Written Testimony in Support of H.B.1086 An Act to prohibit the sale of certain crop seeds treated with neonicotinoids

January 13th, 2026

To: Honorable Chairman Judy Aron, Vice Chairman Liz Barbour, and all members of the House Environment and Agriculture Committee

From: Rosemary Malfi, Ph.D., Director of Conservation Policy, Xerces Society for Invertebrate Conservation *on behalf of the Xerces Society for Invertebrate Conservation*

The Xerces Society for Invertebrate Conservation strongly supports H.B.1086.

This bill will better protect the state's natural resources from the harmful effects of neonicotinoid insecticides. As a science-driven organization that works directly with farmers and other land managers in New Hampshire and throughout the country to conserve beneficial insects, we are well versed in the importance of balancing pest management strategies and environmental protections. This bill strikes that balance by restricting a widespread use of neonicotinoids that is largely ineffectual, while still allowing for their use when justified.

Pollinators are important for New Hampshire.

Managed and wild pollinators are incredibly important for agriculture and natural ecosystems in New Hampshire. Over 200 species of bees and over 130 species of butterflies belong to the state, and some of New Hampshire's most important crops are highly dependent on pollinators. This includes high-value crops like apples, nuts, and berries, which together contribute nearly 20 million dollars to the state economy each year.[1] Pollinators also sustain our natural ecosystems: over 80% of flowering plants rely on these tiny creatures to reproduce.

Pollinators are declining, pesticides are a major driver.

Unfortunately, we have witnessed an alarming decline in pollinators in recent decades.

- Just decades ago New Hampshire once hosted 16 bumblebee species; now, nearly half of those are in severe decline or locally extinct.[2]
- Commercial beekeepers are reported record overwintering losses of managed honeybees in 2025, with average losses over 50% and many operations reporting 70-100% losses over the last year.[3]
- Of over 130 butterflies historically found in New Hampshire, 85 are declining.[4]

- Butterflies, among the most monitored insect groups, have suffered steep losses in the U.S.—a 22% decline in the overall population across 2000–2020. That means that for every 10 butterflies we saw in 2000, we see only about 7 today.[4]
- Some butterfly species like the red admiral and American lady are experiencing steeper declines, in these cases 44% and 58%, that means for every 10 we saw in 2000 we see 4-6 now. Eastern populations of the monarch butterfly have declined by approximately 80% since the 1980s and 1990s.[5]

The science is very clear: pesticide use is a major driver of pollinator declines (**see Table 1**). For example, recent research from the Midwest shows that insecticides, more than herbicides, climate change, or land use, are driving butterfly declines.[6] Neonicotinoid treated seeds are named in that study as a specific threat, and the rise of neonicotinoid use has long been tied to bee declines.[7]

Neonicotinoid-treated seeds pose clear risks while delivering no benefit.

Neonics are widely used insecticides that are highly toxic to bees and directly implicated in pollinator declines. Because they are systemic, neonics move throughout the plant, including into the pollen and nectar that bees rely on for food. Even vanishingly small amounts can harm bees by disorienting them, reducing immunity, and impairing reproduction. **A major use of neonics is as coatings on crop seeds.** Nearly 100% of conventional U.S. corn is grown from seed with these coatings, and about 80% of soybeans. We know from research that over 90% of the neonic does not remain on the seed (see Table 2). Instead, it contaminates the wider environment, including soil, water, and nearby flowering plants. This contamination is increasingly linked to broader ecosystem impacts, including declines in aquatic insects that fish and birds rely on for food.[1] Because neonics are water-soluble, they readily enter streams and rivers; for example, recent monitoring in Connecticut found widespread neonic residues in waterways, with many detections exceeding EPA aquatic life benchmarks.[8] This includes the Connecticut River, which has headwaters in New Hampshire.

The bright colors are used to indicate that a seed has been treated with pesticides. (Photo: Emily May / Xerces Society)

Research and field investigations have documented neonic residues in soil, pollen, and water across agricultural landscapes, where they can harm pollinators, natural pest enemies, and aquatic invertebrates essential for ecosystems to function. These exposures threaten biodiversity and essential ecological services, such as pollination and natural pest control, that support agriculture.

Despite their extensive use and the high risks they pose, studies show that neonic-treated seeds rarely deliver economic benefits for growers. Independent reviews and on-farm trials, including trials conducted in neighboring New York and Vermont, have found little or no yield improvement in corn and soybeans treated with neonicotinoids compared to untreated seed.[9] **It is also worth highlighting that the large companies that sell seeds are the same companies that manufacture the pesticides used to coat them.** This market consolidation reduces competition and disincentivizes product diversification - for example, making hybrid corn varieties available without insecticide treatments. This has long been a concern, summarized in this USDA report.[10] If New Hampshire joins neighboring states in creating neonic-treated seed restrictions, it will help to create a regional market for seeds without insecticides.

