Update on Endangered Species Act

John Byrd,
Extension/Research Professor

Mississippi State University

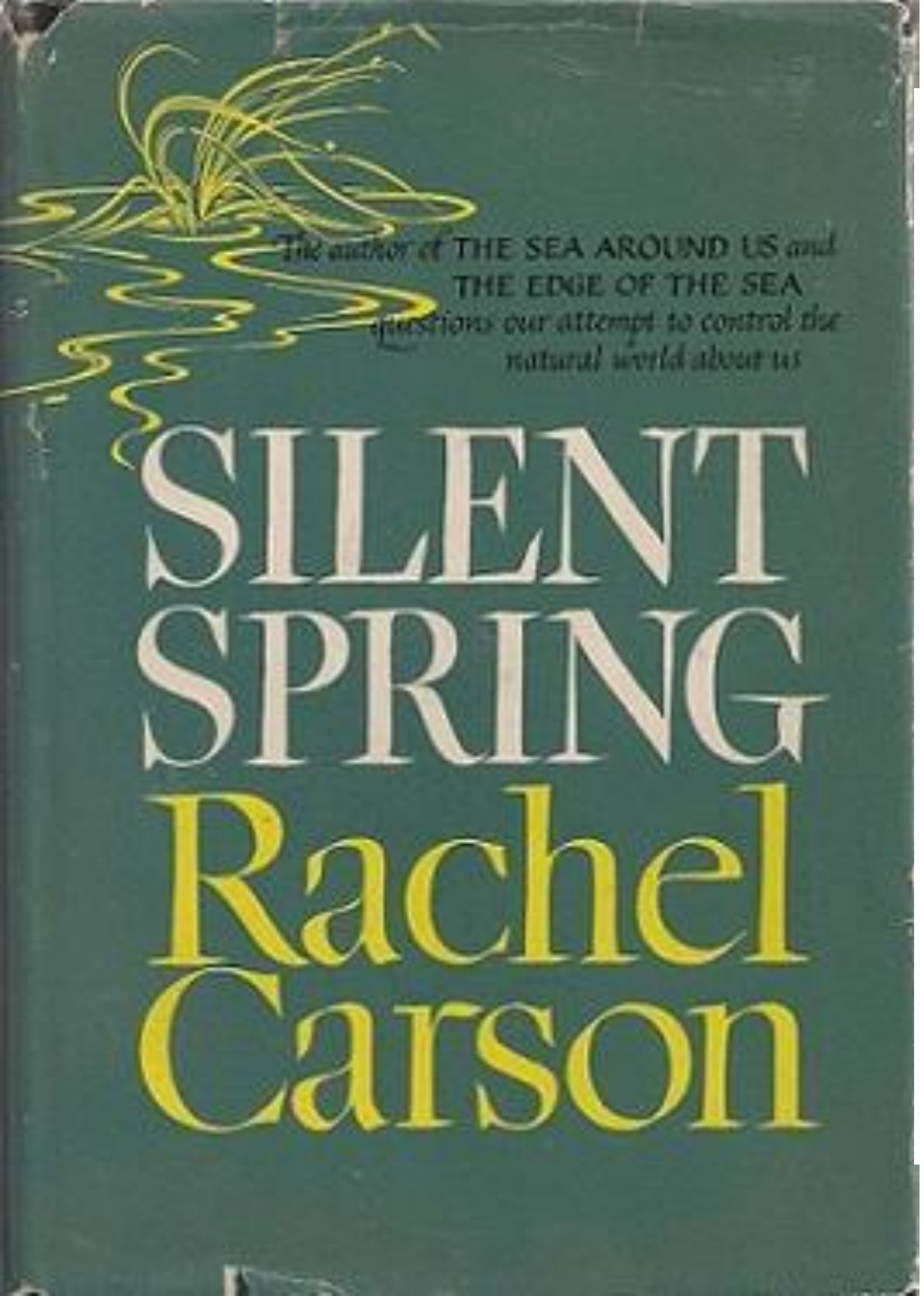
West Texas Agricultural Chemicals Institute Conference

September 11, 2025

Disclaimer

- Views and ideas expressed in this presentation do not represent the views of:

- Mississippi State University
- Mississippi State University Extension Service
- Department of Plant & Soil Sciences
- Mississippi Department of Agriculture & Commerce
- The US Environmental Protection Agency



published September 27, 1962

In 2006, *Silent Spring* was named one of the 25 greatest science books of all time by the editors of *Discover* magazine.[5]

Research and writing [edit]

In the mid-1940s, Carson became concerned about the use of synthetic pesticides, many of which had been developed through the military funding of science after World War II. The United States Department of Agriculture's 1957 fire ant eradication program, which involved aerial spraying of DDT and other pesticides mixed with fuel oil and included the spraying of private land, prompted Carson to devote her research, and her next book, to pesticides and environmental poisons.[6][7] Landowners in Long Island filed a suit to have the spraying stopped, and many in affected regions followed the case closely.[3] Though the suit was lost, the Supreme Court granted petitioners the right to gain injunctions against potential environmental damage in the future, laying the basis for later environmental actions.[3][8][9]

The impetus for *Silent Spring* was a letter written in January 1958 by Carson's friend, Olga Owens Huckins, to *The Boston Herald*, describing the death of birds around her property in Duxbury, Massachusetts, resulting from the aerial spraying of DDT to kill mosquitoes, a copy of which Huckins sent to Carson.[10][11] Carson later wrote that this letter prompted her to study the environmental problems caused by the overuse of chemical pesticides.[12][13]

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Conservation efforts leading to ESA

- Legacy Act 1900 – wildlife conservation (bison, whooping crane, passenger pigeon, etc.)
- Migratory Bird Conservation Act 1937 (right and gray whales)
- Bald and Golden Eagle Protection Act 1940
- Endangered Species Preservation Act 1966 (game and wild birds)
- Endangered Species Conservation Act 1969 (mollusks and crustaceans)
- Endangered Species Act 1973 (threatened or endangered domestic or foreign species of animals or plants; FWS and NMFS; included critical habitat; federal agency cooperation; touted as “one of the most powerful and controversial environmental laws in the United States” [Benson MH 2012 Intelligent Tinkering: the Endangered Species Act and Resilience. Ecology & Society 17(4) Art. 28])

Pesticide Use and Endangered Species

In the last year, there has been a significant controversy over the use of pesticides in the habitat of endangered species that has come to national attention. EPA, USDA, and the USFWS, along with state and county agencies, have been involved in the debate. As in 1973, when the Endangered Species Act was formulated, the concern focuses on the potential effect of pesticides on endangered species. During the last several years, the discussion of this problem has intensified, due in part to a plan that would indicate that county agents provide information on endangered species. They were to provide information on the location of endangered species in their county and directions for pesticide use in the species range. This information would be included on pesticide labels.

The concept was not favored by county agencies responsible for the Endangered Species Act. The idea seemed to lose favor with its sponsors after it was initially proposed five years ago. However, the concept was reinstated as part of a proposal to restrict the use of certain pesticides within a specified distance of endangered species habitat.

Using a county or parish format, the EPA in 1987 developed a list of endangered species and their range maps. In addition, a long list of chemicals that would have limited uses for certain crops in these areas was also generated.

Some state resource agencies were sent this packet of information, which included lists of restricted chemicals, endangered species and their range maps. They were asked to comment on the accuracy of maps and suggest alternate pesticides that might be used on these crops. A limited time for comment was established. In North Carolina, the Wildlife Resources Commission and the USFWS Office of Ecological Services did not receive the maps directly as assumed. The information network seemed to break down, and those agencies that should have commented did not have the opportunity to do so. This problem was common throughout the rest of the United States as well.

In many cases the best available information was not used to formulate the range maps, and habitat boundaries often encompassed more land than necessary. Research results were used in a manner that seemed inconsistant with the data collected.

