



Proposed Herbicide Strategy

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Purpose and Scope of Today's Webinar

- Purpose: To provide an overview of the proposed Herbicide Strategy released on July 24, 2023 for a 60-day public comment period
- Documents are available in Docket ID: [EPA-HQ-OPP-2023-0365](https://www.epa.gov/dockets/epa-hq-opp-2023-0365)
 - Framework
 - Case Studies
 - Technical Support for Mitigation
 - Same document released with the Vulnerable Species Pilot in June 2023
 - Example Application of Proposed Strategy to Crop Production Systems
- Public Comment Period Closes: September 22, 2023



Nipomo Mesa Lupine,
Robyn Gerstenslager/U.S. Fish and Wildlife Service
<https://www.fws.gov/species/nipomo-mesa-lupine-lupinus-nipomensis>

Outline

- Goal and scope of the proposed Strategy
- Overview of the proposed Strategy process
 - Identify impacts to populations of listed species
 - Identify mitigations
 - Identify geographic extent of mitigations
- Example mitigation for crop production systems
- Implementation
 - Coordination within EPA and with federal partners
- Public comment submissions
- Next steps



Short's goldenrod

Andrew Lee, U.S. Fish and Wildlife Service

<https://digitalmedia.fws.gov/digital/collection/natdiglib/id/25275/rec/27>

Proposed Herbicide Strategy is a Part of EPA's Pesticide Program's ESA Workplan



Balancing Wildlife Protection and Responsible Pesticide Use: How EPA's Pesticide Program Will Meet its Endangered Species Act Obligations

2022



www.epa.gov/endangered-species

Released April 2022



ESA WORKPLAN UPDATE:

Nontarget Species Mitigation for Registration Review and Other FIFRA Actions

November 2022



Released November 2022

<https://www.epa.gov/endangered-species/epas-workplan-and-progress-toward-better-protections-endangered-species>

Goal of the Proposed Herbicide Strategy

- Develop a mitigation framework for conventional herbicides used in agriculture
 - Lower 48 states
 - Considering potential impacts to 400 listed plants and 500 listed animals that depend on plants
 - Minimize offsite exposure occurring via spray drift, runoff, or erosion
 - Species covered by the U.S. Fish and Wildlife Service
- Improve our Endangered Species Act efforts by making them more timely, efficient, consistent, and predictable
- Type and level of mitigation would be identified specific to the chemical, crop, and application method based on the potential impacts to listed species





Proposed Framework Overall Process



Apalachicola rosemary,
Vivian Negrón-Ortiz / Torreya State Park, FL (obtained from FWS)
https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3667.pdf

Step 1. Identify Impacts to Listed Species

- EPA would rely on a more efficient approach building on information in the current risk assessment to identify potential population impacts
- EPA would consider the herbicide's chemical properties, effects to plants in toxicity studies, and exposure profile for each agricultural use



Leafy Prairie-Clover,
Todd Crabtree / TDEC (obtained from FWS)
https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3759.pdf



Step 2. Identify Type and Level of Mitigation

- The proposed Herbicide Strategy is focused on mitigation measures to reduce movement of herbicides off the treated field by the most common pathways: spray drift and runoff/erosion.
- The level of impact to listed plants and listed animals that depend on plants would determine the level of mitigation.
- The proposed Strategy is structured to provide flexibility to growers/pesticide applicators to choose mitigation measures that work best for their individual situations.

Spray Drift Mitigation

- Spray drift mitigation may be appropriate for herbicides applied as liquids via aircraft, groundboom, or airblast applications.
- A spray drift buffer between the application site and potential habitat for the listed species is one mitigation measure that could be proposed.
- Managed areas included in buffer:
 - Agricultural fields;
 - Roads, paved or gravel surfaces, managed areas next to the field;
 - Areas occupied by a building and its perimeter;
 - Areas maintained for runoff or drift control, such as vegetative filter strips, field borders, and other areas on the mitigation menu; and
 - Conservation Reserve Program (CRP) and Agricultural Conservation Easement Program (ACEP) areas.

