Mitigation Menu Webinar

September 16, 2025

Office of Pesticide Programs
U.S. EPA

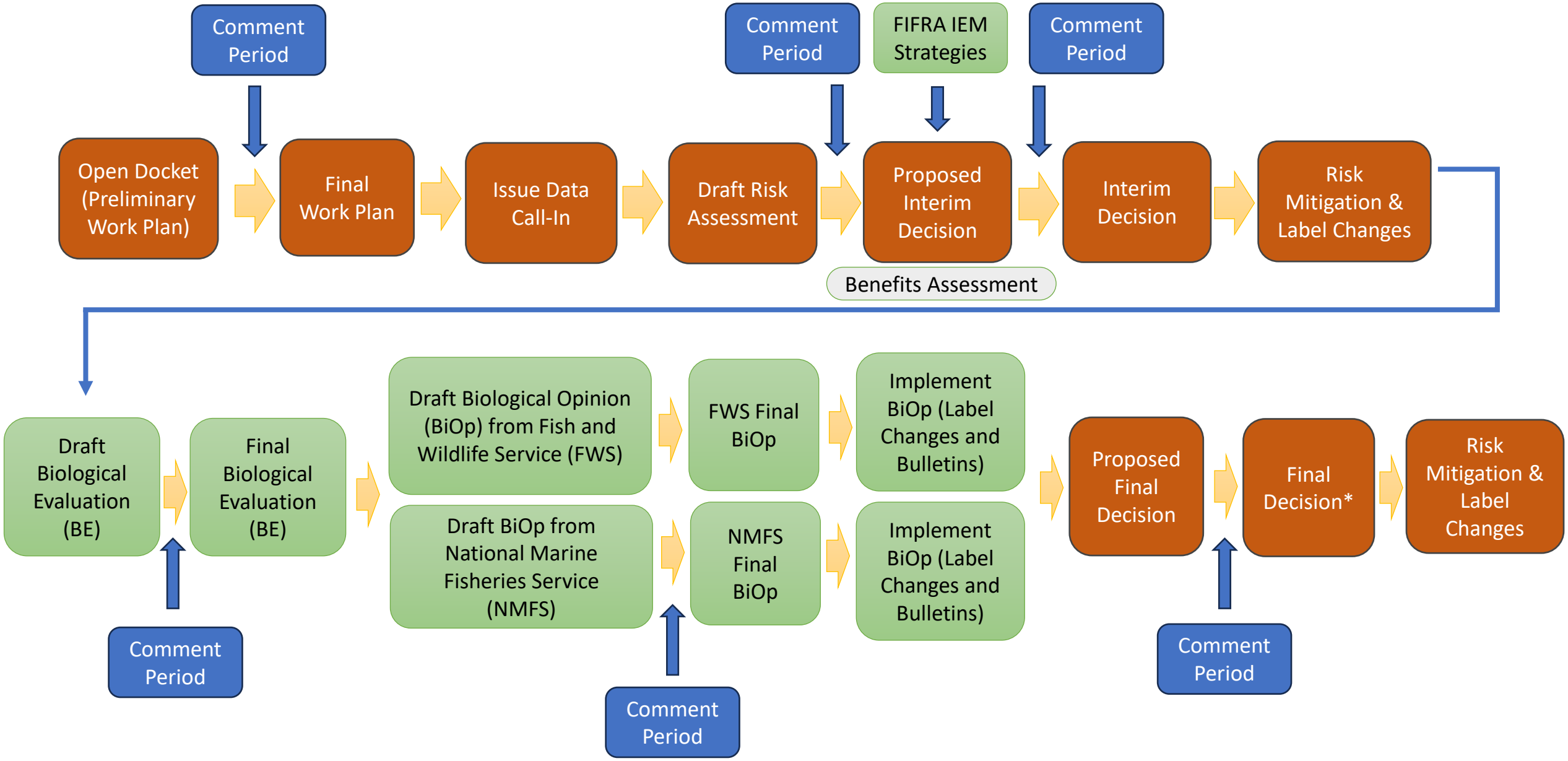
Agenda

- Background on EPA Strategies to reduce exposure to non-target species
- Runoff/erosion mitigation menu and spray drift buffers
  - What mitigation is needed
  - Where is mitigation needed
  - Overview of mitigation measures

Regulatory Framework

- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
  - To unconditionally register a pesticide, EPA must (among other things) first determine that the pesticide "will not generally cause unreasonable adverse effects on the environment," "when used in accordance with widespread and commonly recognized practice."
- Endangered Species Act (ESA)
  - Under Section 7(a)(1) of the ESA, Federal agencies shall help to further the conservation of listed species
  - Under Section 7(a)(2) of the ESA, Federal agencies must (in consultation with the Fish and Wildlife Service and the National Marine Fisheries Service) ensure that the "actions" they authorize will not result in **jeopardy** or **adversely modify designated critical habitat** for listed species.
    - For the Office of Pesticide Programs, "actions" include the registration and registration review decisions for pesticides through which EPA authorizes the sale, distribution, and use of pesticides according to the product labeling

Pesticide Registration Review Process



Scope of Strategies

- **Goal**
  - Develop a broad approach to reduce potential population-level impacts for Fish and Wildlife Service (FWS) listed species from conventional pesticides
- **Scope**
  - Implemented under the Federal Insecticide and Fungicide Registration Act (FIFRA)
  - Considers exposure to on-field species and off-field spray drift and runoff/erosion exposure routes
  - Individual Strategies cover herbicides, insecticides, rodenticides, fungicides (TBD), Hawaii (TBD), and a Vulnerable Species Action Plan

