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Environmental Protection Agency
1200 Pennsylvania Ave., NW
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Submitted electronically via Federal eRulemaking Portal

RE: Draft Herbicide Strategy Framework to Reduce Exposure of Federally Listed Endangered and Threatened Species and Designated Critical Habitats from the Use of Conventional Agricultural Herbicides (EPA-HQ-OPP-2023-0365)

Dear Ms. Matuszko,

As groups representing farmers, ranchers, retailers, crop consultants, co-ops, and other stakeholders, we are writing to express significant concerns with the draft herbicide strategy framework (hereafter “herbicide strategy”) to reduce exposure of federally listed Endangered and threatened species and designated critical habitats from the use of conventional agricultural herbicides as proposed (EPA-HQ-OPP-2023-0365). This complex, unworkable proposal would result in significant new, costly regulatory burdens for millions of U.S. agricultural producers. Others would simply be unable to comply with the proposal, undermining their continued access to herbicides. As a result, we are concerned this proposal could jeopardize the continued viability of farming operations across the United States.

We understand EPA has legal obligations related to the Endangered Species Act (ESA) and support the agency meeting its statutory requirements. Further, we recognize EPA has committed itself to an aggressive timetable via court settlement for implementing the herbicide strategy and other ESA-related pilots and strategies. However, if implemented as proposed, the herbicide strategy would be disastrous for U.S. farmers and our rural communities.

Below, we make recommendations the agency should consider when developing or improving any ESA-related proposal it will be offering, current or future. We also include suggestions on different, more science-based approaches EPA should apply to implementation generally that we believe would satisfy the agency’s ESA obligations while minimizing impacts on farmers and other pesticide users. However, we cannot support EPA implementing a proposal that would significantly and irreparably harm thousands of farming operations, regardless of any timeframes to which the agency has committed itself. To that end, we oppose the herbicide strategy as proposed and strongly urge the agency to consider alternative or refined means for meeting its ESA compliance and court settlement obligations.

Response to Comments Requested and Coordination with Stakeholders

As with previous proposals, we strongly urge EPA to issue a formal response to comments made on the herbicide strategy. As discussed below, we have many practical and legal questions and concerns, both specifically with the proposal and the agency’s vision for ESA implementation, that we feel necessitate a response from EPA. Many of these matters have been raised previously in public comment periods on other ESA-related strategies and pilot proposals and yet remain unaddressed. Some of these questions and concerns are vital for allowing stakeholders to implement these proposals, while others will be important for instructing our ability to meaningfully comment on future pesticide registration decisions

containing these provisions. We appreciate in advance the agency's attention to these matters and for providing stakeholders the information necessary to understand how EPA foresees implementation of these proposals.

Additionally, we would encourage EPA to work in conjunction with impacted stakeholders in developing future ESA pilot projects and strategies *prior* to their publication. The herbicide strategy is one of a growing number of ESA-related proposals that is unworkable and would create new problems that will greatly harm our nation's agricultural communities. We cannot help but feel if EPA had opted to work with a broad array of stakeholders (co-regulators, growers, retailers, academics, registrants, NGOs, etc.) in advance of publication, the agency might have avoided many of the pitfalls in this proposal. Further, it would likely reduce the work of the agency, as fewer revisions and modifications would be required on any agency proposals between the draft and finalization stage. Moving forward, we strongly urge EPA to work with impacted stakeholders in advance of publication to better develop practical solutions for the challenges the agency is seeking to address.

Uses and Benefits of Herbicides

Agricultural applications of herbicides are exceedingly important to the continued viability of U.S. farming operations and carry many benefits. If not properly managed, weeds can be economically devastating to farming operations and the communities in which they reside. Weeds compete with crops for limited resources, such as nutrients, moisture, and sunlight, resulting in significant yield reductions.

For example, a 2007-2017 study found that corn, soybean, dry bean, and sugarbeet producers would respectively suffer on average 50, 52, 71, and 70 percent yield loss if they left weeds unmanaged.¹ This would amount to an annual loss of more than \$46 billion for U.S. and Canadian producers of these crops. It is important to note these are averages. Some particularly noxious weed varieties, such as palmer amaranth (Fig. 1), which can produce hundreds of thousands of seeds per plant, have been documented to reduce yields by as much as 79 percent in soybeans and 91 percent in corn.² Yield losses of this magnitude would be financially ruinous for nearly any producer.



Fig. 1: A field in which palmer amaranth has been poorly controlled.³

¹ Soltani, Nader, J. Anita Dille, Ian C. Burke, Wesley J. Everman, Mark J. VanGessell, Vince M. Davis, and Peter H. Sikkema. N.D. *Potential yield loss in corn, soybean, dry bean, and sugar beet due to weed interference in North America*. Accessed October 10, 2023. <https://wssa.net/wp-content/uploads/Corn-soybean-drybean-and-sugarbeet.pdf>

² U.S. Department of Agriculture. Natural Resources Conservation Service. April 2017. *Palmer Amaranth*. https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/archived-fact-sheets/palmer_amaranth_nrcs_national_factsheet.pdf

³ Petrovic, Karli. December 29, 2022. "Field Scouting Guide: Palmer Amaranth." *Growing Produce*. <https://www.growingproduce.com/vegetables/field-scouting-guide-palmer-amaranth/>

Specialty crop producers are also subject to intense weed pressures. One study found that weeds left unchecked in cucumbers could result in 50 percent yield loss, while bell peppers and lettuce could result in complete crop failure at or near 100 percent yield loss.⁴ Orchard crops can also be negatively affected. An international study found that weeds can result in reduced tree growth from 15 to 96 percent, cut yields by up to 35 percent, and serve as a refuge for other pests, such as rodents and insects.⁵ If not properly managed, weeds can also increase water usage in orchards by up to 100,000 gallons per acre annually, increasing production costs and placing enormous pressures on growers and the environment in drier climates.⁶

Herbicides can also be vital tools for managing the health of grazing pastures for livestock. Weeds can significantly reduce the nutritional value in pastures for livestock, and some varieties can even be toxic to animals.⁷ Herbicides are one tool available to livestock producers to manage weeds in pastures and keep them productive for grazing purposes.

It is important to note that when uncontrollable pests are present in a region, it is not just agricultural producers who suffer, but the communities surrounding them. For example, citrus greening is an incurable bacterial disease that kills citrus trees and is transmitted by Asian citrus psyllid insects. Since its discovery in Florida in 2005, citrus growers in the region have declined from 7,389 in 2002 to 2,775 in 2017, the number of juice processing facilities decreased from 41 in 2003/2004 to 14 in 2016/2017, and the number of packinghouses decreased from 79 to 26 during the same period.⁸ Similar to insect pest impacts, significant weed damage in farming areas could result in major impacts on businesses supporting agriculture, such as agricultural retailers, grain elevators, packinghouses, among others.

Herbicides also help to maintain important conservation practices, which would be difficult, if not impossible, to establish at scale without access to these essential tools. A 2020 study found that just two herbicide-tolerant crops in the U.S., corn and soybeans, and their companion herbicides enabled reductions in soil tillage and tractor fuel use. The effect was sequestering enough soil carbon and reducing fuel emissions by an equivalent of 4.2 million cars in one year.⁹ A recent survey also found that nearly 80 percent of U.S. growers who use cover crops in their operations use herbicides to terminate the cover crop ahead of planting their primary crop given how effective and less timing dependent herbicides are compared to other termination methods.¹⁰ Without access to pesticides, these conservation practices and the environmental benefits they confer would be threatened.