A tremendous backlash developed because of the lack of clear information about the program and its parameters. Groups made threats about holding up the reauthorization of the Endangered Species Act, and others predicted the total loss of agricultural production in many counties. Bills were introduced in Congress to stop the regulations. It was a classic case of good intentions going awry. Wildlife and agriculture professionals demanded more time to review the proposal.

In December 1987, EPA reconsidered their deadline of February 1988 for implementation of these regulations. A notice went out in the Federal Register for comments on the proposal with a June 1, 1988 deadline. Many agencies and individuals responded to that notice. A second notice in the Federal Register to address the myriad of comments received should be forthcoming in early 1989. Action on the whole issue has been delayed at least until the latter part of next year.

I firmly believe that some regulatory action will be instituted for the use of pesticides in the habitat of endangered and threatened species. These regulations must be based on the input from wildlife and agricultural professionals using solid data and their best judgement. A realistic time frame should be developed to keep in perspective the need to protect endangered species while reducing to an acceptable level the impact on production agriculture.

Dr. Gary San Julian
Extension Wildlife Specialist
Associate Professor

Honors and Awards

Three students from NCSU received awards in the graduate student paper contest at the 42nd Annual Meeting of the Southern Weed Science Society.

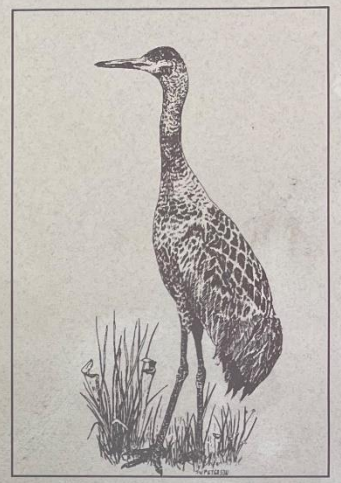
Leslie Bjelk won first place in the Tuesday Section VII of Ecological and Physiological

Continued page 5

Weed Science Society of North Carolina Newsletter, February, 1989

HANDBOOK: RESOURCE GUIDE

Mississippi Threatened And Endangered Species



Sandhill Crane

EACE

Environmental & Agricultural Chemical Education Unit

COOPERATIVE EXTENSION SERVICE

Mississippi State University

ENDANGERED SPECIES ACT

EXTENSION ADVISORY COMMITTEE

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Dr. John Byrd	Extension Weed Scientist Plant & Soil Sciences, CES, MSU
Dr. Jack Carroll	Coordinator, Water & Energy Program/Energy Extension Center, CES, MSU
Dr. Clarence Collison	Professor & Head, Entomology & Plant Pathology Dept, MSU
Murray Elmo Collum	Pesticide Impact Assessment Program Asst., EACE Unit, CES, MSU
Rusty Crowe	Coordinator, Ground Water, Endangered Species & WPS, Bureau of Plant Industry, MDAC
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Harry Fulton	Director, Pesticide Division/Bureau of Plant Industry . MDAC
Dr. Jim Hamer	Leader, EACE Unit, CES, MSU
Robert McCarty	Director, Bureau of Plant Industry, MDAC
Tommy McDaniel	Pesticide Coordinator, Bureau of Plant Industry, MDAC
E. Ruth Morgan	Pesticide Coordinator & Pesticide Impact Assessment Spec., EACE Unit, CES, MSU
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Dr. Dennis Reginelli	County Agent, Acting County Coordinator - Noxubee County
Trent Spencer	Extension Program Assistant, Agri Engineering Dept, MSU
Dean Stewart	Extension Wildlife Specialist, Wildlife & Fisheries, CES, MSU
Dr. David Tatum	Commercial Nursery Specialist/Horticulture, CES, MSU
Dr. David Young	Mississippi Association Agricultural Consultants

Funding to support the preparation of this handbook was provided by The Bureau of Plant Industry, Mississippi Department of Agriculture and Commerce.

United States
Environmental Protection
Agency

September 1990

Pesticides And Toxic Substances (H-7506C)

EPA

Protecting Endangered Species

Interim Measures

Sunflower County, Mississippi

The information in this pamphlet is similar to what the U.S. Environmental Protection Agency (EPA) expects to distribute once our Endangered Species Protection Program is in effect. The limitations on pesticide use are not law at this time, but are being provided now for your use in voluntarily protecting endangered and threatened species from harm due to pesticide use. We encourage you to use this information. We also welcome your comments.

The Endangered Species Act is intended to protect and promote recovery of animals and plants that are in danger of becoming extinct due to the activities of people. Under the Act, EPA must ensure that use of pesticides it registers will not result in harm to the species listed as endangered or threatened by the U.S. Fish and Wildlife Service, or to habitat critical to those species' survival. To accomplish this, the EPA expects to implement program requirements beginning in 1991. This program will protect endangered and threatened species from harm due to pesticide use.

EPA requests your comments regarding the information presented in this publication. Please drop us a line to let us know whether the information is clear and correct. Also tell us to what extent following the recommended measures would affect your typical pesticide use or productivity. This information will be considered by EPA during the final stages of program development.

Please submit comments to:

Interim Endangered Species Protection Program (H7506C)
Public Docket and Information Section
U.S. EPA
401 M Street, SW
Washington, DC 20460

About This Publication

This publication contains a County Map showing the area within the county where pesticide use should be limited to protect listed species. These areas are identified on the map by a shaded pattern. Each shaded pattern corresponds to a species in need of protection.

The Shading Key shows the name of the species that each shaded pattern represents and describes the shaded area. The area may be described in terms of Township, Range, and Section or by giving details about the habitat of the species.

The first column of the "Table of Pesticide Active Ingredients" lists the active ingredients for which there should be limitations on use to protect certain species. The next columns are headed by the shaded pattern of the species with Codes listed underneath them.

The Code indicates the specific limitation that is necessary to protect the species. The section titled Limitations on Pesticide Use explains the code,

Does This Information Apply To You?

To determine whether this information applies to your use of a pesticide, review the questions below. The information applies only if you answer "yes" to both questions:

- Do you intend to use pesticides within the shaded area on the county map?
- Are any of the ingredients listed on the front panel of your pesticide product label named in the "Table of Pesticide Active Ingredients"?

If you answer "yes" to both questions, you should follow the instructions on "How to Use This Information" to determine if you should limit use of the pesticide to help protect listed species.

If you answer "no" to either question, you should follow the usage directions on the pesticide product label.

How To Use This Information

1) On the county map, find the specific shading patterns that cover the area where you will apply pesticides.
2) Read the shading key for those patterns to identify the specific area involved.
3) In the "Table of Pesticide Active Ingredients," locate the active ingredients in the pesticide you intend to apply.
4) Locate the code to the right of the active ingredient name and under the shading patterns that apply to you.
5) When using the pesticide, you should follow the limitations indicated for those codes described under "Limitations on Pesticide Use."
6) If you are applying more than one listed active ingredient or applying a listed active ingredient in an area with more than one shaded pattern (species), multiple codes may apply. If so, you should follow the most restrictive limitation.

