



Wind Focuses on Declining Butterfly Population

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Recommended Citation

Marcus, Lydia () "Wind Focuses on Declining Butterfly Population," *Dordt Voice, 2016-*: Vol. 64 : Iss. 2 , Article 7.
Available at: <https://digitalcollections.dordt.edu/voice/vol64/iss2/7>

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WIND FOCUSES ON DECLINING BUTTERFLY POPULATION

Driving down any Midwestern highway, you'll likely spot clusters of milkweed planted in the ditches for the benefit of monarch butterflies.

If you drove down a Northwest Iowa highway last fall, you may also have spotted Joscelyn Wind, a senior biology major, along the roadside, inspecting the milkweed for monarch larvae and tachinid flies.

"Monarch butterfly populations have significantly declined in numbers, especially within the past two decades," says Wind. "They are currently being evaluated for placement on the endangered species list. Tachinid flies play a role in monarch mortality."



R. DeHaan

For her student-directed research project, Wind decided to examine the correlation between parasitism in monarchs and local tachinid fly populations. Tachinid flies, which are larger than houseflies, lay eggs in monarch caterpillars. The caterpillar builds and houses itself in a chrysalis; but the tachinid eggs prevent a butterfly from forming and instead the chrysalis produces flies. Dr. Robb DeHaan, an environmental science professor, says this phenomenon seems to be affecting 10 to 20 percent of monarch butterflies.

Wind first became interested in studying monarch butterflies after talking with Dordt Biology and Chemistry Lab Instructor Brittany De Ruyter ('10) about her master's degree research on how the timing of mowing Iowa roadsides affects monarch butterfly reproduction.

"I did further research into factors that affect monarch populations and became interested in tachinid flies," says Wind. "I had taken entomology and really enjoyed it, so I decided to pursue a project incorporating both of these insects."

"Very little is known about the impact of tachinid flies on monarch larvae in the Midwest," says DeHaan. "The specific tachinid species responsible, its

prevalence, and the impact of mowing and other management practices are all poorly understood. By examining local roadside sites and two parks for signs of monarch development, tachinid flies, and tachinid parasitism of monarchs, Wind helped fill a gap in scientific understanding."



B. De Ruyter

Wind didn't always find what she expected in her research. For example, though both *Lespesia* and *Carcelia* fly populations were present in monarch larvae she collected, her sticky traps only produced one fly identified as *Lespesia*. Still, Wind's work contributed to the field of entomology and to conservation work by verifying previous studies and

informing future research.

"Monarch research requires large-scale studies that address the complexity of their annual cycle and model future scenarios, but such studies rely on local research and empirical evidence," explains DeRuyter. Wind's work provides such evidence.

Wind found the monarch butterfly research fascinating.

"I hope my local research will spark an interest in monarchs and factors that affect their populations, as well as provide more information on the populations of both tachinid flies and monarchs in certain habitats."

LYDIA MARCUS ('17)

JAMIN VERVELDE ('09)



"At Dordt, I've appreciated the focus on incorporating faith and science into my education, career, and life as well as exploring challenging questions in the field of biology," says Wind.