

Report on Protection and Conservation of NZ's Endemic Lepidoptera

BACKGROUND

Earlier this year the Monarch Butterfly NZ Trust, established to protect NZ's Lepidoptera and its habitat, voiced its concern that NZ's endemic butterflies were being sold overseas by insect dealers.

The Monarch Butterfly NZ Trust was keen to see protection placed on endemic Lepidoptera before any of the already sparse populations become extinct as has occurred in many other countries around the world.

The Wildlife Act 1953 protects all animals by default, except where they are exempted, such as game and pest animals. The definition of 'animal' does not include invertebrates unless listed in Schedule 7:

<http://www.legislation.govt.nz/act/public/1953/0031/latest/DLM278595.html>

Currently, butterflies and moths are not in this list, which includes some spiders, weta, snails and various beetles. A few Lepidoptera and Papilionidae are listed in the CITES list, so are protected from export, but only a few:

<http://www.legislation.govt.nz/act/public/1989/0018/latest/DLM147047.html>

Butterflies, because of their striking colourations and fragile beauty are one of the most sought after species by collectors, who will pay large amounts of money to fill 'that gap' in their collection, especially from a small country such as ours. Endemic butterfly species have been found on international insect suppliers' lists, e.g.

- *Bassaris gonerilla* (syn *Vanessa gonerilla*) - red admiral or kahukura
- *Pernodaimon pluto* - Black Mountain Ringlet

In addressing the sale of endangered species, the Samoan swallowtail, (*Papilio godeffroyi*) previously thought to be extinct, was discovered in a new location. At about the same time specimens of the butterfly went on sale on the international market at £3000 each. There were seven for sale, and a few months later all appeared to have been sold. How long would it take for this butterfly to become extinct if people were to sell the last few?

In seeking this protection the Trust did not seek to limit the activities or rights of New Zealanders in the field of science or research, and sought feedback from entomologists and other professionals working with butterflies and moths. It was the intention of the Monarch Butterfly NZ Trust to formulate a plan where Lepidoptera could be afforded more protection.

CONSULTATION

Through the internet, feedback was received from a wide range of people – hobby lepidopterists, entomologists engaged in science etc.

One thing we definitely did not want to do is have restrictions imposed that will be counterproductive to our cause, such as one that would prevent amateurs from 'breeding and releasing' butterflies nationally. Here are some of the main thrusts from the feedback we received.

There is no (or minimal) trade

Jack: "...the sale of NZ butterflies on the world market... is not a problem. There is a world commercial market for butterflies, however NZ is not a factor. With only 17 or so native butterflies, and most of them rather unattractive, there is no market for them. It would be very foolish and a complete waste of time for a commercial collector to collect in NZ. One of the native endemic species that you mention is *Percnodaimon pluto* - the Black Mountain Ringlet. This species was originally described as *Erebia pluto* from your South Island with what many considered a very inadequate description, that description saying only that it was a 'black' butterfly. The ICZN later held that description as valid on the grounds that there were no other 'black' butterflies on the South Island and therefore the description was not confusing. The original species placement, in the genus *Erebia*, was completely wrong and the butterfly has gone through placement in several other genera since then."

Chris: "The admirals (I have seen for sale) are all from captive raised stock in Europe, currently and regularly traded.

I own a pair of *Dodonidia helmsii* purchased from a guy in Germany. These were North Island captive-raised butterflies traded with a collector in NZ. They were undated. Obviously someone in the North Island is collecting ova and raising them. The concern should be minimal and data from whoever this is would be invaluable to population studies. This is the only NZ butterfly in any danger and that is primarily from parasite introduction, not collecting. Black butterflies are far from endangered in NZ, they inhabit extreme habitats and are always abundant in the right place. Collecting of alpine butterflies has zero effect on population density.

You must be very careful publicising presumed rarity in butterflies. There is an international trade in collected specimens and by highlighting 'rarity' you may encourage further collecting for profit by, in particular, Russian and Japanese collectors.