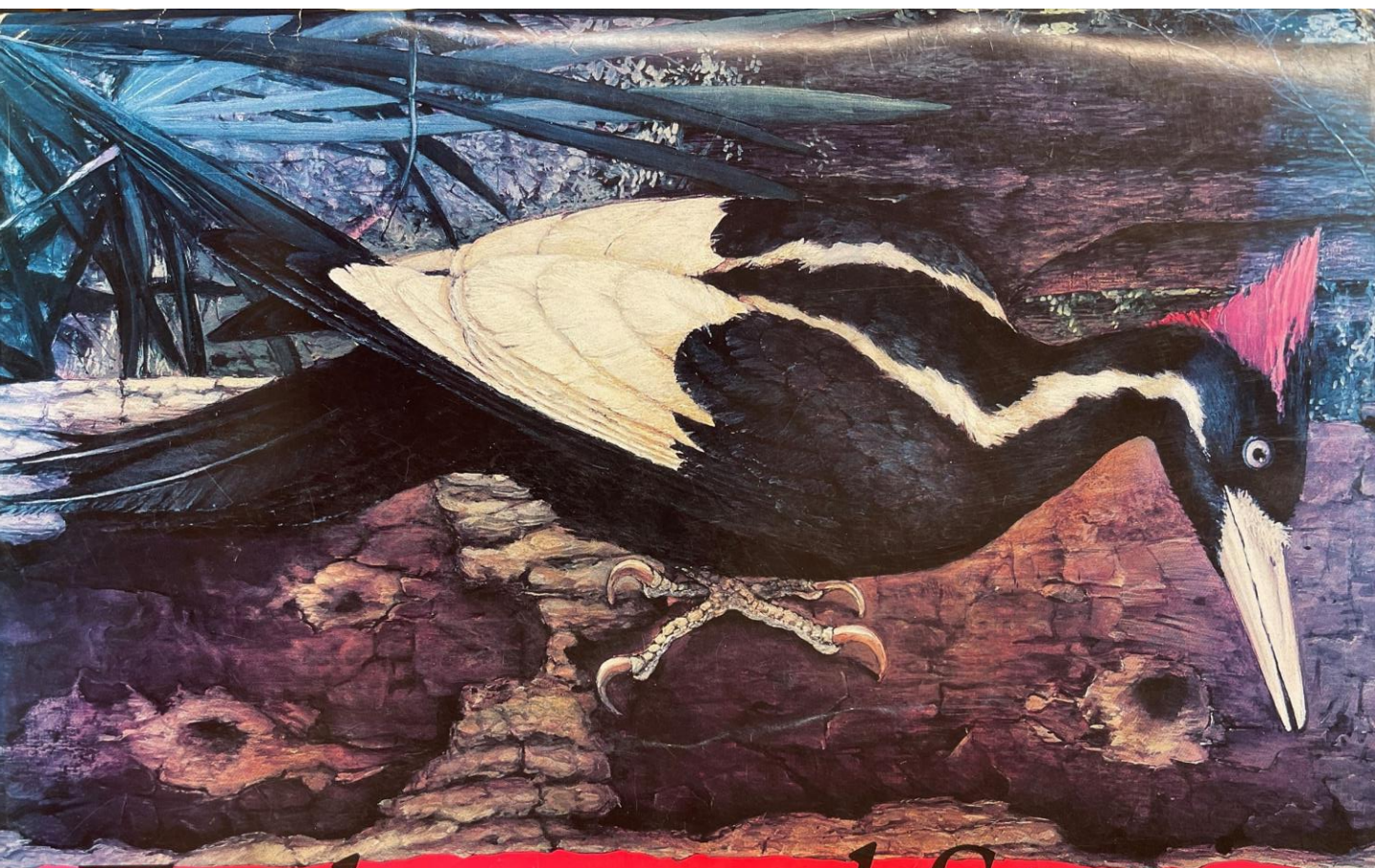
Table Of Pesticide Active Ingredients

Active Ingredient	Shading Pattern/Code
	[redacted]
AMITROLE	28
AMMONIUM SULFAMATE	28
ATRAZINE	28
CACODYLIC ACID	28
DAZOMET	28
DICHLOBENIL	28
DICHLORPROP (2,4-DP)	28
DIPHENAMID	28
EPTC (EPTAM)	28
FOSAMINE-AMMONIUM	28
GLYPHOSATE	28
HEXAZINONE	28
PARAQUAT	28
PICLORAM	28
SIMAZINE	28

Limitations On Pesticide Use

Code	Limitation
28	Do not apply within 100 yards of species habitat for aerial applications or within 20 yards of species habitat for ground applications.


FUJI T-15
Mississippi's Endangered Species



Endangered Species

OF MISSISSIPPI

Mississippi Department of Wildlife, Fisheries, and Parks • Museum of Natural Science

United States
Environmental Protection
Agency

20T-3038
September 1990

Pesticides And Toxic Substances (H-7506C)

Protecting Endangered Species

Interim Measures

Bolivar County, Mississippi

The information in this pamphlet is similar to what the U.S. Environmental Protection Agency (EPA) expects to distribute once our Endangered Species Protection Program is in effect. The limitations on pesticide use are not law at this time, but are being provided now for your use in voluntarily protecting endangered and threatened species from harm due to pesticide use. We encourage you to use this information. We also welcome your comments.

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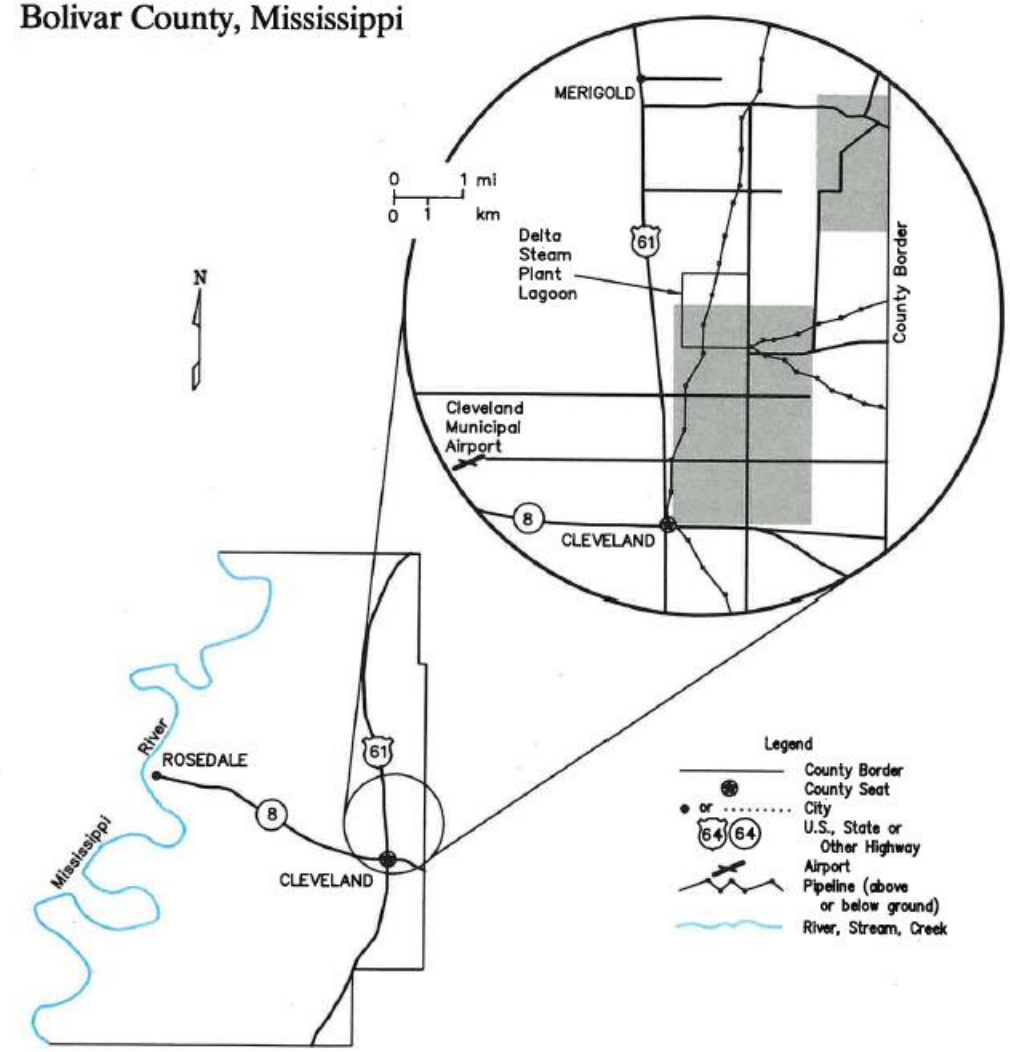
Bolivar County, Mississippi