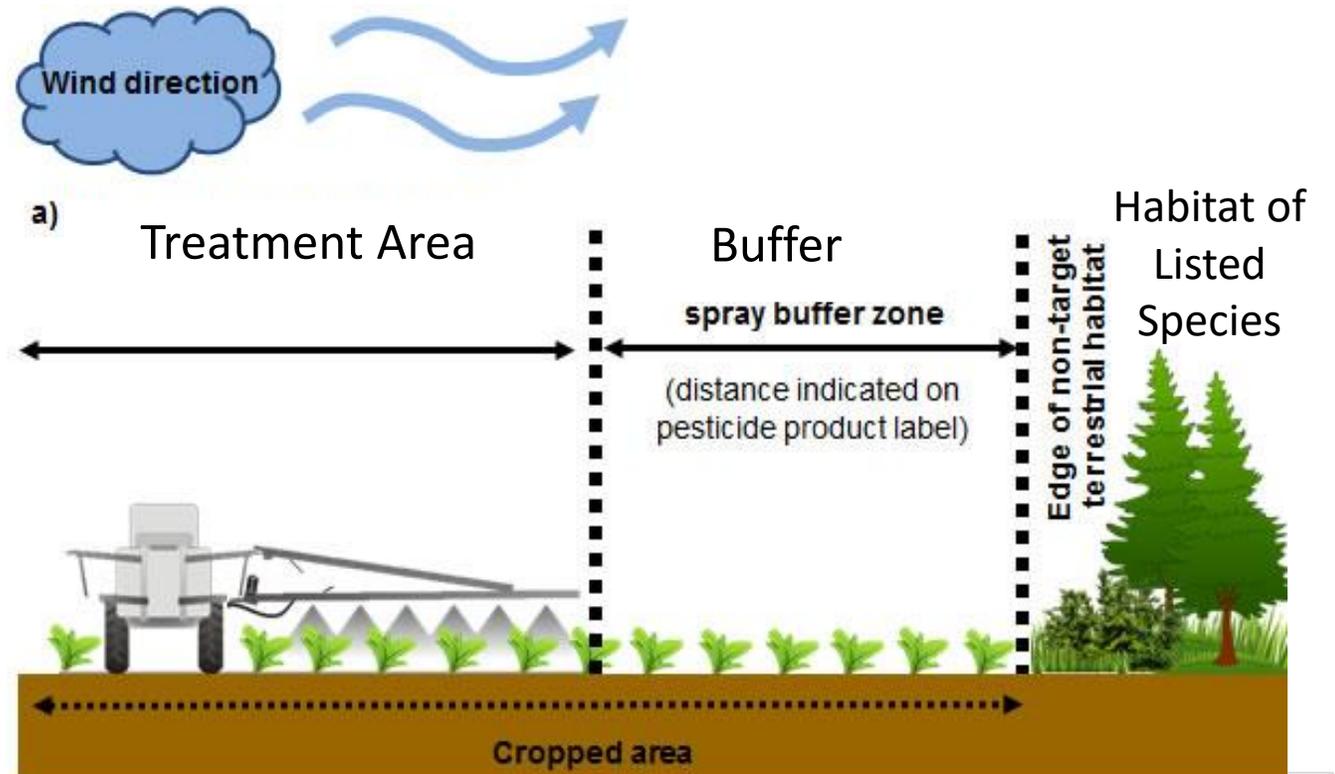


Diagram adapted with permission from the Pest Management Regulatory Agency of Health Canada (2020). Available at: <https://www.canada.ca/en/healthcanada/services/consumer-product-safety/pesticides-pest-management/growers-commercial-users/driftmitigation/protecting-habitats-spray-drift.html>

Spray Drift Mitigation

- Establish a spray drift buffer (as needed) based on application equipment, droplet sizes, and level of impact to listed species

- Buffers no larger than:
 - 200 – 300 ft (aerial applications)
 - 100 – 200 ft (ground applications)
 - 100 ft (airblast applications)

- Options to reduce any identified buffer include:
 - Hooded sprayers
 - Windbreaks