The bill before the committee is modeled after successful legislation implemented by the Canadian province of Quebec in 2019: Quebec prohibited the use of neonic-coated corn and soy seeds unless growers could verify a pest threat. The result? Neonic seed treatments have effectively disappeared from these agricultural systems with no impact on yield. **Quebec corn and soy growers are actually saving money because they are no longer paying for pesticides they do not need.**[11] You can read more about Quebec's success in this Xerces blog.[12]

Why state action is needed.

The use and disposal of treated seed is unregulated in the US owing to a legal loophole. The EU severely restricted neonics in 2013 when it was clear what effects they were having on pollinators. In contrast, the EPA has promised to deliver regulatory action on neonicotinoids for years and has failed to deliver regulations that reflect modern science. This is why several US states are taking matters into their own hands.

In the wake of Quebec's success, New York (2023) and Vermont (2024) have passed laws to similarly restrict the use of neonic-coated seeds and we are aware of bills that will be considered this year in Massachusetts, Maine, Colorado, Pennsylvania, and now here in New Hampshire. Closing this regulatory gap in New Hampshire by ensuring that neonic-coated seeds are used only when justified is need is a balanced, reasonable approach to reducing unnecessary pesticide use and safeguarding pollinators and biodiversity at large.

We appreciate the opportunity to submit testimony and encourage a favorable vote. Thank you for your time and consideration, and please do not hesitate to reach out to us for further information or conversations.

References:

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5 The Xerces Society for Invertebrate Conservation. "Monarch butterfly proposed for listing under the US Endangered Species Act". Available at: https://xerces.org/press/monarch-butterfly-proposed-for-listing-under-us-endangered-species-act (Accessed 30 May 2025).

6 Van Deynze B, Swinton SM, Hennessy DA, Haddad NM, Ries L (2024) Insecticides, more than herbicides, land use, and climate, are associated with declines in butterfly species richness and abundance in the American Midwest. PLOS ONE 19(6): e0304319. https://doi.org/10.1371/journal.pone.0304319

7 Hopwood, J., Code, A., Vaughan, M., Biddinger, D., Shepherd, M., Hoffman Black, S., Lee-Mäder, E., & Mazzacano, C. (2016). How neonicotinoids can kill bees: The science behind the role these insecticides play in harming bees (2nd ed.). Portland, OR: The Xerces Society for Invertebrate Conservation.

8 Presley et al. 2025. Report: Neonicotinoids in Connecticut Waters, Center for Environmental Sciences and Engineering, University of Connecticut. norwalkriver.org/wp-content/uploads/2025/01/Neonicotinoids-in-Connecticut-Final-Report-1-11-2025-1.pdf

9 Grout, T.A. et al. 2020. Neonicotinoid Insecticides in New York State: economic benefits and risks to pollinators. Cornell University. https://cornell.app.box.com/v/2020-neonicotinoid-report

10 "More and Better Choices for Farmers: Promoting Fair Competition and Innovation in Seeds and Other Agricultural Inputs." 2023. USDA Agricultural Marketing Service. https://www.ams.usda.gov/sites/default/files/media/SeedsReport.pdf

11 Quebec Farmer Panel on Transitioning Away From Neonic Treated Seeds, 2024, University of Vermont Extension and Vermont Bee Lab, Recorded Webinar: https://www.youtube.com/watch?v=N9OWx9XWIaE

12 Malfi, R. 2024. What we can learn from Quebec's success with regulating pesticide-treated seed. https://xerces.org/blog/what-we-can-learn-from-quebecs-success-with-regulating-pesticide-treated-seed

TABLE 1. *Peer-reviewed research connects neonicotinoids to reduced pollinator health and pollinator population declines.*

