Pesticides & Endangered Species Protection

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DEPARTMENT OF AGRICULTURE

NDA Pesticide Program

- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
  - EPA delegates this to NDA, through the Nebraska Pesticide Act, which is the agency's authority to regulate pesticides.
    - Pesticide Product Registration
    - Conduct various compliance inspections
    - Respond to complaints involving pesticides
    - Pesticide applicator certification
      - Work closely with University of Nebraska Extension & Pesticide Safety Education Program
    - "The Label is the Law"

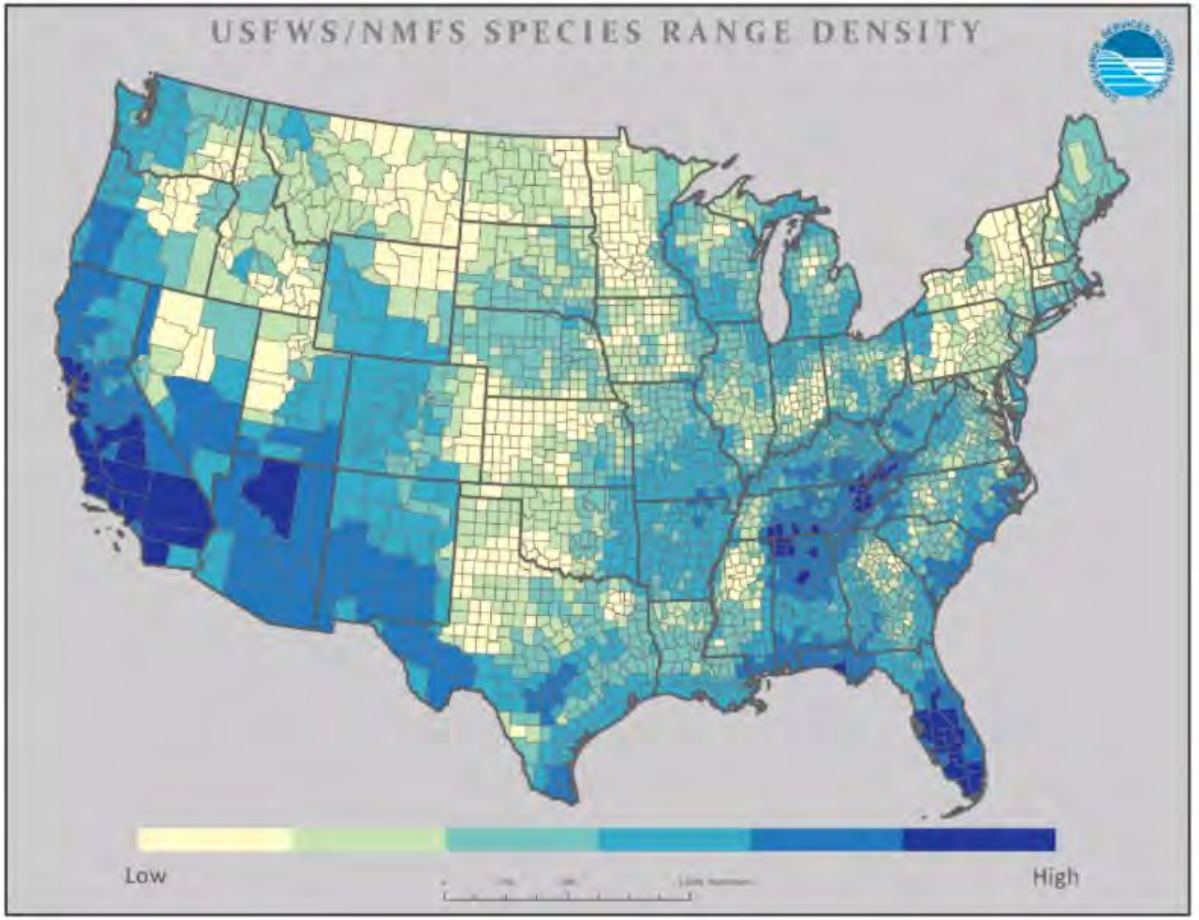
ESA and FIFRA

- Federal Agencies must "…insure that any action authorized, funded, or carried out by such agency (an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat…"
- Pesticide registration is considered an agency action under ESA
- EPA determines No Affect or May Affect
- May affect = Consultation w/ the Services
  - Not likely to adversely affect
  - Likely to adversely affect
  - Biological Opinion (BiOp)
- Differences between EPA-FIFRA and FWS-ESA risk assessments
- Magnitude of the Agency (FIFRA) Actions

When EPA registers a pesticide under the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA), they are required to assess potential impacts to species that are listed under the Endangered Species Act (ESA).

Measures and restrictions on the use of pesticides can be required to protect endangered species.

Every county in the US has at least one ESA-listed species and impacts are local. These need to be addressed locally by the end user.



Rodenticide
TASK FORCE

ESA "megasuit" driving recent changes

- In 2011, a lawsuit was filed against EPA alleging that it violated ESA when it registered or reevaluated 382 pesticide active ingredients; this was reduced to 35 active ingredients (organophosphate pesticides, **rodenticides**, insecticides, miticides, herbicides, fungicides) covering over 1000 pesticide products.
- A settlement was finalized on **Sept 12, 2023**, and the EPA must develop and release the following in a timely manner to fulfill its obligation under ESA:
  - Biological Evaluation (BEs): It addresses whether the pesticide "may affect" one or more individuals of a listed species and their critical habitats.
  - Strategies: It will identify necessary mitigation measures to address effects to listed species based on certain criteria (herbicides, insecticides, **rodenticides**, fungicides, Hawaii, offsets).
  - Vulnerable Species Project: It will develop mitigation measures to address impacts of the pesticides on vulnerable listed species (27 species currently; list will be expanded).

Rodenticide
TASK FORCE

2022 Workplan for the Endangered Species Protection Program (ESPP)

- "early mitigation" on the label
- Reduce spray drift and pesticides in runoff or adsorbed to eroded sediment
- Mitigation measures will be specified on the product label and in an ESPP bulletin, depending on pesticide properties and toxicity to T/E species.
- Various strategies for pesticide groups: herbicides, rodenticides, fungicides, and insecticides
- Vulnerable Species Pilot

Habitat & Species Categories

- A terrestrial habitat is dry or upland areas that do not have standing water. Examples include grasslands, shrublands and forests. Areas where crops occur are not included.
- A wetland is a shallow waterbody that may include permanently or intermittently flooded areas. Examples include wet meadows, marshes, swamps, and riparian areas. For the proposed Strategy, EPA is not referring to a wetland as defined under the Clean Water Act.
- An aquatic habitat is an area with permeant standing or flowing water. Examples include lakes, reservoirs, rivers, streams, ponds, and estuaries.

