

MONARCH WATCH PREMIGRATION NEWSLETTER - JULY 2016

by Chip Taylor, Director, Monarch Watch

As most of you know, the summer of 2015 produced a strong migration and a relatively large overwintering population (4.01 hectares).

Unfortunately, all the data to this point in time suggest that this year will be a repeat of 2014, with a significant decline in the migration and the overwintering numbers. While the overwintering population may not be as low as 2014 (1.13 hectares), the overwintering numbers for 2016 are unlikely to exceed 2 hectares. Summer temperatures throughout the breeding area are projected to be close to normal and that should favor population growth. There are no extreme conditions on the horizon though local droughts could impact the population in some areas. The problem this year seems to be the low numbers of first generation monarchs moving north in May and early June. As best I can tell, these numbers are quite similar to those reported in 2014.

First sightings reported to Journey North for Texas in March and April were lower than normal this spring with numbers closer to 2013 than 2014 and, while it is difficult to make strong inferences from first sightings, they do provide an indication of how many monarchs are returning from the overwintering sites in Mexico. The lower numbers this spring may reflect the mortality that occurred at the colony sites as a consequence of the sleet storm that occurred from the 8-9th of March. Although some monarchs had left the colonies before the storm, many remained. Mortality estimates varied from observer to observer and from colony to colony with the highest rate of mortality being 50% for El Rosario, the colony with the greatest number of monarchs. We will never have a comprehensive assessment of the impact of this weather event but it does appear to have been significant.

The low return could well have led to low numbers moving north in May and June but the conditions in

the May-June interval were less than favorable for northward movement. Monarchs generally arrived later than normal in the breeding areas with many locations reporting extremely low numbers of sightings or eggs for periods when monarchs are normally present.

While it is clear that habitat loss is the main factor that accounts for the overall decline in monarch numbers, we need to keep in mind that there is considerable inter-annual variation due to weather conditions that both favor or limit population growth.

Good luck with your tagging and thanks to all of you for participating in our program. Please visit our website for a more detailed account of the current monarch population and updates as the season progresses:

www.monarchwatch.org/blog

Recording Tagging Data

- **It is very important that participants record their complete name and contact information on each and every sheet.** If you anticipate tagging more than 25 monarchs, fill in your name and address on the datasheet first and then make photocopies.

- **When you record your data, use the complete six-symbol tag code.** Without the complete code, tracking is virtually impossible. **DO NOT USE the page number tags;** these are only on the sheet as a printing reference. Pages numbers are repeated each year and are meaningless.

- Use the datasheet example as a guide for the information to include on your tagging records. Be sure to record the tag code, date, and location (city, state, zip) for each tag you use.

Returning Your Datasheets

Please, please, return your datasheets as soon as you are finished tagging for the season. Believe it or not, many people receive tags, tag

Email us your data!

You now have the option of downloading a Monarch Watch Tagging Datasheet in spreadsheet format - to be filled out using Excel, Numbers, or another spreadsheet application. Once you have typed in your tagging data and saved the file, you can send it to us as an email attachment. Datasheets and complete instructions are available online at

www.monarchwatch.org/tagging

monarchs, record data and then never return their datasheets. Every year the Monarch Watch staff spends countless hours (and a lot of money) contacting people who have recoveries but did not return their data. The data for a recovery is useless if we are unable to verify when, where, and by whom the butterfly was tagged.

Monarch Tag Recoveries

Most of the tagged monarchs recovered within the United States and Canada are found by people who know nothing about Monarch Watch or our tagging program. Email or voice communications about recovered tags usually include information on the location, date and circumstance of the recovery. If this information does not arrive with the tag report, we do our best to collect it. Once we have the tag code for a recovery, we search the tag database for that particular tag. If a record has not been returned, we must contact the person who received the tag. When we locate the datasheet for the recovered monarch, we record the participant's name, along with the tagging location, date, monarch gender, etc., in the recovery database. We calculate distance according to latitude and longitude to obtain information for the straight-line course (a minimal estimate for the distance the monarch traveled).

