

NEW TAGS FOR 2019!

Please note that the new tag codes are four (4) letters followed by three (3) numbers — be sure to record the complete code on your datasheet for each monarch you tag and release. You may notice that the datasheet has been updated this year as well.



TAGGING NEWSLETTER – JULY 2019

by Chip Taylor,
Director, Monarch Watch

Greetings, taggers!

Welcome to the 2019 monarch tagging season. This year marks Monarch Watch's 28th season! Over the years, thousands of taggers have contributed to our tagging database. It is an enormous record and a veritable gold mine of information about how the migration functions. The record represents at least 1.8 million tagged butterflies and lists where, when and by whom each butterfly was tagged. The sex of each butterfly and whether the butterfly was wild-caught or reared, tagged and released is also recorded. These data have told us a lot about the migration. Yet, this record could be improved but we need your help. Diving into the data has revealed a number of surprises such as the difference between the probability that a reared monarch will reach Mexico and the probability that a wild-tagged monarch will do so. The recovery rate is higher for wild-caught monarchs (0.9% vs 0.5%) and it is the data from the wild-caught butterflies that tell us the most about the migration. Frankly, for some analyses, we have to set the reared monarch data aside. That doesn't mean it is not valuable, but its uses are limited.

Given the difference between the recovery rates of wild-caught and reared monarchs, what are our goals going forward? 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. When tagging wild-caught monarchs, many taggers run out of tags well before the season ends. That's great, but it would help us to know when all tags had been used by indicating this via the online tagging data submission form.

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. But, it is more than reaching Mexico. The best outcome for a wild monarch is to survive the migration, the winter conditions, the flight north in the spring and to successfully reproduce in Texas in the spring. It seems reasonable that this should be the goal for those who choose to rear, tag and release. To reach that goal, we have to know something about the wild monarchs that allows them to survive. The migration is a strong selective force. It eliminates the weak, those with diseases, the undersized and those with genetic and other deficiencies. It also eliminates those that have not received the environmental cues that properly trigger diapause and the orientation and directional

flight characteristics of the migration. One way to increase the success rate for reared monarchs is to rear monarchs in a way that maximizes their exposure to environmental changes (day/night temperatures, changing photoperiod with the ability to sense sunup and sundown, etc.) that occur in the fall. In other words, rearing outdoors, on porches, in pole barns, open garages, etc., would likely produce better results than rearing in an air-conditioned kitchen, spare bedroom or similar space.

Status of the Population

Right now, in most of the breeding area, the prospects for a normal summer and a reasonably robust population look quite good. The exception is the northeast (east of Toronto in Canada, and most of eastern New York, Pennsylvania and north through New England. The colonization of those areas by first generation monarchs was scanty with low temperatures for the first half of June. Further, a colder than normal summer is predicted for most of that region which will retard population development. The migration in the east this fall will be on the low side relative to good years.

As you may already know from previous communications, I partition the annual cycle into 6 stages in an effort to understand the interannual variation in monarch numbers. This stage-specific model breaks down as follows: 1) overwintering (late Oct–early April); 2) return migration through Mexico (late Feb–April); 3) breeding in the US in March and April; 4) recolonization of the regions north of 37N (May–early June); 5) summer

breeding north of 37N (June–August); and 6) fall migration (August–Oct). While there is some overlap, each stage is intended to capture the dominant activity during that period.

After Stage 4, I said the overwintering population was likely to be between 4–5 hectares and trending toward 4. Stage 5 recolonization has been excellent with respect to both timing and numbers, with the exception of the northeast. Based on the recolonization data and the long-term temperature forecasts for the Upper Midwest and the north central region, my prediction is that the 2019–2020 overwintering population will be at least 5 hectares and could trend toward 6 hectares if the summer temperatures from 80W (western Pennsylvania) to the west (105W) average at least a degree above the long-term averages. I will summarize the outcome of Stage 5 (June–August) in early September.

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 at:

monarchwatch.org/blog

When Does Tagging Begin?

Tagging should begin in early to mid August north of 45N latitude (Minneapolis), late August at other locations north of 35N (Oklahoma City, Fort Smith, Memphis, Charlotte) and in September and early October in areas south of 35N latitude. For estimated peak migration dates in your area please visit:

monarchwatch.org/tagging

Butterfly Nets

Quality butterfly nets are available from the Monarch Watch Shop (item# 120003; shop.monarchwatch.org or 1-800-780-9986).

Capturing a Monarch

When in flight, monarchs are difficult to catch. It's best to locate monarchs

feeding on flowers or in roosts late in the day or early in the morning to maximize your effort. With a butterfly net in hand, approach slowly (from behind if possible), as sudden movement will startle butterflies into flight. 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 EACH AND EVERY SHEET.**

- When you record your 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 on 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 TAG CODE, DATE, AND LOCATION (CITY, STATE, ZIP, COUNTRY) FOR EACH MONARCH YOU TAG AND RELEASE.**

Submitting Your Data

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

Every year Monarch Watch spends time and money contacting people that did not return their data. Recovery data are useless if we are unable to verify when and where the butterflies were tagged and released.

To submit your data, you may still mail it to the address on the datasheet; however, please consider submitting it online via our simple form instead. 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

Please submit your data via one method only (preferably online). That is, if you submit your data online, please do not mail in your sheet(s) as well.

Monarch Tag Recoveries

Tagged monarchs observed or recovered 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 to us 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!

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