Proposed Herbicide Strategy

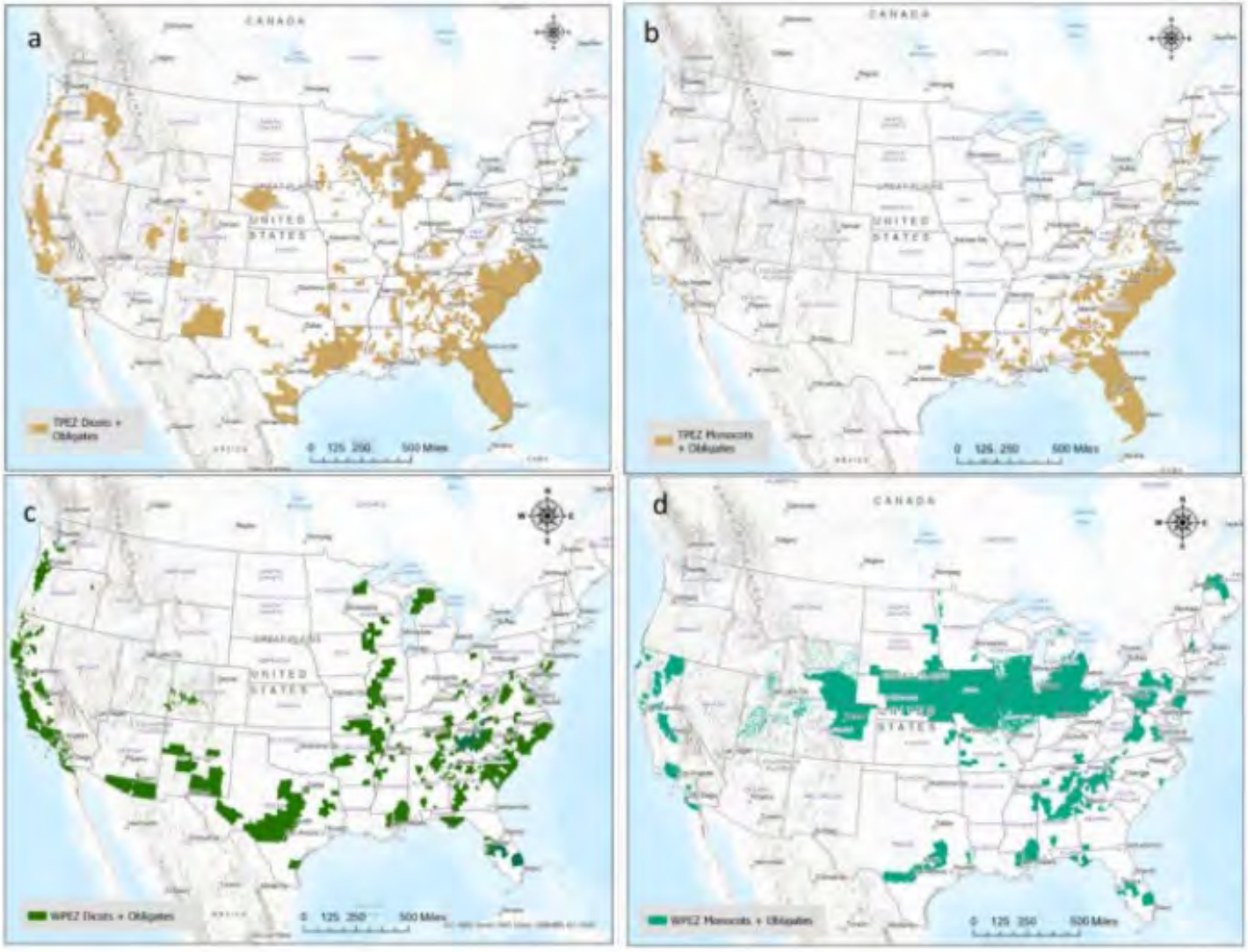


Figure 7-2. a) PULA 1: Listed dicots, non-flowering plants, and animals with an obligate relationship to these plants located in terrestrial habitats. All species and CHs have ≥5% overlap at 300 m using the Cultivated Use Data Layer (UDL);

b) PULA 2: Listed monocots, non-flowering plants, and animals with an obligate relationship to these plants located in terrestrial habitats. All species and CHs have ≥5% overlap at 300 m using the Cultivated UDL;

c) PULA 3: Listed dicots, non-flowering plants, lichens, and animals with an obligate relationship to these plants located in wetland and aquatic habitats. All species and CHs have with ≥5% overlap at 300 m using the Cultivated UDL; and

d) PULA 4: Listed monocots, non-flowering plants, lichens, and animals with an obligate relationship to these plants located in wetland and aquatic habitats. All species and CHs have with ≥5% overlap at 300 m using the Cultivated UDL.

Risk Mitigation Measures (Label Restrictions)

- For reducing impacts from spray drift
- For reducing impacts from pesticides in field runoff/eroded sediment
  - Choose from a “pick list” of conservation measures or best management practices (BMPs)

Proposed Points Needed for Runoff Mitigation Measures (General Label)

Table 8-6. General Label: Runoff/erosion Points for Terrestrial Areas

UDL	2,4-D	Dicamba	Diuron	MCPA	Metolachlor	Metribuzin	Oxyfluorfen	Paraquat	Pendimethalin	Propanil	Thiobencarb	Trifluralin
Alfalfa	NA	NA	9	3	NA	6	NA	0	3	NA	NA	5
Citrus	3	NA	9	NA	NA	NA	5	0	3	NA	NA	5
Corn	6	6	6	NA	6	6	7	0	3	NA	NA	5
Cotton	NA	6	6	NA	6	NA	5	0	3	NA	NA	5
Grapes	3	NA	9	NA	NA	NA	7	0	5	NA	NA	5
Other Crops	NA	NA	NA	3	NA	6	NA	0	3	NA	NA	NA
Other Grains	6	3	6	3	1	6	NA	0	3	NA	NA	5
Other Orchards	6	NA	9	NA	NA	NA	5	0	3	NA	NA	5
Other Row Crops	6	NA	NA	NA	NA	NA	NA	0	3	NA	NA	5
Rice	NA	NA	NA	NA	NA	NA	NA	0	NA	0	0	NA
Soybeans	6	6	NA	NA	6	6	5	0	NA	NA	NA	5
VGF	6	6	6	3	6	6	5	0	3	NA	NA	5
Wheat	6	6	6	3	NA	6	NA	0	NA	NA	NA	5

Proposed Points Needed for Runoff Mitigation Measures (PULA 1, terrestrial dicots)

Table 8-8. PULA 1: Runoff/erosion Points for Terrestrial Areas and Dicots

UDL	2,4-D	Dicamba	Diuron	MCPA	Metolachlor	Metribuzin	Oxyfluorfen	Paraquat	Pendimethalin	Propanil	Thiobencarb	Trifluralin
Alfalfa	NA	NA	9	3	NA	6	NA	General	5	NA	NA	General
Citrus	6	NA	9+	NA	NA	NA	7	General	5	NA	NA	General
Corn	6	9	9	NA	9	6	7	General	5	NA	NA	General
Cotton	NA	9	9	NA	9	NA	7	General	5	NA	NA	General
Grapes	6	NA	9+	NA	NA	NA	7	General	7	NA	NA	General
Other Crops	NA	NA	NA	3	NA	6	NA	General	5	NA	NA	NA
Other Grains	6	6	9	6	6	6	NA	General	5	NA	NA	General
Other Orchards	6	NA	9	NA	NA	NA	7	General	5	NA	NA	General
Other Row Crops	6	NA	NA	NA	NA	NA	NA	General	5	NA	NA	General
Rice	NA	NA	NA	NA	NA	NA	NA	General	NA	General	General	NA
Soybeans	6	9	NA	NA	9	6	7	General	NA	NA	NA	General
VGF	6	9	9	3	9	6	5	General	5	NA	NA	General
Wheat	6	6	9	6	NA	6	NA	General	NA	NA	NA	General

