CITIZEN PETITION
TO THE ENVIRONMENTAL PROTECTION AGENCY

Public Employees for Environmental Responsibility (PEER) 962 Wayne Ave., Suite 610 Silver Spring, MD 20910; **American Bird Conservancy** P.O. Box 249 The Plains, VA 20198; and **63 Other Non-profit Groups,** Petitioners,	)	
Filed with:	)	**Docket Number _____**
Environmental Protection Agency (EPA) Michael Regan, Administrator, MS 1101A 1200 Pennsylvania Avenue, N.W. Washington, DC 20460	)	

PETITION FOR RULEMAKING TO AMEND EPA'S 1984 PESTICIDE REGULATION THAT WAIVED EFFICACY DATA REQUIREMENTS

Public Employees for Environmental Responsibility (PEER) and American Bird Conservancy (ABC) together with 63 other co-petitioning non-profit groups submit this Petition under the Right to Petition Government Clause in the First Amendment of the United States Constitution[1] and the Administrative Procedure Act.[2] The Petition asks EPA to amend its existing regulation for registrations of all neonicotinoid insecticides and other systemic insecticides so as to require all registration and re-registration applicants to provide performance (efficacy) data to ensure that the benefits of their products actually exceed their costs, including to society and to the environment.[3] Systemic insecticides present unique and insidious risks in their predominant

[1] U.S. CONST. amend. I.
[2] 5 U.S.C. § 553(e).
[3] Neonicotinoids approved in the U.S. include these three major chemicals: clothianidin, thiamethoxam, and imidacloprid, with minor past approvals for dinotefuran, thiacloprid, and acetamiprid. Other systemic insecticides

application, which is as toxic coatings applied to crop seeds for plantings for most of America's major row crops. They have caused extensive environmental harms for almost two decades such that EPA must take stronger measures to ensure their efficacy.

PEER is a is a nonprofit organization headquartered in Silver Spring, Maryland. PEER's mission includes educating the public and speaking out, as well as providing legal defense to those who speak out, about environmental ethics and compliance with environmental laws. PEER works nationwide with government scientists, land managers, environmental law enforcement agents, field specialists, and other resource professionals committed to responsible management of America's public resources. PEER has extensive involvement in pesticide advocacy of all kinds.

ABC is an international bird conservation organization dedicated to conserving wild birds and their habitats throughout the Americas. ABC operates a network of reserves in the United States and Latin America, works in tandem with private landowners and public land managers to conserve bird habitat, and promotes bird conservation policies at the federal and state levels. ABC is the only bird conservation group with a dedicated pesticide policy campaign and team.

The **63 other co-petitioners** are: Aiken Audubon, Allamakee County Protectors - Education Campaign, Animal Wellness Action, Arkansas Valley Audubon Society, Audubon Colorado Council, Audubon of Southwest Florida, Beyond Pesticides, Black Canyon Audubon Society, Broad Brook Coalition, Californians for Western Wilderness, Center for a Humane Economy, Center for Biological Diversity, Center for Food Safety, Central Oregon Bitterbrush Great Old Broads for Wilderness, Colorado Wild Rabbit Foundation, Endangered Species Coalition, Farmworker Association of Florida, Federated Conservationists of Westchester County, Friends of Birds, Friends of the Earth, Friends of the San Pedro River, Golden Gate Audubon, Grazing Reform Project, Great Lakes Wildlife Alliance, Hawai'i Alliance for Progressive Action, Hawk Migration Association of North America, High Country Audubon Society, Humane Action Pennsylvania, Humane Action Pittsburgh, Illinois Council of Trout Unlimited, International Bird Rescue, It's your Nature, John Burroughs Natural History Society, LEAD for Pollinators, Lower

include fipronil, flupyradifurone, sulfoxaflor, and several other compounds. See, Xerces Society's "Systemic Insecticides List," at: https://xerces.org/systemic-insecticides/list . EPA defines "systemic pesticide" as: "A chemical absorbed by an organism that interacts with the organism and makes the organism toxic to pests." EPA, Terminology Service, Vocabulary Catalog, Terms of Environment, at: file:///C:/Users/PeterJenkins/Downloads/Vocabulary%20Catalog%20List%20Detail%20Report%20%2020230119-115621.pdf .