Implementation of the Strategies

- Strategies are not self-implementing for every pesticide immediately after a final Strategy is released
- Strategies are implemented for pesticide products when EPA-approved labels reach the market for:
  - New active ingredients or certain new pesticide uses
  - Existing active ingredients following the registration review process
- Over time, Strategies will be implemented for all applicable pesticide products

Introduction to Mitigation Menu

- Offers flexibility to select mitigation measures
  - About 36 runoff/erosion mitigation options
  - About 20 drift buffer mitigation options
- EPA mitigation menu website:
  www.epa.gov/pesticides/mitigation-menu
- Web-based tool “Pesticide App for Label Mitigations” (PALM):
  https://www.epa.gov/pesticides/pesticide-app-label-mitigations
- Education and outreach materials are available on EPA’s website:
  https://www.epa.gov/endangered-species/pesticides-and-endangered-species-educational-resources-toolbox

Pesticide Runoff/Erosion Mitigation

How Does EPA Determine Necessary Runoff/Erosion Mitigation?

- EPA will determine whether mitigation is needed to reduce exposure to listed species from pesticide runoff or erosion

Potential for Population-Level Impacts	Number of Points from Mitigation Menu	
	Runoff-Prone Chemicals	Erosion-Prone Chemicals
Not Likely	0	0
Low	3	2
Medium	6	4
High	9	6

- Number of required points will be listed on the product label
- Some products will also have geographically-limited mitigation points listed on the Bulletins Live Two (BLT) website: https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins

How Does a User Know What Runoff/Erosion Mitigation is Needed?

- For each product, the pesticide user checks label to see point requirements
  - Some products have additional geographically-specific requirements, check the BLT website to see if the intended field is in a Pesticide Limitation Use Area (PULA), follow the higher point requirement (general label or BLT website)
- Determine whether mitigation is needed on each field
  - Depending on application type, field drainage, and down-slope areas, some fields do not require runoff/erosion mitigation
- Select runoff/erosion mitigation measures on the mitigation menu website
  - Apply points for any mitigation relief and any mitigation measures already in place
  - If more points are needed, choose additional mitigation measures until the required number of points is met
- When multiple products will be used in the same area, plan ahead to make sure fields meet the requirements for each product

Where is Runoff/Erosion Mitigation Needed?

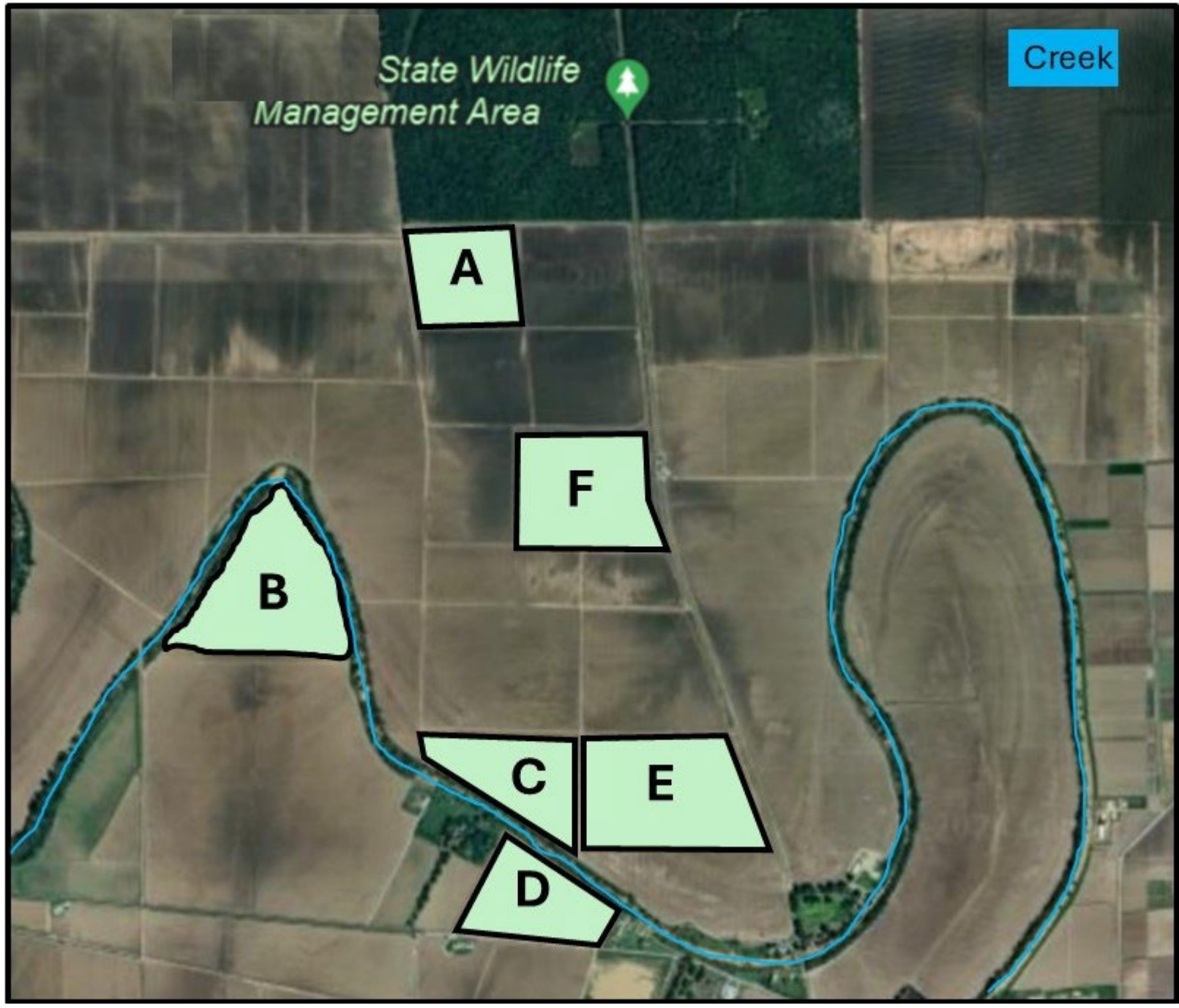
If the entire area 1,000 feet down-gradient from pesticide treatment contains only managed areas, no runoff/erosion mitigation is needed

