XERCES SOCIETY
for Invertebrate Conservation

Protecting the life that sustains us

Oregon House Committee on Climate, Energy, and Environment
Written Testimony in Support of House Bill 2679

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The Xerces Society for Invertebrate Conservation, March 4th 2025

Dear Chair Lively, Vice-Chairs Gamba and Levy, Members of the Committee:

This testimony is submitted by Aaron Anderson, Ph.D. and Jacqueline Buenrostro, M.Sc. of the Xerces Society for Invertebrate Conservation. Aaron is a Pesticide Program Specialist at Xerces who works to reduce pesticide use in residential landscapes, and has a background in pollinator conservation. Jacqueline is an ecologist with expertise in insect conservation and integrated pest management, serving as the urban policy lead for pesticide reduction at Xerces. **We submit this testimony in support of HB 2679 on behalf of our organization.**

The Xerces Society, headquartered in Oregon, is an international nonprofit that uses science-driven methods to protect invertebrate wildlife and their habitat. Recognized as a global leader in pollinator conservation by entities such as the U.N. Food and Agriculture Organization and USDA-Natural Resources Conservation Service, we work directly with growers and local communities in Oregon and across the country to safeguard pollinator populations.

The Xerces Society supports HB 2679 as introduced. The state of Oregon is home to over 500 native bee species, including the likely extinct Franklin's bumble bee and the western bumble bee, which was once widespread but is now in severe decline. These species are critical pollinators for both agriculture and natural ecosystems in the state. Neonicotinoid insecticides, or neonics, are synthetic neurotoxic insecticides that contribute to pollinator declines, harm birds and other wildlife, and cause broader ecological damage. This bill would restrict the use of neonic insecticides to licensed applicators only while also prohibiting much residential outdoor use. The Xerces Society has reported on the negative effects of neonicotinoids on pollinator populations for many years. We urge you to advance this bill for the reasons below.

In Summary:

- **The Xerces Society supports HB 2679 as introduced**, which directs the State Department of Agriculture to classify pesticides in the neonicotinoid class of chemicals as restricted-use. This bill also prohibits most uses of neonics in residential landscapes. **This bill does NOT ban neonicotinoids in agriculture.**
- **A growing list of states** - 12 total, including Washington and Nevada - now regulate the outdoor use of neonicotinoid insecticides to protect pollinators without harm to agriculture.
- **Over a decade of research** demonstrates neonicotinoid harm to pollinators and the environment because of their toxicity, systemic activity, environmental persistence, and movement into waterways.

- **A series of native bee kills have occurred because of neonicotinoid use in residential landscapes,** including the largest pesticide-induced kill of native bees ever recorded in America.
- **Federal action has failed to effectively address neonicotinoids**, and risk assessments by the Environmental Protection Agency routinely underestimate risks posed to pollinators.
- **HB 2679 protects Oregon's pollinators from neonicotinoid insecticides** without limiting pest management options for growers and licensed professionals treating agricultural, invasive, or structural pests.

States are stepping up to protect pollinators by regulating neonicotinoids.

Legislation in other states provides an empowering model for action in Oregon. **Like HB 2679, bills in five states ban most non-agricultural outdoor use of neonics: Maine, Nevada, New Jersey, New York, and Vermont**. Seven additional states (12 total) have regulated neonics to reduce pollinator exposure, including California, Colorado, Connecticut, Maryland, Massachusetts, Rhode Island, and Washington state. Legislators in New York and Vermont also recently voted to restrict neonic-treated seeds in their states. This is a big advancement for pollinator protection, as treated seeds remain virtually unregulated at the federal level and provide minimal economic benefit to growers (Krupke et al. 2017; Labrie et al. 2020).