Proposed Points Needed for Runoff Mitigation Measures (PULA 4, terrestrial monocots)

Table 8-11. PULA 4: Runoff/erosion Points for Wetland/aquatic Areas and Monocots

UDL	2,4-D	Dicamba	Diuron	MCPA	Metolachlor	Metribuzin	Oxyfluorfen	Paraquat	Pendimethalin	Propanil	Thiobencarb	Trifluralin
Alfalfa	NA	NA	9	3	NA	6	NA	General	5	NA	NA	General
Citrus	General	NA	9	NA	NA	NA	7	General	5	NA	NA	General
Corn	General	General	9	NA	9	6	7	General	5	NA	NA	General
Cotton	NA	General	9	NA	9	NA	7	General	5	NA	NA	General
Grapes	General	NA	9	NA	NA	NA	7	General	5	NA	NA	General
Other Crops	NA	NA	NA	3	NA	6	NA	General	5	NA	NA	NA
Other Grains	General	General	9	6	9	6	NA	General	5	NA	NA	General
Other Orchards	General	NA	9	NA	NA	NA	7	General	5	NA	NA	General
Other Row Crops	General	NA	NA	NA	NA	NA	NA	General	5	NA	NA	General
Rice	NA	NA	NA	NA	NA	NA	NA	General	NA	General	General	NA
Soybeans	General	General	NA	NA	9	6	7	General	NA	NA	NA	General
VGF	General	General	9	3	9	6	5	General	5	NA	NA	General
Wheat	General	General	9	6	NA	6	NA	General	NA	NA	NA	General

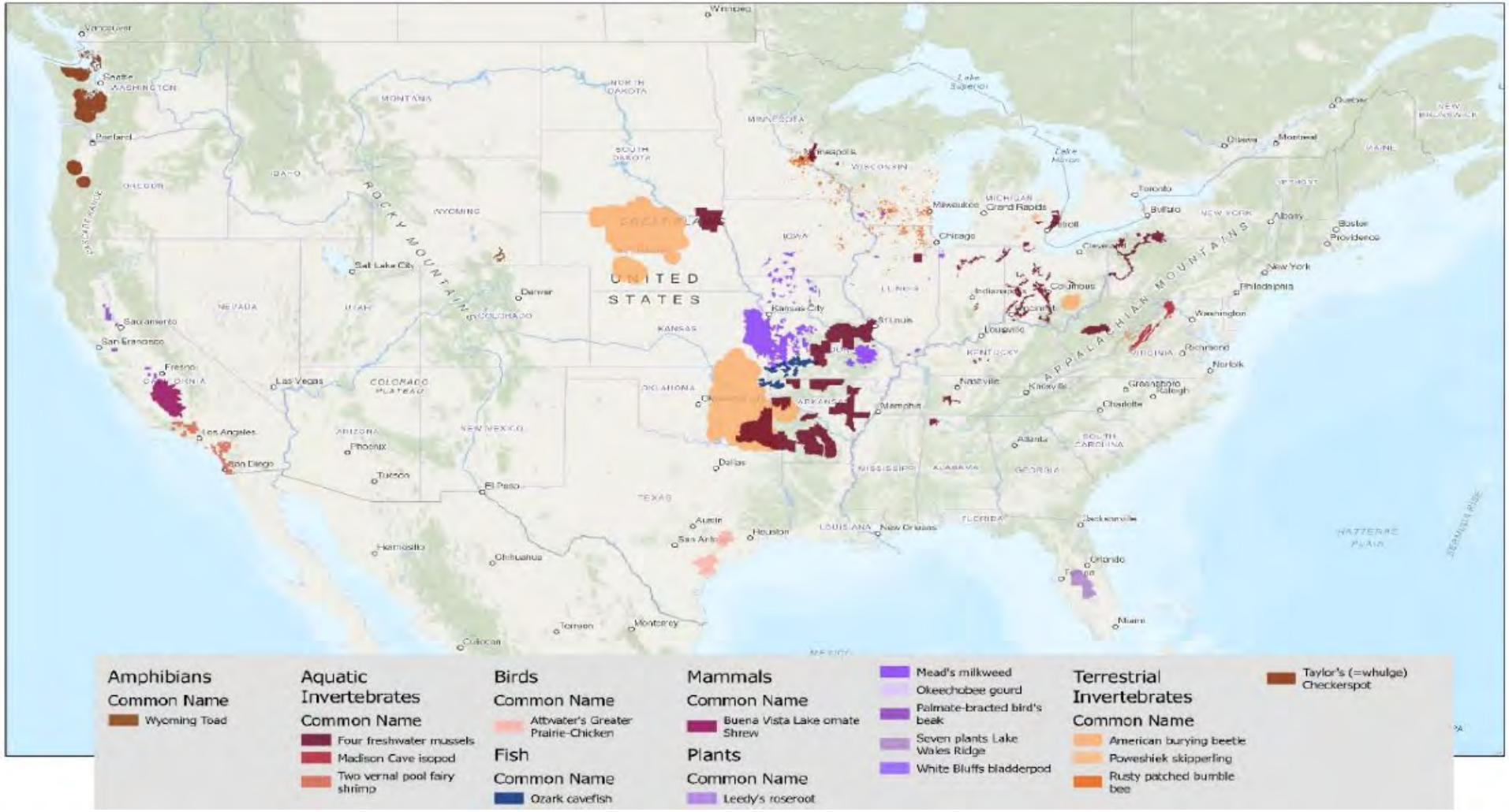
Table 6-9. Potential Mitigation Measures and Efficacy Points

Mitigation Menu Item[1]	Measures that qualify[2]	Efficacy Points
Field Characteristics (one field may rely on multiple field characteristics if they are applicable)		
Application area is to the west of the Interstate-35 and east of U.S. Route 395[3]	Not applicable	1
Application area has predominantly sand, loamy sand, or sandy loam soil without a restrictive layer that impedes the movement of water through soil. See USDA's Web Soil Survey tool to determine soil texture: https://websoilsurvey.nrcs.usda.gov/app/.	Not applicable	1
The application area has a slope of less than 2%	Naturally low slope or flat fields/ Flat laser leveled	1
Application Parameters		
The maximum single application rate (lbs active ingredient/acre/application) allowed on the label for the specific crop is reduced or only a partial area in the acre is treated. Considered on a per application basis. The percent reduction is calculated as the applied lbs active ingredient applied per acre divided by the maximum single application rate in lbs active ingredient per acre allowed on the label for the crop and application equipment. If only a spot or portion of the field is treated, the reduction in the application over the entire field is considered in the calculation provided the field is draining to the same area. Follow all label requirements related to application rate including not making applications at a lower rate than the minimum required on the label to avoid resistance issues and to avoid no control of the weed/pest.	Reduced application rate, partial treatment of the field, banded application, spot treatment, precision agriculture or sprayers	Percent reduction = Applied application rate in lbs a.i./A divided by the maximum application rate allowed on the label for the crop in lbs a.i./A 90% reduction; 9 80% reduction; 8 70% reduction; 7 60% reduction; 6 50% reduction; 5 40% reduction; 4 30% reduction; 3 20% reduction; 2 10% reduction; 1