Columbia Basin Audubon Society, Magic, Maryland Ornithological Society, Mid-Michigan Stewardship Initiative, Missouri River Bird Observatory, Montgomery Countryside Alliance, Natural Resources Defense Council, North Cascades Audubon, Northeast Organic Farming Association - Mass. Chapter, People & Pollinators Action Network, Pollinate Minnesota, Pollinator Stewardship Council, Presque Isle Audubon, Raptors Are the Solution, Resource Renewal Institute, Salem Audubon Society, San Bernardino Valley Audubon Society, Sequoia ForestKeeper, Sierra Club, Soda Mountain Wilderness Council, The Ethician Foundation, The Wildlife Foundation, Toxic Free NC, Tree Fredericksburg, Whidbey Environmental Action Network, and 7 Directions of Service.[4]

INTRODUCTION

The uninitiated might think that all new pesticide registrations under the Federal Fungicide, Insecticide, and Rodenticide Act (FIFRA), 7 U.S. Code § 136 *et seq*., must show that the product will perform as claimed. However, in many cases the pesticide as applied in the field does not provide the benefits to farmers claimed by the manufacturer. In select cases, the product may provide marginal benefits to some farmers, but the environmental costs of the damage from the pesticide exceeds whatever small benefits the farmers may reap. Past EPA product registration failures, in which the product does not perform as advertised and society has suffered severe harms, demonstrate the need for better pre-registration data on overall product performance rather than just assuming efficacy as EPA does now.

The need for this Petition dates back to 1984 when EPA amended its regulations to provide that no product performance data needed to be submitted with a pesticide registration application (with limited exceptions to the waiver, only for anti-microbials and certain vertebrate control pesticides). This waiver partly explains why almost 80 agricultural pesticide products are registered in the United States but banned in Europe.[5] Pesticides banned in the EU account for more than a quarter of all agricultural pesticide use in the USA.[6] The 1984 waiver also partly explains why so much harm in the United States has resulted from pesticide over-use and misuse.

[4] Statements of their interests will be provided when EPA acknowledges receipt of this Petition.
[5] Donley, N. 2019. The USA lags behind other agricultural nations in banning harmful pesticides. *Environ Health* 18, 44; https://doi.org/10.1186/s12940-019-0488-0 .
[6] *Id*.

Neonicotinoids now are the predominant class of insecticides in the United States in acreage planted and affected. They are slowly being replaced by other systemics, such as sulfoxaflor (see footnote 3, above). The Petition will, if granted, reduce future harm from the use of systemic insecticides, which are notoriously overused in violation of Integrated Pest Management (IPM) principles, which call for economic thresholds to be set ahead of a growing season and require the use of chemical control only as a final resort after other control methods have been exhausted.[7] [8] [9] Agricultural officials have repeatedly recognized that the prophylactic and preemptive use of systemic insecticides is incompatible with IPM programs because their use is not predicated on a demonstrated threat from a pest that would breach the set economic threshold.[10]

A systemic insecticide should have its efficacy clearly demonstrated by data before being registered. This Petition remedies this need by amending the 1984 EPA regulation that waived the previously-existing requirement that registrants of such pesticides must provide pre-registration data showing their products would perform efficaciously. This Petition, if granted, also will serve to expose the cost and benefit data used by EPA to support the future registration or re-registration of systemic insecticides to independent scrutiny.

THE WAIVER

The efficacy data waiver language at issue was adopted during the Reagan Administration in the EPA's revised final regulation "Data Requirements for Pesticide Registration,"49 Fed. Reg. 42856-42905, Oct. 24, 1984.[11] The waiver is at p. 42897, footnote 1, under 40 CFR § 158.160 *Product performance data requirements table,* later recodified at 40 CFR § 158.400 (emphasis added):

[7] Naranjo, S. and Ellsworth, P. 2009. Fifty years of the integrated control concept: moving the model and implementation forward in Arizona. *Pest Management Science* (65) 12; https://doi.org/10.1002/ps.1861 .
[8] Isaacs, R. 2021. Integrated pest management can still deliver on its promise, with help from the bees. *PNAS* 118 (48) e2118532118; https://doi.org/10.1073/pnas.2118532118 .
[9] Iowa State University, et al. 2015. The Effectiveness of Neonicotinoid Seed Treatments in Soybean. Unpublished extension report; https://store.extension.iastate.edu/product/14612 .
[10] Deguine, J-P., Aubertot, J-N. et al. 2021. Integrated pest management: good intentions, hard realities. A review. *Agronomy for Sustainable Development* (41), 38; https://doi.org/10.1007/s13593-021-00689-w .
[11] Online at: https://archives.federalregister.gov/issue_slice/1984/10/24/42853-42905.pdf#page=4 .

> § 158.400(e)(1). *The Agency has **waived the requirement to submit product performance data** unless the pesticide product bears a claim to control pest microorganisms that pose a threat to human health and whose presence cannot readily be observed by the user including, but not limited to, microorganisms infectious to man in any area of the inanimate environment, or a claim to control vertebrates (such as rodents, birds, bats, canids, and skunks) that may directly or indirectly transmit diseases to humans. However each registrant must ensure through testing that his product is efficacious when used in accordance with label directions and commonly accepted pest control practices. The Agency reserves the right to require, on a case-by-case basis, submission of product performance data for any pesticide product registered or proposed for registration.*

