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Tag codes contain 4 letters and 3 numbers.
Be sure to **record the complete tag code**
for each monarch you tag.

TAGGING NEWSLETTER – JULY 2022

by Chip Taylor,
Director, Monarch Watch

Greetings, taggers!

Welcome to Monarch Watch's 31st tagging season! Over the years, thousands of taggers have contributed to our tag database. The record represents over 2 million tagged butterflies and more than 20,000 recoveries at the overwintering sites.

The tagging data have revealed new information on the origins of monarchs that reach Mexico, the timing and pace of the migration, differences among regions due to recolonization and weather, the impact of drought years and many other factors. None of these insights into the dynamics of the migration and the monarch annual cycle would have been possible without the assistance of all those who have so generously donated their time and data to Monarch Watch.

Despite these successes, there is more to learn and a long-term record is crucial to understand the dynamics of such complex natural phenomena. The climate is changing and monarch habitats are continuing to decline; it is likely that the migration will change as well. Tagging should enable us to track these changes and we hope you will continue to tag, report your data and generally support monarch conservation by creating habitats for monarchs or helping others do so.

Good luck with your tagging and thanks to all of you for participating in our program. Please visit our website for updates and to review the complete "Tagging wild and reared monarchs: Best practices" article via monarchwatch.org/tagging

Status of the Population

Each year at this time I summarize what I know about how the monarch population is developing. The idea is to give taggers a heads-up about what to expect during the migration. The trouble with this exercise is that the available data are often contradictory (like this year) and there never seem to be a sufficient number of observations. Also, there is often a lull in monarch activity in early July which can be misleading and critical weather information, particularly temperature summaries, needed to assess population growth can also be lagging. Ok, that sums up my excuses. Here is what I do know, based on first sightings reported to Journey North and temperatures from 8 Tempest weather stations scattered from eastern North Dakota to central Ohio.

The monarchs returning from the overwintering sites in Mexico arrived in Texas in noticeable numbers between 11-15 March which fits with the long-term pattern of arrivals. The numbers reported were somewhat lower than last year but average for the last 5 years. I was a bit concerned about the returning numbers at the time, but the overall timing and numbers reported suggested the population was off to a fairly good start.

I next focused on the timing and number of first-generation monarchs moving north out of Texas in May. The first two weeks of May can be a low period for first sightings, but there was a surge of these in the central part of the Midwest from about 10-20 May. That was something to cheer about since that push northward, aided by strong SW winds, was a sign that the population in the Upper Midwest

would be off to an early start. But that was not to be. A week of cooler, less favorable, weather followed in many areas. In fact, there were large areas in the eastern Midwest where the cooler weather lasted for three weeks, substantially slowing population development. Added to these conditions, the total number of first sightings in the Upper Midwest was the lowest since 2019 and strikingly low for the area from Madison, WI to the central Dakotas (90-100W longitudes). It is this region that is best represented by tag recoveries in Mexico. Together, delayed development and lower-than-average numbers suggest that the migration in the Midwest will be lower than average in late August and September. It will also be later, which will enable taggers to in many areas to tag monarchs well into September in the north and October in the south.

While the peak colonization of the area from the mid Dakotas (100W) to western Pennsylvania (80W) occurred from 11-20 May, colonization to the east (80-60W) peaked from 21-30 May. The difference in timing between the Midwest and East was unlike any record in the past for May. In addition, the numbers reported in the east were the highest in the 22-year record. These reports amounted to 38% of all sightings. The numbers included 30 sightings in the Maritime provinces - almost double the previous high (17) for that region. The record of colonization in the east may or may not signal a larger than average migration in the east; it is simply too early to tell. But, like the Midwest, it seems likely that the migration will be late and offer an opportunity for tagging well into September and early October along the eastern monarch flyways.