⁴ Lanini, W. Thomas, and Michelle Le Strange. January 1, 1991. "Low-input management of weeds in vegetable fields." *California Agriculture*. Vol. 45, No. 1. P. 11-13. <https://calag.ucanr.edu/Archive/?article=ca.v045n01p11&sharebar=share#fig4501p12>

⁵ Dudic, Milica, Maja Meseldzija, Branka Ljevnaic-Masic, Milos Rajkovic, Todor Markovic, Radovan Begovic, Aleksandar Jurisic, and Ivana Ivanovic. July 2020. "Weed composition and control in apple orchards under intensive and extensive floor management." *Chilean Journal of Agricultural Research*. Vol. 80, No. 4. https://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0718-58392020000400546

⁶ Washington State University. N.D. "Weed Management." *WSU Tree Fruit*. Accessed October 13, 2023. <https://treefruit.wsu.edu/web-article/weed-management/>

⁷ University of Delaware. N.D. "Considerations for herbicide use in pastures." Accessed October 13, 2023. <https://www.udel.edu/academics/colleges/canr/cooperative-extension/fact-sheets/Considerations-for-Herbicide-Use-in-Pastures/>

⁸ Singerman, Ariel, and Michal E. Rogers. January 22, 2020. "The Economic Challenges of Dealing with Citrus Greening: The Case of Florida." *Journal of Integrated Pest Management*. Vol. 11, Iss. 1. <https://academic.oup.com/jipm/article/11/1/3/5700462>

⁹ Brookes, Graham, and Peter Barfoot. July 24, 2020. "Environmental impacts of genetically modified (GM) crop use 1996–2018: impacts on pesticide use and carbon emissions." *GM Crops & Food*. Vol. 11, Iss. 4. P. 215-241. <https://www.tandfonline.com/doi/full/10.1080/21645698.2020.1773198>

¹⁰ Hill, Sarah. October 5, 2021. "Glyphosate Still Most Effective Herbicide for Cover Crop Termination." *Cover Crop Strategies*. <https://www.covercropstrategies.com/blogs/1-covering-cover-crops/post/2072-glyphosate-still-most-effective-herbicide-for-cover-crop-termination>

Finally, herbicides are important for establishing and maintaining wildlife habitat, including for many of the species that EPA is aiming to protect via this proposal. It is common for these habitats to be established on unproductive agricultural lands or areas enrolled in USDA's Conservation Reserve Program (CRP). Weeds are just as capable of choking out wildlife habitat in these areas as they are crops. A 2016 study found that wildflower seedbeds for pollinator habitat prepared with herbicides and no-till resulted in a greater flower stem count than those that were prepared via tillage.¹¹ Efforts to establish species habitat could be hampered if agricultural producers lose access to herbicides needed to develop and maintain those spaces.

Farmers and agricultural producers do not just need access to one or several herbicides to maintain these important benefits, but need a broad array of herbicides that operate by different biochemical modes of action (MOA). Many weed varieties – palmer amaranth, waterhemp, marehail, and kochia, to name a few – are notorious for developing resistance to certain herbicides or even entire herbicidal MOAs. A 2014 estimate places the cost of controlling herbicide resistant (HR) weeds for U.S. producers at more than \$2 billion annually.¹²

In some cases, a producer may have weeds in their operation resistant to all but one or two herbicides. To prolong the efficacy of herbicides, growers and applicators will mix or rotate herbicides with varying MOAs to terminate and prevent the spread of HR weeds that might have developed resistance to one chemistry but not others. Additionally, producers and applicators are careful to apply the volumes of herbicide recommended by the label, as failing to do so could allow weeds to survive treatment and develop metabolic resistance to entire classes of herbicides.¹³ If regulatory proposals, such as the herbicide strategy, jeopardize access to those herbicides essential for controlling HR, we risk seeing the proliferation of HR weed varieties which would greatly undermine the production and conservation benefits described above.¹⁴

Agricultural uses of herbicides have many important roles in our rural communities and impact society broadly. From protecting crops and grazing pastures, maintaining important conservation efforts, to conserving resources and protecting wildlife, the benefits they offer are immense and total in the billions of dollars annually. As we discuss below, we are greatly concerned that the herbicide strategy, if implemented as proposed, would undercut farmer and producer access to these important tools, and erode their efficacy for those who can continue to access them. We implore EPA to consider our concerns described below and weigh them against the uses and benefits established above.

Challenges Determining Herbicide Strategy Compliance Obligations

Initially, it is important that EPA understands this is one of the most complicated regulatory proposals on which many of our organizations have commented. The agency should carefully consider whether producers, applicators, crop consultants, and others tasked with its implementation would even be able to understand their obligations under the proposal, never mind their ability to practically implement it.

¹¹ Angellela, Gina M., and Megan E. O'Rourke. October 2017. "Pollinator Habitat Establishment after Organic and No-till Seedbed Preparation Methods." *HortScience*. Vol. 52, Iss. 10. P. 1349-1355. <https://journals.ashs.org/hortsci/view/journals/hortsci/52/10/article-p1349.xml>

¹² Sfiligoj, Eric. April 1, 2014. "The Weed Resistance Problem: A Matter of Billions." *Crop Life*. <https://www.croplife.com/crop%20inputs/herbicides/the-weed-resistance-problem-a-matter-of-billions/>

¹³ Colquhoun, Jed. University of Wisconsin-Madison. September 22, 2022. "Metabolic Herbicide Resistance." *Integrated Pest and Crop Management*. <https://ipcm.wisc.edu/blog/2022/09/metabolic-herbicide-resistance/>

¹⁴ Van Deynze, Braeden, Scott M. Swinton, and David A. Hennessy. June 15, 2021. "Are glyphosate-resistant weeds a threat to conservation agriculture? Evidence from tillage practices in soybeans." *American Journal of Agricultural Economics*. Vol. 104, Iss. 2. P. 645-672. <https://onlinelibrary.wiley.com/doi/full/10.1111/ajae.12243>

Complications Determining Erosion/Runoff Compliance Obligations

To begin, we have significant concerns with the erosion/runoff mitigation “efficacy points” (hereafter, “points”) structure as proposed. A producer operating on hundreds or thousands of acres could have significantly different point needs and erosion/runoff mitigation obligations across their operation. For example, a farmer not located in a pesticide use limitation area (PULA) with larger, loamy sand, topographically flat fields in one part of their operation is more likely to be further removed from “habitat” (as defined in the proposal), allowing them to some degree take advantage of 1,000-foot exemptions, and may be otherwise somewhat be easily able to comply with their erosion/runoff obligations. However, that same producer may have land at the other end of their operation that are smaller and closer to “habitat,” are more topographically sloped, and have more clay-like soil, and could have greater point needs and a more difficult time complying.

Further complicating the matter, producers will need to determine what herbicides they need for their operations to manage weeds for the crops they grow and what points are required for those herbicides in the region in which they operate. Keep in mind, a grower will need to consider not only what herbicides they could need for a field for that growing season, but what herbicides they could need on any crop they grow in that field over several years. Based on this consideration, they would need to adjust their fields accordingly, especially if structural modifications are required to the field to meet point needs (e.g., installing vegetative filter strips or riparian buffers). These erosion/runoff needs could also change as new herbicide products become available or complete registration review and have different point requirements, or producers face new weed or HR threats and need to adjust the pest management products they are using.

Practically, we do not envision producers and applicators will have the means, time, or ability to conduct this complex point calculus for individual fields across hundreds or thousands of acres. Instead, they will likely need to identify the herbicide requiring the greatest point totals essential to their operation and adjust their operational erosion/runoff mitigations to meet that herbicide’s point requirements. For example, a producer will not install a costly, labor-intensive riparian buffer for a higher-point herbicide they need one growing season, only to tear the buffer out the following season because they will not be using that herbicide on a different crop planted there. They will likely re-plant that original crop in the next 1-3 years which requires the higher-point herbicide and would leave the buffer in place. Similarly, a producer tank mixing two herbicides will have to implement point requirements for the active ingredient with the highest point needs.