Mitigation Menu Item[1]	Measures that qualify[2]	Efficacy Points
Soil incorporation within a few hours of application. If soil incorporation is required on the label for the crop where the application is being utilized, these points are not applicable.	Watering-in or via discing before runoff producing rain event	2
In-field Management Mitigation Measures[4]		
Contour farming	Contour farming, contour tillage	2
	Contour buffer strips, contour strip cropping, prairie strip, alley cropping	3
Cover crop/continuous cropping	Cover crop, double cropping, relay cropping	1
Grassed waterway	Grassed waterway	1
In-field vegetative filter strip (not occuring on a contoured field)	Inter-row vegetated strips, strip cropping, alley cropping, strip	3
Irrigation water management	Not applicable	1
Mulch amendment with natural materials	Mulching	3
Residue tillage management	No till, reduced till	2
Terrace farming	Terrace farming, terracing, field terracing	2
Adjacent to the Field[4]		
Riparian area	Riparian forest buffer, riparian herbaceous cover	3
Vegetated ditch	Vegetated ditch	1
30-foot Vegetative filter strips – adjacent to the field	Vegetated filter strip, field border, vegetative barrier	2
Other Mitigation Measures[4]		
Water retention systems	Constructed wetland, irrigation and drainage tailwater recovery, retention pond, sediment basins	2
Mitigation measures from multiple categories (*i.e.*, in-field, adjacent to the field, or water retention systems) are utilized[5]	See options in categories above.	1

Exemption	Justification.
Follow recommendations from Conservation Specialist or Certified Expert to Reduce Runoff/erosion[1]	Growers may work with an expert to develop mitigation plans that are designed for their field and are efficacious in reducing offsite transport of pesticides substantially. While conservation programs are not specifically designed for reduction of offsite transport of pesticides, the same types of measures used for reducing offsite transport of nutrients and erosion of soil from the field also reduce offsite transport of pesticides. Evaluating a field for ways to reduce nutrient runoff and erosion are likely to result in similar recommended measures as those in the proposed runoff/erosion mitigation menu. EPA is currently developing criteria where this option would be considered functionally equivalent to relying on the mitigation menu. EPA requests feedback on the types of experts, conservation programs, and appropriate criteria that could be relied upon to ensure that this is an effective measure, including for pesticides that need a high level of reduction of offsite transport to be protective of listed species. EPA will develop specific definitions and criteria for programs and experts based on feedback received on this exemption. Preliminarily, if the expert/conservation program evaluated a field for potential areas where runoff/erosion could occur and supported the grower in the development of those conservation practices in the field to reduce that offsite transport, those mitigations may be more likely to be effective and well maintained.
Field is more than 1000 feet away from a terrestrial or aquatic habitat for listed species	Off-site transport adjacent to the field is highest when the field is adjacent to the habitat for listed species. Maximum overland flow distances are commonly assumed to be near 1000 to 1200 feet in engineering handbooks (TXDOT, 2019; USDA, 2010; VADEQ, 1992) and 1000 feet is on the high-end of the overland flow distances observed for wetlands in the prairie pothole region (Wu and Lane, 2017).
Field has subsurface drainage or tile drains installed	If the field has subsurface drainage installed, the mitigation measures are not applicable. The subsurface must release the effluent (water) into controlled drainage (such as release into a retention pond) or saturation buffer[1] zones that do not release water into downstream off-farm aquatic areas. Runoff from the entire field would need to be controlled and directed into a pond or saturation zone.[2]

Vulnerable Species Pilot Project



Product label language

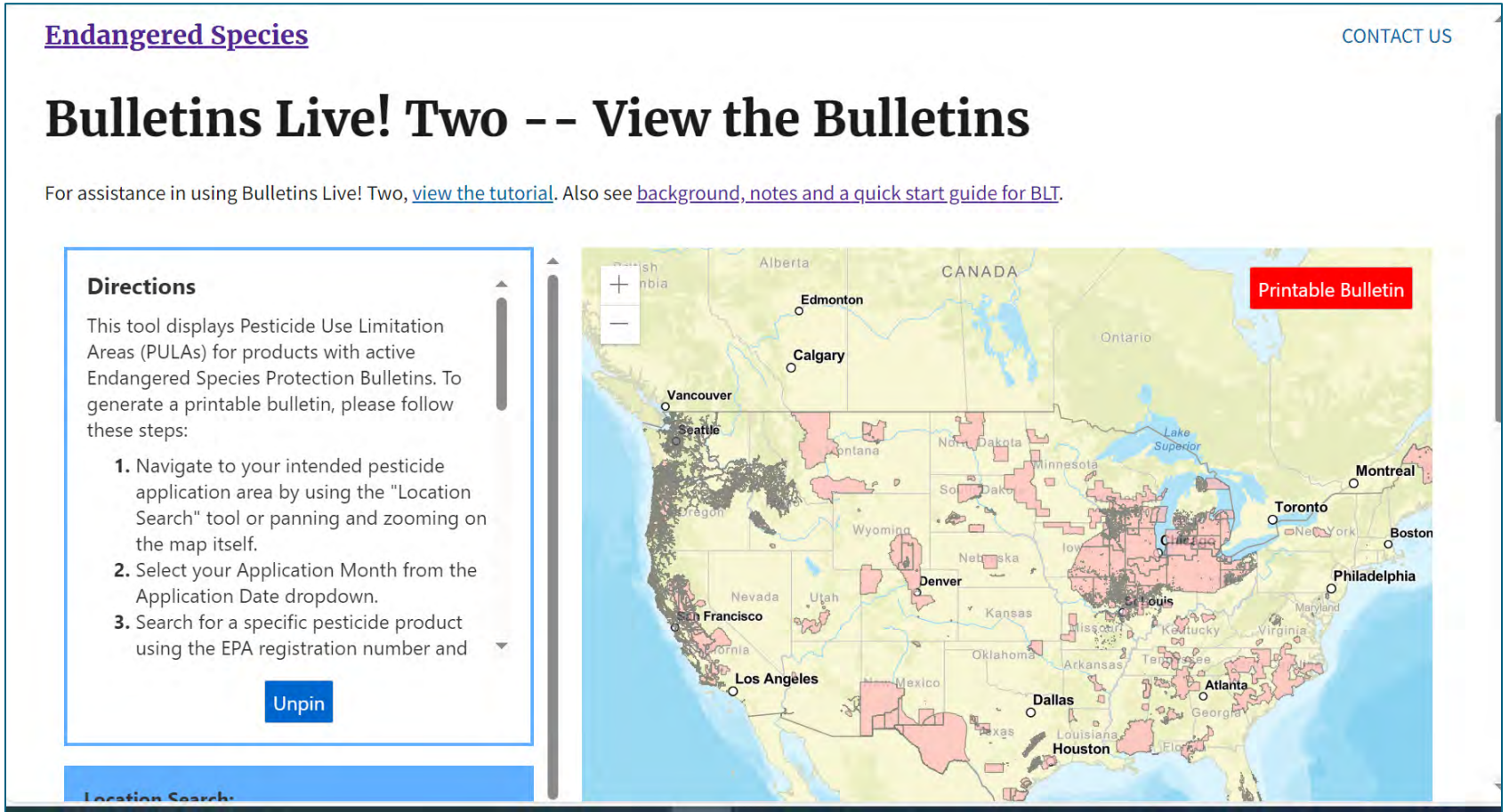
- ENDANGERED AND THREATENED SPECIES PROTECTION REQUIREMENTS: Before using this product, you must obtain any applicable Endangered Species Protection Bulletins ('Bulletins') within six months prior to or on the day of application. To obtain Bulletins, go to Bulletins Live! Two (BLT) at https://www.epa.gov/pesticides/bulletins. When using this product, you must follow all directions and restrictions contained in any applicable Bulletin(s) for the area where you are applying the product, including any restrictions on application timing if applicable. It is a violation of Federal law to use this product in a manner inconsistent with its labeling, including this labeling instruction to follow all directions and restrictions contained in any applicable Bulletin(s). For general questions or technical help, call 1-844-447-3813, or email ESPP@epa.gov."

