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MONARCH
JOINT VENTURE



MonarchNet News

Citizen science contributes to our understanding of the Pacific Northwest monarch migration

It is widely known that the eastern population of North American monarchs migrates to and from Mexico, returning to northern United States east of the Rocky Mountains, and southern Canada each year. Monarchs west of the Rocky Mountains migrate to and from the coast of California, for the most part. However, evidence has been found that monarchs in the southwestern U.S. can migrate to *either* California or Mexico (Morris et.al, 2015). There is considerably less concrete evidence of the migration routes of monarchs found in the Pacific Northwest (PNW; British Columbia, Washington, Idaho, Oregon).

A new study out of Washington State University used citizen science to improve our understanding of migration patterns in the Pacific Northwest. Over the course of 5 years (2012-2016), citizen scientists helped tag nearly 15,000 wild and reared monarchs. A large number of these citizen scientists are inmates at the Washington State Penitentiary (WSA) in Walla Walla, who helped rear and tag thousands of monarchs.



This study found that a large number of PNW monarchs migrate to coastal California, providing concrete evidence supporting previous assumptions. It also suggests that a small number of monarchs from the eastern parts of PNW states do not migrate to California. The study speculates those monarchs may be heading to Arizona or Mexico.



Photos: Wendy Caldwell

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Cover photo: Jim Ellis

Tagging monarchs plays an important role in improving our understanding of their migrations and public participation allows us to study these patterns at a much larger scale. This study shows how citizen science can allow us to continue unraveling the mysteries of migration and understand where monarchs are going.

James DG, James TS, Seymour L, Kappen Tamara Russell L, Harryman B, Bly C. 2018. Citizen Scientist Tagging Reveals Destinations of Migrating Monarch Butterflies, *Danaus plexippus* (L.) from the Pacific Northwest. *Journal of the Lepidopterists' Society*. 72(2): 127-144.

Morris GM, Kline C, Morris S. 2015. STATUS OF DANAUS PLEXIPPUS POPULATION IN ARIZONA. *Journal of the Lepidopterists' Society*. 69(2): 91-107.

New report shows that citizen science supports learning and research objectives.

'Learning through citizen science', a new report by the National Academy of Science, Engineering, and Medicine says that citizen science can support both scientific learning and research goals as long as the program is effectively designed.

The authors suggest that designers should begin with intended learning outcomes and find well-supported strategies to achieve them. This includes addressing inequities in resources, education and opportunities. Citizen science can flourish if programs include diversity and equity in their goals, engaging stakeholders and participants in the design process. Research objectives should be built in after learning outcomes are established to maximize impact.

To read more about effectively designing citizen science programs, visit [The National Academy of Sciences, Engineering, and Medicine website](#).

Featured Scientist: Giovanni

We spoke with Giovanni, a 7th grade student and butterfly activist at Arthur Ashe Charter School in New Orleans to learn more about his interest in butterflies.

MonarchNet: Why are you interested in butterflies and caterpillars?

Giovanni: I am interested in butterflies and caterpillars because they have so many different species that make very beautiful butterflies and caterpillars. In my perspective they are very cute.

MonarchNet: When did you start being interested in butterflies?

Giovanni: It all happened at the beginning of the school year during Garden Class when Bean plants were grown and long tailed skippers were out and I was collecting them all.

MonarchNet: What would you tell someone else to encourage them to take action for butterflies?

Giovanni: I would tell them that butterflies are beautiful, and I would tell them not to kill caterpillars because they make amazing butterflies.

MonarchNet: Is there anything else you want to share?

Giovanni: I raised multiple species, here they are in order.

- Long tailed skipper
- Garden Fetiletry (fritillary): passion fruit
- Swallow Tail: dill
- Garden Fertillary (fritillary): Stinging Nettle
- Swallow tail: Citrus
- Monarchs
- Tomato Hornworm



Thank you Giovanni for sharing your story, keep up the awesome work!