While we appreciate EPA aiming to reduce burdens for producers by establishing taxonomically-grouped PULAs which would only requiring additional restrictions on herbicides that pose a potentially greater risk to species in those areas (e.g., only requiring additional point requirements for herbicides that pose greater risk to terrestrial monocots), we question how practically helpful this measure will be. As described above, if the producer experiences greater point requirements for one herbicide they use because they are in a PULA, they will have to adjust their entire operation around that greater point requirement, even if other herbicides are not subject to greater PULA-related point requirements.

The 12 herbicide sample size offered by EPA as case studies in the herbicide strategy is inadequate for predicting what a producers’ true point need and erosion/runoff mitigation burden will ultimately be once most herbicides have been re-registered and are under the strategy. For example, EPA states oxyfluorfen would require 7 points and diuron would require 9 points for the general label, while diuron could require 9+ points in certain PULAs. Even if producers do not use these specific herbicides, based on this relatively small sample size, it is not unreasonable to predict most producers outside of the PULAs could use herbicides which would subject them to general label requirements needing 6-9 points, while producers inside the PULAs could need 9 or more points.

Furthermore, we do not expect most producers would forgo using specific herbicides in their weed management strategies simply because of an active ingredient's relatively higher point requirement. As discussed above, producers need a wide array of tools to manage existing HR weeds and prevent weed populations from developing resistance. The short-term benefit of reducing one's point requirements by removing an effective herbicide from a weed management strategy pales in comparison to the medium and longer-term cost of more quickly building resistance to the remaining herbicidal tools a producer could use. However, as discussed further below, we are concerned this and other aspects of the herbicide strategy could inadvertently incentivize the use of herbicides in ways that rapidly accelerate HR pressures facing agricultural communities.

Given the complexity of the erosion/runoff point proposals, we urge EPA to consider less complicated means for compliance. The current proposal risks placing growers and applicators in a position where it is difficult to determine their compliance obligation, never mind fulfilling them, which we discuss further below.

Complications Determining Spray Drift Compliance Obligations

Like with the runoff/erosion compliance obligations, we have concerns with how a producer or applicator will determine their spray drift compliance obligations. The proposed calculus for determining downwind spray buffers is incredibly complicated and may be contingent on active ingredient, whether one is operating in a PULA, application type (i.e., ground, aerial, air blast), air humidity, droplet size, crop height, wind speed, boom height, among other factors. These distances again could be adjusted with additional mitigations, such as downwind windbreaks or hooded sprayers.

Given this complexity, we again predict producers and applicators will adjust their application to the herbicide vital to their operation with the most significant spray drift requirements. We have concerns about the specific requirements related to spray drift buffers, which we address further below. However, as with the erosion/runoff requirements, we urge EPA to identify less complicated alternatives for allowing producers and applicators to determine their compliance obligations.

Costs and Challenges with Implementing the Herbicide Strategy

As challenging as determining one's compliance burden, implementation of the herbicide strategy will be incredibly costly for many agricultural herbicide users, while impossible for others. Producers in the PULAs will be uniquely burdened with implementation. We are concerned that, as proposed, the herbicide strategy would result in significant harm to millions of agricultural operations in the lower 48 states and cause great environmental damage.

Lack of Reasonable and Practical Erosion/Runoff Practices

To begin, many producers will lack sufficient compliance options under the proposal to meet their erosion/runoff point needs to continue using specific or potentially all herbicides. While we appreciate the agency continuing to expand the list of erosion/runoff mitigations to continue to provide greater compliance flexibility to producers, there continues to be far too few practices to meet compliance obligations. For example, some crops, such as onions, peanuts, potatoes, or sugarbeets necessitate soil disturbance as a means of production. To suggest these groups could implement reduced tillage is not practical. Additionally, growers in drier or northern regions would have trouble using cover crops, which could deplete soil moisture needed for primary crops or are challenging because of shorter growing seasons, respectively.

To exemplify this point, we would point the agency back to its own “Application of EPA’s Draft Herbicide Strategy Framework Through Scenarios that Represent Crop Production Systems” document (CPS scenarios) included in this docket.¹⁵ In this document, EPA provides 13 hypothetical crop scenarios suggesting how growers might adopt the erosion/runoff mitigations to meet their compliance burdens. As discussed above, we do not know how many points a grower will ultimately need for their operation given the agency has provided a limited sample of point requirements for 12 herbicides. However, if we assume a producer operating outside of a PULA might need 6-9 general points, while a producer in a PULA could need 9 or more, very few of the CPS scenarios meet these point totals.

In the CPS scenarios, three of the 13 operations cannot even reach a minimum of 6 points with the compliance options provided. Nine of the 13 cannot reach 9 points. Only two scenarios provided by the agency exceed 9 points. In 10 of the 13 CPS scenarios, EPA can only reach the hypothetical point totals by generously assigning operations an extra “multiple categories” point, which comes from installing costly constructed wetlands, irrigation/drainage tailwater recovery pond, sediment basins, or other practices. The agency can only hope these “multiple categories” practices might be compatible with that hypothetical producer’s operation.

There are other practical problems with the CPS scenarios as well. In some cases, the scenarios assume mitigations would be reasonable for a producer to adopt which do not withstand practical realities. For example, the CPS scenarios assume western apple growers might be able to support 30-foot vegetative filter strips or contour farming, mitigations which can require significant water resources to maintain in drought-prone climates. For multiple reasons, the agency’s own CPS scenarios document should confirm the erosion/runoff proposed mitigations are insufficient to allow producers to reasonably comply.

In addition to there being an insufficient number of mitigations allowing many producers to comply, some mitigation practices would be problematic for other reasons. By incentivizing rate reductions as an easy, affordable compliance option – especially when producers may have few other practical or affordable mitigation alternatives – we are concerned some applicators or producers might utilize this compliance option to close gaps in point needs and risk amplifying HR pressures. While we appreciate EPA clarifying that application rate reductions should not be made below minimum rates, we strongly recommend EPA make this explicit on individual product labels moving forward to avoid exacerbating HR risks.

There are several other mitigation practices we are concerned will enhance weed and HR pressures. For example, riparian areas, vegetated ditches, grassed waterways, and vegetative filter strips can serve as a refuge for weeds.^{16,17} In many cases, conservation experts would recommend herbicides to help manage weeds in these spaces, yet the herbicide strategy discourages this, leaving producers with mowing and other labor-intensive means to removing weeds from these areas. For a producer operating on hundreds or thousands of acres, mowing would likely be impractical, leaving them with either fewer compliance options or risking proliferating weed pressures on their lands.

We strongly encourage EPA to continue working with stakeholder groups to identify and add additional mitigation measures for compliance. However, we would also like to encourage the agency to add risk reduction training or education to the list of compliance options. A systematic review and meta-analysis of pesticide training programs aimed at reducing pesticide exposure risks to agricultural workers found

¹⁵ U.S. Environmental Protection Agency. Office of Chemical Safety and Pollution Prevention. Office of Pesticide Programs. July 17, 2023. “Application of EPA’s Draft Herbicide Strategy Framework Through Scenarios that Represent Crop Production Systems.” <https://www.regulations.gov/document/EPA-HQ-OPP-2023-0365-0006>

¹⁶ Presley, DeAnn. Kansas State University. N.D. *Maintaining grassed waterways - Maximize the benefits*. Accessed October 14, 2023. https://eupdate.agronomy.ksu.edu/article_new/maintaining-grassed-waterways-maximize-the-benefits-350

¹⁷ University of California Agriculture and Natural Resources. N.D. “Vegetative filter strips.” *UC IPM*. Accessed October 14, 2023. https://ipm.ucanr.edu/mitigation/veg_filtering.html

that training programs did have a significant effect in reducing occupational risks.¹⁸ Education is a risk reduction opportunity that is not contingent on geography, crop type, or other limiting factors, and could help many operations close compliance gaps while having a protective effect on listed species and habitat.