Which Products will be affected?

- “To help meet its ESA obligations in registration review, EPA expects that including Bulletins language is necessary for most outdoor use pesticide labels.”
- This label language (previous slide) is already appearing on products that may or may not have restrictions.

Bulletins Live! Two

- [Endangered Species Protection Bulletins | US EPA](https://www.epa.gov/endangered-species/endangered-species-protection-bulletins) (https://www.epa.gov/endangered-species/endangered-species-protection-bulletins)



Existing restrictions near Lincoln

Limitations for Selected Area

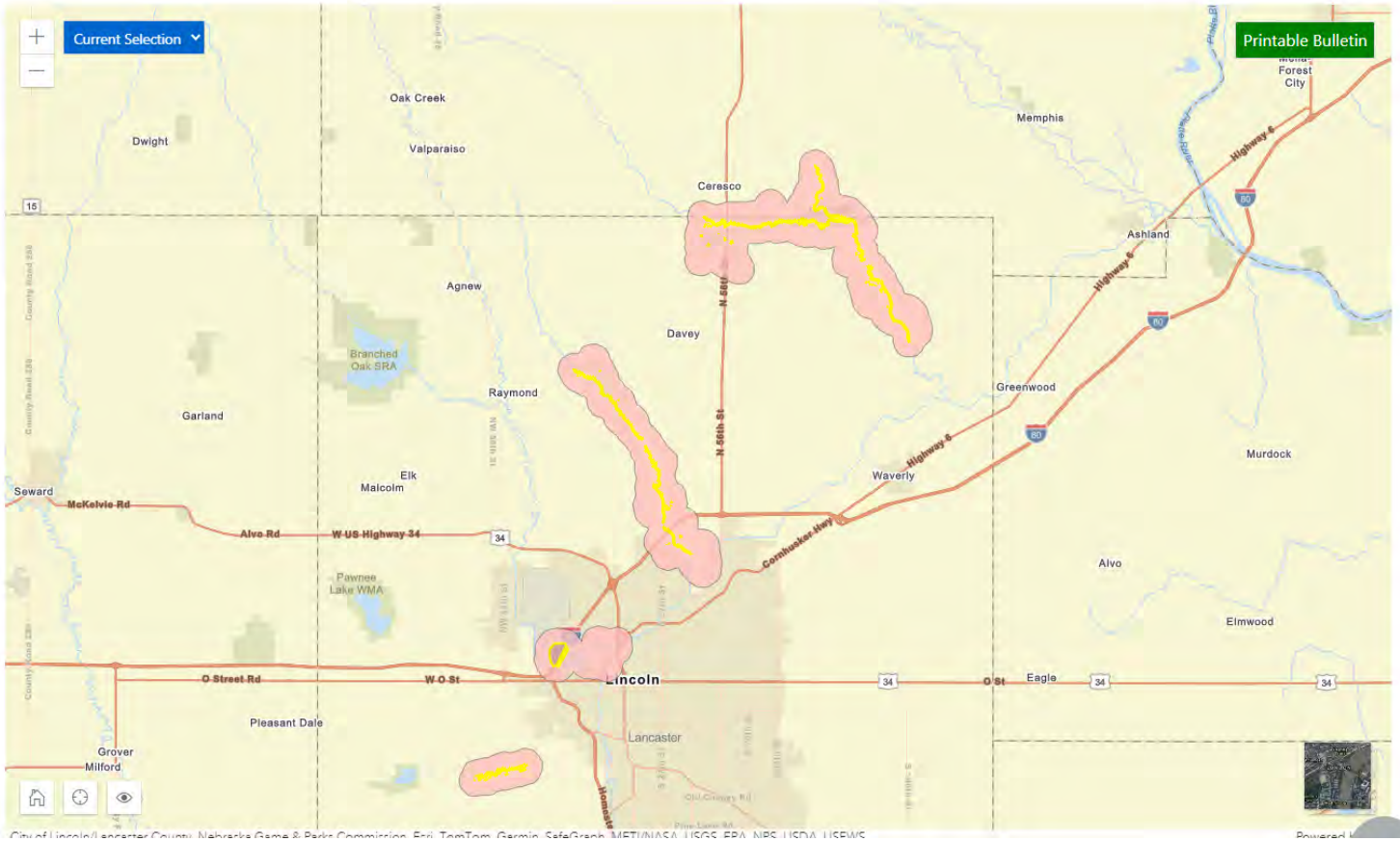
Dicamba - 2020 | Cyantraniliprole 2023

Pula ID: 52
Event Name: Dicamba - 2020
Application Month: January 2024

Product	Count
A21472 PLUS VAPORGRIP TECHNOLOGY (100-1623) *Alternate Names:* TAVIUM PLUS VAPORGRIP TECHNOLOGY	1
ENGENIA HERBICIDE (7969-472)	1
FEXAPAN PLUS VAPORGRIP TECHNOLOGY (352-938)	1
TAVIUM PLUS VAPORGRIP TECHNOLOGY (100-1623) *Alternate Names:* TAVIUM PLUS VAPORGRIP TECHNOLOGY	1
XTENDIMAX WITH VAPORGRIP TECHNOLOGY (264-1210) *Alternate Names:* M1768 Herbicide	1

Full Details

Clear Selected | Zoom To Selected



In conclusion

- Major changes are coming, and they are moving fast in this area of pesticide regulation.
- EPA is reviewing the comments received for the both the Herbicide Strategy and Vulnerable Species Pilot dockets and appears to be considering changes based on those comments.
- There are still many questions on how this will look if/when it's finalized.
- Partnerships will be needed among many stakeholders to develop and implement this effort. Outreach and individual technical assistance will be critical to help farmers and other applicators comply with the label directions.

Resources

- Nebraska's Rare Species
- Protecting Endangered Species from Pesticides
  - 2022 Workplan, new Strategies, recent Updates, and Bulletins Live!Two
- CAST Webinars
- FIFRA and the Endangered Species Act: Finding a Balance Between Agricultural Efficiency, Environmental Sustainability and Regulatory Stability
- A Legal Discussion of the FIFRA/ESA Consultation Process Over Time
- Improving the Science Behind the Process: Implementing Better Data and Tools to Streamline the FIFRA/ESA Process
- (1/30/24) Developing and Adopting Economically Effective Mitigation Strategies: Critical to the Survival of Agriculture and Endangered Species
- (2/20/24) FIFRA, ESA and Pesticide Consultation: Understanding and Addressing the Complexities
- (3/12/24) Role of States in the Implementation and Regulation of FIFRA.
- CAST Issue Papers and slides (same as above)
- FIFRA-ESA Workplan & strategies timeline (slides 27, 28 below)
- EPA Pesticide Update email list

Thank You!