Still, there are important lessons to be learned from what has been less effective. For example, Colorado's 2023 bill (SB 23-266) restricted sale of neonicotinoids to certified dealers without restricting who could purchase them. This approach was originally taken by Maryland's 2016 bill (HB 211), where time has demonstrated its shortcomings. This bill introduced a loophole that left neonic products on shelves in over 100 retail stores and accessible to unlicensed residential consumers – even though it was illegal for these customers to use them at home. Maryland closed this loophole with another bill (HB 208) five years later. **The -1 amendment repeats the mistakes of the past and renders HB 2679 ineffective at achieving its goals. As introduced, HB 2679 heeds these lessons from other states and avoids their costly replication in Oregon.**

Neonicotinoids are uniquely dangerous for Oregon's pollinators.

The use of neonicotinoid insecticides has increased dramatically since their introduction in the 1990s. These products are used extensively in outdoor residential and ornamental landscapes, often against insects that pose no economic or safety threat. **A well-known and infamous example comes from Wilsonville, Oregon in 2013 where over 50,000 bumble bees were killed when neonics were sprayed on blooming linden trees.** This incident - the largest pesticide-induced kill of native bees ever recorded in America - was caused by neonics sprayed for aphids, a minor nuisance insect that leaves a sticky, washable residue on plants and cars. Five other bumble bee kills occurred in Oregon as a result of neonic usage in that year alone, and four of those resulted from legal applications that followed the pesticide label (Kachadoorian, 2018). More than a decade has passed since these bee kills in Wilsonville and other Oregon cities and towns. **In that time, an accumulation of independent, peer-reviewed scientific evidence has shown that neonics are directly linked to the widespread decline of bees and other pollinators** (Forister et al. 2016; Sgolastra et al. 2019; Janousek et al. 2023). This includes large-scale field studies that examined impacts of real-world exposure on bees and butterflies (Rundlöf et al. 2015; Woodcock et al. 2017; Guzman et al. 2024; Van Deynze et al. 2024).

Neonics have several characteristics that make them uniquely dangerous for Oregon's pollinators, other wildlife, and ecosystems. **They are toxic to bees and other beneficial insects at very small doses.** For example, the lethal dose of the neonic thiamethoxam for an adult honeybee is 15,000

times smaller than a grain of salt. Many neonics are several orders of magnitude more toxic than bifenthrin, an active ingredient in many products already on Oregon's list of Restricted Use Pesticides.

Neonics are also systemic. This means the insecticide is absorbed by the plant and expressed in tissues throughout the plant, including the pollen and nectar that bees rely on for food. Neonics can also appear at high concentrations in leaf secretions, which honey bees will sometimes use as a water source (Schmolke et al. 2018). Furthermore, **neonicotinoids do not stay where they are applied.** On land, neonics move into neighboring areas and contaminate untreated plants and soil there. This is especially bad news for the 70% of native bee species that make their homes within soil. Neonics are persistent, long-lived chemicals, especially those in the nitroguanidine group including clothianidin, dinotefuran, imidacloprid, and thiamethoxam. **These neonics persist in plants and the environment for months and sometimes years after they are used, making them toxic to pollinators even if they are applied long before plants are in bloom.** Because of their persistence, toxic levels build up and accumulate in the environment over time (Goulson 2013). These factors make exposure very likely for bees, butterflies, and other pollinators.

In addition to pollinators, neonicotinoids are also perilous for other wildlife, including aquatic species. Neonics are water soluble. As such, they leach into waterways and have been readily found in wetlands, surface waters, rivers, streams, puddles, and ditches in the US. Observed levels of contamination are frequently **high enough to harm aquatic life and degrade aquatic ecosystems** (Hladik et al. 2018; Schepker et al. 2020; Kuechle et al. 2022). The overuse of neonicotinoids is also causing harm to birds. In fact, neonics have been linked to reduced bird diversity across the United States (Li et al. 2020). A body of scientific literature demonstrates that neonics can be directly lethal to birds. Neonics can also harm birds indirectly by reducing the supply of insects available for them to eat. In addition, neonics alter bird behavior and reduce reproduction and survival (Molenaar et al. 2024). In agriculture, there are concerns about neonic overuse leading to crop pest resistance and counterproductive losses of insect predators that provide natural pest control (Douglas et al. 2015; Matsuda et al. 2020).