Under the herbicide strategy as proposed, many producers will not have sufficient mitigation options to meet their erosion/runoff compliance obligations. As a result, we are concerned many will be unable to continue using herbicides essential to their operations. Others may be unable to use herbicides altogether. Not only does this risk exposing millions of acres of U.S. crops to significant weed damage and undermining herbicide-reliant conservation practices, but it risks proliferating HR weeds, as growers will lack essential tools to manage resistant populations.

Concerns with Costs of Erosion/Runoff Practices

For producers who have sufficient options for compliance, costs for meeting these requirements could be enormous. A 2016 analysis estimated that in Iowa the average cost of establishing a riparian buffer could average \$330 per acre annually; a vegetative filter strip could cost \$233 per acre annually; constructing a wetland to allow the management of surface and subsurface water for 100 acres was estimated to carry an upfront cost of \$10,022, with a cost of \$785 in subsequent years.¹⁹ A 1993 estimate from Missouri for establishing terrace cropping anticipates a cost range of \$100-\$250 per acre, depending on the terrace system.²⁰ Adjusted for inflation, this amounts to \$211.25-\$528.12 per acre in 2023.²¹ A California conservation district estimate for installing a grassed waterway is expected “to be around \$1000 or more.”²²

While projects of this nature may be manageable on a single acre, extrapolated across hundreds or thousands of acres costs quickly become unsustainable. For example, for an individual producer to install vegetative filter strips across 500 acres would cost approximately \$116,500 annually. And this only represents the cost of implementing one conservation practice. To implement several, as could be required by the herbicide strategy, might represent a financial obligation of millions of dollars annually.

It is important to note these cost estimates are also based on current market demand. If millions of producers were suddenly and simultaneously seeking to install erosion/runoff mitigations across hundreds of millions of acres of U.S. farmland, costs for labor, materials, and equipment to implement these practices would increase significantly. For most agricultural herbicide users, these costs could be financially ruinous and would place the producer in the position of abandoning the use of herbicides or leaving their operation defenseless against economically devastating weeds.

Concerns with Erosion/Runoff Exemptions

We have several thoughts and concerns with the erosion/runoff exemptions as well which limit their efficacy and value for stakeholders. First, we appreciate and agree that producers under site-specific

¹⁸ Ayaz, Dilek, Selma Öncel, and Engin Karadağ. February 1, 2022. “The effectiveness of educational interventions aimed at agricultural workers’ knowledge, behaviour, and risk perception for reducing the risk of pesticide exposure: a systematic review and meta-analysis.” *International Archives of Occupational and Environmental Health*. Vol. 95. P. 1167–1178. <https://link.springer.com/article/10.1007/s00420-022-01838-8#citeas>

¹⁹ Tyndall, John C. and Troy Bowman. Iowa State University and Alabama A&M University. December 2016. *Iowa Nutrient Reduction Strategy BMP Cost Decision Tool Overview*. <https://bmpcosttools.nrem.iastate.edu/>.

²⁰ Schottman, Robert W., and John White. University of Missouri-Extension. October 1993. *Choosing Terrace Systems*. <https://extension.missouri.edu/publications/g1500>

²¹ U.S. Bureau of Labor Statistics. N.D. *CPI Inflation Calculator*. Accessed October 14, 2023. <https://data.bls.gov/cgi-bin/cpicalc.pl>. Dates used for inflation adjustment calculator were October 1993 and September 2023.

²² Yolo County Resource Conservation District. N.D. *Vegetated Ditches*. Accessed October 14, 2023. <https://yolorcd.org/resources/landowners/vegetated-ditches/>

erosion/runoff conservation plans should be exempt from these requirements. This is an excellent way to ensure conservation expert guidance has certified that sufficient practices are in place that will minimize erosion/runoff risks. However, there are several drawbacks with this exemption as proposed. If a producer operates on hundreds or thousands of acres, a small fraction of the acres under production are likely to fall under these site-specific plans, leaving most of an operation under the costly and complex erosion/runoff regime of the herbicide strategy. Additionally, there is finite technical assistance to assist producers in developing site-specific erosion/runoff plans, which will limit the applicability of this exemption.

To maximize its value for producers, we recommend that the agency make this exemption available for erosion/runoff plans developed for a whole operation. This would allow for more agricultural lands to come under these conservation plans much more quickly. We also suggest that the agency allow for broad consideration of conservation plans and technical experts who can assist with their development. Permitting the use of conservation plans developed by USDA's Natural Resources Conservation Service (NRCS), state conservation agencies, university extension personnel, or certified crop consultants would greatly increase the technical assistance needed by producers to implement erosion/runoff conservation plans.

We have several questions and concerns with the exemption related to erosion/runoff mitigations for applications that are 1,000 feet or more from aquatic or terrestrial "habitat." First, since the definition of "habitat" is so broad (i.e., *any* terrestrial or aquatic area, barring a small list of exemptions) and not tied to specific listed species of concern, there are few areas that qualify for the exemption. This challenge is especially pronounced in areas with smaller field sizes.

Further complicating the applicability of this exemption is that there are no maps for producers to use to determine where "habitat" is, but they must know what is 1,000 feet beyond their field edge and be able to self-determine it is not "habitat" and thus not subject to mitigation. This places significant liability risks on a producer to make this self-determination. Finally, in many cases, part of a field may be within 1,000 feet of "habitat," while the remainder of the field might not be, leaving a producer unsure if and how to utilize the exemption.

We suggest EPA can improve the utility of this exemption several ways. By clarifying and tightening the definitions of "habitat" to be species-specific the agency can increase lands eligible for this exemption. This definition refinement would also enable EPA to provide maps, possibly through Bulletins Live! Two (BLT), to assist producers with determining habitat and fields eligible for the exemption. Finally, EPA should consider safe harbor language so producers claiming this exemption in good faith would not be held liable for inadvertently misjudging where "habitat" could be.

Regarding the subsurface drainage exemption, we also have several questions and concerns. This exemption is worded ambiguously in the herbicide strategy so that it could be interpreted to suggest fields with subsurface drainage cannot comply with erosion/runoff mitigations and instead must install controlled drainage structures in which to direct effluent. We would strongly object to this troubling interpretation, which would impose costly and unnecessary regulation on potentially as much as 56 million acres of U.S. farmland.²³

First, installing controlled drainage structures would be incredibly costly. The previously referenced Iowa analysis found that installing a constructed wetland which could treat drainage from 100 acres would cost \$10,022 for the first year, and \$785 annually thereafter.²⁴ For an operation with 5,000 acres of tile

²³ Zulauf, Carl and Ben Brown. August 1, 2019. "Use of Tile, 2017 US Census of Agriculture." *farmdoc daily*. Vol. 9, Iss. 141. <https://farmdocdaily.illinois.edu/2019/08/use-of-tile-2017-us-census-of-agriculture.html>

²⁴ Tyndal and Bowman. 2016.

drainage, this would result in a \$501,100 initial cost, with an annualized cost of \$39,250 thereafter. Similarly, a saturated buffer could cost \$360 annually to install to drain 20 acres, resulting in an annual cost of \$90,000 for an operation with 5,000 acres of subsurface drainage.²⁵

Furthermore, the agency has not established that subsurface drainage results in increased risks of pesticide exposures. To the contrary, an analysis of 30 studies across North America found that subsurface drainage results in reduced pesticide concentrations relative to surface water exposures by as much as an order of magnitude.²⁶ Finally, while we have not had the opportunity to investigate this matter more thoroughly, we have heard that installation of wetlands or controlled drainage ponds may violate some state laws due to increased flooding risks.