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Recent Events Advancing EPA's Compliance with the ESA

January 2022	EPA announced commitment to complying with ESA and started holding stakeholder calls.
April 2022	EPA released workplan outlining ESA approach and early mitigation.
November/December 2022	EPA released updated workplan with FIFRA Interim Ecological Mitigations (IEM, incl. pick-lists) and strategies. EPA released PIDs and Federal Pilot (methomyl, carbaryl and rodenticides).
June 2023	EPA released Vulnerable Species Pilot (VSP) and StoryMaps.
July 2023	EPA released Draft Herbicide Strategy.
September 2023	"Megasuit" Settlement finalized.
November 2023	EPA released update on the Draft Vulnerable Species Pilot Project.
December 2023	EPA released **Draft Rodenticide Biological Evaluation** and proposed **Draft Rodenticide Strategy.**
**February 2024	Comments due on **Draft Rodenticide BE** and **Draft Rodenticide Strategy**
**1st Quarter 2024	Draft Insecticide Strategy expected; Offset workshop; Hawaii Strategy workshop
**2nd Quarter 2024	Final Herbicide Strategy expected
**November 2024 (or later)	Final Rodenticide Biological Evaluation and Final Rodenticide Strategy expected

Vulnerable Species Pilot • Mitigation measures (applied broadly across different types of pesticides) for species with limited ranges & where pesticides have already been identified as a stressor for the species. ~27 species identified	Public Outreach (Draft White paper & Story Maps) conducted by 6/30/2023	45-day Comment Period for white paper	After outreach, determine if mitigations should be revised or more added by 12/30/2023	Determine how to expand the approach to other vulnerable species by 9/30/2024
Rodenticide Strategy • Address effects to mammals & birds that consume rodenticide bait (1° consumers), & to birds, mammals & reptiles that consume 1° consumers	Mitigation measures developed for 3 representative species (1 mammal 1° consumer; 1 bird 1° consumer & a 2° consumer), 1 designated habitat & plan to consider expanding mitigations to apply to ~90 other ESA-listed species.	Mitigation measures for the representative species incorporated into Rodenticide PID's. Issued in 11/2022	Draft Rodenticide BE in 11/2023. Will consider the mitigations identified in Rodenticide PID's	Final Rodenticide BE no later than 11/12/2024
Rodenticide Biological Evaluation Brodifacoum, Bromadiolone, Warfarin & Zinc Phosphide	Draft BE By 11/12/2023	60-day comment period (*With option to extend BE's up to 60 days for good cause*)	Final BE By 11/12/2024 (*or adjusted accordingly due to possible comment extension*)	
Herbicide Strategy • Focus on ESA-listed plants & those species that rely on plants • Address spray drift & runoff transport from treated fields to minimize exposure	Draft Strategy 7/24/2023	60-day comment period	Final Strategy + Response to Comments Document By 5/30/2024	
	After 3/30/24 - Strategy mitigation measures incorporated into PID's issued under EPA registration review program.	Group PID's, instead of chemical-specific, will be issued as appropriate.	60-day comment period for PID's	
Insecticide Strategy	Draft Strategy By 7/30/2024	60-day comment period	Final Strategy + Response to Comments Document By 1/17/25 – 3/31/25	
	After 3/31/25, Strategy mitigation measures incorporated into PID's issued under EPA registration review program.	Group PID's, instead of chemical-specific, will be issued as appropriate.	60-day comment period for PID's	
Fungicide Strategy • Strategy to address vulnerable species that may be affected by fungicides	Attempt to agree on Completion date no later than 8/31/2024			
Organophosphate Biological Evaluation • BE's: Acephate, Bensulide, Dimethoate, Ethoprop, Naled, Phorate, Phosmet & S,S,S-tributyl phosphorotrithioate • Nationwide Scale Effects Determination: Dichlorvos (DDVP) • Other AI's may be added if practicable	Track 1 - all 8 AI's	Draft BE By 3/31/2027	60-day comment period	Final BE By 9/30/2027
	Track 2 Group 1 - 4 of 8 AI's Group 2 – 4 of 8 AI's	Draft BE Group 1 By 3/31/2026 Group 2 By 3/31/2027		Final BE Group 1 By 9/30/2026 Group 2 By 9/30/2027
Compensatory Mitigation	Intervenors to organize & fund workshop to explore how offsets may be used to address effects of pesticide registrations. Anticipated to occur within 12 months of agreement date; but no more than 24 months of effective agreement date			

Events that Shifted FIFRA/ESA Policy

After a series of DDT use cancellations beginning in 1958, all remaining uses were cancelled on June 14, 1972

Tennessee Valley Authority v. Hill decision, establishing ESA primacy, June 15, 1978

Services/EPA MOU on Consultation, 1980

Consultation changed from a.i. basis to "cluster" (crop groups), 1982

OPP Standard Evaluation Procedure, Ecological Risk Assessment, 1986

CEQ Report, EPA Implementation of ESA 1986

"Cluster" approach re-initiated Endangered Species Protection Program Implementation proposed (twice, 1988 and 1989)
Section 1010, ESA amendments

1988-89

Framework for Ecological Risk Assessment, 1992

(EPA Agency Wide)

Milestones in the FIFRA/ESA Timeline: 1972 to 1992

Environmental Protection Agency established December 2, 1970

The cancellation proceedings associated with DDT ushered in a focus on pesticide environmental and wildlife impacts and how to predict and evaluate them

Endangered Species Act enacted on December 28, 1973

First known EPA consultation request, on all uses of toxaphene October 17, 1977

US FWS final opinion on toxaphene July 11, 1978

Only 7 years after EPA was established and 4 years after the enactment of ESA, OPP made their first consultation request, *before the TVA decision mandated consultation as we know it today. FWS issued a responsive* Biological Opinion *9 months later.*

Hundreds of pesticide BiOps issued or reissued 1977 through 1989

For the 10-to-12-year period when consultation was being attempted, outcome was still considered too slow, differential to new products versus old, and difficult or impossible to implement. Approaches to listed species risk assessment (and listed species per MOU) were solidified but consultation approaches changed, and several consultations were reinitiated, but the backlog grew, and the program faltered with enough concern that Congress stepped in to enact Section 1010 of the ESA amendments of 1988. The overriding themes of Section 1010 are the need to educate agricultural producers on and include them in the development of ESA use restrictions on pesticides, and to minimize the restrictions' impacts on producers.

OPP Section 1010 Report to Congress, May 1991

OPP reported on their efforts planned to identify reasonable and prudent means to implement an endangered species protection program as it relates to pesticide regulatory activities. The goal was implementation of the outcome of consultation, because implementation is what ground the process to a halt in the 80's.

Events that Shifted FIFRA/ESA Policy

Linda Fisher "New Paradigm" Memo October 29, 1992

National Academy of Sciences, Science and the Endangered Species Act, 1995

FWS/NMFS Distinct Population Segment Policy, February 7, 1996

Guidelines for Ecological Risk Assessment April 1998

Endangered Species Protection Program Implementation, and EPA Process for Assessing Potential Risks to Listed Species, December 2, 2002

Advance Notice of Public Rulemaking: Endangered Species and Pesticide Regulation, January 24, 2003

Proposed Joint Counterpart Endangered Species Act Section 7 Consultation Regulations, January 30, 2004

Final Joint Counterpart Endangered Species Act Section 7 Consultation Regulations, August 5, 2004

Endangered Species Protection Program Field Implementation, November 5, 2005

Milestones in the FIFRA/ESA Timeline: 1992 to 2005

Implementation of "New Paradigm" Memo August 25, 1993

1994 Wyoming Toad Protection Program ~July 1994

First evidence of implementation of field program as a result of FIFRA/ESA consultation finding jeopardy for 43 active ingredients.