Accordingly, whereas applicants were previously required to submit pre-registration data showing the product was "efficacious," henceforth most applicants were required only to "ensure through testing," the results of which were not required to be submitted for agency scrutiny, that their product was efficacious. In making this change EPA rejected advice from the U.S. Department of Agriculture (USDA) that it should retain the requirement for "efficacy/benefit data". Instead, EPA included this unsupported and shocking justification: **"rather than require efficacy data the Agency presumes that benefits exceed risks."** (49 Fed. Reg., at 42880).[12]

As seen above, EPA reserved the right to require performance data on a "case-by-case basis". However, evidence received through Freedom of Information Act (FOIA) requests shows that EPA has rarely exercised this right for the neonicotinoids.[13]

The presumption that "benefits exceed risks," which the 1984 waiver embodied, conflicts with the very purpose of the agency's regulations under FIFRA, as stated in *Part 158 - Data Requirements for Pesticides*, under § 158.1, Purpose and scope:

> ***(a) Purpose**. The purpose of this part is to specify the kinds of data and information EPA requires in order to make regulatory judgments under FIFRA secs. 3, 4, and 5 about the risks and benefits of pesticide products.*

Since it adopted the waiver EPA has not been adequately equipped to "make regulatory judgments" regarding the "risks and benefits of pesticide products" called for in § 158.1. The waiver also conflicts with EPA regulation 40 CFR § 158.130(c):

---

[12] A Purdue University Agricultural Extension PowerPoint characterized EPA's practice: "EPA generally does not require manufacturers (registrants) to submit product efficacy data. If a pesticide doesn't pose risks of concern, EPA assumes that the manufacturer's efforts and the cost of presenting the product for registration are offset by its market potential. EPA also assumes that the new product's benefits to users and consumers outweigh any negligible risk." *Pesticide Benefits Assessment,* PPP-78; https://ppp.purdue.edu/wp-content/uploads/2016/08/PPP-78.pdf .

[13] EPA response to PEER FOIA request dated December 30, 2021, No. EPA-2022-001679.

> ***Product performance***. *Requirements to develop data on product performance provide a mechanism to ensure that pesticide products will perform as intended and that unnecessary pesticide exposure to the environment will not occur as a result of the use of ineffective products.*

The Supporting Information submitted below shows the waiver has frustrated this important protective provision: the environment - and humans – have been subjected to vastly "unnecessary pesticide exposures" as a result of often ineffective neonicotinoid and other systemic insecticide products registered by EPA that would have been rejected had product performance data been required. As a result, neonicotinoid-coated crop seeds have been grossly overproduced leading to overuse and to dangerous surpluses of unused toxic seeds that require disposal. Another important point of reference for this Petition is the language that remained in § 158.400(e)(1), *supra*, after the 1984 amendment that did not waive the pre-registration efficacy data requirements for anti-microbial pesticides or for pesticides used to control vertebrate pests that pose disease risks to humans. As with those two classes of pesticides, it is vital to reject an unjustified presumption of efficacy for systemic insecticides in order that EPA can prevent ineffective uses of them as well.

Since the data waiver was promulgated 39 years ago, natural resources economists have generated far more detailed studies on non-market values in environmental impact contexts and described how regulators can incorporate such values in weighing benefits and risks.[14] It now is widely accepted among economists that strictly using market data to assess benefits and risks is inadequate. Thus, the amended regulation proposed here to reinstate the performance data requirements should take non-market data into account as well in order to ensure an accurate portrayal of a product. This Petition would mandate that EPA require the registrants of all current systemic insecticide products to fully provide such information. If they fail, then EPA should revoke their product registrations.

History shows that EPA adopted the waiver over strong opposition during the 1984 public comment process. Per the Rule's Preamble:[15]

> *Environmental groups … argued the proposed waiver provision was too broad, lacked meaningful standards, and provided inadequate opportunity for public*

[14] See, e.g., National Academies of Sciences, Engineering, and Medicine. 2005. *Valuing Ecosystem Services: Toward Better Environmental Decision-Making.* Washington, DC: The National Academies Press; https://doi.org/10.17226/11139 .
[15] 49 Fed. Reg., at 42858

> *participation. Moreover, they argued that the proposed waiver provisions overemphasized the interests of pesticide companies...*

EPA rejected that comment, but experience has shown the environmental groups were right.

PROPOSED AMENDMENT

This Petition requests EPA to amend its regulation as shown below (in red additions):

> **40 CFR § 158.400(e)(1)**. *The Agency has waived the requirement to submit product performance data unless (a) the pesticide product bears a claim to control pest microorganisms that pose a threat to human health and whose presence cannot readily be observed by the user including, but not limited to, microorganisms infectious to man in any area of the inanimate environment, or (b) a claim to control vertebrates (such as rodents, birds, bats, canids, and skunks) that may directly or indirectly transmit diseases to humans; or (c) is a neonicotinoid or other systemic insecticide. However, each registrant must ensure through testing that his or her product is efficacious when used in accordance with label directions and commonly accepted pest control practices. The Agency reserves the right to require, on a case-by-case basis, submission of product performance data for any pesticide product registered or proposed for registration. Each existing registrant of a neonicotinoid or other systemic insecticide who has not already submitted efficacy data must submit data on whether its product is efficacious within 180 days of the promulgation of this Rule, whereupon the Agency will consider the product's foreseeable benefits and costs to the environment. The Agency shall not register, and shall revoke any existing registration for, any neonicotinoid or other systemic insecticide that lacks a demonstration that its benefits exceed its environmental and overall costs.*