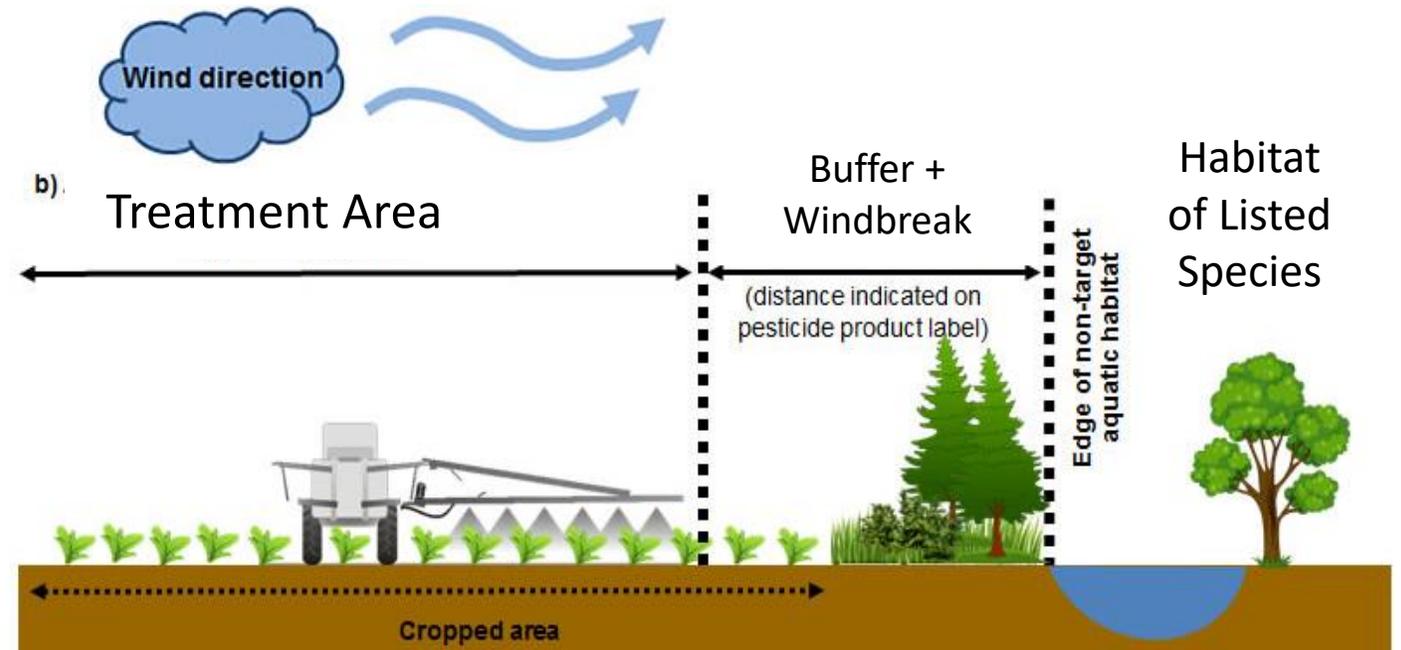


Diagram adapted with permission from the Pest Management Regulatory Agency of Health Canada (2020). Available at: <https://www.canada.ca/en/healthcanada/services/consumer-product-safety/pesticides-pest-management/growers-commercial-users/driftmitigation/protecting-habitats-spray-drift.html>

- EPA continues to refine the mitigation options for spray drift.

Runoff/Erosion Mitigation



Image Credit: Lynn Betts / U.S. Department of Agriculture, Natural Resources Conservation Service

https://commons.wikimedia.org/wiki/File:Runoff_of_soil_&_fertilizer.jpg

- Evaluated efficacy from available literature presented in the Technical Document
 - Points assigned to each mitigation measure based on efficacy in reducing runoff/erosion of pesticides from a treated field
 - High efficacy - 3 points
 - Medium efficacy - 2 points
 - Low efficacy - 1 point
- Menu of mitigation measures provides flexibility to growers
- Number of points would depend on the level of impact, which may range from no mitigation and up to 9 points
 - When the level of impact indicates that 9 points are not adequate to reduce impacts, additional mitigation may be identified

Runoff/Erosion Mitigation Menu

- **Field Management**
 - Contour farming (2 points)
 - Cover crop (1 point)
 - Grassed waterway (1 point)
 - In-field vegetative filter strip (3 points)
 - Irrigation water management (1 point)
 - Mulching with natural materials (3 points)
 - Residue tillage management (2 points)
 - Terrace farming (2 points)
- **Field Characteristics (1 point each)**
 - Application to sand, loamy sand, or sandy loam soil without a restrictive layer
 - Flat or nearly flat field (<2% slope)
 - Fields in western farmland
- **Application Parameters**
 - Rate reduction (points based on percent reduction in application rate)
 - Soil incorporation (2 points)
- **Adjacent to the Field or In-between field and Habitat**
 - 30-ft vegetative filter strip (2 points)
 - Riparian area (3 points)
 - Vegetated ditch (1 point)
- **Other Mitigations**
 - Water retention system (2 points)
 - Both on-field and adjacent to the field mitigation utilized (1 point)