Managed areas are defined as:

a. Agricultural fields, pastures, forage fields, private rangelands, including untreated portions of the treated field
b. Roads, paved or gravel surfaces, mowed grassy/fallowed areas adjacent to field, and areas of bare ground from recent plowing or grading that are contiguous with the treated area
c. Buildings and their perimeters, silos, or other man-made structures with walls and/or roof;
d. Areas present and/or maintained as a runoff/erosion measure
e. Areas present and/or maintained as a drift buffer reduction measure
f. Conservation Reserve Program (CRP) and Agricultural Conservation Easement Program (ACEP) lands
g. On-farm contained irrigation water resources that are not connected to adjacent water bodies, including on-farm irrigation canals and ditches, water conveyances, managed irrigation/runoff retention basins, farm ponds, and tailwater collection ponds

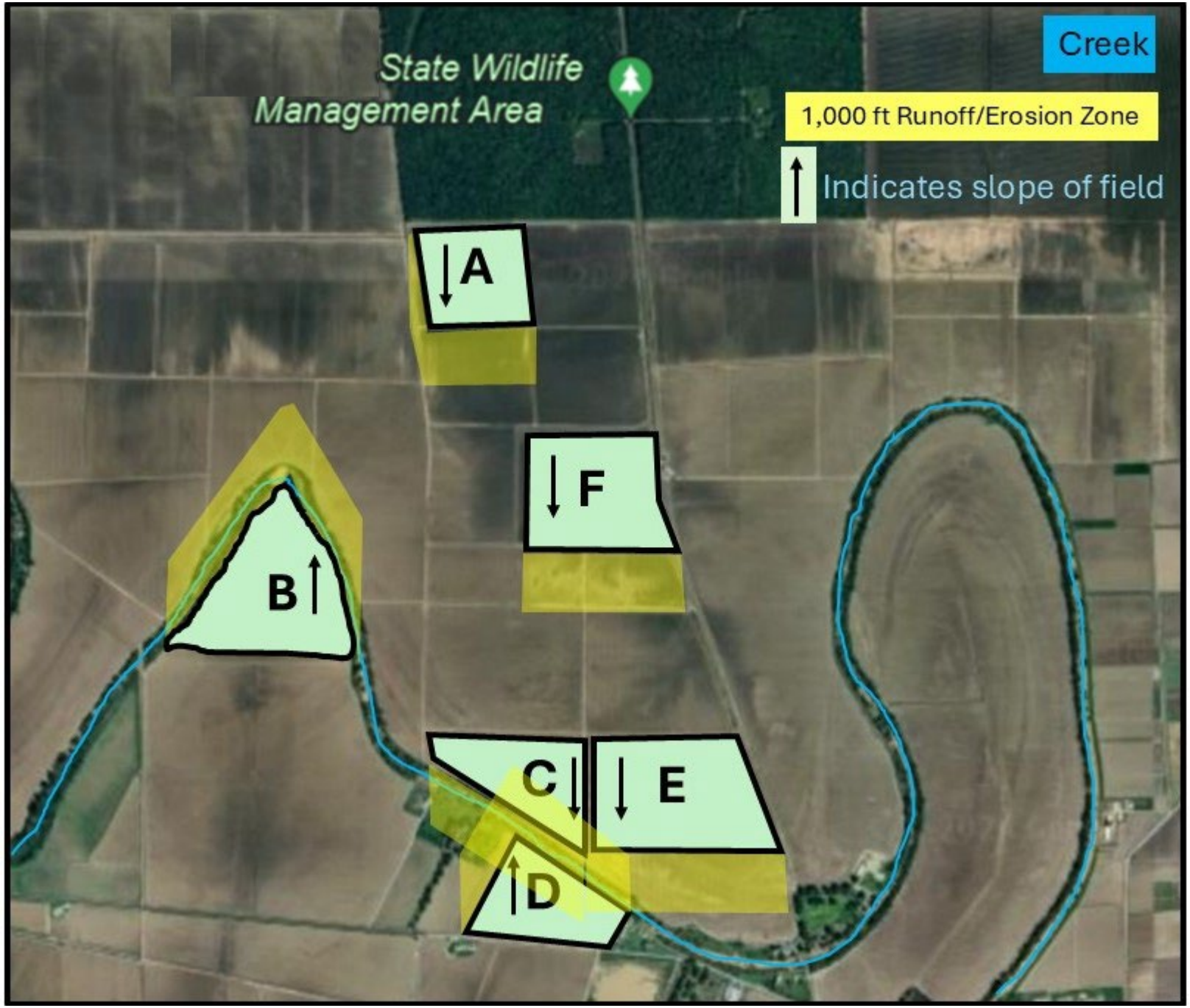
Field scenario

- Runoff/erosion mitigation is not needed if entire area 1,000 feet down-gradient from pesticide treatment contains only managed areas
- Managed areas:
  - Fields
  - Roads
  - Bare ground between field and road
- Non-managed areas:
  - Creek
  - Tree/grass area near creek
  - State wildlife area