SUPPORTING INFORMATION

1. Lack of efficacy.

Several authoritative reports have shown the frequent lack of effectiveness of the systemic neonicotinoid insecticides as well as their serious environmental harms. Two of those reports - called *Heavy Costs*[16] and *Net Loss*[17] - were written by the Center for Food Safety (CFS), a

[16] CFS. 2014. *Heavy Costs*. Unpublished report. http://www.centerforfoodsafety.org/files/neonic-efficacy_digital_29226.pdf .
[17] CFS. 2016. *Net Loss*. Unpublished report. *https://www.centerforfoodsafety.org/reports/4591/net-losseconomic-efficacy-and-costs-of-neonicotinoid-insecticides-used-as-seed-coatings-updates-from-the-united-states-and-europe* .

Washington, DC, nonprofit organization. Similar reports were written by EPA's staff themselves and other experts.

Net Loss, the later of the two CFS reports, presents numerous studies that show farmers' yield performances for common crops did not depend on the use of neonicotinoid seed coatings. The studies were confirmed by comparing crop production in the European Union (EU), which banned most neonicotinoid seed coatings in 2015. The production of maize and oil seed rape (the two most widespread EU row crops) did not suffer after the ban. Subsequent production was actually higher than it was before the ban.[18]

The lack of economic justification for the prophylactic use of neonicotinoid-coated seeds for soybeans (the second most extensive planted U.S. crop after corn) is virtually uncontested based on the overwhelming weight of independent reviews. A detailed report on lack of performance came from EPA itself issued in 2015.[19] The Biological and Economic Analysis Division (BEAD) confirmed the findings of other researchers:

> *This analysis provides evidence that U.S. soybean growers derive limited to no benefit from neonicotinoid seed treatments in most instances. Published data indicate that most usage of neonicotinoid seed treatments does not protect soybean yield any better than doing no pest control. Given that much of the reported seed treatment usage in the U.S. on soybeans is not associated with the target pest, BEAD concludes that much of the observed use is preventative and may not be currently providing any actual pest management benefits.*

BEAD went on to observe, based on EPA survey of agricultural extension experts nationwide (emphasis added):[20]

> *When asked how the use of neonicotinoid-treated seeds affected soybean yields, 74% of respondents (14/19) responded that* ***yield either stayed the same or decreased.***

If EPA had required pre-registration performance data and the data had shown a high percentage of yield decreases in test plots nationally – *i.e.*, negative efficacy for soybean farmers from using the product – the agency surely would have denied or curtailed the registrations.

---

[18] *Id*., p. 5.
[19] Myers, C., Hill, E., Memorandum: *Benefits of Neonicotinoid Seed Treatments to Soybean Production at 9, United States Environmental Protection Agency* (Oct. 15, 2014); https://www.epa.gov/sites/default/files/2014-10/documents/benefits_of_neonicotinoid_seed_treatments_to_soybean_production_2.pdf .
[20] *Id*., pp. 9-10.

In addition, a 432-page, 2020 report by Cornell University's College of Agriculture and Life Sciences found that the "routine use of neonicotinoid-treated seeds does not consistently increase net income for New York field corn or soybean producers."[21] Even when compared with plots using no insecticides, 89% of the field trials in the Cornell study saw no increase in corn yield using neonicotinoid-treated seeds.

A 2019 Canadian study found "neonicotinoid seed treatments in field crops in Quebec are useful in less than 5% of cases, given the very low level of pest-associated pressure and damage, and that they should not be used prophylactically."[22] In real world applications, neonicotinoid seed treatments disrupt biological controls such as those by parasitoid wasps[23] and beetles,[24] potentially *increasing* crop pest populations.

Other highly-detailed published studies further cement the lack of reliable benefits from neonicotinoids:

- 1) a four-year assessment in Ontario found: "widespread use of seed-applied insecticides in corn and soybean is unlikely to provide benefit to producers."[25]
- 2) a separate major four-year experiment carried out on five research farms in the Purdue University Agricultural Centers across Indiana compared the use of neonicotinoids to following standard IPM practices and found: "In IPM corn, the absence of a neonicotinoid seed treatment had no impact on yields, whereas IPM watermelon experienced a 129% increase in flower visitation rate by pollinators, resulting in 26% higher yields."[26]

---

[21] Grout, T.A., et al. 2020. *Neonicotinoid Insecticides in New York State - economic benefits and risk to pollinators*. Unpublished report; https://cornell.app.box.com/v/2020-neonicotinoid-report .

