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27 February 2023

Regarding: amendment to AB162
Correspondence sent to: AsmNR@asm.state.nv.us

To whom it may concern,

I am a professor of insect ecology and biodiversity in the Biology Department at the University of Nevada, Reno (UNR). I am writing on my own behalf, and not as a representative of the university or the Nevada System of Higher Education. I have been a faculty member in the Biology Department at UNR since 2008. Before that, I held a postdoctoral research position at Stony Brook University in New York, and before that I received my PhD from the University of California, Davis (UCD).

My research lab at UNR studies insects and butterflies in particular, and how they are affected by stressors that include pesticides, climate change, and habitat loss. Among other activities, we collaborate with professor Art Shapiro at UCD in the maintenance of a butterfly monitoring network with 10 sites that have been monitored continuously for more than 50 years, making it the world's longest-running study of its kind. Collectively, my research group has published more than 150 articles in peer reviewed scientific journals.

Based on work published by us and other groups in recent years, we know that pollinators and other important insects are in decline globally, in our region, and in Nevada in particular. More specifically, we have estimated that butterflies in the arid western US have been declining in recent decades at a rate of 1.6% per year, which amounts to an approximately 25% reduction in the total number of butterflies on the wing over the course of 20 years. We study butterflies in part because they are important components of natural ecosystems in their own right, but also because they are representatives of other pollinators for which we have less information. The strong possibility that all pollinators, including wild bees, are in severe decline raises serious alarms for both the functioning of natural ecosystems and the future of agricultural systems on which human society depends.

With respect to causes of pollinator declines, we know that the primary three are habitat loss, climate change, and habitat degradation. Of primary concern in the latter category (habitat degradation) are pesticides, which are complex and multifaceted. One of the most concerning groups of pesticides is the neonicotinoids. These chemicals are of special concern for reasons that include: longevity in the environment, toxicity to pollinators, and systemic uptake by plants. The nature of these chemicals is such that even when they are sprayed on one part of the plant (e.g., leaves), they move throughout the tissues into other places (e.g., pollen and

nectar in flowers) where they are encountered by flower-visiting insects including bees and butterflies.

Neonicotinoids are readily available to consumers and land managers and are dramatically overused in a great many non-agricultural situations, including by homeowners. These applications need to stop, and this bill, which I support, is an important step towards securing the health of Nevada's natural ecosystems for future generations.

I give many presentations to scientists and the general public on stressors affecting pollinators, including neonicotinoids. One question that I often get asked, which is relevant to this legislation is: why should we, in the western US, worry about pesticide use when we have such vast open lands far from human development? The answer is that all of our vast open lands are being drastically and negatively affected by climate change. In particular, the extreme and prolonged droughts of recent decades are reducing the densities of beneficial insects in those open lands. *This new reality elevates the importance of all decisions that we make about managed lands, and chief among these decisions is the use of pesticides.*

By eliminating non-agricultural use of neonicotinoid pesticides on plants we can maximize the value of critical lands for pollinators and provide important refugia for these animals, securing their health and our health for decades to come.

Sincerely, and on my own behalf, not representing the University of Nevada or the Nevada System of Higher Education,

Matthew L Forister
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University of Nevada, Reno