Field scenario

- Fields A and F do not need runoff/erosion mitigation
- Fields B, C, D, E may need runoff/erosion mitigation
  - If using field-adjacent mitigation measures, these are only needed on the downslope edge of the field



Sandy Soil Types

- Sand, sandy loam, and loamy sand (Hydrologic soil group (HSG) A soils) receive **3 points**
- Loam, silt loam, and silt (HSG B soils) receive **2 points**

- Pesticide users can use USDA soil type web tool to find their soil type: https://websoilsurvey.nrcs.usda.gov/app/
- If a grower has had soil type testing/mapping done for a field, that can also be used

Mitigation Measure Categories

- **1 point** for mitigation measures from multiple categories
- Choose mitigation measures from at least 2 of the following categories:
  - In-field mitigation measures
  - Field-adjacent mitigation measures
  - Systems that capture runoff and discharge

In-field

Field-adjacent

Systems that capture runoff

Irrigation water management

Category	Points
General irrigation, with runoff reducing technology	2
Subsurface irrigation	3
Non-irrigated	3

Anionic polyacrylamide (PAM)

- PAM is a polymer used as a soil conditioner
- Stabilizes erodible soils to reduce runoff and erosion
- Must use water-soluble formulations of anionic PAM for **2 points**

Follow Recommendations from a Runoff/Erosion Specialist

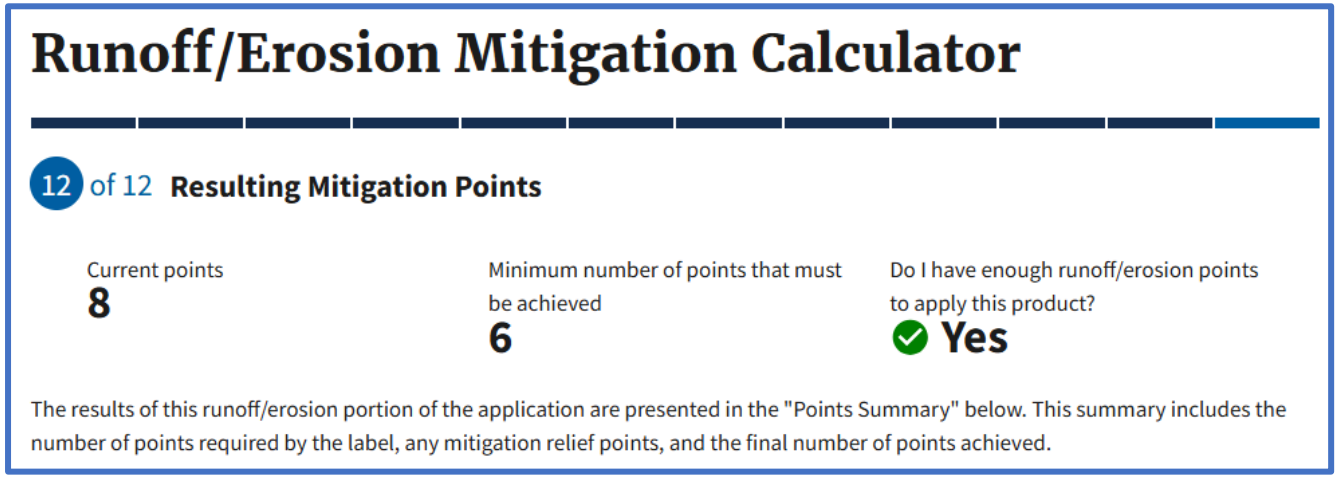
- Specialists assist in planning or implementing mitigation measures
- To qualify for **1 point**, specialists must have:
  - Training or education in agriculture, water/soil conservation, or related field
  - Participate in continuing education or training relevant to runoff/erosion reduction
  - Experience in advising on conservation measures and developing site-specific plans

Participate in a Conservation Program

- EPA is working to create a list of qualified conservation programs which meet a 9 point mitigation requirement, farms participating in these programs would not need additional runoff/erosion mitigation
  - EPA will be issuing an Information Collection Request (ICR) to collect submissions from programs interested in qualifying
  - Programs will need to submit the information listed in the ICR so that EPA can evaluate the program
  - There will also be a public comment period for other stakeholders to provide input and feedback
- So far, EPA has qualified one **9 point** program: United States Department of Agriculture (USDA) Environmental Quality Incentives Program (EQIP), when incorporating Pest Management Conservation System (Conservation Program Standard 595) with the "Additional Criteria" for water quality
- In the interim, conservation programs that meet EPA's program characteristics but have not been qualified by EPA receive **2 points**

Mitigation Tracking

- EPA has developed tools to assist with mitigation tracking and calculating points
  - EPA PALM website
    https://www.epa.gov/pesticides/pesticide-app-label-mitigations
  - PDF worksheet
    https://www.epa.gov/system/files/documents/2025-04/spray-drift-mitigation-worksheet-april-2025-v2.pdf
  - Excel calculator tool
    https://www.epa.gov/system/files/documents/2025-04/spray-drift-and-runoff-mitigation-calculator-tools-v.2.0.xlsm
- Pesticide users can also use their own methods to track mitigation
- Using any of these methods is worth **1 point**