[22] Labrie, G. et al. 2020. Impacts of neonicotinoid seed treatments on soil-dwelling pest populations and agronomic parameters in corn and soybean in Quebec (Canada). *PLoS|ONE* (15) 2. soybean in Quebec (Canada). PLoS ONE 15(2): e0229136; https://doi.org/10.1371/journal.pone.0229136 .

[23] Wood, T., and Goulson, D. 2017. The environmental risks of neonicotinoid pesticides: a review of the evicence post 2013. *Environmental Science and Pollution Research* (24); https://doi.org/10.1007/s11356-017-9240-x .

[24] Douglas, M., Rohr, J., and Tooker, J. 2014. Neonicotinoid insecticide travels through a soil food chain, disrupting biological control of non-target pests and decreasing soya bean yield. *Journal of Applied Ecology* (52); https://doi.org/10.1111/1365-2664.12372 .

[25] Smith, J., Baute, T.S., and Schaafsma. A.W. 2020. Quantifying early-season pest injury and yield protection of insecticide seed treatments in corn and soybean production in Ontario, Canada. *Journal of Economic Entomology*, 113(5):2197–2212; https://doi.org/10.1093/jee/toaa132 .

[26] Pecenka, J.R., Ingwell, L.L., Foster, R.E., Krupke, C.H., and Kaplan, I. 2021. IPM reduces insecticide applications by 95% while maintaining or enhancing crop yields through wild pollinator conservation. *Proc Natl Acad Sci USA*. 118(44):e2108429118; https://doi:10.1073/pnas.2108429118 .

- 3) a 24-author study assessed the use of neonicotinoid seed treatments (NST) for soybeans through "194 randomized and replicated field studies conducted specifically to evaluate the effect of NSTs on soybean seed yield at sites within 14 states from 2006 through 2017"; they found: "Despite widespread use, this practice appears to have little benefit for most of soybean producers…. These results demonstrate that the current widespread prophylactic use of NST in the key soybean-producing areas of the US should be re-evaluated by producers and regulators alike."[27]

Nevertheless, farmers use neonicotinoid-coated seeds even in the absence of pests. Indeed, pesticide and seed companies strongly incentivize farmers to use them – and seed dealers typically do not provide non-coated seeds as an option. Further, the actual quantities of neonicotinoids involved are essentially unknown. This is due to a loophole in EPA's interpretations known as the "Treated Article Exemption," under which pesticide-coated seeds are not considered "pesticides" as such, and their use is not rigorously quantified. (See more on the role of that Exemption, below.)

2. Harmful impacts of EPA's past failures to assess costs and benefits.

The unnecessary overuse of neonicotinoid-coated seeds has decimated both commercial and non-commercial beehive numbers and severely compromised the viability of remaining hives, as well as poisoning other vital pollinators. EPA's approval of the neonicotinoids was directly connected to the emergence of Colony Collapse Disorder in which hives nationally were decimated.[28] Recent typical annual mortality figures reported by beekeepers are 30% to near 60%, which far exceed the typical pre-neonicotinoid figures.[29] Beekeepers are suffering ongoing

[27] Mourtzinis, S., Krupke, C.H., Esker, P.D. et al. 2019. Neonicotinoid seed treatments of soybean provide negligible benefits to US farmers. *Sci Rep* 9, 11207; https://doi.org/10.1038/s41598-019-47442-8 .
[28] See, e.g., Lu, C., Warchol, K.M., and Callahan, R.A. 2014. Sub-lethal exposure to neonicotinoids impaired honey bees winterization before proceeding to colony collapse disorder. *Bulletin of Insectology*. 67. 125-130; http://www.bulletinofinsectology.org/pdfarticles/vol67-2014-125-130lu.pdf , and Xerces Society. 2018. *How Neonicotinoids Can Kill Bees*. Unpublished report. Xerces Society, Portland, OR; https://xerces.org/sites/default/files/2018-05/16-023_01_XercesSoc_ExecSummary_How-Neonicotinoids-Can-Kill-Bees_web.pdf .
[29] See, e.g., Aurell, D., Bruckner, S., et al. 2022. *United States Honey Bee Colony Losses 2021-2022: Preliminary Results*. Unpublished report. Bee Informed Partnership, College Park, MD; https://beeinformed.org/2022/07/27/united-states-honey-bee-colony-losses-2021-2022-preliminary-results-from-the-bee-informed-partnership/ .

damages and must work harder and longer hours to stay in business. Many beekeepers are quitting the business, while growers depend on honey bees for their pollination services.