EPA OPP "ECOFRAM" Established 1996

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Overview of the Ecological Risk Assessment Process in the Office of Pesticide Programs, January 23, 2004 (and Williams-Hogarth

Williams

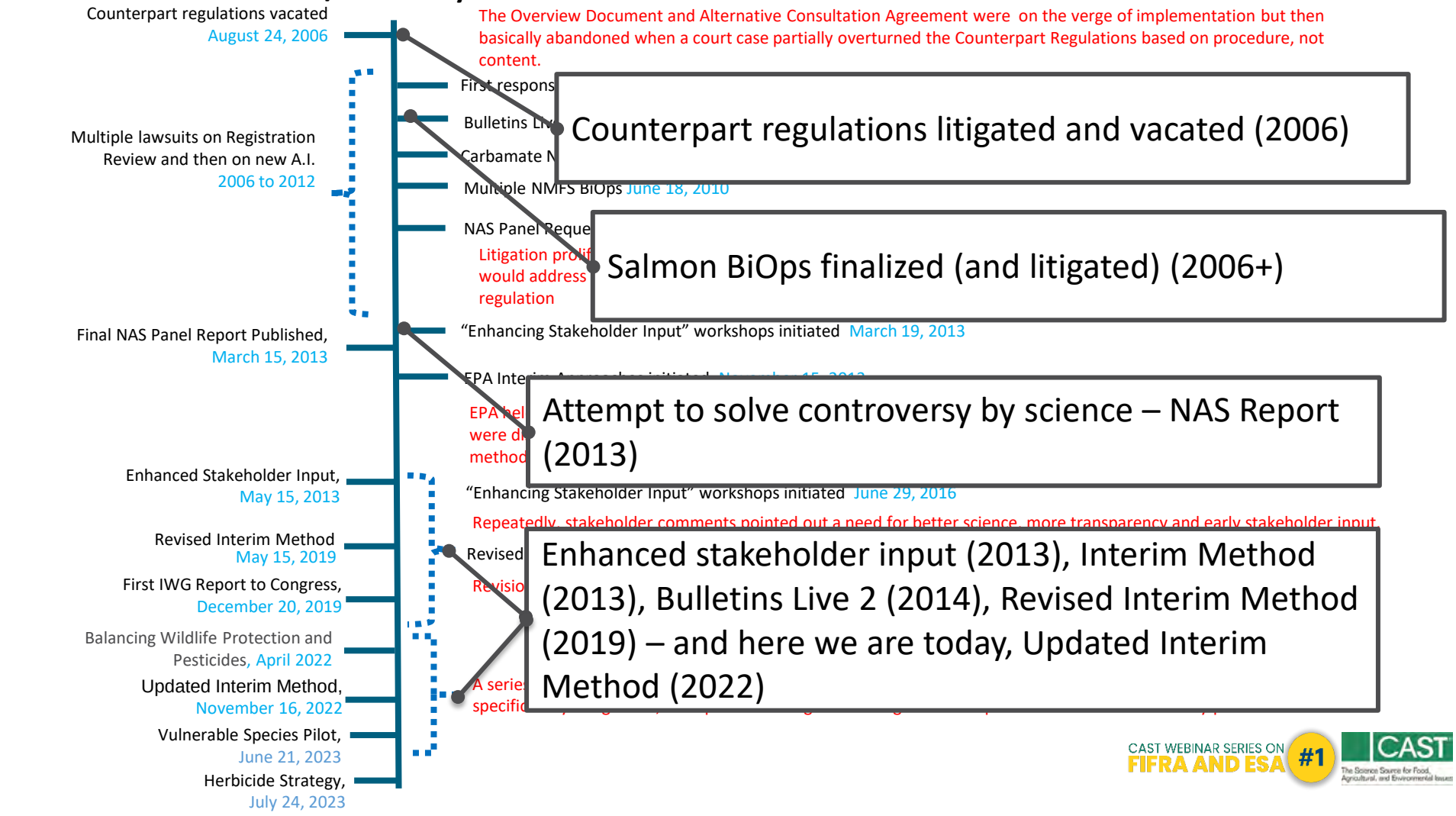
Final Al

Counterpart regulations signed and ESPP reinstalled (2005)

Step-Wise Approach to Assessing Potential Effects of Pesticides on Listed Species and Critical Habitat, March 3, 2005

Fourth attempt to implement FIFRA/ESA program

Events that Shifted FIFRA/ESA Policy



Proposed Drift Mitigation Measures (2,4-D)

Table 8-3. General label spray drift mitigations identified for 2,4-D. Mitigations Related to Single Maximum Application Rate, Application Method, and Droplet Size.[1,2]

Single Maximum Application Rate (lb ai/A)[3]	Identified Downwind Spray Drift Buffer Distances (ft)						
	Aerial Application			Ground Application			
	Fine-Medium	Medium-Coarse	Coarse-Very Coarse	Very Fine-Fine, High Boom	Very Fine-Fine, Low Boom	Fine-Medium/Coarse, High Boom	Fine-Medium/Coarse, Low Boom
2.0	300 [a,b,c]	300 [a,b,c]	200 [a,b]	200 [f,g,h]	100 [f,g,h]	100 [f,g,h]	50 [g,h]
1.5	300 [a,b,c]	300 [a,b,c]	200 [a,b]	200 [f,g,h]	100 [f,g,h]	75 [g,h]	50 [g,h]
0.50	300 [a,b,c]	175 [a,b,d]	125 [b,d]	100 [f,g,h]	50 [g,h]	20 [i]	10 [i]
0.07	50 [b]	20 [e]	20 [e]	20 [i]	10 [i]	None[4]	None[4]
Mitigation Measures the Pesticide Applicator can Elect to Reduce Buffer Distances[5]	[a] Buffers ≥175 ft could be reduced by 25 ft if crop height at application is ≥1 ft. [b] Windbreak with a release height below top of windbreak reduces buffer distance by half. [c] Buffers ≥250 ft could be reduced by 25 ft if relative humidity at application is >70% [d] Buffers 75-175 ft could be reduced by 25 ft if windspeed at application is 3-7 miles per hour [e] The applicator would achieve sufficient mitigation with a windbreak (release height below the top of the windbreak) alone without a buffer.			[f] Buffers ≥100 ft could be reduced by 25 ft if relative humidity at application is >60% [g] Windbreak/Hedgerow (release height below top of windbreak) reduces buffer distance by half [h] Hooded Sprayers reduce buffer distance by half [i] The applicator would achieve sufficient mitigation with a windbreak or hedgerow (release height below the top of the windbreak/hedgerow) or hooded sprayers alone without a buffer.			

[1] Very fine to fine droplets are not included for aerial applications because this droplet size is not typically used when applying herbicides aerially.

[2] EPA proposes to use the spray drift buffer distances in this table (based on the 25th percentile of the SSD) for listed monocots, animals obligately relying on monocots, and generalist animals.

[3] Single maximum label rates reflect the range of uses for 2,4-D.

[4] EPA did not identify a spray drift buffer as a mitigation measure because the magnitude of difference is ≤0.5 at 10 ft off the treated field.