#	Reference	Key finding / relevance
1	Van Deynze B., et al.. (2024) *"Insecticides, more than herbicides, land use, and climate, are associated with declines in butterfly species richness and abundance in the American Midwest."* PLOS ONE 19(6): e0304319. doi:10.1371/journal.pone.0304319	The study found that use of insecticides in general — and in particular the shift to neonicotinoid-treated seeds — was more strongly associated with declines in butterfly species richness and abundance across 81 counties in five Midwestern states, than either land-use change or climate variables.
2	Becher M.A., Goulson D., et al. (2023) *"Recent and future declines of a historically widespread pollinator linked to climate, land cover, and pesticides."* PNAS 120(5).	Study of the bumblebee across ~2.8 million km²: ~57% mean decline (1998–2020) and neonicotinoids identified as the pesticide class with most negative influence.
3	Main A.R., et al.. (2021) *"Impacts of neonicotinoid seed treatments on the wild bee community in agricultural field margins."* Science of the Total Environment 786:147299. doi:10.1016/j.scitotenv.2021.147299	Field study in Missouri showing neonic-treated seed use correlates with lower wild bee community richness — indicates non-honeybee species are impacted.
4	Straub F., Kimmich J., Ayasse M. (2021) *"Negative Effects of the Neonicotinoid Clothianidin on Foraging Behavior and Antennal Sensitivity in Two Common Pollinator Species"* Frontiers in Ecology & Evolution 9:697355.	Laboratory/arena work demonstrating that field-realistic doses of clothianidin impair foraging motivation and antennal sensitivity in wild bee species — providing mechanistic evidence of harm.
5	Chole, H et al.. (2022) *"Field-realistic concentrations of a neonicotinoid insecticide influence socially regulated brood development in a bumblebee."* Proc. Biol. Sci. 289(1987):20220253.	Study on the bumblebee *Bombus terrestris* showing slower colony growth, reduced worker/male/gynes production when exposed to realistic imidacloprid concentrations — linking to population-level consequences.
6	Simon-Delso N., et al. (2024) *"The Sublethal Effects of Neonicotinoids on Honeybees."* Biology 14:1076. doi:10.3390/biology14081076	Recent synthesis review summarizing molecular, physiological and behavioral effects of neonics on the honeybee *Apis mellifera* — including immune suppression, navigation impairment, reproductive disruption.
7	Woodcock B.A., et al. (2020) *"Neonicotinoid use linked to large-scale population declines of wild bees in England."* (UK Parliament Research Briefing SN06656)	Key earlier large-scale work showing that wild bees foraging on neonic-treated crops had ~3× higher extinction rates than non-crop foragers.
8	Goulson D., Nicholls E., Botías C., Rotheray E.L. (2020) *"Bee declines driven by combined stressors including neonicotinoids."* Current Biology 30(8):R129-R134.	Review article placing neonics among multiple interacting stressors (habitat loss, disease, climate) driving bee declines — helpful for policy framing.

TABLE 1. *Peer-reviewed research connects neonicotinoids to reduced pollinator health and pollinator population declines.*

9	Siviter H., et al. (2021)*"Field-realistic neonicotinoid exposure has sub-lethal effects on non-Apis bees: A meta-analysis."* Ecology Letters 24(12):2586-2597. DOI: 10.1111/ele.13873	Meta-analysis across 53 papers, 212 effect sizes: neonic exposure negatively affected reproductive output, colony growth, foraging of non-honeybee species — strong evidence that wild bees are vulnerable.
10	Ward L.T. et al.. (2023) *"Neonicotinoid Sunflower Seed Treatment, While Not Detected in Pollen and Nectar, Still Impacts Wild Bees and Crop Yield."* Agrochemicals 2(2):279-295. doi:10.3390/agrochemicals2020018 (MDPI)	Field/experimental work showing neonic-treated sunflower seed use had measurable negative impacts on wild bees even when residues weren't detected in pollen/nectar — indicating hidden risk pathways.

#	Citation	Key result on uptake / loss
1	Translocation of the neonicotinoid seed treatment clothianidin in maize (Alford & Krupke, 2017) *PLOS ONE 12(3):e0173836 (Correction 2017: e0186527)*. (PLOS)	Field study in maize found a maximum of ~1.34% of the clothianidin applied as seed coating was recovered in plant tissues; only ~0.26% in root tissue. The vast majority (~98–99%) remained elsewhere.
2	Evaluating neonicotinoid insecticide uptake by plants (Morrison et al., 2023) *Science of the Total Environment* (ScienceDirect)	Review/field analysis indicates that under typical conditions target crops may uptake less than 1–5% of the neonicotinoid mass applied as a seed coating.
3	The environmental risks of neonicotinoid pesticides (Wood et al., 2017) *Environmental Science & Technology* (or associated review) (PMC)	Summary statement: "only approximately 5% of the neonicotinoid active ingredient is taken up by crop plants and most instead disperses into the wider environment."
4	Neonicotinoid Seed Treatments: Limitations and Compatibility (Tooker, 2017) *Agricultural Experiments & Letters* (or similar review) (Wiley)	This review states that "the amount of neonicotinoid applied to seeds that actually gets absorbed by plants is typically about 1-10%, the rest remains in soil where it can persist or move off-site."

TABLE 2. *Peer-reviewed research indicates that the vast majority of neonicotinoid seed treatments do not stay on the seed, but instead leach into the wider environment.*

12 Agatz A. et al. 2014. Imidacloprid perturbs feeding of *Gammarus pulex* at environmentally relevant conditions. *Environmental Toxicology and Chemistry*. 33(3): 648-653. https://doi.org/10.1002/etc.2480

13 Wu-Smart J. and Spivak M. 2016. Sub-lethal effects of dietary neonicotinoid insecticide exposure on honey bee queen fecundity and colony development. *Nature Scientific Reports*. 6:32108. https://doi.org/10.1038/srep32108

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