Sampling studies reveal neonicotinoids are now common in almost every rural waterbody because of the washed off, sloughed off, and blown off seed coatings, as well as the toxic residual vegetation left in fields after crops are harvested. For many crop seeds, the chemical coatings are abraded off the seed as dust during planting ("dust off") or sloughed into the surrounding soil. Indeed, 80% to 90% of the coating can move off the seed to contaminate the air, soil, marginal vegetation, and waters.[30] Contaminated run-off has caused the virtual sterilization of many rural ponds, streams, and other waterways.[31] The devastating ecological consequences nationwide in terms of reduced biotic diversity and altered aquatic food chains have continued unabated.[32]

According to Dr. Christy Morrissey, an avian and aquatic ecotoxicologist at the University of Saskatchewan (emphasis added):

> *No one envisioned that [neonicotinoids would] be used on virtually every single crop across massive landscape levels, year after year, that they would have this persistence profile that was particularly problematic…. I think it was just shortsightedness.….neonicotinoids' persistence, and the ease with which they move through aquatic systems, make them* ***more of an overall environmental danger than the highly toxic organophosphates they largely replaced.***[33]

Voluminous bird kill evidence proves the coated seeds are deadly. The threats to farmland birds in Europe such as skylarks, doves, and partridge, whose populations were crashing, was background information considered by EU regulators before they determined to ban many uses of neonicotinoids, although the key factor in their decision was documented risks to bees. In the Netherlands, the use of neonicotinoids was the only explanatory variable for declining bird populations. Rather than acute poisoning, neonicotinoids were crashing aquatic invertebrate

---

[30] Goulson, D., 2014. Pesticides linked to bird declines. *Nature* 511:295-296; https://doi:10.1038/nature13642 .

[31] See Carnemark, M., Jenkins, P.T., Walker, L. 2015. *Water Hazard Aquatic Contamination by Neonicotinoid Insecticides in the United States*; http://www.centerforfoodsafety.org/files/neonic-water-report-final-242016_web_33288.pdf, and Carnemark, M., 2017. *Water Hazard 2.0: Continued Aquatic Contamination by Neonicotinoid Insecticides in the United States*; http://www.centerforfoodsafety.org/files/water-hazard-20_-finalmay_32031.pdf, both Unpublished Reports, CFS, Washington, DC.

[32] See Schmidt, T.S., et al. 2022. Ecological consequences of neonicotinoid mixtures in streams. *Sci Adv.* Apr 15;8 (15):eabj8182; https://doi:10.1126/sciadv.abj8182 ; and Sandstrom, M.W., Nowell, L.H., et al. 2022. New-generation pesticides are prevalent in California's Central Coast streams, *Science of The Total Environment,* 806; Part 4; https://doi.org/10.1016/j.scitotenv.2021.150683 .

[33] Weidensaul, S. 2022. Neonic Nation: Is widespread pesticide use connected to grassland bird declines? *Living Bird*, Summer issue. Cornell Ornithology Laboratory; www.allaboutbirds.org/news/neonic-nation-is-widespread-pesticide-use-connected-to-grassland-bird-declines/ .

populations and depriving birds of necessary food resources which, in turn, caused the bird population declines.[34]

Recent U.S. bird studies show similar crashes, with farmland birds among the worst-hit in the massive national bird population decline that has been documented over the last five decades. An analysis in *Nature Sustainability* in 2020 by scientists from the University of Illinois Urbana-Champaign and Auburn University combined North American Breeding Bird Survey results and county-level data on neonicotinoid use from 2008 to 2014 and found annual decreases of 4% and 3%, respectively, for grassland and insectivorous birds, compared to much smaller decreases for non-grassland and non-insectivorous species.[35] The neonicotinoids are causing whole suites of birds to disappear. Sublethal effects from neonicotinoids and other systemic insecticides are likely contributing to this overall decline as well. Imidacloprid was found to cause weight loss, disorientation, and loss of motor function in several species of birds, jeopardizing their migration and continued survival.[36] These impacts reverberate across generations of birds, causing catastrophic population declines for years to come.

Further, neonicotinoids harm white-tailed deer by causing malformed jaws and increased fawn mortality.[37] And they likely put other vertebrates, such as bats, at risk.[38]

---

[34] Hallmann, C. et al. 2014. Declines in insectivorous birds are associated with high neonicotinoid concentrations. *Nature* (511); https://www.nature.com/articles/nature13531 .

[35] Li, Y., Miao, R. and Khanna, M. 2020. Neonicotinoids and decline in bird biodiversity in the United States. *Nat Sustain* 3, 1027–1035; https://doi.org/10.1038/s41893-020-0582-x ; see also Ertl, H. et al. 2018. Potential impact of neonicotinoid use on Northern bobwhite (*Colinus virginianus*) in Texas: A historical analysis. *PLoS ONE* 13:e0191100; https://doi.org/10.1371/journal.pone.0191100 ; Millott et al. 2016. Field evidence of bird poisonings by imidacloprid-treated seeds: a review of incidents reported by the French SAGIR network from 1995 to 2014. *Environ Sci Pollut Res*; https://doi.org/10.1007/s11356-016-8272y ; Lopez-Antia et al. 2015. Risk assessment of pesticide seed treatment for farmland birds using refined field data, *Environmental Research* 136:97– 107.

