

June 2005 Newsletter - Monarch Butterfly NZ Trust

I have had so many responses so I hope that this will answer many Frequently Asked Questions about the Monarch butterflies – *Danaus plexippus*. Feel free to write back if you want more information, or if I haven't answered a query!

Jacqui

BUT FIRST A WORD FROM OUR SPONSOR :)

We are trying to raise funds to investigate and record what makes Butterfly Bay in Northland an ideal Monarch habitat, and so a group here has formed the Monarch Butterfly NZ Trust and applied for Trust status. Butterfly Bay land is to be developed and nobody knows anything about why the Monarch overwinters there. We want to find out and, if we can, protect its habitat.

If you join us, for only \$20 a year, you will receive four newsletters packed full of information about the Monarch, and you are welcome to prompt us with other questions. We aim to send out information to Monarch butterfly lovers all over NZ, and distribute seeds, stationery, souvenirs to do with the Monarch. Right now we want to raise enough funds to pay for getting the Trust formed, promotion and to cover the entomologist and submission (\$3915) then stage 2 is to put together a website (\$752) with NZ information about the Monarch. Eventually we can help other communities protect overwintering sites. Join now and get the newsletter to prepare yourself for Spring!

So far we have had responses from Southland, South Canterbury, Nelson, Hawkes Bay, Bay of Plenty, Waikato and Northland, and some people have indicated overwintering sites near their homes, but we are sure we will receive more replies. We hope that you will join us! Would you like a membership form? Email membership@monarch.org.nz, or write Jacqui Knight, 27 Matauwhi Road, Russell 0255. If you want to contact people within your area, this can be arranged - it might be to look at an overwintering site or swap plant material - or just talk about the Monarch.

And now some FAQ (Frequently Asked Questions) about Monarchs. There's a lot of information here, I suggest you do not need to read it all at once - keep it for later.

Q. How long do Monarchs live?

A. The metamorphosis takes about four weeks in the summer, but the process slows right down in cooler weather, and Monarchs that don't mate before the winter will find a warm place to overwinter, and then mate in the spring. The four stages are shown below, with summer times first and winter times after. Egg (ovum) (plural ova) 4 – 10 days (Actually, when it's been fertilised it is called a zygote, an ovum is the unfertilised egg!) Caterpillar (larva) (plural larvae), five stages or instars 9 – 20 days Chrysalis (pupa) (plural chrysalises or chrysalides), 10 – 14 days Adult (butterfly) (plural butterflies) live 2-6 weeks, until they have continued the life cycle. The male dies soon after mating. The female will die soon after laying her eggs – approximately 400 per butterfly although one female laid over 1,000 eggs!

Q. How can you tell an old butterfly?

A. Their wings are usually duller and darker and they often look a bit weather-beaten.

Q. How can you tell a male from a female?

A. Males have a black dot on the hindwings (lower ones) These are actually swollen scent pouches. They also have thinner veins. You can also tell a female pupa from a male... but that will be in the Spring Newsletter!

Q. How do they mate?

A. When you see two butterflies together, but facing in different directions, they're probably mating. They mate when they are 3-8 days old, and will remain together from one afternoon until early the next morning, often up to 16 hours. Both butterflies will mate several times during their lives.

Q. What does the adult eat?

A. Its food is nectar from flowering plants such as *Echium fastuosum* (Pride of Madeira), *Schinus molle* (Pepper tree), *Buddleia*, *Bottlebrush*, *Poinsettia*, *Cosmos*, *Lantana*, *Asters*, *Sage*, *Yarrow*, *Phlox* etc. You can also use 1 teaspoon sugar dissolved in two cups water (do not use honey).

Q. How big does the caterpillar grow?

A. Over 3,000 times from the time it is an egg, until it makes a chrysalis!

Q. What do the caterpillars feed on?

A. Swan Plant (*Gomphocarpus fruticosus*, formerly in the *Asclepias* family) or Milkweed is the most common plant. If you are purchasing from a nursery, then the plant has probably been sprayed to kill all the caterpillars (they wouldn't be able to sell a moth-eaten plant, now would they?) so wash it well, plant it, and eventually the butterflies will lay their eggs on the plant. It has slender leaves and clusters of small cream flowers followed by seedpods resembling swans, silvery green, which can be 'popped' – but don't pop them, let them go to seed. The seeds should be slightly bigger than a coloured pin-head, hard and almost black. The plant can grow to 1 or 2 metres, but is often destroyed by the caterpillars of the Monarch butterfly. The Giant Swan Plant (*Gomphocarpus physocarpus*) has a large round leaf, with larger cream flowers and round seedpods. The plant can

reach 2-3 metres. Because of its rapid growth and strong nature, the plant usually outlives the caterpillars' attacks, but may need staking – plant it where it will not be hit by strong winds. Seed is available from the Trust for \$5 a packet (approx. 20-50 seeds).