The majority of the recovered tags are obtained in Mexico. Early each year we visit the overwintering sites, particularly El Rosario and Sierra Chincua, where we purchase tags from the guides and ejido members. The ratio of untagged to tagged monarchs is quite high and it takes most residents several hours to find each tag among the butterflies visiting sites along streams or dead butterflies on the trails and under the monarch covered trees. We pay 50 pesos (about \$5US) for each tag - reasonable compensation for the time and energy spent locating each tag. Part of the cost of the tagging kits covers these recoveries. However, in years in which there is high mortality at the overwintering sites the number of recoveries is high and exceeds the funds available to purchase tags. The Monarch Watch Tag Recovery Fund has been established to address the costs associated with tag recovery incurred by us each year. Contributions to this fund and to Monarch Watch in general are always welcome and appreciated:

www.MonarchWatch.org/donate

What do we do with the data?

The recovery data is posted on our website and is analyzed to test hypotheses concerning monarch orientation and navigation. The data are also used to determine mortality during the migration and estimate the number of monarchs in the overwintering population. These analyses will be summarized on our website after the publication of articles.

When Does Tagging Begin?

As the length of daylight shortens in mid-August, monarchs in northern latitudes (i.e., near the Canadian border) begin to migrate. Monarchs farther south will begin their journey a few weeks later. Tagging and monitoring should begin in early to mid August north of 45N (Minneapolis) and late August at other locations north of 35N (Oklahoma City, Fort Smith, Memphis, Charlotte) and in September and early October in areas south of this latitude.

For estimated peak monarch migration dates in your area please visit:

www.monarchwatch.org/tagging

Capturing a Monarch

When in flight, monarchs are wary, elusive and difficult to catch. To maximize the number of monarchs collected for tagging, it's best to locate monarchs feeding on flowers or in roosts late in the day or early in the morning. With a butterfly net in hand, approach each butterfly slowly (from behind if possible), as sudden movement will startle it into flight. Sweep the net forward quickly and flip the end of the net bag over the net handle. You want the butterfly in the deep end of the net. With one hand holding the handle, use the other hand to collapse the end of the net bag. Flatten the net bag so the wings of the butterfly are closed over its back (thorax) and place thumb and forefinger over the leading edge of the wings (from outside of the net). Next, with the thumb and forefinger of your other hand, reach into the net and firmly grasp the thorax. Remove the butterfly for tagging.

Butterfly Nets

You can purchase a good butterfly net directly from the Monarch Watch Shop (item# 120003; 1-800-780-9986 or Shop.MonarchWatch.org) or make one. The opening of the net should be 12" or more in diameter and the net bag should be at least 24" deep, allowing you to trap the butterflies in the end of the net without harming them. Net bags can be made from a variety of materials but it is advisable to choose see-through materials that won't rip easily as the net is swept over vegetation. The mesh should also be small enough that the monarchs aren't able to wiggle free. Landing nets used by fisherman (available at most discount stores) can usually be converted to butterfly nets.

Storing Live Monarchs

If you collect more monarchs than you can tag immediately, you can store them in paper triangles or glass-

ine (#3 stamp) envelopes overnight or for a few days (no more than three). Simply place the envelopes in a plastic box or zip-lock bag in a refrigerator. A moist paper towel should be included to keep the butterflies from becoming dehydrated.

Sexing Monarchs

Once you become familiar with monarch adults, sexing is relatively easy. Males have an enlarged pouch midway along a vein that is directly below the discal cell on the hindwing (see below). In species closely related to the monarch, this is a source of pheromones used in courtship. The pouches do not appear to be functional in the monarch. Females lack these pouches and appear to have thicker veins than males - this is actually only a difference in pigmentation. Upon close examination, you will also notice that males and females differ significantly in the anatomy at the tip of their abdomen.



It's pretty easy to tell a male monarch (above) from a female monarch (below) when you know what to look for.



Monarch Watch is a nonprofit education, conservation, and research program based at the University of Kansas that focuses on the monarch butterfly, its habitat, and its spectacular fall migration.

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