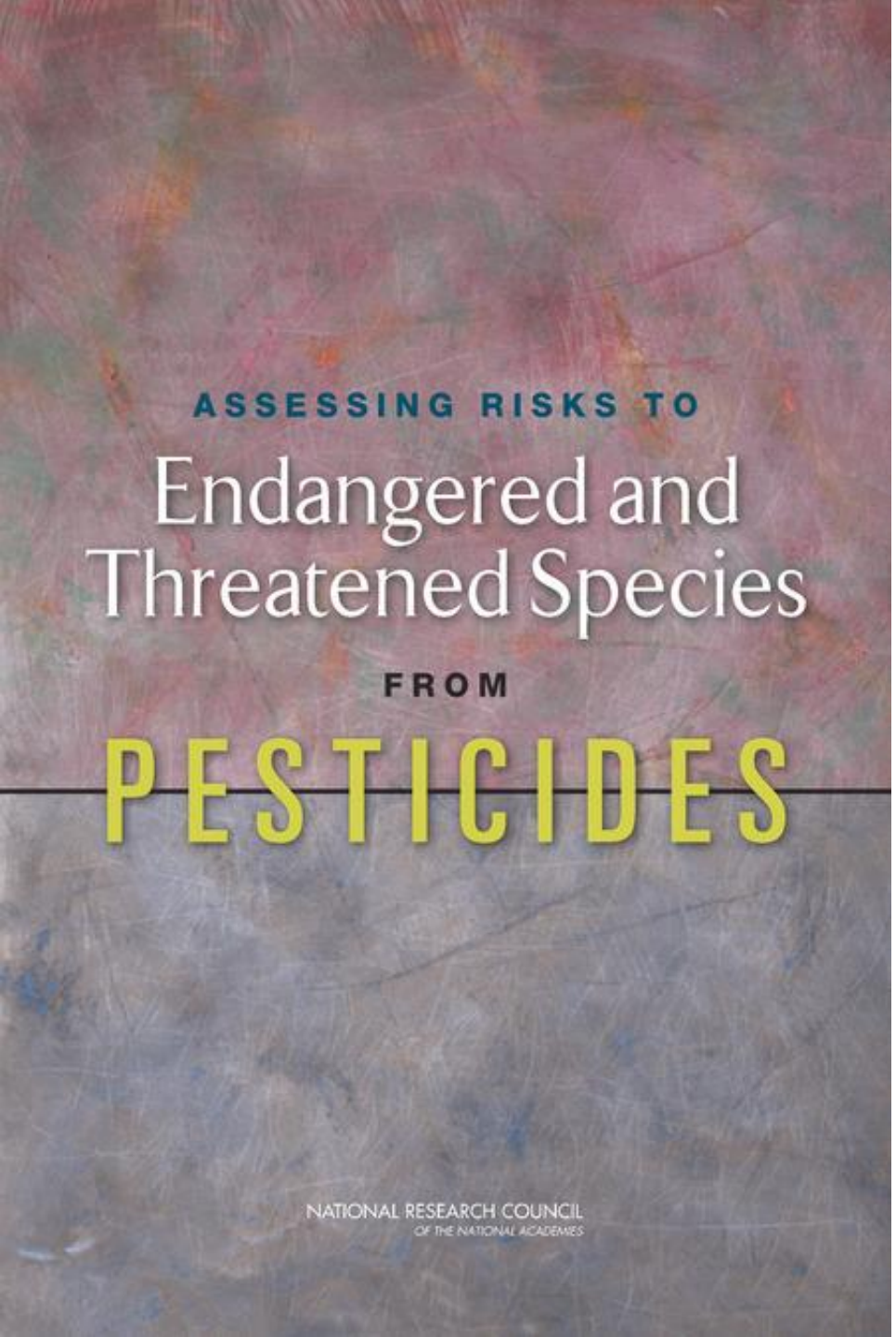


Shading Key

Pondberry, *Lindera melissifolia* (Lauraceae, the laurel family). The shaded areas shown on the map are:

T22N R5W Sec. 2-3, 10-11, 14-15
T23N R5W Sec. 24-25.

Within these areas, use limitations only apply to certain wooded tracts. Call the U.S. Fish and Wildlife Service at (601) 638-1891 for clearance to apply pesticides in these areas.



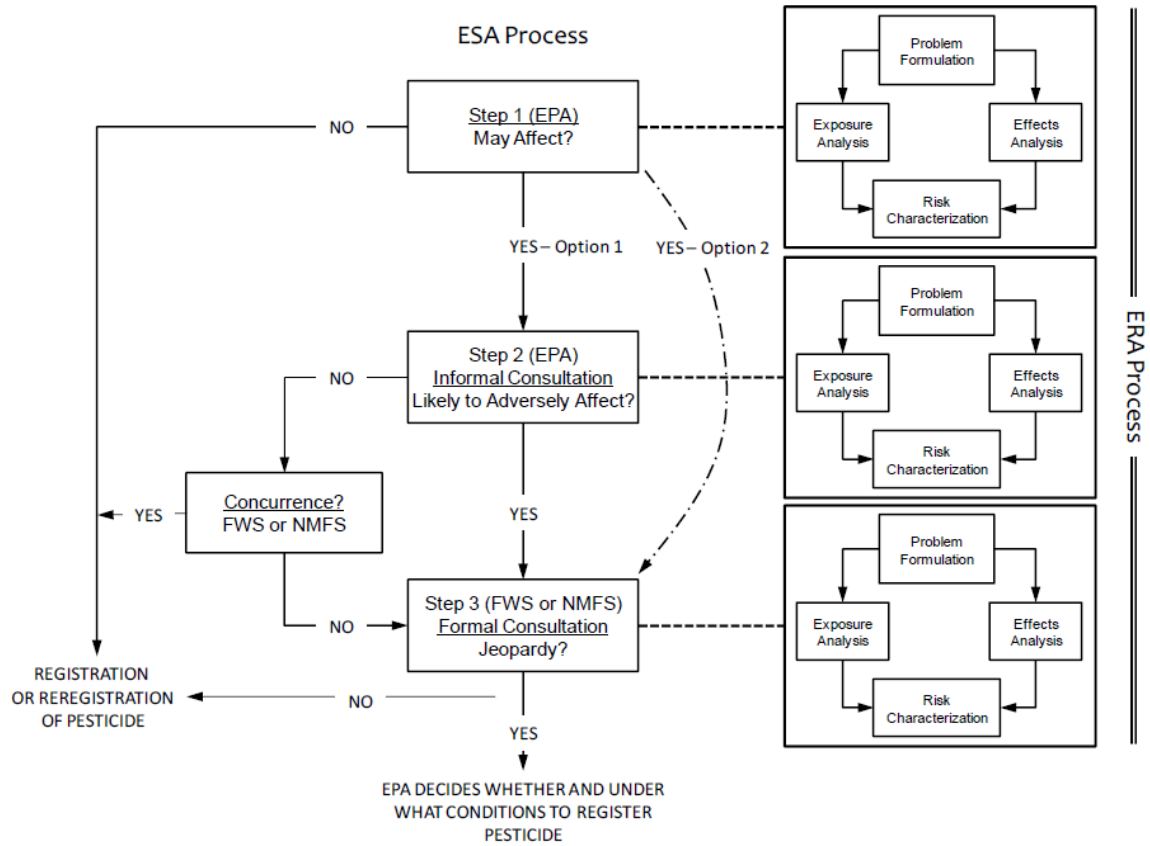


FIGURE S-1 Relationship between the Endangered Species Act (ESA) process and the ecological risk assessment (ERA) process. Each step answers the question that appears in the box.

