

# TAGGING AND TRANSECTS

The Monarch Butterfly NZ Trust (which has now morphed into the Moths and Butterflies of NZ Trust) began collecting data about NZ's butterflies in the summer of 2006-7. By tagging monarch butterflies (*Danaus plexippus*) we are learning more about overwintering in this country.

With people walking transects, the data collected will show the numbers and locations of our endemic and introduced Lepidoptera species. Over future years we will be able to see any shift in population and if the various species are increasing or on the decline. But since embarking on this project, we soon learned that New Zealanders have to be able to identify our butterflies and diurnal (day-flying) moths first!

Butterfly transects were devised in 1973 by the Centre of Ecology and Hydrology in the UK. According to the CEH, the information gained from transect monitoring is invaluable, especially if the same transect is walked for many years. Regional and national indices are generated, and early warnings generated of species' decline, at a time when conservation action can be most effective and before species are lost from whole sites and areas.

Walkers imagine that they have a 'box', 10 metres on each side and 10 metres in front of them (as an example), and they note down the name (and sometimes behaviour) of any butterflies that they see in that space as they walk. If you think the size of your 'box' is too large, then adjust to suit yourself - the important thing is doing the same transect, same route consistently, over a number of years.

You are invited to get involved with either or both parts of the project.

How to get involved

## 1. Register

Firstly, you need to register for the project. Go to our website and look for Tagging and Transects under 'Projects' – or go directly to this link:

<http://www.monarch.org.nz/monarch/ecology/taggingtransects/tagging-transects/>

Type your address in slowly, allowing the system time to search for your address as you enter it. When your correct address is showing, highlight it from the dropdown list, and you will note that the correct geographic co-ordinates appear in the box below.

We suggest you print out these notes and keep them beside the computer. Please write down your login and password. If your chosen login or password have capitals, remember this too! Indicate if you want to be involved in tagging and/or transects by ticking in the appropriate box. Then click on the 'register' tab and your registration will be processed. You can easily register another researcher if you're part of a group.

NOTE – the next time you visit, you will not register but will login.

## 2. Login

Scroll down to the bottom right-hand side of the homepage and click on Login under 'Admin'. Using the preferred login and password you generated earlier, you will be able to go to the Dashboard. (If you are already logged in, you can go to 'Site Admin'.)

Here you will see tabs (on the left) such as 'Research' and 'Your Profile'. Should you want to change your email address, address, or add further information about yourself you can do so. Click on the Research button, and you will see results of research we've undertaken so far. Monarch butterfly sightings were started in 2005 to collect information as to their location within NZ (as far south as Stewart Island) and sightings of overwintering colonies. In the spring we started on pest sightings, and from this we learned that the most common pest is the Asian Paper Wasp – and we hope to counter its predation. We began tagging and transects in December 2006.

Underneath are the results of transect samples – these figures will change as more people complete sightings and transects. There are other tabs – Tag Butterfly, Request Tags, and Transect Walk (if you have signed up for both).

## TRANSECTS

### 3. Transect Walk

You will need to define your transect walk.

Under RESEARCH click on TRANSECT WALK.

OR you can reconfigure your previously set transect walk by scrolling to the bottom of the page and clicking on **RECONFIGURE TRANSECT**.

Presumably your transect will start from your home – otherwise you will need to find out the geographic co-ordinates of the start point – use the residential address of the closest starting point. You will also need to know the length of your transect walk – this can be measured using Google Maps (ask for walking distance of various points on the transect).

Put ticks in the various land formations that your walk will address. If you have two distinct land formations, you might like to consider registering two separate transect walks – please discuss this with us. Then click on CONTINUE.

When you complete your first transect, you will be able to choose the cloud cover and the wind level (Beaufort scale). Then note down the number of the various butterflies and moths that you've seen. On the website is a 'check off' list so that as you walk you can record the butterflies you see. You might want to keep track of them on a notebook or on your phone.

Please start every other walk in the opposite direction to that just completed, i.e. if you began by turning left at your letterbox onto the street, the next time turn right at your letterbox and walk the same route in the opposite direction. Thus you will see butterflies clustering in groups on trees and you will be open to new views, experiencing new information.

Be aware that butterflies/moths may fly in and out of your 'box' as you move along but they should only be counted once.

The important thing is being consistent over a number of years.

## TAGGING

### 4. Tagging

It is the overwintering or late summer butterflies that we need to tag and we usually commence on 1 March and tag throughout the winter or until you have the last butterfly emerge.

Tags are requested by clicking on the tab on the dashboard. (Research, then Request Tags). Tags come in sheets of 25 and there is a small charge to cover costs (but if you cannot afford them, please email [tagging@monarch.org.nz](mailto:tagging@monarch.org.nz) and we may be able to sponsor them.

We would prefer it if you ordered 2-3 sheets at a time to avoid unnecessary handling and postage costs – but on the other hand please be reasonable in the amount you request.

When you request tags from us we allocate them in the database so that the numbers appear in a dropdown menu in your profile. As you tag and release butterflies, you will then be able to complete the release details on line.

Make sure that when you receive your tags, you note the order that they are in (they run from the left-hand side downwards, in five columns of five tags each). It is much easier for you to use them in numerical order.

### 5. Tag Butterfly

When a butterfly emerges from its chrysalis it will spend several hours drying its wings. The trick is to tag it when its wings are dry BUT before it wants to fly away. If you can keep it in a caterpillar castle or similar you can tag it at your convenience.