Several stakeholder groups have discussed this provision with agency staff who have suggested it is intended to mean that if subsurface drainage from a field is directed into a closed retention pond or saturation buffer, then it would then be exempt from additional erosion/runoff mitigation. We support this interpretation and strongly urge EPA to revise the language of this exemption to better clarify the agency's intent. Furthermore, given that there is substantial evidence that subsurface drainage once filtered through soil can significantly reduce aquatic pesticide exposure risks, we urge EPA to add this to the list of erosion/runoff practices which a producer can use to achieve compliance.

Concerns with Spray Drift Mitigations

Like with the erosion/runoff mitigations, we also have several concerns with the downwind spray drift mitigations as proposed in the herbicide strategy. First, the distances for the spray drift buffers are immense, and as we discuss further below, we do not believe are supported by sound science. For practical purposes, however, these significant distances – up to 500-feet for aerial applications and up to 200-feet for ground sprays – would leave large field areas untreated, in which weeds could refuge and result in significant crop damage. While we appreciate these distances can be reduced with some mitigations, even with these reductions, significant areas of fields would likely be left untreated, allowing for weeds to reinfest treated fields.

We also have concerns that these buffer distances would be required for applications from the broad definitions of aquatic and terrestrial “habitat.” We feel this requirement subjects far more producers and agricultural lands to these buffers than is justifiable or appropriate. If EPA were to refine its definition of “habitat” to be tied to specific species and not affect nearly all terrestrial and aquatic areas, the downwind buffer requirement would impact far fewer producers and agricultural lands.

Specific to the spray drift buffer distance mitigations, we have several concerns. We are very troubled that in some instances, especially with aerial applications or finer droplet applications, a windbreak may be required. The agency's definition for windbreak is very strict (i.e., at least one row of downwind broadleaf shrubs or trees greater than the height of application with no breaks). Windbreaks meeting this definition would likely be very costly to install and maintain (see the above cost estimates for riparian buffers) and, so far as we are aware, are not being broadly utilized in the U.S. to date. This presents several challenges.

Even if producers were to plant windbreaks today, it would take several years for these buffers to establish and reach a height where they would meet these proposed requirements. Presumably, this would mean that unless a producer conveniently already has a riparian buffer in place that meets this

²⁵ Ibid.

²⁶ Kladviko, Eilileen, J., Larry C. Brown, and James L. Baker. January 2001. “Pesticide Transport to Subsurface Tile Drains in Humid Regions of North America.” *Critical Reviews In Environmental Science and Technology*. Vol. 31, Iss. 1. P 1-62.
<https://www.tandfonline.com/doi/abs/10.1080/20016491089163>

rigorous definition, application types requiring a windbreak could be prohibited until windbreaks could be established. We also have concerns with some of the criteria for windbreaks, such as the requirement that they are broadleaf. It is unclear why the agency would not also permit other types of trees or shrubs, such as conifers, to serve as windbreaks. Furthermore, having the windbreak is only valuable for a producer if at the time of application the windbreak is downwind. It is entirely possible a producer could make a substantial investment in a windbreak and it does not reduce spray buffer distances or prohibits certain application types if the wind direction is away from the windbreak at the time of application.

These circumstances could preclude producers from making applications important for weed management, especially using finer droplets or aerial applications. This is problematic, as there are some types of herbicides which are more effective with finer droplet sizes. For example, contact herbicides require a more thorough coating on a weed to maintain product efficacy.²⁷ Aerial application may also be preferable at times when the soil is too damp for the use of ground sprayers, which may get stuck in mud or risk soil compaction.²⁸ However, the significant buffer distances proposed for the use of these application types, which in some cases might require the use of windbreaks, would discourage or prevent producers from using these application types which would result in better weed management and reduce the spread of HR weed populations.

As a potential, less disruptive mitigation, we encourage EPA to consider adding spray drift reduction tank mix adjuvants as an alternative method for reducing buffers. These tools can be relatively inexpensive compared with some of the measures the agency has proposed in the herbicide strategy and can result in significant reductions in spray drift risks.²⁹ We understand there is a broad array of products that can meet these needs and we would eagerly work with the agency to develop a framework around the use of the adjuvants to ensure approved products are effective for spray drift reduction.

Ultimately, we are concerned the ways in which the agency approaches spray drift reduction measures in this proposal are unnecessary, unscientific, and will greatly harm agricultural operations. This proposal risks needlessly imposing large spray drift buffers on producers and applicators, creating refuges for HR weed populations, and discouraging use of certain application types that in some instances might be the most effective for weed control. We discuss more of our data and scientific concerns below, but support the agency taking a more reasonable approach to spray drift reduction that will avoid these harms.

Outstanding Implementation Questions and Concerns

There are numerous other implementation questions we have posed to EPA with previous ESA-related proposals for which the agency has not yet provided satisfactory answers. Many of these matters are basic, practical issues which are vital for stakeholders to understand so that we might functionally implement the agency's broader proposed ESA framework. We repeat several of these questions below and request that the agency address these inquiries in a response to comments.

First, some producers may be prohibited from implementation of mitigation practices entirely because of contractual obligations. In 2014, 39 percent of U.S. farmlands were rented, for which 80 percent of

²⁷ Hipkins, Pat, and Robert Grisso. Virginia Polytechnic Institute and State University. Virginia Cooperative Extension. 2014. *Droplet Chart/Selection Guide*. <https://www.mssoy.org/uploads/files/virginia-coop-ext.pdf>

²⁸ Ozkan, Erdal. The Ohio State University Extension. January 24, 2023. "Drones for Spraying Pesticides—Opportunities and Challenges." *Ohioline*. <https://ohioline.osu.edu/factsheet/fabe-540>

²⁹ Hock, Winand. Pennsylvania State University Extension. June 30, 2022. *Spray Adjuvants*. <https://extension.psu.edu/spray-adjuvants>

landlords are absent and outside the local economic region where the rented property is located.³⁰ Many agricultural producers who farm on these lands may not know their landlord or have a relationship with them. In these instances, it could be burdensome for the farmer to get permission to make structural modifications to rented land (e.g., installing riparian buffers, contour terracing), or it may even be prohibited by their contract.

Further complicating this situation is contract duration. Many producers who rent lands participate in leases that can last a decade or longer. Growers who are locked into contracts prior to EPA establishing these mitigation requirements, which they may not have the ability to implement, could place farmers at significant financial risk. We seek clarification from the agency as to how it envisions addressing landowner/renter challenges, and more broadly who would have responsibility under this framework for certain ESA compliance obligations (e.g., producer, landowner, applicator.)

We also have questions and concerns with the burdens this proposal would place on state regulators. Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), states and tribal authorities carry the primary enforcement responsibility.³¹ The herbicide strategy and other ESA-related proposals would create a complex new set of requirements on pesticide labels which would likely fall on state and tribal regulators to enforce. We urge EPA to provide clarity on how it would address what is likely to be a significant new resource strain and enforcement burden on state and tribal agencies and their staff.

Further, we have questions around potential safe harbors and unexpected occurrences facing producers, applicators, or other responsible entities. If incidental take of a listed species occurs under the herbicide strategy or other ESA-related proposals, or if required mitigations fail (e.g., a vegetative filter strip or riparian buffer dies due to drought or pest infestation), how does the agency plan to address those matters? If a producer faces an unexpected pest outbreak (e.g., weed populations develop resistance to herbicides a producer expected to use and they now must use an herbicide for which they do not have sufficient mitigations), what guidance would EPA have for that grower?

These are fundamental questions for which stakeholders need responses to understand how the agency expects implementation to occur. We urge EPA to provide responses to these inquiries and others provided by stakeholders in a response to comments.