Potential Exemptions from the Runoff/Erosion Mitigation Menu

EPA is considering exempting growers from runoff/erosion mitigation if:

- Field is more than 1000 ft away from potential habitat for listed species.
- Field has subsurface drainage installed
- Field is managed with a site-specific runoff and/or erosion plan implemented **according to the recommendations of a recognized conservation program or appropriate conservation expert**
 - Criteria for experts and conservations programs are in development to support this exemption.
 - EPA is seeking public feedback on the types of experts and programs that could be relied upon to ensure that this exemption could be effective at reducing off-field movement of pesticides.

Step 3: Identify the Geographic Extent of Mitigation

- Spray drift and runoff/erosion mitigation measures could be included on the general product label if the mitigations would be applicable for the entire use area.
- If mitigation measures would only be applicable in part of the use area, those mitigations would be identified for specific locations in Bulletins.
 - Locations of mitigations based on ranges and critical habitats of listed species most sensitive to herbicide impacts on plants
 - Will involve use of Bulletins Live! Two to capture multiple species' locations

Step 3. Identify the Geographic Extent of Mitigation

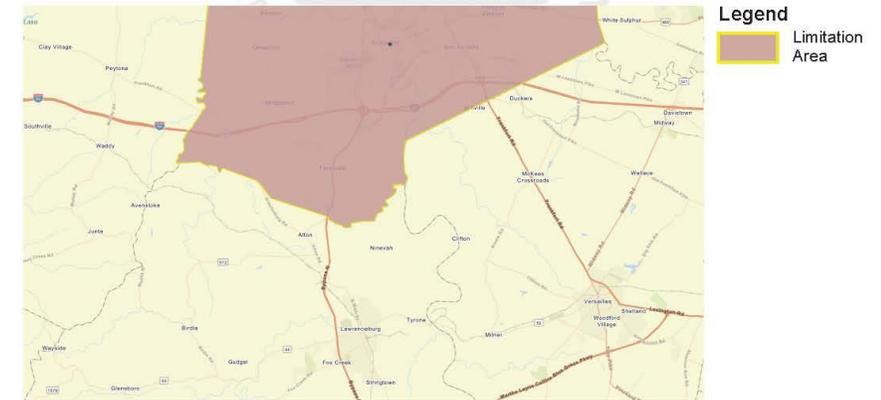
- EPA's Bulletins Live Two! (BLT) System would tell the user if they are subject to additional mitigation because the treated field is located in an area where listed species may be exposed
 - <https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins>
 - Allows EPA to focus mitigations on where they are most needed
- EPA is proposing to group similar types of listed plants and develop a map of where mitigations are needed for the entire group of species, instead of developing individual Bulletins for hundreds of species

Endangered Species Protection Bulletin



Application Month: September 2023
Product: A21472 Plus VaporGrip Technology (100-1623) ;
"TAVIUM PLUS VAPORGRIP TECHNOLOGY"

- 1 Areas where pesticide use must be limited are identified on the map. A legend is located beside the map to help pinpoint these locations.



- 2 Look below at the Pesticide Use Limitation Summary Table. This table lists the user selected Active Ingredient(s) (ALs) or Product(s) with pesticide use limitations on the printed map. Locate the Active Ingredient (AI) or Product you intend to apply in this table and identify the code in the last column. This code indicates the specific limitation associated with that AI or Product. A limitation description for each code can be found below in the Codes and Limitations Table. If multiple Pesticide Use Limitation Areas (PULAs) are visible on the map, these tables provide information for the highlighted PULA.
If you are applying a pesticide that contains more than one Active Ingredient, or multiple Products, then multiple codes may apply. Follow the limitations for all codes when using this pesticide.