Do not touch the adhesive side of the tags. Remove the tag by rolling it onto a toothpick (the individually sealed toothpicks are best – less likely to be soiled by such things as oil from your skin, cosmetics etc.). Put the toothpick and tag down so you can get your butterfly. (Hint: Practise first with the tags at the top of the sheet.)

Let the butterfly walk onto your finger by putting your finger right in front of its face. Then using the other hand, and a scissor grip (as you would hold a cigarette) grasp the butterfly where the wings overlap, so you have hold of all four wings at once. This way you can hold it quite firmly without harming the butterfly – and by using the sides of your fingers rather than your fingertips, you won't damage any of the cells on the wings. (Hint: Practise with a piece of paper cut to size/shape.)

The tag should be placed on the large distal cell (mitten-shaped) on the hindwing so that it's legible when the wings are closed. Either hindwing – left of right – is fine. Some people establish a system whereby male monarchs are tagged on their right wing, and females on the left – but this is completely over to you.

Roll the toothpick out of the way and then hold the tag in place for a few seconds to ensure maximum adhesion. Remember – when the butterfly has its wings closed, you are looking at the underside of the wings.

#### Monarch butterfly viewed from underside (ventral)



Note: Many people ask what effect the tags have on the butterfly's flight. The tags weigh approx 0.006g. Adult monarchs weigh, on average, about 0.5g, so the tag is about 1.2% the mass of the butterfly. Attaching a tag makes a monarch about as lopsided as you do when you put your keys or mobile phone in your pocket.

#### Now back to the computer...

Log in, and then click on the "Tag Butterfly" tag. The page will default to the current date but can be changed if necessary. You will need to enter the location of the release. The address of every home in New Zealand is stored in a global mapping system, so you cannot enter your address yourself, you need to find your address.

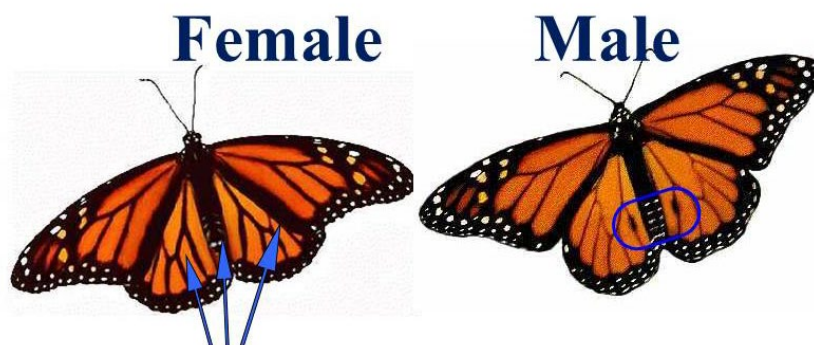
Begin typing your home address but stop before you get to 'Road' or 'St'. Don't include flat or apartment numbers. Now look at where you have been entering the address and you should find every street with that name is appearing in a dropdown list. Select the appropriate address for you, and click.

You can ensure that the latitude and longitude appear by clicking on "Click here to enter your details manually". If they are not showing, ensure you have used a simple form of your address - no flat numbers, rural delivery numbers etc. Check in the forum for more information – or contact us and we will talk you through it.

Once you have your correct address you can choose the appropriate tag number, the condition of your butterfly and its origin – whether you reared it or if it is wild. Wild is when you net a butterfly not knowing its origin.

You can also click in the radio next to Male or Female. Males have thinner veins than females, and also have a 'scent pouch' (round dot on a central vein) on each hindwing.

#### Male and female monarch butterflies



Female monarchs have broader black veins on their wings than the males. Also, males have two spots (scent pouches) on their hindwings

Some people might like to weigh and measure their butterflies. Weight can be recorded on very delicate scales (a Monarch weighs about 0.5g) by placing the butterfly inside a fold of paper for the weighing process. Then subtract the weight of the fold of paper.

Wing measurements should be taken from the point of the forewing where it is attached to the body across to the outer tip of the forewing.

Weighing and measuring is optional and not critical for those who don't want to get involved in this.

When you have entered in this data, you can log out... until the next time you tag a butterfly. Some people are keeping a week's worth of information in a notebook, and then adding it to the database. (Hint: If you enter the data at the same time as you release the butterflies, the computer's clock is set for the right date/time.) Make sure you use the tags in sequence.

### **Tagging In Summary**

1. [www.monarch.org.nz](http://www.monarch.org.nz) - Register. Did you put a tick in the 'tagging' box?
2. Request Tags. Make payment. It could be 1-2 weeks before the tags arrive after payment.
3. When the tags arrive, log in to the website again. Check that you can access the correct numbers. If there is a problem now is the time to write to [tagging@monarch.org.nz](mailto:tagging@monarch.org.nz) and get it sorted!

Tell us also what system you're using (Mac, PC, Windows XP, Windows Vista etc) whether you're on broadband or dialup, and what browser (Internet Explorer, Mozilla Firefox etc).

Also put your phone number in your email, please.

4. Enter data into the website as you release butterflies.
5. Email [tagging@monarch.org.nz](mailto:tagging@monarch.org.nz) if you do have any problems or leave a note in the forum, Research section.
6. Good luck!