Reared vs. Wild Monarchs

Our deep dive into the data has told us this record could be improved. For example, our analysis revealed substantial differences between wild and reared monarchs in the probability of reaching Mexico. The recovery rate is higher for wild-caught monarchs (0.9% vs 0.5%). This result means we are learning more about the migration as a natural process from wild-caught and tagged monarchs. That's not surprising. Still, the timing and origins of the thousands of reared, tagged and released monarchs that have been recovered in Mexico are of interest. We are analyzing data to determine why these recover rates are lower. Rearing conditions are surely a major factor but there are several others.

For those of you who prefer to rear, tag and release, we have a few suggestions as to how you might improve the odds that your reared monarchs will reach the overwintering sites in Mexico. One way is to rear monarchs in a way that maximizes their exposure to environmental changes (day/night temperatures, changing photoperiod, etc.) that occur in the fall. In other words, rearing outdoors in a protected area (porch, pole barn, open garage) would likely produce better results than rearing indoors.

For wild-caught monarchs, we have several goals. First, we need to increase the number of taggers from western Minnesota and Iowa westward into Nebraska and the Dakotas. This region is known to produce large numbers of monarchs and those tagged have high recovery rates. Increased tagging in this area will give us a more complete understanding of dynamics of the migration. Second, we need to increase the number of wild monarchs that are tagged since these provide the most valuable data. Third, we need to increase the number of taggers who tag from the beginning of the tagging season in early August until the migration ends. Tagging records for the entire season will help us establish the proportion of the late-season monarchs that reach the overwintering sites. Many taggers run out of tags well before the season ends and it would help us to know when this

happens; the date may be reported via the tagging data submission form.

Tagging Monarchs

Tagging should begin in early/mid August north of 45N latitude, in late August at other locations north of 35N and in September and early October in areas south of 35N. For additional guidance, please visit

monarchwatch.org/tagging

Quality butterfly nets are available from the Monarch Watch Shop (item# MW106; shop.monarchwatch.org or 1-800-780-9986).

Monarchs are difficult to catch in flight so it is best to locate monarchs feeding on flowers or in roosts late in the day or early in the morning. With a net in hand, approach slowly from behind. Sweep the net forward quickly and flip the end of the net bag over the handle to capture the butterfly deep in the net bag. Collapse the end of the net bag so the wings of the butterfly are closed over its back. Place thumb and forefinger over the leading edge of the wings (from outside of the net) and then reach into the net to firmly grasp the thorax and remove the butterfly for tagging.

Recording Tagging Data

- It is very important that participants record their **complete name and contact information on every sheet**.
- When you record the data, be sure to **use the complete tag code for every tagging record**. Without the complete code, identification can be virtually impossible.
- **Do not use the page number or "do not use" tags from your tag sheets**; these do not provide meaningful data to the tagging program.
- Use the datasheet example as a guide for the information to include for each tagging record. Be sure to **record the complete tag code, date, and complete location for each and every monarch** you tag and release.

Submitting Your Data

Please submit your data once you are finished tagging for the season!

Recovery data are useless if we are unable to verify when and where the butterflies were tagged and released.

Please consider submitting your data online or via the **Monarch Watch mobile app**. You may also download a Monarch Watch Tagging Datasheet in spreadsheet format which allows us to compile the data in a more efficient manner. The spreadsheet may be filled out using Excel, Numbers, Google Sheets or another spreadsheet application then saved and submitted online. Datasheets and complete instructions are available online at

monarchwatch.org/tagging

Monarch Tag Recoveries

Tagged monarchs observed in the United States, Canada, and Northern Mexico ("domestic" recoveries) are often found by people who are not familiar with the Monarch Watch tagging program. Using the contact info on the tag, recovery information is submitted and added to our database.

The majority of 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 several hours on average to find each tag among the 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 them.

A portion of the cost of the tagging kits attempts to cover the recovery effort. However, when there is high mortality at the overwintering sites the number of recoveries is also high and the cost of purchasing tags exceeds these funds. Tax-deductible contributions to Monarch Watch to help offset the costs associated with running the tagging program are always welcome and very much appreciated:

monarchwatch.org/donate

Thank you for your support!