This document contains legal requirements for the use of certain pesticides.
Do not modify any text, graphics or coloration or otherwise alter this document.
ESPP Contact: ESPP@epa.gov Phone: 1-844-447-3813

Results of Example Case Study: Identify Type and Level of Mitigations, Identify the Geographic Extent of Mitigation

Spray Drift Buffers:

Application Rate (lb a.i./A)	Buffer Distances for Ground Application (Fine to Medium/Coarse, High Boom)
<i>General Label</i>	
0.50	25 ft
<i>Bulletins*</i>	
0.50	75 ft
*If a grower/applicator is in an area where the Bulletin applies, they would follow the most restrictive mitigation (75-ft buffer).	

- Could reduce buffers by half with the use of a hooded sprayer or if a windbreak is present.
- For buffers of 25 ft or less, could eliminate buffer with a windbreak or use of a hooded sprayer.



Scenarios describe possible implementation of runoff and erosion mitigation measures proposed in the draft **Herbicide Strategy** ([EPA-HQ-OPP-2023-0365-0006](#))

- Scenarios represent a range of cropping systems and production environments that growers could achieve a particular number of points
 - Describes common measures likely in place now and measures that could be adopted in the future
- EPA considered the USDA Conservation Effects Assessment Project ([CEAP](#)) [report](#) from 2022
 - Summarizes adoption rates of conservation practices on cropland in the U.S. at a regional level from surveys conducted in 2013 and 2016

Mitigation Measures with Corresponding Efficacy Scores*

Low (1 point)	Medium (2 points)	High (3 Points)
Western farmland (low rainfall)	Soil incorporation	In-field vegetation strip (several options)
Sand, loamy sand, sandy loam soils	Contour Farming	Mulching with natural materials
Flat fields (<2% slope)	Residue tillage management	Riparian area
Cover crop/ continuous ground cover	Water retention systems	
Grassed waterway	Terrace farming	
Both Adjacent to- and On- field practices on the same field	30-foot vegetative filter strip (adjacent to the field)	
Vegetated ditch		
Irrigation water management		

* Point values for **rate reductions** are proportional to the reduced rate compared to the maximum single application rate per acre rate (e.g., banded applications, precision agricultural systems). For details, see the [Draft Herbicide Strategy Framework](#) and [Draft Technical Support](#) document in the docket.

Example Scenario: Iowa Corn on Sloped Land

Description:

- Soils are not sandy
- Non-irrigated
- **Current conservation measures in place**
 - Conservation tillage (residue tillage management)
 - Terraces are present due to the slope
 - Contour farming
 - Cover crop
 - Grassed waterway

CEAP Report:

- 4% of acres are irrigated
- 75% of acres have conservation tillage
- 25% of acres have practices like contour farming, terrace farming or in-field vegetative barriers
- 38% of acres have practices like grassed waterways or water control structures
- 32% of acres have vegetation adjacent to the field, e.g., field borders, **vegetative filter strips***

Practice	Points
Residue Tillage Management	2
Terracing	2
Contour Farming	2
Cover Crop	1
Grassed Waterway	1
Sum of Points for Existing Practices = 8	
Adjacent to Field Vegetative Filter Strip	2
Both Adjacent to- and On- field practices on the same field ²	1
Sum of Potential Additional Measures* = 3	
Sum of Total Points = 11	

Example Scenario: Texas High-Plains Cotton

Description:

- Non-irrigated
- Soils are not sandy
- Fields are located on flat terrain
- **Current conservation measures in place**
 - Conservation tillage (residue tillage management)

CEAP Report:

- 75% of acres are not irrigated
- 64% of acres have conservation tillage
- 62% of acres do not have practices like contour farming, terrace farming or in-field vegetative barriers
- 19% of acres have practices like grassed waterways or water control structures
- 9% of acres have vegetation adjacent to the field, e.g., field borders, vegetative filter strips
- <5% of acres have cover crops

These growers will be challenged to achieve enough points to use herbicides needing more than 4 points and will need to consider exemptions as proposed in EPA's [Draft Herbicide Strategy Framework](#), rate reductions, or offsets