There is also a degree of indiscriminate collecting by NZ collectors but they are few in number. By highlighting certain species you may well increase the value and incentive to collect.

There is not a single instance of a butterfly collected to extinction. English large blues were finally destroyed by the conservation body dedicated to protect them, after years of habitat loss and the English large copper had 99% of its wetland habitat destroyed before being finally collected to extinction by artists who used their wings in collages."

Making a mistake by trying to stop any trade

Terry: "More research has been done on conserving species and learning more about them by amateur breeders than through 'official' methods. The Entomological Livestock Group in the UK

has produced more information from its members on how to breed rare species in captivity and to help conserve them than any government agency.”

Terry: “Those who trade in insects normally start with a pair or two of a species and then pass excess stock on to other breeders.”

Chris: “After twenty years working in butterfly conservation throughout the Northern Hemisphere, I can assure you that collecting has no influence on butterfly population density, unless the butterfly is already in critical danger due to other causes.”

Loss of habitats/host plants

Our biggest problem at present is habitat loss in the back country foothills as agriculture and horticulture encroach on these areas which are in private ownership.

Trisha: “Pesticides and herbicides are much overused in NZ. By far the biggest threats to all our wildlife, and our government departments and agents are some of the biggest users of them. I'd be reluctant to see more legislation about what goes out of the country and am more concerned about what comes in. Just this week crop-destroying beetles arrived from Australia or Asia and the eradication programme will cost our own insect life dearly, I suspect.

I saw last year a bee species imported here from the UK many years ago has become extinct in the UK and we are now sending the bees back to you. Could it work in reverse?

Norm: “In Britain at least two species of butterfly suffered extinction because authorities were slow to preserve their habitat.”

Robert: “Considering one (British) species (Black-veined White, 1930s) went extinct decades before legislation and the other within a few years of legislation (Large Blue, 1970s), it doesn't bode well for government involvement. The government does not care about managing habitat. Central government will only pretend to care to understand habitat loss (as in the UK).

Terry: “Your red and yellow admirals will never be wiped out by collectors, only by destruction of the habitats and food plants.”

Rick: “No butterfly species has been made extinct by collecting. But bulldozers that clear habitat can speed the decline of any species that depends on host-plants to survive that were located on that destroyed habitat. Any animal or plant that is considered extinct is no longer protected. It is off the list. So if a colony of an extinct butterfly is found, the butterfly must be re-listed for protected.”

Nigel: “Experience from the UK has shown that unless the habitat is very small, collectors do not have an impact on butterfly populations. A bird will take more in a day than a collector! The key is preservation of habitat, and even after species were given full protection from collectors many years ago in UK, property developers could develop the habitat and cause complete extinction in an enclosed habitat without any problems at all! Quite illogical in my view!”

Bernie: “There are dozens and dozens of us here in the Entomological Livestock Group who could turn just a pair of our ‘endangered species’ into hundreds within a few months. The ...real problem is habitat loss.

Jeffrey: “Loss of habitat is the real danger and that danger will not go away because commercial interests will always come first. Being able to obtain livestock without government licences is essential for the survival of your endemic species, if you involve the government you will end up with a ridiculous situation as exists in the USA. Monarch butterflies migrate freely from Mexico to Canada and back each year but breeders need a licence to transport Monarch livestock across state lines, even if it is just a few miles down the road.”

Terry: “Many species of butterfly have been lost in Papua New Guinea and places like the Amazon before they have even been catalogued because of rainforest destruction. This will not be stopped by legislation because it already exists, it just won't be enforced because money and big business is involved. If you lived in the UK you would be truly shocked at the continuing destruction despite a plethora of legislation under the Wildlife and Countryside Act. The destruction is accelerating not slowing.”