NATIONAL ACADEMIES Sciences Engineering Medicine

From the introduction of Assessing Risks to Endangered and Threatened Species from Pesticides

Under the US Endangered Species Act (ESA), the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are responsible for designating species as endangered or threatened (that is, listing species) and determining whether federal actions might jeopardize the continued existence of a listed species or adversely affect its critical habitat. Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the US Environmental Protection Agency (EPA) is responsible for registering pesticides and ensuring that pesticides do not cause unreasonable adverse effects on the environment, which includes listed species and their critical habitats. Over the years, EPA, FWS, and NMFS have struggled unsuccessfully to reach a consensus on approaches to assessing the risks to listed species. Consequently, EPA, FWS, NMFS, and the US Department of Agriculture (USDA) asked the National Research Council to examine scientific and technical issues related to determining risks to species that are listed under the ESA posed by pesticides that are registered under FIFRA.

Over 1,700 Species are on the Endangered Species List

Over 900 species are potentially impacted by herbicides.
Over 850 species are potentially impacted by insecticides.

Ryan DeWitt

The National Agricultural Law Center
The Nation's Leading Source of Agricultural and Food Law Research and Information

(https://nationalaglawcenter.org/a-host-of-new-rules-brings-major-changes-to-the-endangered-species-act/)

27 AUG

A Host of New Rules Brings Major Changes to the Endangered Species Act

(https://nationalaglawcenter.org/a-host-of-new-rules-brings-major-changes-to-the-endangered-species-act/)

Categorized Ag & Food Law Update (https://nationalaglawcenter.org/category/ag-food-law-update/), Endangered Species Act (https://nationalaglawcenter.org/category/statutes/endangered-species-act/)

The Trump administration, on August 12, 2019, announced changes to the Endangered Species Act (ESA). These changes affect what species receive ESA protections, the designation of critical habitats, and the amount of protection afforded to threatened species.

Designation of Species as Endangered

Historically, section 4 the ESA required that the decisions as to which species were to be listed as endangered were based solely on the best available science "without reference to possible economic or other impacts of such determination." The new changes remove this language and allow for economic impacts to be considered. In a press

Trump (2019) attempted to modify ESA to require consideration of economic impact of an organism to be listed as Threatened or Endangered

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Attorneys for Plaintiffs Center for Biologic Diversity and Pesticide Action Network North America

*Seeking admission *pro hac vice*

IN THE UNIT STATES DISTRICT COURT

FOR THE NORTH RN DISTRICT OF CALIFORNIA

SAN F NCISCO DIVISION

CENTER FOR BIOLOGICAL DIVERSITY, a non-profit organization; and **PESTICIDE ACTION NETWORK NORTH AMERICA**, a non-profit organization;

Plaintiffs,

v.

ENVIRONMENTAL PROTECTION AGENCY; and **LISA JACKSON**, Administrator, U.S. EPA;

Defendants.

Case No._____

COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

Center for Biological Diversity

Pesticide Action Network North America

INTRODUCTION

1. This action challenges the failure of Defendants Environmental Protection Agency and Lisa Jackson, Environmental Protection Agency Administrator, (collectively "EPA") to consult with the United States Fish and Wildlife Service ("FWS") and National Marine Fisheries Service ("NMFS") (collectively "Service") pursuant to Section 7(a)(2) of the Endangered Species Act ("ESA"), 16 U.S.C. § 1536(a)(2), regarding the effects of EPA-registered pesticides on endangered and threatened species throughout the United States of America.

2. Consultation with the Service is necessary to ensure that EPA's oversight of pesticides does not jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of these species. 16 U.S.C. §

- Runoff
- Drift

PARTIES

9. Plaintiff CENTER FOR BIOLOGICAL DIVERSITY is a non-profit corporation with offices in San Francisco, Joshua Tree, and Los Angeles, California; Portland, Oregon; Silver Springs, New Mexico; Tucson and Flagstaff, Arizona; Anchorage, Alaska; Brooklyn, New York; Richmond, Vermont; Seattle, Washington; Minneapolis and Duluth, Minnesota; Las Vegas, Nevada; and Washington, D.C. The Center is actively involved in species and habitat protection issues throughout the United States, including the U.S. territories, as well as outside of the United States. The Center has 42,000 members that live throughout the United States, including in San Francisco.

42,000 members

10. Plaintiff PESTICIDE ACTION NETWORK NORTH AMERICA is a non-profit, public interest organization in San Francisco. PANNA is one of five independent regional centers of Pesticide Action Network International, a network of more than 600 organizations in 90 countries. Pesticide Action Network has 22,000 members and more than 100 organizational partners across the United States, working to replace the most hazardous pesticides with ecologically sound, socially just alternatives that protect people and the environment. For 28 years, Pesticide Action Network has fought to preserve ecosystems, biodiversity, sustainable agriculture, and community food security.

22,000 members

2,4-D salts/esters	butralin	endothall and salts	isoxaben	paraquat dichloride	simazine
2,4DB and salts	butylate	EPTC	isoxaflutole	pendimethalin	sodium chlorate
2,4-DP salts/esters	clodinafop-propargyl	ethalfluralin	lactofen	picloram and salts	sulfentrazone
acetochlor	clomazone	ethofumesate	linuron	pinoxaden	sulfosulfuron
alachlor	cycloate	fenoxaprop	MCPA salts/esters	prodiamine	tembotrione
ametryne	cyhalofop-butyl	fluazifop-P-butyl	MCPB and salts	prometryn	terbuthylazine
aminopyralid and salts	dazomet	flumiclorac-pentyl	MCPP and salts	propachlor	thiencarbazone-methyl
amitrole	DCPA	flumioxazin	methyl bromide	propanil	thiobencarb
atrazine	dicamba and salts	fluometuron	metolachlor and isomers	propyzamide	triallate
benfluralin	dichlobenil	fluridone	metribuzin	pyraflufen-ethyl	triclopyr salts/esters
bensulide	diclofop-methyl	fluroxypyr 1-methylheptyl ester	napropamide	pyrasulfotole	trifloxysulfuron-sodium
bentazon and salts	diquat dibromide	fluthiacet-methyl	oryzalin	quizalofop and isomers	trifluralin
bromacil and salts	dithiopyr	foramsulfuron	oxadiazon	sethoxydim	
bromoxynil salts/esters	diuron	hexazinone	oxyfluorfen	siduron	


Monsanto
Roundup
Herbicide
NET 5 U.S.
Monsanto
Roun

iMessage
Thu, Jul 31 at 9:08 PM

This is John byrd.

Mississippi Farm Bureau could implement a policy of support of the Federal Insecticide Fungicide and Rodenticide Act for labeling of and the U.S. Environmental Protection Agency decisions on registration of pesticides and appreciates the opportunity to provide input regarding pesticide use issues in the state of Mississippi in collaboration with the Mississippi Department of Agriculture and Commerce and Mississippi State University.

Delivered

iMessage
Mon, Aug 4 at 1:10 PM

Two separate policy recs;

State Policy
Agricultural Chemicals 154
New Line 1

We support the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and EPA approved decisions on registration of pesticides as the law of the land.

State Policy
Agricultural Chemicals - 154
New Line 3

We oppose any additional or required statements on pesticide labeling that are contrary to EPA's risk assessment findings.