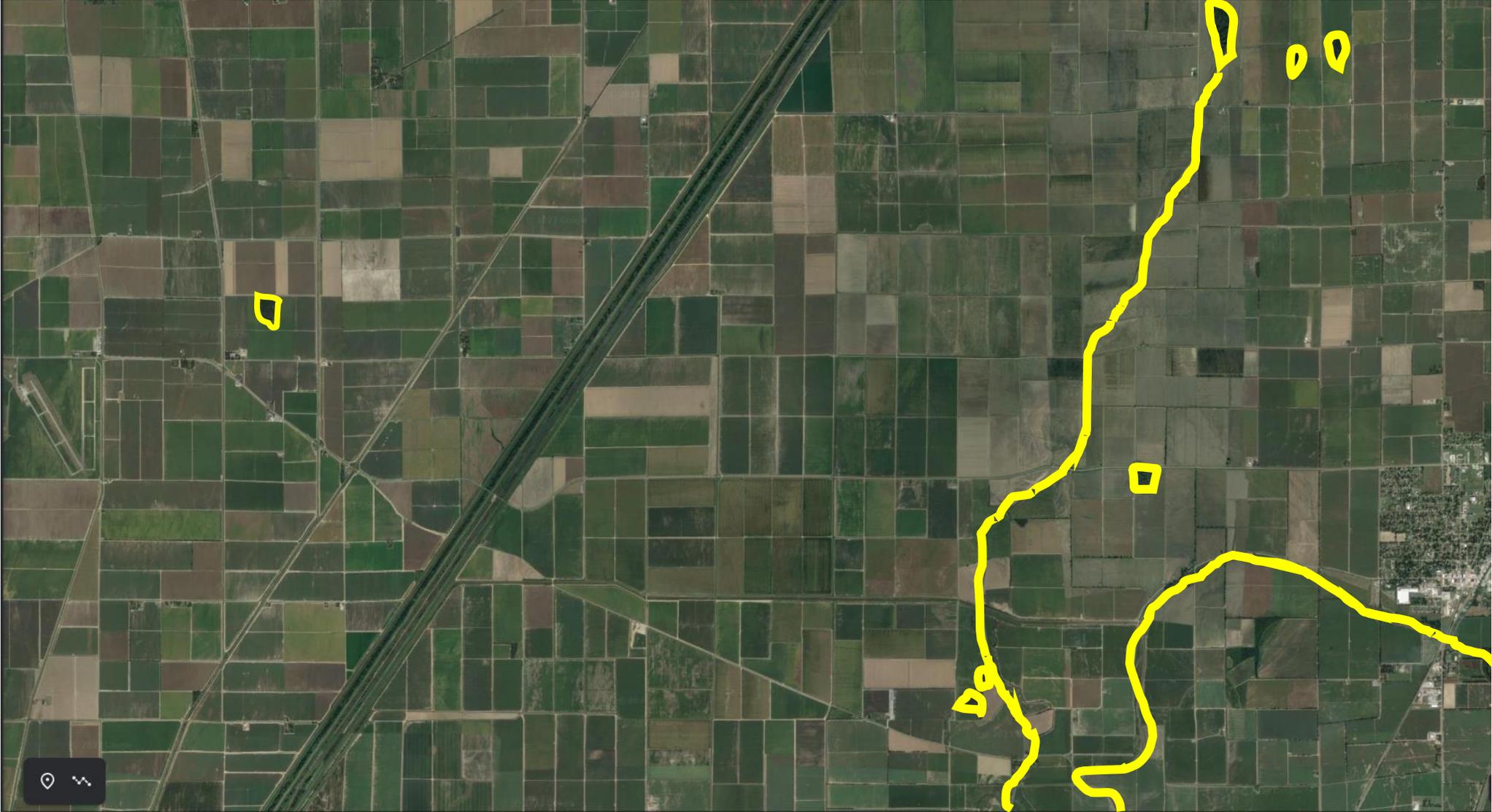
Practice	Points
Flat field (<2% slope)	1
Western Agriculture	1
Residue Tillage Management	2
Sum of Points for Existing Practices = 4	
Sum of Potential Additional Measures = 0	
Sum of Total Points = 4	

Possible Exemption: >1000 ft from habitat for listed species



- Area is ~65,000 ft X 40,000 ft

Possible Exemption: >1000 ft from habitat for listed species



- Area is ~65,000 ft X 40,000 ft
- Yellow lines represent 1,000 ft from potential habitat and may be subject to runoff/ erosion measures