Irreparable Harm to Producers, the Public, and the Environment

Ultimately, we are concerned the cumulative impact of the herbicide strategy as proposed is that millions of U.S. agricultural producers would have difficulty accessing specific herbicides or generally as a pesticidal class. Growers producing on hundreds of millions of farmland acres in the proposed PULAs are most likely to be heavily impacted by these restrictions. The immediate impact would be that agricultural operations across the lower 48 states would be subject to significant crop yield loss due to increased and uncontrollable weed pressures. Conservation efforts would also suffer, as practices contingent on access to herbicides, such as reduced tillage, cover crops, and wildlife habitat establishment, would be less feasible. Many producers might need to resort to mechanical soil tillage to terminate weeds if they lack access to herbicides needed for maintaining reduced tillage practices, risking significant soil erosion reduction, water quality, and soil carbon sequestration benefits.

HR pressures are also likely to flare, as many growers unable to meet the stringent compliance obligations will lack access to herbicidal tools with MOAs needed terminate HR weeds on their lands.

³⁰ Bawa, Siraj G. and Scott Callahan. U.S. Department of Agriculture. Economic Research Service. March 2021. *Absent Landlord in Agriculture – A Statistical Analysis*. <https://www.ers.usda.gov/webdocs/publications/100664/err-281.pdf?v=837>

³¹ 7 U.S.C. § 136w-1(a)

This will lead to a greater proliferation of HR weed populations and more quickly erode the efficacy of other herbicidal tools, exacerbating production and environmental harms over the long term.

We are also concerned rural communities will suffer broadly. As described above, farming operations are not the only groups impacted by pest pressures, but the businesses and communities supporting and relying on their wellbeing are as well. Agricultural retailers, co-ops, grain elevators, packinghouses, processors, banks, restaurants, and the millions of Americans they employ will all be impacted. We are also further investigating what impacts specific and general access to herbicides might have on a producer's ability to maintain access to crop insurance or financing, which could have a potentially broader effect on farms and the rural communities in which they operate.

Over the medium to long term, the effects of the proposal could likely have the broader impact of outsourcing agricultural production from the United States. If U.S. producers are placed at a significant competitive disadvantage due to reduced access to herbicidal tools needed to remain productive, global competitors would increase production at the expense of U.S. market share. This could also have negative environmental effects, as many of our international competitors lack the same rules and commitments for sustainable agricultural production that the United States has. As a result, globally we could see increased risks of land conversion, decreased water quality, increased greenhouse gas emissions, among other impacts.

As mentioned at the outset of these comments, we do support EPA's pesticide program becoming compliant with its ESA obligations. However, the herbicide strategy, as proposed, is not the solution. It will result in significant, irreparable harm to millions of U.S. farms, consumers, and the environment, and we cannot support this strategy as proposed.

Compliance with Legal Obligations, A Better ESA Solution

We do, however, believe there are better, more appropriate ways the agency could meet its ESA and other legal obligations, protect listed species and their critical habitat, while minimizing its impact on U.S. agricultural producers. To better understand this approach, we believe it is important to scrutinize questions and concerns about the agency's legal responsibilities under ESA or FIFRA, how the herbicide strategy addresses those obligations, and ultimately what a better, more science-based approach could look like.

Statutory Foundation for ESA Pesticide Proposals

A recurring question we have that we strongly encourage EPA to address in its response to comments is under which statute the agency plans to promulgate ESA-related restrictions. Based on the previous sentence, one might intuitively conclude these proposals, including the herbicide strategy, are being implemented under ESA. However, to us this is less than clear. We are not aware of a statutory authority under ESA in which EPA has the authority to put in place these upfront restrictions based on risks of jeopardy to listed species or adverse modification (J/AM) of critical habitat.

Of course, EPA has the authority under FIFRA to impose restrictions on pesticide uses which might pose an unreasonable risk to the environment.³² However, to make these determinations and impose these restrictions, the agency must conduct risk and benefits assessments to verify an unreasonable risk in fact exists, and any mitigations necessary to reduce that risk must be weighed against the benefits of a pesticide use. As discussed at length above, the herbicide uses EPA would be restricting through this proposal carry billions of dollars in production, environmental, and other societal benefits we feel would

³² FIFRA prevents pesticide use from resulting in "unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide." 7 U.S.C. § 136(bb)

be important for the agency to consider. However, we are not currently certain EPA plans to conduct this risk-benefit assessment process, as required by FIFRA, under the herbicide strategy or other ESA-related proposals. We request that EPA clarify in its response to comments under which statute the agency is promulgating these proposed use restrictions and how it plans to fulfill its respective statutory obligations.

Reasonable and Prudent Standard

If EPA is implementing the provisions of the herbicide strategy or other ESA-related proposals under ESA itself, that carries other legal requirements we feel it is imperative the agency consider as it is seeking to implement these strategies and pilots. One such requirement is that any mitigations required to mitigate J/AM risks to a species or critical habitat must be “reasonable and prudent.”^{33,34} If implemented under ESA, we have strong concerns that the herbicide strategy does not meet this standard.

As discussed, many agricultural producers will likely be prevented from using certain or potentially all herbicides under this proposal, which could result in great harm to their crops and the sustainability of their operations. Others will have to invest millions of dollars in their farms annually to meet the compliance expectations of this proposal. We do not believe these requirements are either reasonable or prudent. EPA should seriously consider this ESA requirement as it reflects on feedback received on this proposal.

Herbicide Strategy Amplifying J/AM Risks

We are also concerned that by limiting producer access to herbicides, the agency may inadvertently be creating a net increase in J/AM risks to some species. In both its biological opinion (BiOp) on malathion and its draft BiOp on Enlist, FWS cites studies showing that non-native species are the number one cause of endangerment in the U.S., followed by urbanization.^{35,36} Agriculture, generally (not even pesticides, specifically), is number three. In fact, the underlying study cited by FWS does not even cite pesticides as an agricultural stressor.

We have several concerns related to this analysis and how it ties back to the herbicide strategy. First, invasive species, including weeds, cause immense environmental and economic damage. The damage they cause is estimated at over \$120 billion annually and they are the primary driver of risk to approximately 42 percent of all threatened and endangered species.^{37,38} As USDA’s National Invasive Species Information Center (NISIC) notes, pesticides are an important part of integrated pest management (IPM) strategies for controlling invasive species.³⁹ Agricultural producers limit the spread of invasive weeds through herbicide use. However, if producers lack access to herbicides, it may permit the wider spread of invasive weeds which pose a threat to listed species and their habitats.

³³ 16 U.S.C. § 1536(b)(4)(a)

³⁴ 16 U.S.C. § 1536(b)(4)(a) and § 1536(g)(3)(a)(i) clearly establishes that any measures or alternatives proposed by agencies are subject to the reasonable and prudent standard.

³⁵ U.S. Fish and Wildlife Service. Ecological Services Program. February 28, 2022. *Biological and Conference Opinion on the Registration of Malathion Pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act*. P. 30-31.

³⁶ U.S. Fish and Wildlife Service. Ecological Services Program. May 15, 2023. *Draft Biological Opinion on the Registration of Enlist One and Enlist Duo Pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act*.

³⁷ Pimentel, David, Rodolfo Zuniga, and Doug Morrison. February 15, 2005. “Update on the environmental and economic costs associated with alien-invasive species in the United States.” *Ecological Economics*. Vol. 52, Iss. 3. P. 273-288. <https://www.sciencedirect.com/science/article/abs/pii/S0921800904003027>

³⁸ U.S. Department of Interior. January 24, 2022. “Interior Department Calls for Nominations to Serve on Committee Coordinating Federal Actions on Invasive Species.” <https://www.doi.gov/pressreleases/interior-department-calls-nominations-serve-committee-coordinating-federal-actions>

³⁹ U.S. Department of Agriculture. National Invasive Species Information Center. N.D. *Control Mechanisms*. Accessed July 29, 2023. <https://www.invasivespeciesinfo.gov/subject/control-mechanisms>

Furthermore, if the herbicide strategy jeopardizes the continued viability of farming operations, it could increase development and urbanization pressures for agricultural lands, increasing J/AM risks. We encourage EPA to carefully consider these increased J/AM risks that the herbicide strategy might create as the agency reviews feedback on its proposal.