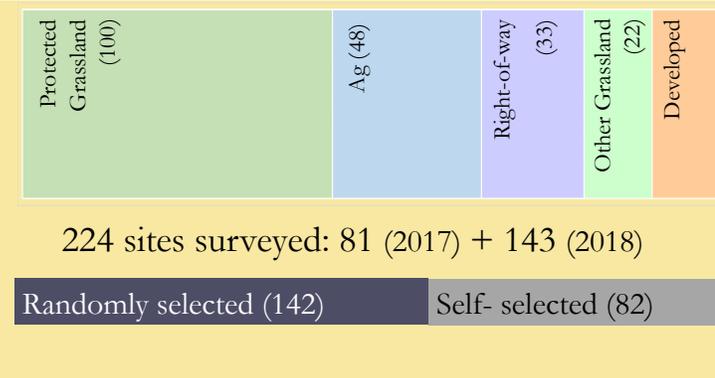
Photos: Loren Farese

Integrated Monarch Monitoring Program

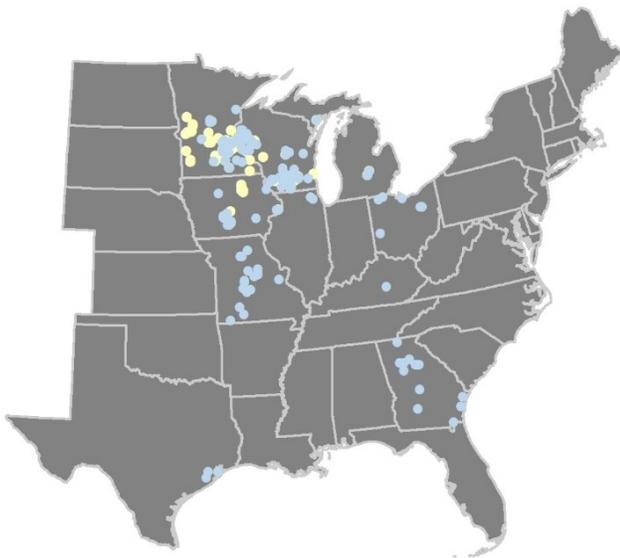
Program Report 2017 & 2018



The Integrated Monarch Monitoring Program is a nationwide initiative to monitor monarchs and evaluate habitats to inform conservation efforts. It can be used to meet local monitoring objectives while helping better understand monarch populations and habitat distribution throughout the breeding range.



25+ conservation organizations attended trainings



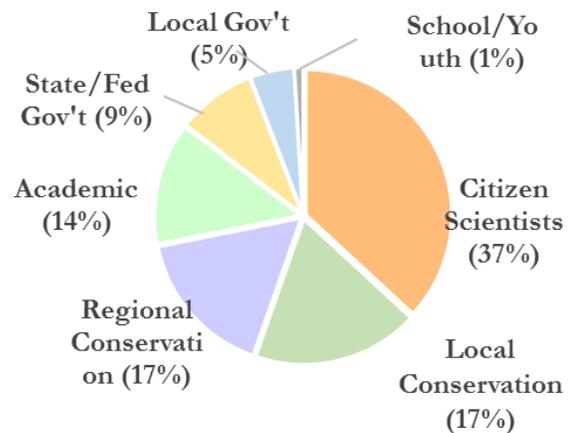
Sites Surveyed ● 2017 ● 2018

Friends in the field



25% of participants are recruited by friends or colleagues.

Active Participants



Average time to conduct surveys:
 Milkweed & Blooming Plant Survey—2 hours
 Monarch Egg & Larva survey—1 hour
 Adult Survey—1/2 hour

88%
 of respondents to a post-season evaluation are interested in monitoring next year.



Integrated Monarch Monitoring Program

Program Overview

The Integrated Monarch Monitoring Program (IMMP) monitors monarchs and evaluates their habitats to inform monarch conservation efforts. Geographically and ecologically representative data enable long term tracking, updates to population and habitat models, and improve our understanding of how habitat conservation actions affect monarchs and their habitats.



The IMMP includes four optional activities. Participants select activities according to their interests or local information needs.

Milkweed & Blooming Plant Survey
2-4 hours, monthly

Monarch Egg & Larva Survey
1-2 hours, weekly

Adult Monarch Survey
30 minutes, every other week

Monarch Survival & Parasitism
15-30 minutes, daily (while rearing larvae)



The IMMP uses a random sampling design to select monitoring sites in an unbiased way. You may choose to adopt a random IMMP site or select your own.

Training, protocols, mapping tools, and survey forms are available on tablet, phone, and paper.



To learn more, inquire about training workshops, or to find a site near you, visit:

<https://monarchjointventure.org/get-involved/mcsp-monitoring>

or contact monitoring@monarchjointventure.org.

Share your ideas!

Are you a butterfly citizen scientist with a story, photos, or artwork to share? Would you like to nominate a volunteer or program for recognition? Write to us at assistant@monarchjointventure.org with your ideas.