[36] Eng., M., Stutchbury, B., & Morrissey, C. 2017. Imidacloprid and chlorpyrifos insecticides impair migratory ability in a seed-eating songbird. *Nature Scientific Reports* (7); https://www.nature.com/articles/s41598-017-15446-x .

[37] Berheim, E.H., Jenks, J.A., Lundgren, J.G. et al. 2019. Effects of neonicotinoid insecticides on physiology and reproductive characteristics of captive female and fawn white-tailed deer. *Sci Rep* 9, 4534 , https://doi.org/10.1038/s41598-019-40994-9 . And see Dr. Jenks' talk of August 25, 2022, on those results and a more expansive study addressing ring-necked pheasants and other species to the Pollinator Friendly Alliance; https://www.youtube.com/watch?v=qGdHhogZdW0 .

[38] Mineau, P. and C. Callaghan 2018. Neonicotinoid insecticides and bats: an assessment of the direct and indirect risks. Canadian Wildlife Federation, at: https://www.researchgate.net/publication/331397580_NEONICOTINOID_INSECTICIDES_AND_BATS_An_assessment_of_the_direct_and_indirect_risks .

Massive biodiversity losses are ongoing and will continue if these products continue in nationwide use. North America is currently experiencing a loss of **three billion** birds since 1970.[39] It is estimated that insect populations worldwide have declined 40%.[40] Both declines are partially attributed to synthetic pesticide use.

Under the Endangered Species Act (ESA), agencies must predictively assess the anticipated effects of their actions on listed "threatened" and "endangered" species. EPA's own June 2022 final ESA Section 7 Biological Evaluations analyzed the effects of the three predominant neonicotinoids on the nation's some 1,700 listed species and more than 800 designated critical habitats, long after-the-fact of their registrations. The agency's findings:[41]

> **Clothianidin:** "Is likely to adversely affect 67 percent of species and 56 percent of critical habitats."
> **Imidacloprid**: "Is likely to adversely affect 79 percent of species and 83 percent of critical habitats."
> **Thiamethoxam: "**Is likely to adversely affect 77 percent of species and 81 percent of critical habitats."

The species impacted include all amphibians, and the majority of endangered fish, birds, and mammals, as well as pollinators and the plants they pollinate. Theses listed species can ill afford this unnecessary blow caused by EPA's previous gross failure under the ESA to assess the effects of the sweeping, unrestricted, nationwide registrations it granted for more than 100 neonicotinoid products before it registered them, rather than up to 15 years after-the-fact as has occurred. Had EPA examined the biological costs beforehand, the number of unrestricted nationwide registrations since 1984 would predictably have been substantially fewer and restrictions (mitigation measures) would have been required under the ESA to reduce the foreseeable adverse effects and the surplus of unneeded products.

The current situation has led to vast overproduction and over-supply. For example, huge stores of "surplus" neonicotinoid-coated corn and other seeds were acquired by a Midwest ethanol company, AltEn, which stored thousands of tons of these discarded toxic seeds in open-air piles

---

[39] Rosenberg, K. et al. 2019. Decline of the North American Avifauna. *Science*. https://doi.org/10.1126/science.aaw1313 .
[40] Sanchez-Bayo, F. et al. 2019. Worldwide decline of the entomofauna: A review of its drivers. *Biological Conservation*(232); https://doi.org/10.1016/j.biocon.2019.01.020 .
[41] EPA, Office Chemical Safety and Pollution Prevention. 2022. "EPA Finalizes Biological Evaluations Assessing Potential Effects of Three Neonicotinoid Pesticides on Endangered Species". *Pesticide Update*, June 16; www.epa.gov/pesticides/epa-finalizes-biological-evaluations-assessing-potential-effects-three-neonicotinoid .

on its Mead, Nebraska, plant site.[42] The site was later closed by State regulators with dozens of acres of contaminated ground and the fate of nearly 100,000 tons of remaining toxic waste still unresolved.[43] AltEn caused vast air and water contamination and human health impacts on neighbors to the plant and created ongoing concerns that it will declare bankruptcy and essentially "walk away". The resulting costs to Federal and State taxpayers could be up to $100 million.

No evidence exists that EPA bothered to consider the potential impact of a massive surplus of toxic seeds unwanted or unusable for sowing before the agency allowed them on the market. It is clear the AltEn disaster would not have happened if EPA had not given unrestricted registrations to so many unneeded seed-coating chemicals based on its previously discussed "presum[ption] that benefits exceed risks" stated in its 1984 rulemaking.

3. **Impact of EPA's Interpretation of the Treated Article Exemption.**

EPA also has stated that systemic insecticide-coated crop seeds fall under the Treated Article Exemption to FIFRA, 40 C.F.R. §152.25(a), even though those seeds clearly fit the agency's definition of "pesticide" and have devastating impacts on the environment. See Bret Adee, Center for Food Safety (CFS), et al. 2017 Citizen Petition requesting EPA to reverse that interpretation.[44] EPA denied that petition on September 27, 2022.[45] The application of the Treated Article Exemption, put simply, means the agency exempts the pesticidal seeds from regulation as pesticides.