Best Scientific and Commercial Data Available

An additional standard under ESA we are concerned the herbicide strategy does not meet is the requirement that effects determinations must be made using the “best scientific and commercial data available.”⁴⁰ We have several reasons to suspect this proposal may not in compliance with this statutory requirement.

First, the agency continues to use overly conservative assumptions and models for effects determinations, which it would likely continue to do under the herbicide strategy. For example, the agency continues to use maximum pesticide use rates when determining if a species or critical habitat is likely to be adversely affected (LAA) or predicting if J/AM is likely to occur. These maximum use rates often significantly overstate pesticide use – and subsequently exposure rates – than the real-world pesticide usage data from USDA and commercial sources, such as Kynetec, which the agency has available to it.⁴¹

EPA also has access to significant scientific and commercial data regarding protective conservation practices that the agency continues to not incorporate into effects determinations. For example, the USDA’s Natural Resources Conservation Service (NRCS) and National Agricultural Statistics Service (NASS) have county-level historical data on the adoption of existing conservation practices (many of the same practices directed by this proposal, such as cover crops and reduced tillage). This data could show existing conservation practices are having a protective effect for listed species and their habitats, which might alleviate J/AM concerns. Interestingly, EPA regularly uses other data from the NASS’ Census of Agriculture – the same survey used to collect this conservation data – in its effect determinations for its biological evaluations (BE), yet does not use the conservation data from the same survey.^{42,43}

We also have concerns regarding the overly conservative spray drift and water concentration models used by the agency in its effects determinations. These models overstate the impact on species and habitat and are more likely to contribute to a J/AM finding than if the agency were to use real-world studies when available. Several studies have detailed how the agency’s AgDrift spray drift model (which EPA uses to establish unnecessarily large spray drift buffers in this proposal and others), its Magnitude

⁴⁰ 16 U.S.C. § 1536(a)(2)

⁴¹ U.S. Department of Agriculture. National Agricultural Statistics Service. Last Modified August 29, 2023.

https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/

⁴² U.S. Environmental Protection Agency. Office of Chemical Safety and Pollution Prevention. Office of Pesticide Programs. May 1, 2023. *Imidacloprid, Thiamethoxam and Clothianidin: Draft Predictions of Likelihood of Jeopardy and Adverse Modification for Federally Listed Endangered and Threatened Species and Designated Critical Habitats*. P. 155.

<https://www.epa.gov/system/files/documents/2023-05/ESA-JAM-Analysis.pdf>

⁴³ U.S. Environmental Protection Agency. Office of Chemical Safety and Pollution Prevention. Office of Pesticide Programs. January 19, 2023. *Cyantraniliprole: DRAFT Biological Evaluation Effects Determination for Endangered and Threatened Species and Designated Critical Habitats*. P. 39. <https://www.regulations.gov/document/EPA-HQ-OPP-2011-0668-0072>

of Effect Tool (MAGTool) model, and Pesticide in Water Calculator (PWC) models are overly conservative and overstate levels of pesticide exposure.^{44,45}

Finally, the maps that EPA uses for the herbicide strategy are problematic. In developing the PULAs, the agency relies exclusively on maps from the U.S. Fish and Wildlife Service's (FWS) Environmental Conservation Online System (ECOS), which can be overly broad. In many instances, ECOS maps are developed at the county level, listing a species as generally present everywhere in a county even if the species' true range only overlaps with a fraction of a county. This could subject producers to additional regulation who fall outside of a species' range and thus pose no risk to a species or its habitat. There exist many additional sources of species maps with state regulatory agencies, private commercial range database services (e.g., NatureServe), among other sources. We also understand some registrants are working to develop refined interim range maps which are more narrowly tailored to a species' specific habitat within a range. We advise the agency to utilize these more refined and accurate map data sources where they exist.

It is important to note that ESA does not permit federal agencies to take an overly conservative approach while eschewing real-world science and data. In fact, federal courts have recently found "'nothing' in the ESA required [federal agencies] to use 'a 'worst-case scenario' or make unduly conservative modeling assumptions...'"⁴⁶ Ultimately, we are concerned that the agency not using the best scientific and commercial data available in multiple instances has led to inflation of perceived risks to listed species and habitats. In turn, this has spurred the agency to take a precautionary approach of imposing additional harmful restrictions on producers which are unnecessary to protect species. We urge EPA to commit to using science-based data over conservative assumptions to meet this requirement under ESA.

A Better ESA Solution

While we appreciate that ESA compliance represents a significant undertaking for EPA, we believe there is a better, more science-driven way that the agency might fulfill its legal obligations. One of the primary reasons the herbicide strategy and other ESA-related proposals presume such significant risks to species and habitats, which the agency then seeks to mitigate, is because of the conservative assumptions and models on which the agency bases its efforts. When EPA stacks unrealistic assumptions on top of unrealistic assumptions, it is no wonder that the agency erroneously finds risk everywhere that it feels compelled to mitigate.

However, if EPA were to use the best scientific and commercial data, much of which we have described above, it would likely find that few species and their habitats are truly at risk from J/AM from pesticide exposures and require mitigation. In fact, this is the exact outcome we observed when FWS used better data and more realistic assumptions in its BiOps on Enlist and malathion. While we appreciate EPA may lack the resources to consider the effects of every pesticide on every species, the agency could develop efficient baseline data sets for each species (e.g., acres under conservation in the species' range) that it could use for relatively swift J/AM predictions on individual registration decisions.

⁴⁴ Teed, R. Scott, Dwayne R.J. Moore, Oliver Vukov, Richard A. Brain, and Jay P. Overmyer. November 17, 2022. "Challenges with the current methodology for conducting Endangered Species Act risk assessments for pesticides in the United States." *Integrated Environmental Assessment and Management*. Vol. 19, No. 3. P. 817-829. <https://setac.onlinelibrary.wiley.com/doi/full/10.1002/ieam.4713>

⁴⁵ Brain, Richard, Greg Goodwin, Farah Abi-Akhar, Brian Lee, Carol Rodgers, Brian Flatt, Abby Lynn, Greg Kruger, and Dan Perkins. August 15, 2019. "Winds of change, developing a non-target plant bioassay employing field-based pesticide drift exposure: A case study with atrazine." *Science of the Total Environment*. Vol. 678, P. 239-252. <https://www.sciencedirect.com/science/article/abs/pii/S004896971931962X?via%3Dihub>

⁴⁶ *Maine Lobstermen's Association v. National Marine Fisheries Service* No. 22-5238 (D.C. Cir. 2023)

While there will undoubtedly be some species that still require further mitigation, they will no doubt be far fewer than those for which the agency is seeking to mitigate under its current ESA framework. With more science and data-based predictions, EPA could then focus its limited resources on working with stakeholders to develop practical solutions to protect any remaining species of concern. This approach would allow for the continued meaningful use of agricultural pesticides in ways that protect – and in many cases benefit – listed species and their habitats.

Conclusion

While we support EPA becoming compliant with its legal obligations under ESA, we cannot support the herbicide strategy as proposed. This incredibly complex, costly, and onerous proposal presents a significant threat to U.S. agricultural herbicide users in the lower 48 states. It risks depriving farmers of tools they need to protect their crops; maintain important conservation practices; provide an affordable, sustainable food, fiber, and fuel supply; among many other benefits. Concerningly, this proposal also seems highly unlikely to be consistent with the agency's legal obligations under multiple federal statutes.