Proposed Implementation Plan

- Mitigation would be applied to herbicides through the Registration Review process
 - Registration review schedule has been revised to account for the timing of the final Herbicide Strategy
 - Registration review schedule is available at <https://www.epa.gov/pesticide-reevaluation/upcoming-registration-review-actions>
- New herbicide active ingredients would incorporate the final Herbicide Strategy
 - Biological Evaluations will continue to be conducted before registration for new active ingredients
 - As EPA gains experience, the final Herbicide Strategy is expected to be applied to other registration actions
- Future additions and updates to mitigation menus
 - Considering development of EPA website to communicate mitigation menus and mitigation descriptions

Streamlined/Programmatic Consultation with US Fish and Wildlife Service (FWS)

- Once a streamlined consultation between EPA and US Fish and Wildlife Service is finalized, EPA would be able to use the more efficient Herbicide Strategy approach for effects determinations
- This Strategy would consider potential impacts to over 400 listed plants and 500 listed animals that depend on plants; all under FWS authority
- EPA plans to work with FWS to formalize streamlined consultation approach for herbicides
- Goal is to come to agreement on using the more efficient approach to identify potential population effects for listed species

Coordination Across Pesticide Regulation Efforts at EPA

- Internal collaboration to holistically approach ESA efforts in pesticide regulation
- To the extent appropriate, EPA is working to ensure consistency in mitigation measures across ESA Strategies and projects
 - Ensure that grower's investment in one mitigation measure is assured to receive credit across pesticides
- To the extent possible, EPA expects to align label language for mitigation across strategies

Coordination with Federal Partners

Listed Species Mitigation

Environmental Protection Agency

U.S. Department of Agriculture

U.S. Fish and Wildlife Service

- United States Department of Agriculture (USDA)
 - Understand available mitigation measures
 - Common descriptions and specifications of mitigation measures
 - Propose mitigation that considers the needs of growers
- U.S. Fish and Wildlife Service (USFWS)
 - Development of the Herbicide Strategy
 - Develop consultation process that considers the Strategy

NR NONRULEMAKING DOCKET

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

Created by the Environmental Protection Agency

EPA-HQ-OPP-2023-0365
Comments due: Sept 22, 2023

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OTHER
Memorandum to Open Docket for Comment "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. Herbicide Strategy Framework Document"
Agency Environmental Protection Agency | Posted Jul 24, 2023 | ID EPA-HQ-OPP-2023-0365-0001
[Comment](#)  Comments Due Sep 22, 2023

SUPPORTING & RELATED MATERIAL
Herbicide Strategy Case Study Summary and Process
Agency Environmental Protection Agency | Posted Jul 24, 2023 | ID EPA-HQ-OPP-2023-0365-0008

How to Submit Public Comments:

1) Go to:
Regulations.gov

2) Search the
docket number

3) Click
"Comment"

Topics for Public Comment

- Feedback on risk assessment approach
- New mitigation ideas([guideline studies](#))
 - Potential new measures to reduce spray drift:
 - Helpful if methodology includes information like: wind speed, temperature, relative humidity, application equipment, nozzle/droplet size, height of ground cover, etc.
 - Potential new runoff/erosion mitigations:
 - Helpful if methodology includes information like: soil type, slope of the field, % ground cover, amount and rate of water applied to induce the event, how and what was measured offsite, etc.
- Data are useful to show how new mitigations are implemented and how effective they are at reducing offsite movement, as well as to support any changes of efficacy scores





Photo by: Kent Fothergill

Topics for Public Comment

- Expert conservation specialist to reduce offsite movement
 - Who are the appropriate qualified individuals/groups; what are the key elements of a conservation program such that it adequately addresses offsite movement?
- Opportunities to refine the geographic scope of mitigations
- Areas of communication needed to help herbicide users navigate the implementation of the mitigation menu

Next Steps

- Documents available in the docket for public comment (Herbicide Strategy Docket: EPA-HQ-OPP-2023-0365 on www.regulations.gov)
 - Framework
 - Technical Support for Mitigation
 - Case Studies Summary and Method
 - Strategy Applied to Crop Production Scenarios
- Consider and respond to public comments and then finalize the Strategy
- Use the final Strategy to incorporate mitigation measures into regulatory decisions



Questions?

Herbicide Strategy Docket: EPA-HQ-OPP-2023-0365
on www.regulations.gov

Public comment period closes on September 22, 2023

For further information, contact Brian Anderson at
Anderson.Brian@epa.gov