Herbicide Strategy

to Reduce Exposure of Federally Listed Endangered and Threatened Species and

Designated Critical Habitats

from the Use of Conventional Agricultural Herbicides

August 2024

Office of Pesticide Programs
Office of Chemical Safety and Pollution Prevention
U.S. Environmental Protection Agency
Washington, DC

Herbicide Strategy to Reduce Exposure of Federally Listed Endangered and Threatened Species and Designated Critical Habitats from the Use of Conventional Agricultural Herbicides

Action Plan to Reduce Exposure of Vulnerable

Federally Listed Endangered and Threatened Species

from the Use of Conventional Pesticides

September 2024

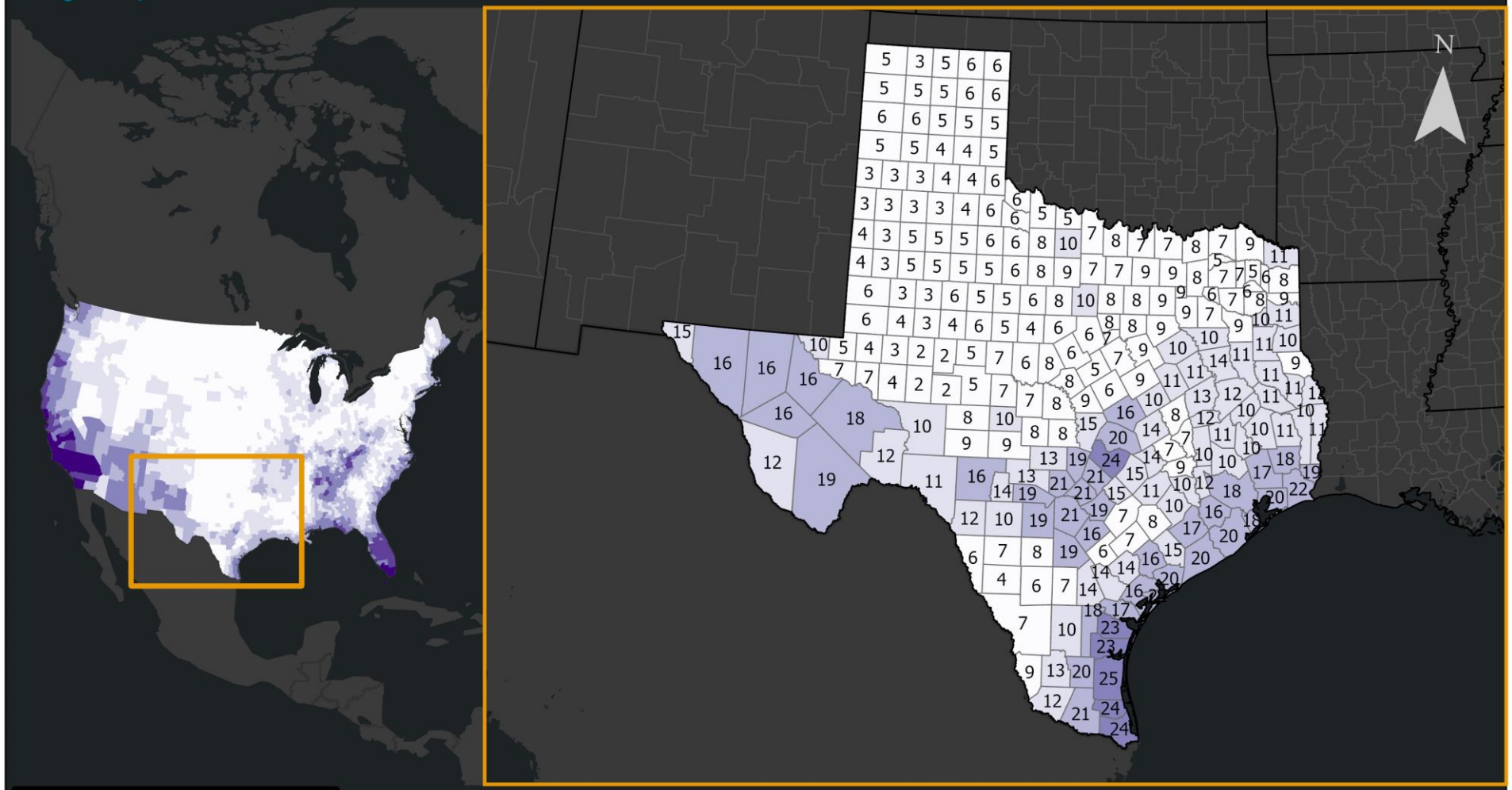
Office of Pesticide Programs
Office of Chemical Safety and Pollution Prevention
U.S. Environmental Protection Agency
Washington, DC

Action Plan to Reduce Exposure Of Vulnerable Federally Listed Endangered and Threatened Species from the Use of Conventional Pesticides

September 2024


BILL CHISM
WEED SCIENCE OF AMERICA
SPEAKER

Count of All ESA-Listed Species in Texas Counties (October 2024)



This product is for informational purposes only. Users of this product should review or consult its primary data sources to assess the usability of the information.

Species counts are based on unique "Entity ID" records in spatial data representing current range downloaded from the US Fish & Wildlife ECOS and NOAA Fisheries Species Directory websites, accessed October 1, 2024. Entities include species with the following listing statuses under the Endangered Species Act (ESA): Candidate, Endangered, Proposed Endangered, Threatened, Proposed Threatened, Similarity of Appearance (Endangered), Similarity of Appearance (Threatened), and Experimental Population, Non-Essential.

www.festf.org

ECOS Environmental Conservation Online System

Conserving the Nature of America

Public Applications

Conservation Plans

Wildlife & Environmental Contaminants Mapper

Information for Planning and Consultation (IPaC)

Species Reports

Web Services

Secure Applications

Secure Login

Related Sites

FWS Endangered Species Program

National Wildlife Refuge System

Threatened & Endangered Species

ECOS serves a variety of reports related to FWS Threatened and Endangered Species. A selection of our most popular reports is listed below. See the Species Reports for the complete list.

- All Threatened and Endangered Animals
- All Threatened and Endangered Plants
- Critical Habitat Report
- Section 7 Consultation Issued Biological Opinions
- Delisted Species
- Listed Species Summary (Boxscore)
- Reclassified Species

OBTAINING AN OFFICIAL SPECIES LIST:

Use IPaC to identify your project location and receive an official species list (pursuant to 50 CFR 402.12) of T&E species that should be considered when evaluating the potential impacts of a project.

ADDITIONAL SEARCH TOOLS:

Search for a Listed species by name:

Search for a Listed species by County name:

Wildlife & Environmental Contaminants Mapper

The Wildlife & Environmental Contaminants Mapper displays the locations of over 100,000 samples from the "Environmental Contaminants Database Management System" (ECDMS). Click on sample collection locations to view the details about the samples, and download available results from laboratory tests performed.

- Use the Wildlife & Environmental Contaminants Mapper

Listed species with spatial current range believed to or known to occur in Texas

Notes:

- This report includes species only if they have a **Spatial Current Range** in ECOS.
- **As of 02/13/2015 the data in this report has been updated to use a different set of information.** Results are based on where the species is believed to or known to occur. The FWS feels utilizing this data set is a better representation of species occurrence. Note: there may be other federally listed species that are not currently known or expected to occur in this state but are covered by the ESA wherever they are found; Thus if new surveys detected them in this state they are still covered by the ESA. The FWS is using the best information available on this date to generate this list.
- This report shows listed species or populations believed to or known to occur in TX
- This list does not include experimental populations and similarity of appearance listings.
- Click on the highlighted scientific names below to view a Species Profile.

Listed Species

Sort by group: ☑

CSV

Show 10 entries

Search:

120 Species Listings

Scientific Name	Common Name	Where Listed	Region	ESA Listing Status
Amphibians				
Eurycea waterlooensis	Austin blind Salamander	Wherever found	2	Endangered
Eurycea sosorum	Barton Springs salamander	Wherever found	2	Endangered

Listed species believed to or known to occur in Lubbock, Texas

This report includes species only if they have a **Spatial Current Range** in ECOS.

The following report contains species that are known to or are believed to occur in this county, based on the species current range, as defined by the USFWS. The definition of current range that the FWS uses is the general geographic area where we know or suspect that a species currently occurs.

This list of species by county cannot be used for consultation purposes. To obtain an official list of species that should be considered during consultation, please visit IPaC.