[5] See **Section 6.1** for discussion of these mitigation measures.

Proposed Drift Mitigation Measures (2,4-D)

Table 8-4. PULAs 1 and 3 spray drift mitigations identified for 2,4-D. Mitigations Related to Single Maximum Application Rate, Application Method, and Droplet Size.[1]

Single Maximum Application Rate (lb ae/A)[2]	Identified Downwind Spray Drift Buffer Distances (ft)						
	Aerial Application			Ground Application			
	Fine-Medium	Medium-Coarse	Coarse-Very Coarse	Very Fine-Fine, High Boom	Very Fine-Fine, Low Boom	Fine-Medium/Coarse, High Boom	Fine-Medium/Coarse, Low Boom
2.0	300 + windbreak[3]	300 [a,b,c]	200 [a,b]	200 [e,g,h]	100 [e,g,h]	100 [e,g,h]	100 [e,f,g,h]
1.5	300 + windbreak[3]	300 [a,b,c]	200 [a,b]	200 [e,g,h]	100 [e,g,h]	100 [e,g,h]	100 [e,f,g,h]
0.50	300 [a,b,c]	300 [a,b,c]	200 [a,b]	200 [e,g,h]	100 [e,g,h]	100 [e,g,h]	50 [g,h]
0.07	175 [a,b,d]	125 [b,d]	75 [b,d]	50 [g,h]	20 [i]	10 [i]	10 [i]
Mitigation Measures the Pesticide Applicator can Elect to Reduce Buffer Distances[4]	[a] Buffers ≥175 ft could be reduced by 25 ft if crop height at application is ≥1 ft. [b] Windbreak (release height below top of windbreak) reduces buffer distance by half. [c] Buffers ≥250 ft could be reduced by 25 ft if relative humidity at application is >70% [d] Buffers 75-175 ft could be reduced by 25 ft if windspeed at application is 3-7 miles per hour.			[e] Buffers ≥100 ft can be reduced by 25 ft if relative humidity at application is >60% [f] Fine-Medium/Coarse-Low Boom buffers ≥75 ft can be reduced by 25 ft with coarse or coarser droplets [g] Windbreak/Hedgerow (release height below top of windbreak) reduces buffer distance by half [h] Hooded Sprayers reduce buffer distance by half [i] The applicator would achieve sufficient mitigation with a windbreak or hedgerow (release height below the top of the windbreak/hedgerow) or hooded sprayers alone without a buffer.			

[1] Very fine to fine droplets are not included for aerial applications because this droplet size is not typically used when applying herbicides aerially.

[2] Single maximum label rates reflect the range of uses for 2,4-D.

[3] Additional mitigation measures (*e.g.*, windbreak, hedgerow) would apply for aerial applications of fine-medium droplets at application rates of 1.5 and 2.0 lb a.e./A because the magnitude of difference exceeds 10 at the maximum buffer distance. Use of additional mitigation measures do not result in reduced buffer distances.

[4] See **Section 6.1** for discussion of these mitigation measures.

Proposed Drift Mitigation Measures (metolachlor)

Table 8-1. General label spray drift mitigations identified for metolachlor. Mitigations Related to Single Maximum Application Rate, Application Method and Droplet Size.[1]

Single Maximum Application Rate (lb ai/A)[2]	Identified Downwind Spray Drift Buffer Distances (ft)						
	Aerial Application			Ground Application			
	Fine-Medium	Medium-Coarse	Coarse-Very Coarse	Very Fine-Fine, High Boom	Very Fine-Fine, Low Boom	Fine-Medium/ Coarse, High Boom	Fine-Medium/ Coarse, Low Boom
2.67	25[a]	20[a]	20[a]	20[b]	None[3]	None[3]	None[3]
1.9 – 2.0	10[a]	None[3]	None[3]	None[3]	None[3]	None[3]	None[3]
1.0 – 1.2	None[3]	None[3]	None[3]	None[3]	None[3]	None[3]	None[3]
Mitigation Measures the Pesticide Applicator can Elect to Reduce Buffer Distances[4]	[a] The applicator would achieve sufficient mitigation with a windbreak (release height below the top of the windbreak) alone without a buffer.			[b] The applicator would achieve sufficient mitigation with a windbreak or hedgerow (release height below the top of the windbreak/hedgerow) or hooded sprayers alone without a buffer.			

[1] Very fine to fine droplets are not included for aerial applications because this droplet size is not typically used when applying herbicides aerially.

[2] Single maximum label rates reflect the range of uses for metolachlor.

[3] EPA did not identify a spray drift buffer as a mitigation measure because the magnitude of difference is <10 at 10 ft off the treated field.

[4] See **Section 6.1** for discussion of these mitigation measures.

Proposed Drift Mitigation Measures (metolachlor)

Table 8-2. PULAs 1-4 spray drift mitigations identified for metolachlor. Mitigations Related to Single Maximum Application Rate, Application Method, and Droplet Size.[1]

Single Maximum Application Rate (lb ai/A)[2]	Identified Downwind Spray Drift Buffer Distances (ft)						
	Aerial Application			Ground Application			
	Fine-Medium	Medium-Coarse	Coarse-Very Coarse	Very Fine-Fine, High Boom	Very Fine-Fine, Low Boom	Fine-Medium/ Coarse, High Boom	Fine-Medium/ Coarse, Low Boom
2.67	300 ft + windbreak[3]	300 ft + windbreak[3]	200 ft + windbreak[3]	175 [e,g,h]	75 [g,h]	50 [g,h]	25 [i]
1.9 – 2.0	300 ft + windbreak[3]	250 [a,b,c]	175 [a,b,d]	125 [e,g,h]	50 [g,h]	25 [i]	20 [i]
1.0 – 1.2	300 [a,b,c]	175 [a,b,d]	125 [b,d]	75 [g,h]	50 [g,h]	20 [i]	10 [i]
Mitigation Measures the Pesticide Applicator can Elect to Reduce Buffer Distances[4]	[a] Buffers ≥175 ft could be reduced by 25 ft if crop height at application is ≥1 ft. [b] Windbreak (release height below top of windbreak) reduces buffer distance by half. [c] Buffers ≥250 ft could be reduced by 25 ft if relative humidity at application is >70% [d] Buffers 75-175 ft could be reduced by 25 ft if windspeed at application is 3-7 miles per hour			[e] Buffers ≥100 ft could be reduced by 25 ft if relative humidity at application is >60% [f] Fine-Medium/Coarse-Low Boom buffers ≥75 ft could be reduced by 25 ft with coarse or coarser droplets [g] Windbreak/Hedgerow (release height below top of windbreak) reduces buffer distance by half [h] Hooded Sprayers reduce buffer distance by half [i] The applicator would achieve sufficient mitigation with a windbreak or hedgerow (release height below the top of the windbreak/hedgerow) or hooded sprayers alone without a buffer.			

[1] Very fine to fine droplets are not included for aerial applications because this droplet size is not typically used when applying herbicides aerially.

[2] Single maximum label rates reflect the range of uses for metolachlor.

[3] Additional mitigation measures (*e.g.*, windbreak, hedgerow) would apply for aerial applications at this rate using this droplet size because the magnitude of difference exceeds 10 at the maximum buffer distance. Use of these additional mitigation measures do not result in reduced buffer distances.

[4] See **Section 6.1** for discussion of these mitigation measures.

The Mood of the Courts, Agencies and Industry . . .