Mark: “Habitat loss is a much more serious problem and asserting the focus on collectors will only allow the real problem to continue (and the butterflies which are legitimately threatened to remain vulnerable). The butterflies in question are not commercially significant or desirable. Few commercial butterfly dealers or consumers really focus on obscure or non-showy butterflies. Meanwhile, other collectors who might be legitimately interested in sampling the endemic butterflies of NZ will most assuredly not pose any real threat to their populations (since there is no commercial motivation) as long as their habitats are preserved. However, as the habitats continue to be decimated there in NZ (I haven't been there since 1983, at which time it was still very quaint and delightfully undeveloped), concern for your endemic species and the protection of their habitats should appropriately be amplified.

... I know that unscrupulous collectors exist, but they are not really very common. And if nothing is done to protect habitats, demonizing butterfly collectors (or dealers) will not save the butterflies. On the other hand, if the habitats are properly preserved, there should be plenty of butterflies for everyone to enjoy, even those people who prefer to admire them within display cases many thousands of miles away.”

Introduced pests

Robert: “Then there's the introduced parasites of Ichneumons, the wasps *Pteromalus puparum* and *Apanteles glomeratus* to control the white butterfly which (as most people realise) probably predate all NZ butterflies (something else never researched yet).”

Chris: “Much greater problems afflict butterflies. Habitat destruction and fragmentation being primary globally, but less so in NZ. Parasite introduction is particularly important in NZ. You should be particularly interested in the introduction of white admirals at this point. They are afflicted by numerous parasites and natural captive mating is impossible. The introduction of foreign raised larvae would present a much graver problem for NZ butterflies.”

Terry: “You will also find that most of the problems NZ faces with its environmental damage, as in the UK, is caused by development and the introduction of invasive species sanctioned by government for the benefit of horticulture and agriculture. Even now in the UK a ladybird called the Harlequin from Asia has damaged our native ladybirds and this was not spread by amateur entomologists but by the horticultural industry in Holland for the use of pest control (aphids) in industrial greenhouses, despite warnings from scientists that it would escape.

Terry: “One farmer with a sprayer full of herbicide or pesticide can do more damage in an hour than ten years of trading in a few butterflies. Just think how many more yellow and red admirals you would see if farmers and councils stopped spraying just 50% of the nettles they come across each year.”

Loopholes in legislation

Terry: "No species of butterfly has ever been wiped out by trading in either livestock or dead stock ... my research would never have happened if such legislation was in force at the time the original stock were sent to the UK."

Terry: "In the UK there are species protected by law that cannot be bred in captivity even though they are very easy to breed in huge numbers, but legislation does not protect the special habitats these species require. Thus they are wiped out by continued destruction of habitat."

Legislation would hinder research

Robert: "Such legislation would hinder research more than protect our native butterflies. (It) would stop small scale research by individuals: releasing their findings would get them in trouble legally. Such research would be left for Landcare Research etc to complete and I never see them interested in, for example the Black Mountain Ringlet."

Jeffrey: "If legislation had existed in the past the late Sir Cyril Clarke could not have done his work on the rules of inheritance, work that involved the captive breeding and hybridisation of Swallowtail butterflies. The human rhesus blood groups have a similar method of inheritance and his work resulted in the cure for Rh haemolytic disease, work that has already saved many hundreds of thousands of lives and will continue to save many more. Keeping your endemic species freely available to breeders and enthusiasts is essential for their survival."

Governments know nothing about butterflies and care even less. If you lobby them they will listen, but once they take control you will end up running a government agency, your members will have to pay for a breeding licence, they will need a licence to mail livestock to friends and colleagues, they will need a licence to export, a license to import, all of which will cost money.

Your members, whether they are scientific minded entomologists or just enthusiast breeders, are all doing a great job. They are adding to our knowledge of how to breed important species like *Bassaris gonerilla*, an important link in the evolution of the *Vanessa*, *Inachis*, *Nymphalis* and *Aglais* genera."

Johnny: "I always wonder about the logical sense in some of the laws to so-called 'protect' our native wildlife..."

I could be completely wrong, but an example comes to mind is the short documentary I saw on kakariki breeding (a rare native NZ parrot). If my memory serves me correctly one is required to have a special permit to breed these rare parrots. Breeders then aren't allowed to release birds into the wild unless in large quantities and only at a site approved by DOC.