CSV

Show 10 entries

Search:

8 Species Listings

Group	Name	Population	Status	Lead Region	Lead Office	Recovery Plan	Recovery Plan Action Status
Insects	Monarch butterfly (Danaus plexippus)	Wherever found	Proposed Threatened	3	Assistant Regional Director-Ecological Services		
Birds	Bald Eagle (Haliaeetus leucocephalus)	U.S.A., conterminous (lower 48) States.	Recovery	3	Illinois-Iowa Ecological Services Field		

https://tpwd.texas.gov/gis/rtest/

Map Layers

- Counties
- ~~County Labels~~
- Rivers/Streams
- USFWS Critical Habitat
- Southern Great Plains Crucial Habitat
- LWRCRP Lands

Clear Identify Markers

Query

Quick download (All species for all counties)

Clear Map and Query Results

Query by line/polygon

Enter full or partial Scientific Name

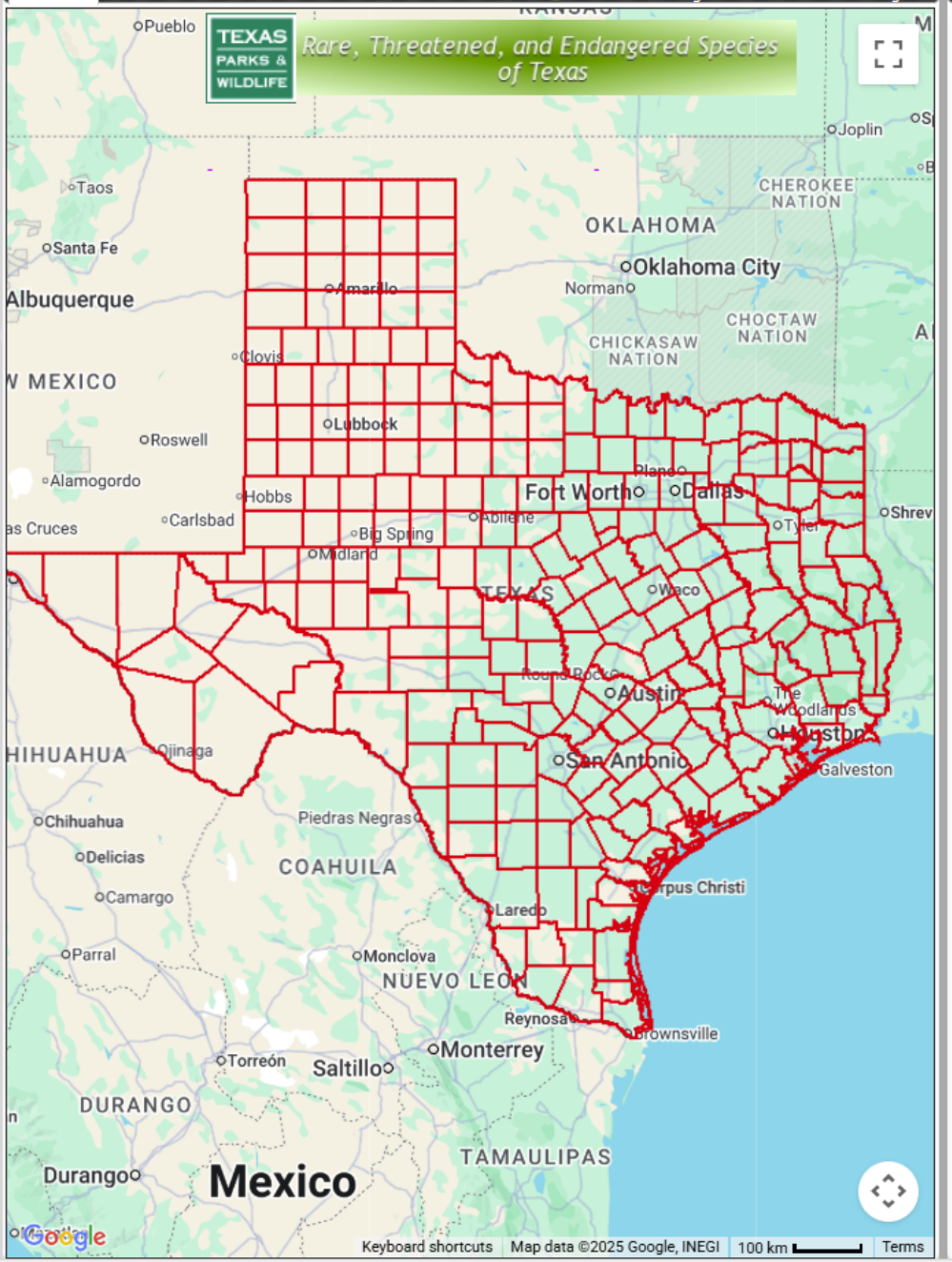
Enter full or partial Common Name

Select County(ies)

Anderson
Andrews
Angelina
Aransas
Archer
Armstrong
Atascosa
Austin
Bailey
Bandera

Map | Frequently Asked Questions

shift + drag to define zoom rectangle



Data

Welcome to the Rare, Threatened, and Endangered Species of Texas by County

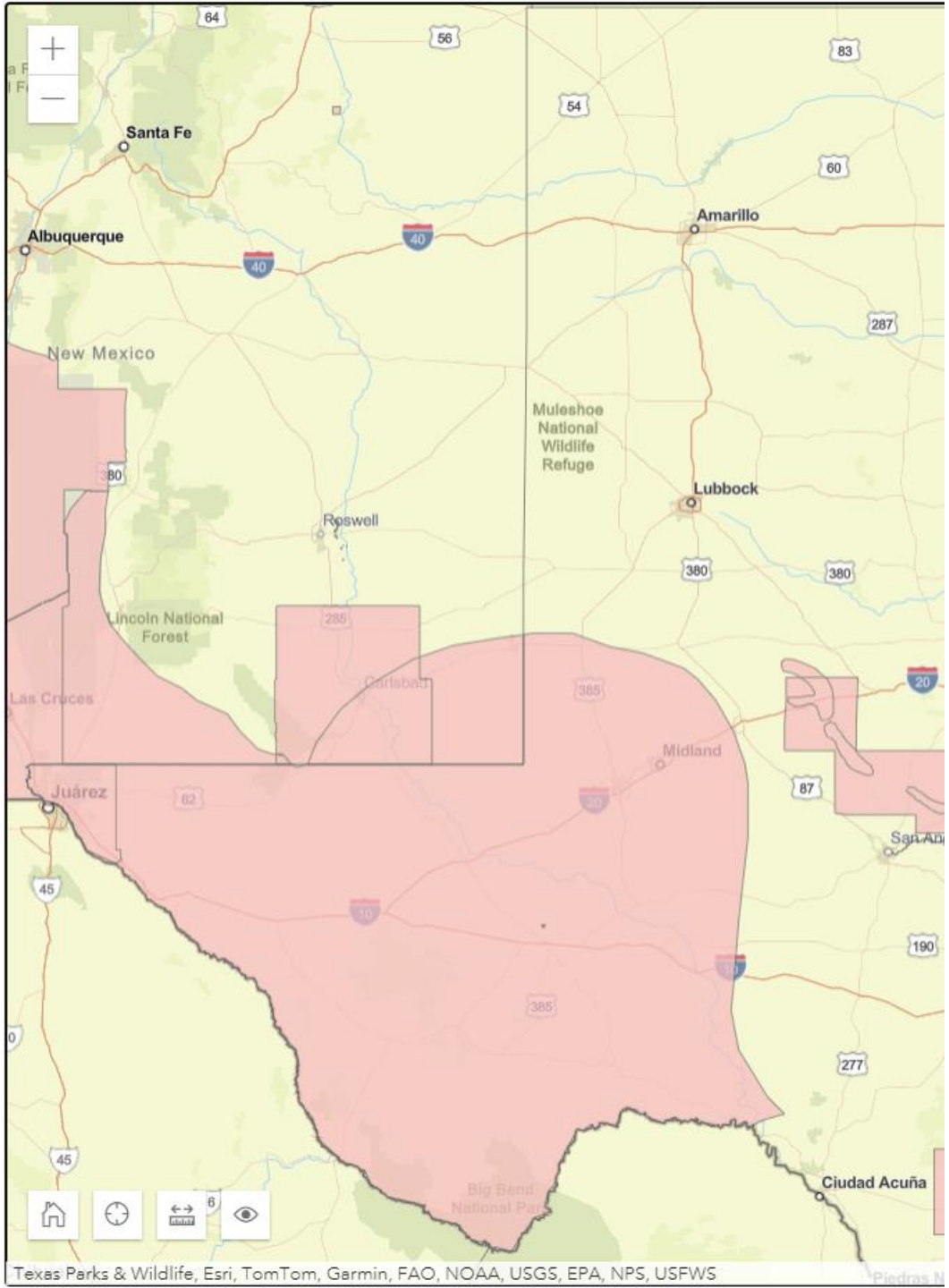
This is a new version. You should see 'Last Update: Jan 15 2025 ' in the next line. If you do not see this (after a Ctrl+F5 refresh), you may need to clear your cache in Chrome to see the updates.