Because of EPA's denial of CFS's Adee et al. petition and continuing exemption of the toxic seeds, no matter how badly farmers misuse such seeds, such as planting them during high winds or failing to ensure all seeds are buried several inches under the surface (to keep birds from eating them), and no matter what terrible harm may continue to result from misuse or overuse, there is no possibility of enforcement against the farmers. Granting the present Petition by requiring pre-registration product performance data could alleviate some of the environmental harm that has resulted from EPA's ongoing application of the Treated Article Exemption.

---

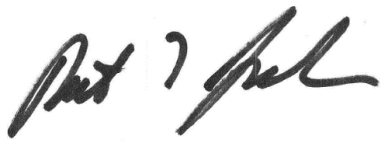
[42] Gillam, C. 2022 'We want it back to what it was': the US village blighted by toxic waste. *The Guardian* Apr. 26; https://www.theguardian.com/environment/2022/apr/26/pollution-mead-nebraska-pesticide-waste .
[43] Dunker, C. 2022. Options for cleaning up solid waste at AltEn being explored, but questions remain *Lincoln Journal Star* Oct. 8; https://www.sierraclub.org/sites/www.sierraclub.org/files/2022-10/AltEn10-8-22.pdf .
[44] At www.centerforfoodsafety.org/files/2017-04-25_coated-seeds-petition-final-1_33314.pdf .
[45] EPA's response is attached to its denial letter to CFS, sent by OPP's Director, Ed Messina, at http://www.centerforfoodsafety.org/files/final-signed_treated-seed-petition-response_9-27-2022_83765.pdf .

CONCLUSION

Because of their prophylactic overuse, lack of efficacy, unique persistence, high overall environmental costs (including to threatened and endangered species), and gross overproduction, the Administrator should grant this Petition in order to reduce harm to the environment and public health from the unnecessary overuse of neonicotinoid and other systemic insecticides. EPA should then promptly issue an amended regulation, as provided above, revoking its regulatory waiver in 40 CFR § 158.400(e)(1) and reinstating the pre-1984 requirement that applicants submit product performance data showing efficacy prior to the EPA's consideration of proposed systemic insecticide registrations. For current registrations of the systemic insecticides, the registrants should be directed to submit, within six months, data demonstrating that the benefits of each product exceed it costs, in the absence of which the agency should revoke the product's registration. The Administrator also should take active steps to make that performance data available to the public.

Respectfully submitted,

DATED this 16th day of February 2023.



Peter T. Jenkins
Attorney for Petitioners
Public Employees for Environmental Responsibility
962 Wayne Ave., Suite 610
Silver Spring, MD 20910
202.265.4189
pjenkins@peer.org

E. Hardy Kern III, Director of Government
Relations, Pesticides and Birds Campaign

American Bird Conservancy
P.O. Box 249
The Plains, VA 20198
412.337.4673
EHardyKern@abcbirds.org

Co-petitioners (63): Aiken Audubon, Allamakee County Protectors - Education Campaign, Animal Wellness Action, Arkansas Valley Audubon Society, Audubon Colorado Council, Audubon of Southwest Florida, Beyond Pesticides, Black Canyon Audubon Society, Broad Brook Coalition, Californians for Western Wilderness, Center for a Humane Economy, Center for Biological Diversity, Center for Food Safety, Central Oregon Bitterbrush Great Old Broads for Wilderness, Colorado Wild Rabbit Foundation, Endangered Species Coalition, Farmworker Association of Florida, Federated Conservationists of Westchester County, Friends of Birds, Friends of the Earth, Friends of the San Pedro River, Golden Gate Audubon, Grazing Reform Project, Great Lakes Wildlife Alliance, Hawai‘i Alliance for Progressive Action, Hawk Migration Association of North America, High Country Audubon Society, Humane Action Pennsylvania, Humane Action Pittsburgh, Illinois Council of Trout Unlimited, International Bird Rescue, It’s your Nature, John Burroughs Natural History Society, LEAD for Pollinators, Lower Columbia Basin Audubon Society, Magic, Maryland Ornithological Society, Mid-Michigan Stewardship Initiative, Missouri River Bird Observatory, Montgomery Countryside Alliance, Natural Resources Defense Council, North Cascades Audubon, Northeast Organic Farming Association - Mass. Chapter, People & Pollinators Action Network, Pollinate Minnesota, Pollinator Stewardship Council, Presque Isle Audubon, Raptors Are the Solution, Resource Renewal Institute, Salem Audubon Society, San Bernardino Valley Audubon Society, Sequoia ForestKeeper, Sierra Club, Soda Mountain Wilderness Council, The Ethician Foundation, The Wildlife Foundation, Toxic Free NC, Tree Fredericksburg, Whidbey Environmental Action Network, and 7 Directions of Service