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Monarch Population Decline Essay Butterfly
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I often see monarch butterflies around campus during the fall; they like to frequent the milkweed growing outside of Tomson and in the Natural Lands. However, monarch butterfly populations have been declining for as many as the last 50 years. Monarchs are a significant North American butterfly species and are well known for their migration in the fall from the Northern US to Mexico and for their return migration in the spring. They are easily recognizable by their bright orange, white, and black colors and children in North America even learn about them through schoolwork and coloring books. Monarch butterflies have been deemed so important that the Monarch Butterfly Biosphere Reserve has been classified by UNESCO as a World Heritage Site. Yet the question remains: Why is the monarch butterfly population declining, and what can we do about it?

Some recent hypotheses for monarch population decline include milkweed loss, either as a result of increased pesticide use or agricultural expansion, logging near overwintering sites, and a reduction in nectar during the fall migration. I will present three articles on monarch population decline and propose a campus initiative to improve monarch butterfly habitat.

A study by Inamine et al. in 2016 of monarch butterfly decline and milkweed loss did not find a connection between milkweed loss and pesticide use, nor did it see a significant reduction in year to year populations of monarch butterflies in northern regions, which suggests that monarch butterfly decline is not occuring in the northern regions of North America. Inamine et al. then posit that the decline is likely happening during fall migration and overwintering, perhaps as a result of nectar reduction or logging. However, a more recent literature review by Stenoien et al. in 2018 refutes the claim of Inamine et al.. Through their review of articles written on monarch decline they conclude that monarch decline could be due to milkweed loss.

Boyle et al., another study from 2018, found that monarch butterfly populations and milkweed populations may have started declining as early as 1950, which suggests that milkweed decline is not happening solely as a result of pesticide use. While this data was collected from museum collections, which is inherently flawed, the data does correlate with previous studies and trends in milkweed design and suggests that the decline may be due to the reduction of weeds within and around parcels of farmland.

These three articles do not seem to agree with each other and each provides a slightly different explanation for monarch decline, which raises the question: What can we do as a campus to help increase the monarch butterfly population? Although the scientific research may not agree, we can still make a difference for the monarch butterflies on campus. All of the studies have agreed that milkweed is vital for monarch reproduction and that nectar is necessary for the survival of monarch butterflies. We do have a number of milkweed plants on campus, both in the quad and in the natural lands.

I recommend that we increase the number of milkweed plants on campus and preserve the milkweed that is already here. I also recommend increasing the number of flowering plants with high amounts of nectar that are preferred by monarch butterflies. Doing so will not only be beneficial for monarch butterflies but also for other nectar-consuming animals, especially insects.

While the scientific research is unclear on the cause of monarch butterfly decline–pesticides, agriculture, milkweed decline, logging, or a reduction in nectar during fall migration–we can still make a difference by creating an expanded and more beneficial habitat for monarch butterflies on campus.

Additional Reading and References:

Boyle, J., H. Dalgleish, J. Puzey, & J. Boyle. 2018. Monarch butterfly and milkweed declines substantially predate the use of genetically modified crops. Proceedings of the National Academy of Sciences of the United States of America 116:3006–3011.

Inamine, H., S.P. Ellner, J. P. Springer & A. Agrawal. 2016. Linking the continental migratory cycle of the monarch butterfly to understand its population decline. Oikos 125: 1081-1091.

Stenoien, C., K. R. Nail, J. M Zalucki, H. Parry, K.S. Oberhauser & M. P. Zalucki. 2018. Monarchs in decline: a collateral landscape-level effect of modern agriculture. Insect Science 25:528-541.

World Heritage List. 2020. (Accessed February 17, 2020) U.N.E.S.C.O., World Heritage Centre. https://whc.unesco.org/en/list/