extremely fast, as the soil had been cultivated with a bull dozer and covered with a heavy layer of peanut-shell mulch. Most plants took off, with a growth rate of about 2 m a year. It took only about six months for many butterflies to find them. Interestingly Ulysses butterflies (*Papilio ulysses*) oviposited on many different southern Queensland plants in the Rutaceae family, including *Acronychia*, *Flindersia*, *Melicope* and *Acradenia*. The larvae were quite happy to feed on these but this only happened while the plants were juvenile.

Some rainforest species are reluctant to move too far from their habitat. It took five years for *P. ambrax* to arrive, even though they breed in the Tolga Scrub, only a few km away.

Over the years, most of the butterflies that we have host plants for, have bred in the garden. The main exceptions being various Lycaenidae that are associated with specific ants. A few Lycaenidae that breed regularly are the Small, Large and Tailed Green Banded Blues, as well as the Shining Pencilled Blue. The latter, though small, has a shimmering blue male, that certainly catches one's eye. One exciting arrival was (Figs 3–5) Yellow-banded Jezebel (*Delias ennica*) in 2016.

These are usually seen in the garden each year but the specific host plant *Notothixos leiophyllus* (Goldenleaf Mistletoe) was not in the garden. A plant established itself on a *Melicope rubra* and the larvae that year completely defoliated it. Since then, we have seen fresh specimens regularly but the mistletoe must be high up in the trees and out of sight.



Figs 3–5. Yellow-banded Jezebel (*Delias ennica*)

Another exciting arrival was the Hercules Moth (*Coscinocera hercules*) (Figs 6,7) in 2004. Since then, they have appeared from time to time and have several host plants, including all *Flindersia* spp, all *Glochidion* spp, all *Polyscias* spp, *Petraeovitex multiflora* (a large vine from Cape York) and *Homalanthus novoguineensis*. In addition, large numbers bred on the *Petraeovitex* vine.

So, it seems that if you plant the correct host plants the butterflies will likely find them, provided of course you live within a reasonable distance from where they naturally occur, which can be up to 200 km away. If you have a rainforest garden the number of open forest species will be limited and the reverse is also true.

For example, we now do not get Caper Whites or Chequered Swallowtails breeding in the garden, even though large migrations pass by from time to time, just outside our fence.



Figs 6,7. Hercules Moth (*Coscinocera hercules*)



Figs 8,9. Five-Bar Swordtail larvae