Thus, there is nothing that someone like me can do to try and help the kakariki population. Even if I was able to obtain a permit and a breeding pair, it is not likely that I would be able to breed the large quantities required by the red-tape to release them. Thus my hands are tied, and though I want to help the kakariki, I am unable to because of all the red tape.

On the other hand, if just 'anyone' was allowed to breed these birds we would no doubt see them for sale on TradeMe or in pet stores... which may sound like a bad thing, but due to this amateur breeding the birds would no longer be endangered and overall population would increase. Of course, that then opens the door to exploitation and people removing the birds from their natural habitat to sell.

It's the whole double-edged sword thing again - you simply can't stop the exploiters without also stopping the amateur breeders who are simply wanting to help.... or can you?

In my opinion, a 'breed and release' programme would be far more effective in helping the butterfly population than a protective law. Or, a protective law that restricts the exportation of protected butterflies overseas, yet allows amateurs to continue to breed, release, and trade in eggs/livestock nationally... Because in actual fact, breeding and releasing thousands of butterflies in the UK is not helping the butterfly population in their native land (NZ) in the slightest.

Terry: "Investigate the workings of the ELG in the UK to see how the exchange of insects helps conservation, research and education. The ones they don't kill are bred from and exchanged with other breeders. If someone loses their stock for any reason there is someone else who can supply with fresh stock. Some breeders like to introduce fresh genes in to their stock so from time to time they will exchange with others the same species. I have sent yellow admirals as far out from the UK as the Czech Republic. I am often contacted by entomologists whose *V. itea* stock has died out or offering to swap stock to put fresh genes in to my captive stock.

Export does not endanger species

Jeffrey: "There is very little interest in butterflies worldwide, the days of mass dead stock collectors are long gone. It's unlikely that any wild butterflies are taken for sale to collectors because any butterfly that's been on the wing for more than a few minutes already shows damage to its wings and collectors demand perfect specimens. If butterflies are taken to breed from, in order to sell their offspring as dead stock, that will do no harm to your wild populations. In the wild only about 2% of ova laid survive to become butterflies, but in captivity any competent breeder can produce hundreds of specimens from one female."

Breeders add to knowledge

Jeffrey: "Enthusiast and professional breeders add enormously to our knowledge of how to breed and save butterflies from extinction, far more than any government agency ever could because they do so through of their enthusiasm, and enthusiasm does not have to be financed as any official breeding programme would have to be.

The survival of rare species worldwide will one day depend on our ability to breed them in captivity, without the possibility of obtaining breeding stock that knowledge will not be available."

Continued co-operation with Department of Conservation

DOC estate totals around 20% of NZ.

Robert: "Policing is always going to be a problem, but it would be nice that we have un-hindered access to these lands, not checkpoints like Thailand has had to implement to reduce the plunder of their animals."

Jacqui: "The MBNZT is already working with the Invertebrates team of the Department of Conservation on various initiatives. If there were more funds available I am sure that there would be many scientists willing to use the funds to find controls of the various predators and parasites affecting our Lepidoptera species too.

The following is our recommendations:

Norm Twigge, Johnny Wilson, Jacqui Knight

RECOMMENDATIONS:

- 1. Encourage government departments and NGOs (non governmental organisations) working in the area of entomology to regularly provide articles covering our endemic species for our newsletters. These would need to be in easy English and give practical tips on how they (our members) could assist the conservation/protection of species.**
- 2. Lobby for more and better educated government personnel in departments such as Conservation and Biosecurity, who can in turn educate the public, to preserve and enhance present habitats and reduce importation of plants and insect pests, and to limit the export of our native species.**

Nigel: "Most people working in conservation in NZ today have no scientific or practical experience in the field. It is important to understand the endemic species."

Todd: "The education process needs to keep moving forward. In addition to habitat destruction, if any entity should be demonised, it should be their natural enemies that keep their population numbers in check. But, then again, without those natural predators and parasites (butterfly populations) would explode and sometimes do."