NOTE: Don't get the milky, latex-like sap of the plants on your hands or clothing – it can affect some people. I am told the sap is poisonous 'only if eaten', and that you have to eat a large amount before getting sick - but as a warning the symptoms are vomiting, stupor, weakness, spasms. Other milkweeds are also good Monarch butterfly feed – there is a pretty little prostrate red-flowered *A. curassavica*, and another variety with orange flowers, *A. tuberosa*. If you are stuck for food you can try pumpkin and cucumber rind, thin slivers on a plate. Use a 'moat' to keep the caterpillars on the food. Only suitable for caterpillars in the last instar (2cm+). Also 'Moth Vine' - (*Araujia sericifera*) is a creeper, a pest in Auckland, often growing in wasteland or beside the railway line, seedpods like chokos, milky sap and long and slender leaves. If you're not able to identify it, ask the Regional Council as they would love to get rid of it! This is an ideal alternative food for larger caterpillars – say 2cm+ (fifth instar). I used to take the larger caterpillars to where I could find the Moth Vine growing (near railway lines in Mt Albert) and leave them on the plant. But it also traps the butterflies and kills them.

Q. What dangers do the butterflies face?

A. As well as environmental conditions and accidents, there are predators and parasites. Generally birds do not eat the Monarch butterfly caterpillars as the caterpillars have an effective chemical defence against predators. When caterpillars eat milkweed they store the poisonous cardenolides (also called cardiac glycosides*). Cardenolides are poisonous to vertebrates (although perhaps not to invertebrates, bacteria, and virii), and most Monarchs face little predation from frogs, lizards, mice, birds, and other species with backbones. People often say there are fewer Monarch butterflies around 'because of the wasps'. There is at least one wasp attacking the Monarch butterfly. Overseas researchers and naturalists have observed a small number of species that are parasitoids on Monarch butterflies. Four species of tachinid flies lay their eggs on Monarch larvae. The tachinid larva burrows into a Monarch larva and eats tissues and fluid from the Monarch's body. The Monarch larva lives and continues to grow until the tachinid larva is ready to leave. Then the fly larva kills its Monarch host. Another occasional parasitoid is a brachonid wasp. The female brachonid lays one egg inside the Monarch larva. From that egg, as many as 32 adults develop. These adults are genetically identical, just like identical twins in humans. However, if we kill 'pests' because we want more butterflies around, we will also be killing the 'good' insect life – ones that have been introduced to control other pests in the garden, pests such as the White Butterfly, Mealy Bug etc. Then there are also shield beetles and praying mantis too. But that's Nature!

What I do

To give the Monarch an advantage, you can try these, adapting them to suit yourself. 1. Moat method, indoors – a vase full of water on a tray with a little water all over it. The tray acts as a moat and keeps caterpillars from crawling off their 'island sanctuary'. Into this vase put branches Swan Plant – or alternative food such as the Moth Vine (see below). Now go to where your caterpillars are hatching and remove small caterpillars very carefully – it is VERY easy to squash them. To do this I fold a piece of paper into four, then open up the 'pocket' and fold in half again (1/8ths) so that the pocket will not lie flat. Now slide one corner gently under the caterpillar until it is inside the pocket. Take the paper with caterpillars aboard indoors where you have a branch of Swan Plant in a jug of water. Attach the pocket to the plant with a paperclip or clothes peg and let the caterpillars crawl out at their leisure. Bring more feed daily – this is a good way of getting rid of Swan Plants from garden where they're not wanted. You'll end up with lots of green poop (frass) all around. (A Monarch butterfly hatching is more reward than having the best-kept house on the street.) 2. Summer 2004-05 I bought a mosquito net which I hung outside, under the eaves. Inside it I placed a bucket filled with shingle and water, and branches of unwanted Swan Plant in that. Then I draped a series of bent coathangers down into the branches so the caterpillars could climb up and form a chrysalis above the Swan Plant. This worked very well; I would bring in fresh branches (and therefore eggs) – and no predators – and release the butterflies when they were ready to fly away. It is now midwinter and I still have Monarchs enjoying the poinsettia and bottlebrush etc in my garden. Pumpkin can also be used in an emergency for larger caterpillars (over 2.5cm), but is not ideal as a food source as you often get deformities in the chrysalis and adult butterflies. Use it only as a last resort – slice the pumpkin thinly and 'force' them to eat it using the moat method described above.

Q. How far do Monarchs travel?

A. Caterpillars are known to have crawled over 30 metres to find a suitable location to make their chrysalis. In NZ the Monarchs are known to stay in their own region – in the 1960-70s 6,500 butterflies were tagged, and 1011 were recovered when they died. It was found that only 28 of them had flown more than 20km! In the US, butterflies to the west of the Rockies migrate to the coast of California. East of the Rockies they will travel from Mexico (for the winter) up to the furthest provinces of Canada – up to 3000km!

Q. What is the difference between a cocoon and chrysalis?

A. Cocoons are the pupal stage of moths; moths are different to butterflies but both are part of the Lepidoptera order of insects. A general guide (but not 100%) is that moths fly mostly at night, butterflies by day. Also, moths mostly have "dusty" wings. Moths caterpillars/larvae spin their cocoons. Butterfly larvae split open and form a chrysalis. The green of Monarchs is butterfly blood! You can see the transition on my website and hopefully on the Trust's website when we get it up and running.