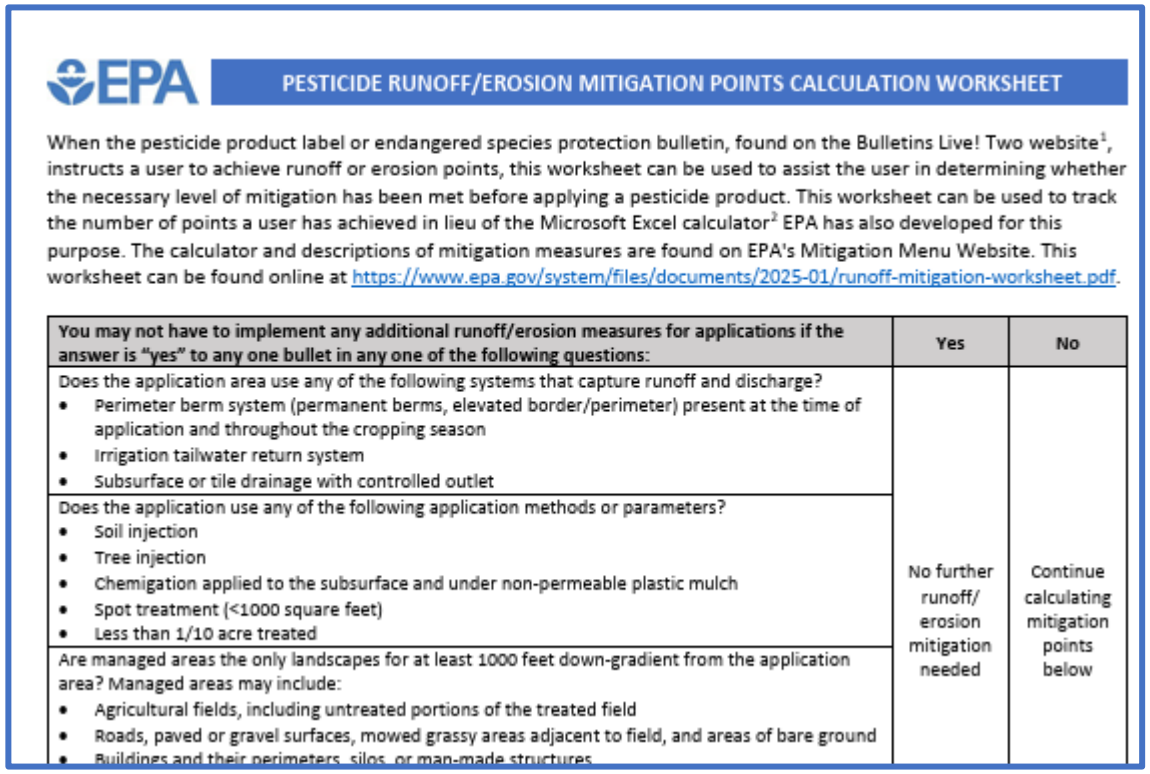


Runoff/Erosion Mitigation Calculator

12 of 12 **Resulting Mitigation Points**

Current points	Minimum number of points that must be achieved	Do I have enough runoff/erosion points to apply this product?
8	**6**	**Yes**

The results of this runoff/erosion portion of the application are presented in the "Points Summary" below. This summary includes the number of points required by the label, any mitigation relief points, and the final number of points achieved.



EPA **PESTICIDE RUNOFF/EROSION MITIGATION POINTS CALCULATION WORKSHEET**

When the pesticide product label or endangered species protection bulletin, found on the Bulletins Live! Two website[1], instructs a user to achieve runoff or erosion points, this worksheet can be used to assist the user in determining whether the necessary level of mitigation has been met before applying a pesticide product. This worksheet can be used to track the number of points a user has achieved in lieu of the Microsoft Excel calculator[2] EPA has also developed for this purpose. The calculator and descriptions of mitigation measures are found on EPA's Mitigation Menu Website. This worksheet can be found online at https://www.epa.gov/system/files/documents/2025-01/runoff-mitigation-worksheet.pdf.

You may not have to implement any additional runoff/erosion measures for applications if the answer is "yes" to any one bullet in any one of the following questions:	Yes	No
Does the application area use any of the following systems that capture runoff and discharge? • Perimeter berm system (permanent berms, elevated border/perimeter) present at the time of application and throughout the cropping season • Irrigation tailwater return system • Subsurface or tile drainage with controlled outlet	No further runoff/ erosion mitigation needed	Continue calculating mitigation points below
Does the application use any of the following application methods or parameters? • Soil injection • Tree injection • Chemigation applied to the subsurface and under non-permeable plastic mulch • Spot treatment (<1000 square feet) • Less than 1/10 acre treated		
Are managed areas the only landscapes for at least 1000 feet down-gradient from the application area? Managed areas may include: • Agricultural fields, including untreated portions of the treated field • Roads, paved or gravel surfaces, mowed grassy areas adjacent to field, and areas of bare ground • Buildings and their perimeters, silos, or man-made structures		

Reduction in Annual Application Rate

- Annual application rates can be reduced by:
  - Reducing the single application rate
  - Reducing the number of applications
  - Co-application

Percent reduction compared to label maximum annual application rate	Points
10-30%	1
30-60%	2
>60%	3

- Considerations
  - Is there a minimum rate listed on the product label?
  - What rate is needed for effective pest control?
  - What rate is needed for resistance management?

Pesticide Drift Mitigation

How Does EPA Determine Necessary Drift Mitigation?

