

MONARCH WATCH PREMIGRATION NEWSLETTER - JULY 2017

by Chip Taylor, Director, Monarch Watch

To make projections for each fall migration and overwintering population, I start with the numbers of monarchs measured at the overwintering sites in Mexico. Next, I focus on overwintering mortality, followed by the spring conditions that prevail as monarchs move northward from the overwintering sites to the milkweed areas in south and central Texas, and then the conditions in the South Region (Texas, Oklahoma, Louisiana, Arkansas, Kansas) during the growth of the first generation in March and April. That is followed by attention to the conditions during the period from 1 May-9 June that allow (or don't allow) first-generation monarchs to reach the northern breeding grounds. Summer temperatures along with the seasonal distribution and amounts of rainfall are also in focus when estimating the fall and winter numbers.

The above provides the context for a number of hypotheses or projections concerning the coming migration and the opportunities to tag monarchs this fall. First, this should be a GREAT tagging season. It will certainly be as good as the 2015 season and probably better. The overwintering numbers should match or exceed the 4.01-hectare population measured in the winter of 2015-2016. Further, several fall monitoring sites (Peninsula Point, MI; Long Point, ONT and Cape May, NJ) are all likely to record much higher numbers of monarchs than in recent years. Specifically, the migration through Cape May has the potential to be stronger than any migration since 2012. While the numbers at Cape May will probably not be as high as 2012, they are likely to rank within the top ten seasonal averages in the 25 years of that program. Fall monarchs should be abundant in the Upper Midwest from the eastern Dakotas east to Wisconsin and Illinois with good numbers present from Michigan through Ohio as well. Production of monarchs should also be higher than it has been for many years for all of the Northeast from

New York and Pennsylvania through Maine. The Mid-Atlantic region hasn't been heard from in recent months, but the flow south and southwest through that region by monarchs originating further north should present some good opportunities for tagging in that region as well. Taggers located south of the northern breeding areas, particularly those located in Kansas, Oklahoma and Texas, should also have a greater opportunity to tag monarchs than in recent years.

In sum, this looks to be a good year for monarchs - with a stronger migration in most regions and a good prospect that the overwintering population will increase from the 2.91 hectares of last year to 4 hectares or better this coming winter.

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 or "do not use" tags;** these are only on the sheet as a printing reference and are not unique (and therefore do not provide meaningful data to the tagging program).
- 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.

Submitting Your Data

Please, please, return your data as soon as you are finished tagging for the season.

Believe it or not, many people receive tags, tag monarchs, record data and then never return their data. 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.

To submit your data, you may mail it to the address on the datasheets or download a Monarch Watch Tagging Datasheet in spreadsheet format and submit that via email (preferred). This spreadsheet may be filled out using Excel, Numbers, or another spreadsheet application then saved and sent to us as an email attachment. Datasheets and complete instructions are available online at

www.monarchwatch.org/tagging

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.

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 approximately \$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 are 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.

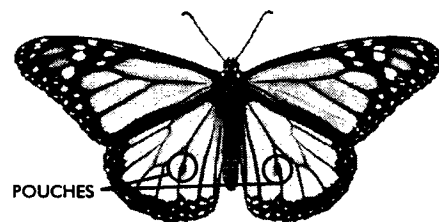
Storing Live Monarchs

If you collect more monarchs than you can tag immediately, you can

store them in paper triangles or glassine (#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.

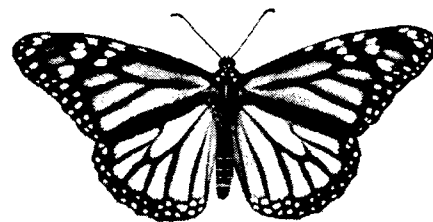
Sexing Monarchs

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.



POUCHES

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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