Federal action has failed to effectively address neonicotinoid risks.

Registration by the Environmental Protection Agency (EPA) does not make neonicotinoids safe. Key gaps in the pesticide regulatory process means that EPA vastly underestimates harm to pollinators from neonics and other pesticides. This is why Earthjustice, on behalf of the Xerces Society for Invertebrate Conservation, recently petitioned the EPA to swiftly correct flaws in its framework for assessing pesticide risks to pollinators. European honey bees are the only insect species consistently tested in EPA's risk assessments, leaving critical data gaps for key groups of insects including native bees, butterflies, and aquatic species which are frequently exposed to neonicotinoids. Most native bees (>90%) are solitary, which means there is one female bee who builds a nest, lays eggs, and collects food for her babies. She has no workers to buffer her from insecticide exposure. Even our native bumble bees have much smaller colonies than honey bees, and as such are far more susceptible to harm from neonicotinoid exposure. **This sensitivity is simply not captured by EPA risk assessments for neonics.**

Another key gap in EPA risk assessments of neonicotinoids is that they rely heavily on the dose required for honey bee death. **However, acute mortality is a blunt and insufficient measure of harm. Typical concentrations of neonicotinoids encountered in the environment result in subtle effects that kill pollinators more slowly.** Such effects can include reduced foraging, shorter lifespan, lower queen production, and even reduced honey yield (Chambers et al. 2019). Even trace amounts of neonicotinoids in nectar and pollen can cause harm to bee health, leading to impaired colony function and reduced

reproduction (Wu-Smart & Spivak 2016). Chronic neonicotinoid exposure can also weaken immune function, resulting in colonies that are more susceptible to *Varroa* mite infestations and other parasites and pathogens. Weakened colonies are also less likely to overwinter successfully. **These subtle effects are dangerous to pollinators and can cause populations to decline. Yet, EPA regulations do not address these concerns.**

When it registers a product, EPA only tests one chemical at a time. In reality, pollinators and wildlife are exposed to many different chemicals at once. These chemicals can become more toxic together than if insects were exposed to them separately- a phenomenon known as synergy. In fact, neonicotinoids become more toxic when combined with certain fungicides, adjuvants, and other insecticides (Sgolastra et al 2016; Chen et al. 2019; Wang et al. 2020). This effect is not captured in EPA risk assessments.

This evidence is part of a growing body of literature demonstrating that neonicotinoids are dangerous to pollinators. EPA also has an ongoing review of its registration for all neonicotinoid insecticides. However, EPA has been reviewing neonicotinoids for years, and continues to extend their timeline for making a registration decision. **While EPA fails to act, their own 2023 assessment found that the three most-used neonicotinoid insecticides put over 200 species at risk of extinction.** Because of EPA's failure to restrict neonicotinoids at the federal level, these products remain on store shelves and are widely used by non-licensed consumers in residential settings.

HB 2679 is a commonsense measure for protecting pollinators and ecosystems.

Oregon has the opportunity to join a growing list of states in stepping up where the federal government has lagged. **As introduced, HB 2679 protects Oregon's pollinators and ecosystems from neonicotinoid insecticides without limiting pest management options for growers and licensed professionals.** HB 2679 ensures that these toxic and long-lived chemicals are only available to those with applicator training while restricting their use in residential landscapes. Home gardens and similar habitats offer havens to the very pollinators that are so critical to agriculture in the state. In these settings, residents do not need neonicotinoids to manage pests of economic concern, and they often lack the training and resources to use these products as indicated. For agricultural applications, this bill ensures that users have access to the robust network of resources and continuing education that are available through the Oregon Department of Agriculture's licensing program. This is a reasonable and valuable step addressing the risks that neonicotinoids pose for pollinators in the state.

Mounting evidence demonstrates that long-lived, toxic neonicotinoids are having devastating effects on pollinators and broader ecological diversity. Neonicotinoids are a leading driver of pollinator declines, and their risks must be mitigated to restore both native and managed bee populations. **For these reasons, the Xerces Society supports HB 2679.**

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