- During registration of new products or registration review of existing products, EPA's ecological risk assessment will indicate potential for population-level impacts to listed species – this determines buffer size

Potential for Population-Level Impacts	Maximum buffer distance from edge of treated area (in feet)		
	Aerial Spray	Ground Spray	Airblast
Not Likely	None	None	None
Low	50	10	25
Medium	Calculated for specific chemical		
High	300	100	85

- The buffer requirement for specific products will be on the label and/or BLT

How Does a User Know What Drift Mitigation is Needed?

- For each product, the pesticide user checks label and BLT to see the spray drift buffer requirement
  - When multiple products will be used in a tank mix, use the largest buffer size
- Determine whether drift mitigation is needed for each application
  - Depending on application type, application area, and down-wind areas, some applications will not require ecological spray drift buffers
- Select drift mitigation measures on the mitigation menu website to reduce the buffer size needed for the application
  - Follow website instructions to subtract managed areas and divide mitigation measure reductions, or use the spray drift calculator tool
- Check if there are any additional restrictions before spraying

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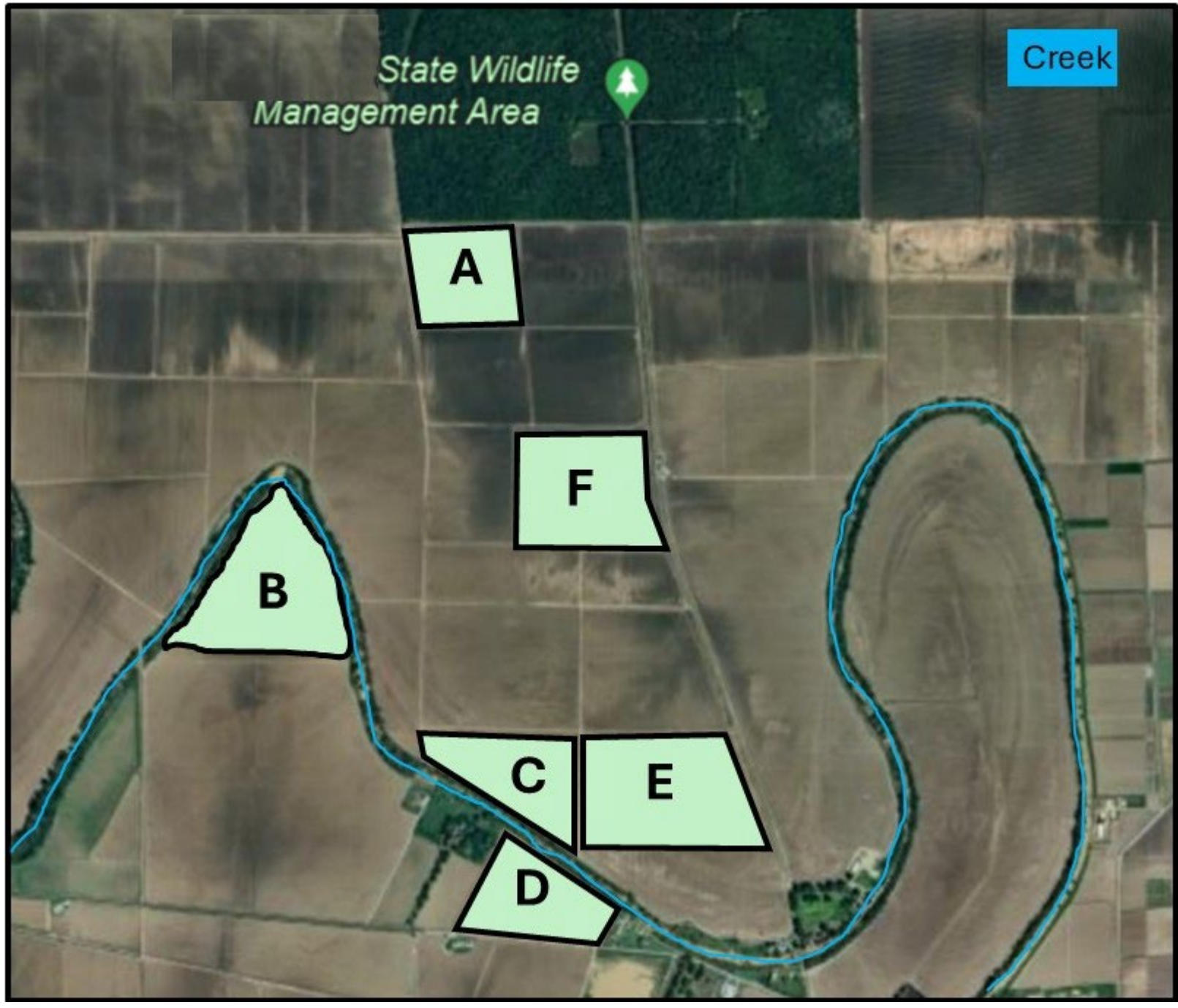
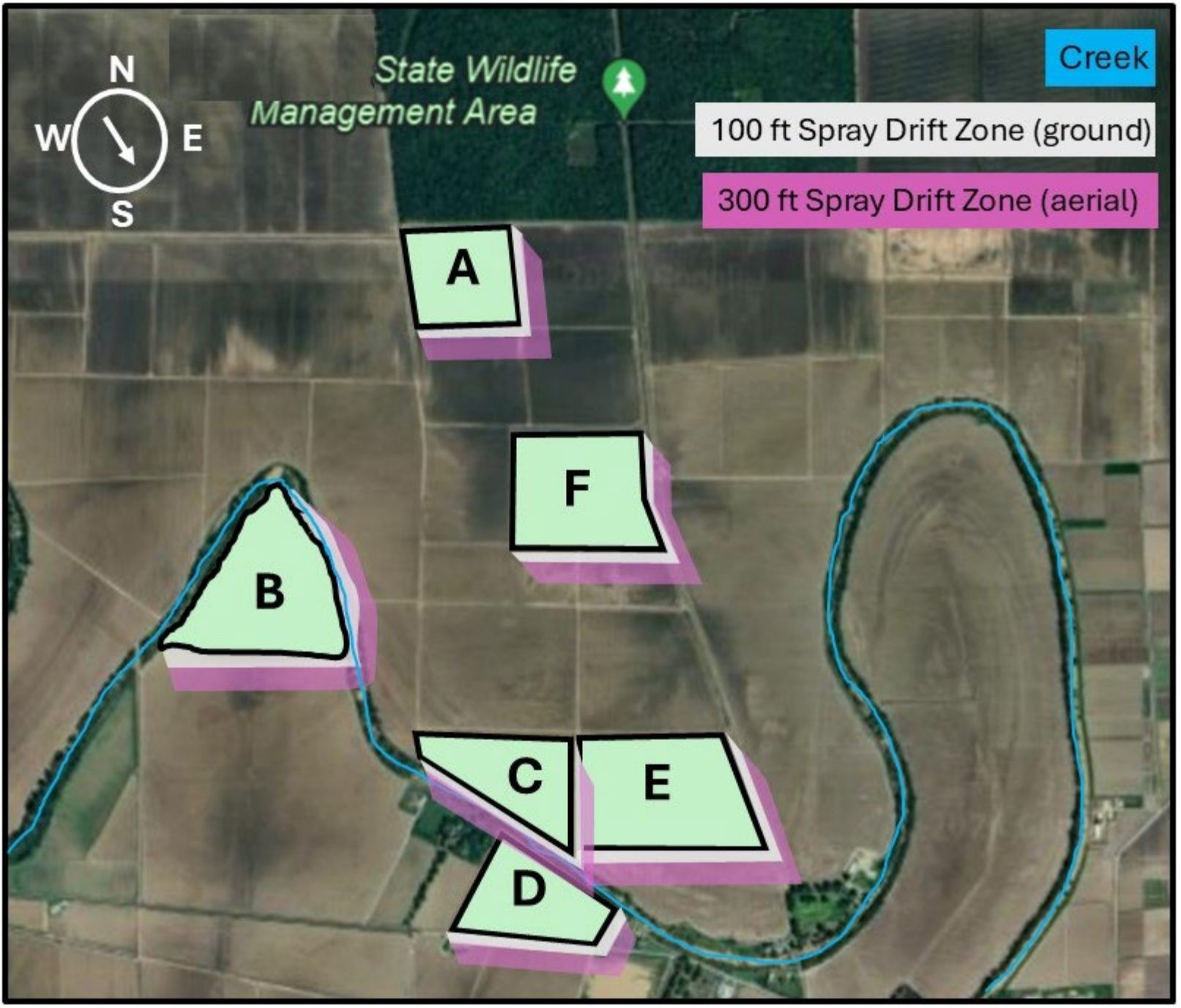
Where is Spray Drift Mitigation Needed?