As we have detailed above, we believe there are better approaches EPA could take, which we would contend are also more consistent with the agency's ESA legal commitments. We would eagerly work with the agency to develop those more appropriate, science-based solutions. However, we cannot support the herbicide strategy as proposed, and strongly urge EPA to consider alternative or refined means for meeting its legal obligations.

Sincerely,

National Groups

Agricultural Retailers Association
American Agri-Women
American Cotton Producers
American Dairy Coalition
American Farm Bureau Federation
American Pulse Association
American Seed Trade Association
American Soybean Association
American Sugar Alliance
American Sugar Cane League
American Sugarbeet Growers Association
AmericanHort
Aquatic Ecosystem Restoration Foundation
Association of Equipment Manufacturers
Council of Producers & Distributors of Agrotechnology
Farm Credit Council
International Fresh Produce Association
National Alfalfa & Forage Alliance
National Alliance of Independent Crop Consultants
National Association of Landscape Professionals
National Association of Wheat Growers
National Barley Growers Association
National Black Growers Council
National Cattlemen's Beef Association
National Christmas Tree Association

National Cotton Council
National Onion Association
National Pork Producers Council
National Potato Council
National Sunflower Association
Public Lands Council
U.S. Canola Association
U.S. Durum Growers Association
U.S. Peanut Federation
US Beet Sugar Association
USA Dry Pea & Lentil Council
USA Rice

State & Regional Groups

Agribusiness Association of Iowa
Agribusiness Council of Indiana
Agricultural Council of Arkansas
AgWest Farm Credit
Alabama Cotton Commission
Alabama Farmers Federation
Arizona Cotton Growers Association
Arizona Crop Protection Association
Arizona Farm Bureau Federation
Arkansas Agricultural Consultants Association
Arkansas Crop Protection Association
Arkansas Farm Bureau Federation
Arkansas Plant Food Association
Arkansas Rice Federation
Arkansas Soybean Association
California Association of Wheat Growers
California Bean Shippers Association
California Cherry Growers and Industry Association
California Citrus Mutual
California Cotton Ginners and Growers Associations
California Farm Bureau
California Fresh Fruit Association
California Grain & Feed Association
California Pear Growers
California Seed Association
California Specialty Crops Council
California State Floral Association
California Sweetpotato Council
California Walnut Commission
California Warehouse Association
Colorado Association of Wheat Growers
Colorado Farm Bureau
Dairy Producers of Utah
Delaware Farm Bureau
Delta Council
Empire State Council of Agricultural Organizations
Far West Agribusiness Association

Florida Farm Bureau Federation
Florida Fertilizer & Agrichemical Association
Food Producers of Idaho
Georgia Cotton Commission
Georgia Farm Bureau
Georgia Fruit and Vegetable Growers Association
Georgia Urban Agriculture Council
Georgia/Florida Soybean Association
Idaho Alfalfa Clover Seed Growers Association
Idaho Eastern Oregon Seed Association
Idaho Grain Producers Association
Idaho Hay and Forage Association
Idaho Mint Growers Association
Idaho Nursery and Landscape Association
Idaho Oilseed Commission
Idaho Onion Growers' Association
Idaho Oregon Seed Pesticide Council
Illinois Farm Bureau
Illinois Fertilizer and Chemical Association
Illinois Soybean Association
Indiana Farm Bureau
Indiana Soybean Association
Iowa Farm Bureau Federation
Iowa Soybean Association
Kansas Agribusiness Retailers Association
Kansas Association of Wheat Growers
Kansas Corn Growers Association
Kansas Cotton Association
Kansas Cotton Growers Association
Kansas Farm Bureau
Kansas Grain and Feed Association
Kansas Livestock Association
Kansas Soybean Association
Kentucky Farm Bureau Federation
Louisiana Agricultural Consultants Association
Louisiana Cotton and Grain Association
Louisiana Farm Bureau Federation, Inc.
Malheur Onion Growers Association
Maryland Farm Bureau
Maryland Grain Producers Association
Michigan Agri-Business Association
Michigan Asparagus Association
Michigan Farm Bureau
Michigan State Horticultural Society
Mid Atlantic Soybean Association
Mid-Atlantic Sports Field Management Association
Midwest Food Products Association
Midwest Forage Association
Minnesota Agri-Growth Council
Minnesota Agri-Women
Minnesota Canola Council

Minnesota Crop Production Retailers
Minnesota Farm Bureau Federation
Minnesota Soybean Growers Association
Mississippi Farm Bureau Federation
Mississippi Soybean Association
Missouri Agribusiness Association
Missouri Farm Bureau
Missouri Soybean Association
Montana Agricultural Business Association
Montana Farm Bureau Federation
Montana Grain Growers Association
Nebraska Agri-Business Association
Nebraska Farm Bureau Federation
Nebraska Soybean Association
Nevada Farm Bureau Federation
New Jersey Farm Bureau
New Mexico Farm & Livestock Bureau
New York Corn & Soybean Growers Association
New York Farm Bureau
New York State Horticultural Society
New York State Vegetable Growers Association
Nezperce Prairie Grass Growers Association
North Carolina Farm Bureau Federation
North Carolina Grange
North Carolina Soybean Producers Association
North Carolina Sweetpotato Commission
North Dakota Agricultural Association
North Dakota Corn Growers Association
North Dakota Grain Dealers Association
North Dakota Grain Growers Association
North Dakota Soybean Growers Association
Northeast Dairy Producers Association (NEDPA)
Northern Canola Growers Association
Northern Pulse Growers Association
Northwest Agricultural Cooperative Council
Ohio AgriBusiness Association
Ohio Farm Bureau Federation
Ohio Soybean Association
Oklahoma Agribusiness Retailers Association
Oklahoma Farm Bureau
Oklahoma Seed Trade Association
Oklahoma Soybean Association
Oklahoma Wheat Growers Association
Oregon Association of Nurseries
Oregon Cattlemen's Association
Oregon Dairy Farmers Association
Oregon Farm Bureau
Oregon Potato Commission
Oregon Seed Council
Oregon Wheat Growers League
Oregon Women for Agriculture

Oregon Women in Timber
Oregonians for Food and Shelter
Pacific Northwest Canola Association
Pacific Seed Association
Pennsylvania Cooperative Potato Growers
Pennsylvania Farm Bureau
Pennsylvania Landscape & Nursery Association
Plains Cotton Growers, Inc.
Potato Growers of Michigan, Inc.
Red River Valley Sugarbeet Growers Association
Rolling Plains Cotton Growers, Inc.
Snake River Sugarbeet Growers Association
South Carolina Corn and Soybean Association
South Carolina Farm Bureau Federation
South Dakota Farm Bureau Federation
South Dakota Soybean Association
South Dakota Wheat Growers Association
South Texas Cotton & Grain Association
Southern Cotton Growers, Inc.
Southern Idaho Potato Cooperative, Inc.
Southern Rolling Plains Cotton Growers Association
St Lawrence Cotton Growers Association
Tennessee Farm Bureau Federation
Tennessee Soybean Association
Texas Ag Industries Association
Texas Association of Dairymen
Texas Farm Bureau
Texas International Produce Association
Texas Soybean Association
Texas Vegetation Management Association
Texas Wheat Producers Association
The Midwest Council on Agriculture
Virginia Farm Bureau
Virginia Soybean Association
Washington Association of Wheat Growers
Washington Friends of Farms and Forests
Washington Grain Commission
Washington State Dairy Federation
Washington State Potato Commission
Western Agricultural Processors Association
Western Plant Health Association
Wisconsin Agri-Business Association
Wisconsin Farm Bureau Federation
Wisconsin Pork Association
Wisconsin Potato & Vegetable Growers Association
Wisconsin Soybean Association
Wyoming Ag Business Association
Wyoming Crop Improvement Association
Wyoming Farm Bureau Federation
Wyoming Wheat Growers Association