Robert: "More work needs to be put into awareness of butterflies and habitat. For example, I have so many people ask me what I'm photographing, when I photograph boulder coppers or blues - they think I'm photographing the grass or stones! These are two of the most common butterflies, yet people never notice them. Also, we have many more beetles, dragonflies, molluscs, never mind other plants and animals that are in far more danger than any of our butterflies."

- 3. Work with other organisations (Forest & Bird, Federated Farmers, QEII Trust, Smallfarmers etc) to reward NZ's most wildlife-friendly farmers. See www.smallholder.co.uk "Are you Britain's most wildlife friendly smallholder?"**

Johnny: "A Breed and Release Program would not only directly increase endangered butterfly population in the wild, but would also ensure that the butterflies have a place in NZ for the future. The planting of host-plants on willing-landowners properties that are within a habitat zone, areas on reserves dedicated to butterfly conservation, promoting and encouraging amateur breeding/raising and releasing, and so on. I have plenty more ideas if you would like to hear them."

4. Investigate butterfly ranching in NZ:

Angela: "From my research ...the major issues are lack of protection by New Zealanders with habitat lost and predation by pests."

I support butterfly ranching which collects stock from the wild, then a percentage is used as pinned or sold. The rest is released back into the area. I have sold stock for mounting myself. Two yellows allowed me to fund breeding hundreds more yellows.

This model is supporting forestry and butterfly conservation all over the world and could be a great model for NZ. If you want to breed butterflies for sale you have to release a percentage back into the wild. It makes it economical to do the restoration and boosts the wild populations."

Steve: "Treat all butterflies and Lepidoptera as commodities. Take your most endangered species and breed them, and offer them to the world market. You can breed any lep. Establish state

permitting to individuals or organizations who want to work with these species. Establish lotteries for these permits so any individual who wants to have the chance, or the right to breed them. Otherwise lose personal freedoms. Life liberty and the pursuit of happiness. And happiness is breeding any butterfly we want to without over regulation. Yes habitats might be disappearing, so establish breeding, farming of these valuable beautiful commodities. Allow controlled breeding of these species by anyone who wants to. The problem is protectionism! As we have done with the endangered American alligator. We now allow private individuals to farm them. We need to do this with any lep or for that matter any animal or plant species in trouble.”

Nigel: “By giving complete protection, is you just drive the trade underground, and increase the value of specimens that collectors will pay to fill the gap. One way or another, someone will find a way to trade in these species. An approach that the UK has taken to overcome this is to give protection to wild stock, but allows breeders to sell or exchange bred stock. This takes the pressure off the wild stock, as it makes the risks, cost of travel to an area where something is rare and may not even be seen not worth the effort. Far easier to buy livestock, or dead stock that has been bred, at a fraction of the cost of collecting dead stock. As they are bred, the value of the specimens plummets too! Of course this only works when you have a network of interested breeders, and UK has around 1000 members in the Entomological Livestock Group (ELG) alone, plus many others who like to breed butterflies.”

5. Work with Roger Beattie (weka breeder) and other interested parties (e.g. NZ native frog organisation) for more sensible legislation to do with endangered species:

Roger Beattie is keen to farm weka as he reports that they are easy to breed – and could easily be farmed. Some could also be released into areas which have become predator-free, to return these birds into wildlife refuges. Since his appearance on television he has received lots of support from people who are concerned at the reduction in numbers of other endemic animal species.

Roger: “I want the legislation to support conservation, not just to set up the Department of Conservation. That’s a terrible piece of legislation, the way they’ve got it written now. It needs to be that private people or companies or trusts or societies or whatever have an equal footing with DOC when it comes to saving our endangered species.”

John Clutterbuck, DOC “It’s our mandate to protect native species, and whether that extends to farming them at some stage, time will tell.”

Roger: “To get the numbers up is to have a farming mentality rather than a scarcity mentality which is what DOC have got.”

Roger: “If we don’t have a radical change in the way DOC operates, we’re going to see more birds disappear. And once they’re gone, they’re gone forever.