- Buffers are needed on down-wind edge (or edges) of application area
- Downwind managed areas can count in buffer distances
  - Subtract managed areas from a required ecological spray drift buffer distance
  - Ecological spray drift buffers can be reduced or eliminated
- Definition of a managed area is the same for runoff/erosion and drift

Field Scenario - Drift

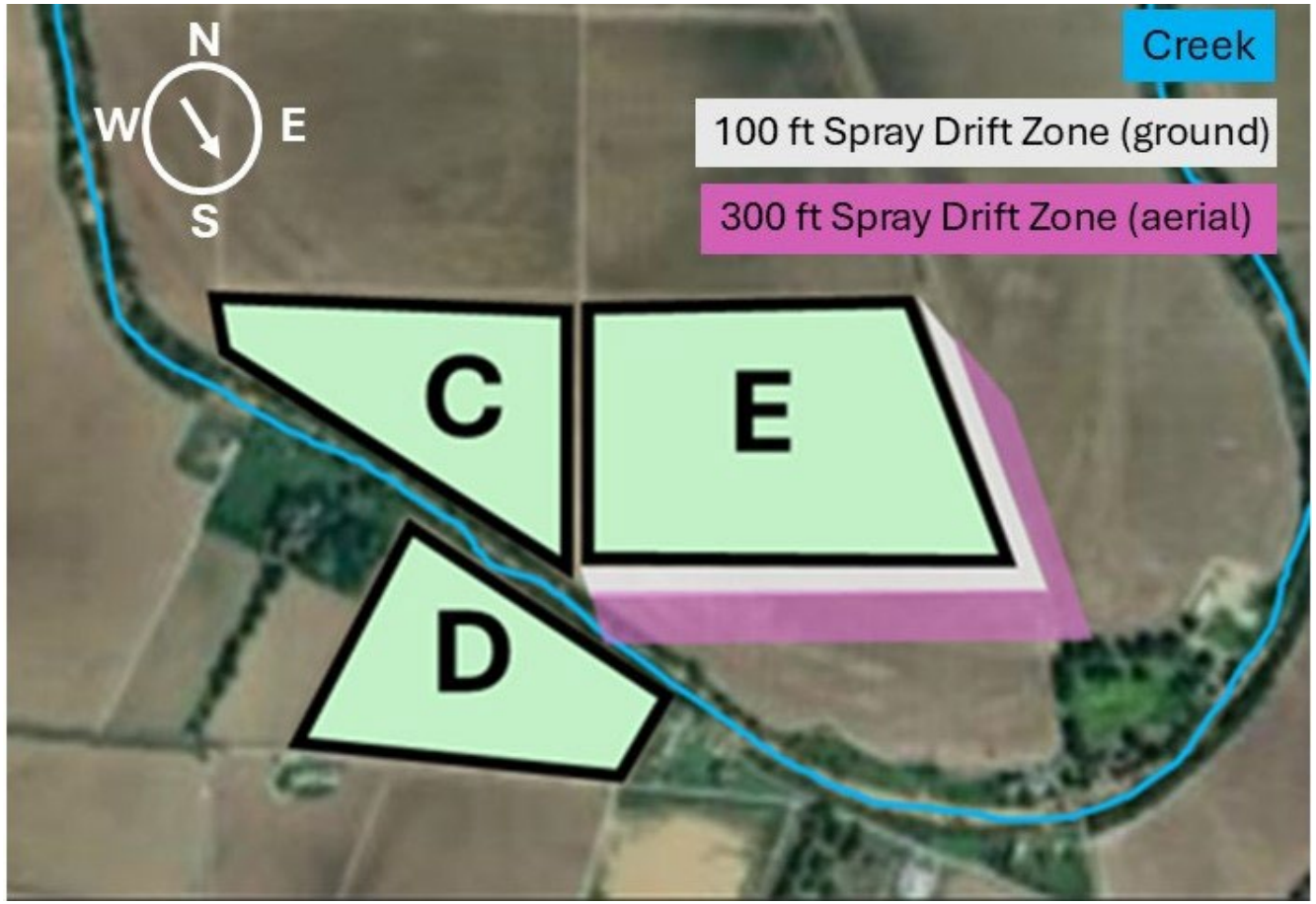
- Managed areas downwind from a pesticide treatment can be counted in the buffer area
- Managed areas:
  - Fields
  - Roads
  - Bare ground between field and road
- Non-managed areas:
  - Creek
  - Tree/grass area near creek
  - State wildlife area





Field Scenario - Drift

- What direction is the wind blowing relative to the field?
  - Fields A, D, F – no buffer needed
  - Field B – may need buffer on the east edge of the field (aerial & ground)
  - Field C – may need buffer on the south edge of the field (aerial & ground)
  - Field E – may need buffer in the SW corner of the field (aerial only)
- Applications on another day may have different wind direction/ buffer needs



Close-up of Field E Drift Buffers

- No buffer needed for ground applications
- May need buffer in the SW corner of the field for aerial applications
- Applications on another day may have different wind direction/ buffer needs

Reduced Single Application Rate

- Based on **single** application rate, not **annual** application rate
- Varying effectiveness depending on application method

Application method	Percent drift buffer reduction
Ground boom	X%
Aerial	X%
Airblast	Divide % reduction in application rate by 2

Reduced Proportion of Field Treated, or Small Area Treated

- Percent buffer reduction based on number of passes across the field or acres treated

Ground application		Aerial application		Airblast application	
Number of passes or acres treated	Percent reduction in buffer size	Number of passes or acres treated	Percent reduction in buffer size	Number of rows treated	Percent reduction in buffer size
1 pass (<1 acre)	75%	1 pass (<1.5 acres)	55%	1 row	70%
2-4 passes (1 - 4 acres)	35%	2-4 passes (1.5 - 6 acres)	20%	2 - 4 rows	30%
5-10 passes (4 - 10 acres)	15%	5-8 passes (6 - 12 acres)	10%	5 - 10 rows	15%

Oil Emulsion Adjuvants for Herbicides

- Adjuvants reduce the proportion of fine droplets that are more prone to spray drift
- EPA has evaluated oil adjuvants for herbicides, and is continuing to evaluate adjuvants in other scenarios

Percent spray drift buffer reduction with oil emulsion adjuvants for herbicides			
Droplet size	**Aerial application (minimum of 2.5% v:v)**	**Ground application (minimum of 0.3% v:v)**	**Airblast application**
Fine	N/A	N/A	N/A
Medium	30%	30%	
Coarse	15%	15%	
Very coarse	15%	15%	

Boom Lengths for Aerial Applications

- Available for aerial applications with a boom length reduction of 50%

Windspeed (mph)	Percent spray drift buffer reduction
3 - 10	65%
10 - 15	50%

Two New Airblast Mitigation Measures

Targeted application rate reduction

- Use airblast equipment with automated or manual shut-off of nozzles to target applications only to foliage
- % reduction equal to reduction in application rate

Above canopy and above axial deflector nozzle management

- Turn off any nozzles that are above the crop canopy any axial deflectors used
- 10% spray drift buffer reduction

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Summary

Runoff/erosion mitigation

- Pesticides will have a certain level of mitigation required expressed as a number of points.
- If required, mitigation may be on the product label and/or on BLT
- Mitigations will be assigned point values.
- Applicators must have the pesticide specific points in place at the time of application.
- EPA has developed tools to help

Drift mitigation

- Pesticides will have a buffer distance assigned
- If a buffer is required, it may be on the product label and/or on BLT
- Mitigation options (based on application equipment) exist that allow buffers to be reduced
- Buffers can be reduced to zero if enough mitigation is adopted
- EPA has developed tools to help