Last Update: Jan 15 2025

Please make a selection at left or right-click on one or more map counties (use ctrl key for multiple counties).

This application currently works best in Chrome.

Texas Parks and Wildlife



Pesticide
Use
Limitation
Area

PULA

for west Texas

Label Changes to Protect Listed Species and Their Critical Habitat

There are three types of label changes possible, aimed at mitigating the following:

1. Bulletins Live! Two directs you to check for Pesticide Usage Limitation Areas (PULAs) Impacts to specific geographic locations where listed species or their critical habitat are found
2. Spray drift
3. Runoff/Erosion

Pesticide Use Limitation Areas (PULAs)

- EPA identifies geographic areas most critical to conserve a listed species and then adds buffers (1,000 feet or less) to account for potential offsite transport from a treated field.

- If a field is in a PULA use of certain pesticides may be restricted

  OR

  additional mitigations may be required

- If Bulletins Live! Two shows your field is outside of a PULA, it is in your best interest to document that there are no limitations within the month of your pesticide application.
  - You can check Bulletins Live! Two up to 6 months before the application

ESA: Finding Required Mitigations

For conventional agricultural uses, mitigations have to be determined for each "field" or "management area", not an entire farm.

Required spray buffer and runoff/erosion mitigation can be different for each herbicide and crop/site combination.

Mitigations may appear on up to 3 places:

- On the product label
- Label may direct user to Bulletins Live! Two (BLT) webpage https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins
- Label may direct user to Mitigation Menu webpage https://www.epa.gov/pesticides/mitigation-menu

Spray Drift Buffers – Percent Scale

- Buffers are downwind only
- Buffers are to protect "unmanaged areas"
- Managed areas outside of the treated area can be part of the spray drift buffer, such as agricultural field, roads, Conservation Reserve Program land, and mowed areas

- There are over 15 ways to reduce buffer distances.
- Some applications do NOT need buffers such as backpack, spot treatments, treating field <1/10 acre, other

Background: EPA has created a Spray Drift Mitigation Calculator to assist applicators with calculating spray drift buffers as required on pesticide product labels. The calculator is a tool for informational purposes to assist the user in determining whether the necessary level of mitigation has been met before applying a pesticide product. The calculator can help determine the assess the potential spray drift buffer for the mitigation measures entered by the user. The actual spray drift buffer is dependent on design and implementation of mitigation measures in accordance with their descriptions on EPA's Mitigation Menu Website (https://www.epa.gov/pesticides/mitigation-menu). Note that each measure in the calculator includes a link that directs you to its detailed description on this website. This quick guide uses an example to demonstrate how users can calculate the adjusted spray drift buffer required for a planned application.

Downloading the Calculator: Users are strongly recommended to download a copy of the calculator and work in a version of Excel from 2017 or newer. Some aspects of the calculator may not function properly in an online or browser format, or with Excel versions 2016 or older. After you download the calculator, you may need to "enable macros" (see screenshot below).

For All Application Types:

Step 1) The calculator can be used to track information at a field level. The "General Field/Management Unit Information" section allows the user to enter basic information about the field (name, date, and farm/operator field identification).

General Field/Management Unit Information (Optional Section)		
Name	Jane Doe	CLEAR ALL USER INPUTS
Date	1/1/2025	
Field/Management Unit Identification	Field A	CREATE NEW WORKSHEET FOR ANOTHER

Step 2) "Conditions Not Requring Ecological Spray Dirft Buffers": This section asks whether the planned application meets a list of conditions determined to sufficiently reduce the risk of drift so that no ecological spray drift buffer is required and whether managed areas are the only landscapes downwind for at least the length of the label required buffer. The definition of "managed area" is provided in the calculator and is also on EPA's Mitigation Menu Website. This application does not include any of the listed conditions and the field has an unmanaged area downwind within the buffer distance, so we select "no" for both and continue to the next section.

Conditions Not Requiring Ecological Spray Drift Buffers. Note: Spray buffers may be required for other reasons (e.g., protection of human health).	**Hyperlink to EPA Description**	**Select Value**	**Reduction in Spray Buffer**
Do the planned application conditions fit any of these descriptions: -Chemigation methods, including: micro-sprinklers, drip-tape, drip emitters, subsurface or flood, and under non-permeable plastic surfaces -In-furrow sprays when nozzle height is <8 inches above soil surface; -Tree trunk drench, tree trunk paint, tree injection; -Soil injection; -Solid formulations that are used as a solid; and -Less than 1/10 acre (<4356 square feet) treated and Spot treatment: <1000 square feet treated (e.g., when applied with backpack or hand held sprayers).	Hyperlink	no	See Spray Buffer Distance Requirements on Label
Are managed areas the only landscapes downwind for at least the length of the label required buffer? Managed areas are defined as: • Agricultural fields, pastures, forage fields, and private rangelands, including untreated portions of the treated field; • 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; • Buildings and their perimeters, silos, or other man-made structures with walls and/or roof; • Areas present and/or maintained as a runoff/erosion measure as listed on EPA's Mitigation Menu website. Examples include vegetative filter strips (VFS), field borders, grassed waterways, vegetated ditches, riparian areas, managed/constructed wetlands, or other areas of intentional habitat improvement; • Areas present and/or maintained as a drift buffer reduction measure as listed on EPA's Mitigation Menu website. Examples include vegetative windbreaks, hedgerows, shelterbelts, riparian areas, private forests, woodlots, and shrublands; • Conservation Reserve Program (CRP) and Agricultural Conservation Easement Program (ACEP) lands (applicators may need to ensure that pesticide use does not cause degradation of the CRP habitat). • 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.	Hyperlink	no	These areas may be included in the spray buffer distance

The user should now scroll down to the relevant mitigation section for the intended application type: ground, aerial, or airblast.

A) Ground Boom Application Ecological Spray Buffer Mitigation:

The example application: ground application with a high boom of an insecticide to a you-pick blueberry field not in a PULA. The applicator is planning a ground application of an insecticide with a single maximum application rate of 0.6 lbs active ingredient (ai)/ acre. The maximum required buffer specified on the label is 100 ft. The adjusted buffer size is reduced because the total treated area is 3.5 acres and the application uses an over-the-top hooded sprayer.

Step 3) "Product Specific Application Information": The left two columns of the caclulator ask about application parameters including droplet size, boom height, and application rate. Enter the spray drift buffer distances specified on the product label. The example insecticide's label specifies a ground application buffer of 100 ft. If the field is in a Pesticide Use Limitation Area (PULA), a different buffer size may be specified on Bulletins Live! Two. This application will use a fine droplet size (which is the minimum labeled droplet size) and an application rate of 0.6 lbs a.i. per acre (which is the maximum labeled application rate).

Step 4) "Ground Application Ecological Drift Buffer Reduction Options:" The right two columns ask about different buffer reduction options the applicator may use which reduce the required buffer size. The applicator will go through and select from each drop-down menu the relevant mitigations. For this application, the total treated area is between 1-4 acres (3.5 acres total), so the buffer size is reduced by 35% to 65 ft. The application will use an over-the-top hooded sprayer, which reduces the buffer size by an additional 50% to 15 ft (rounded). The final adjusted aerial spray drift buffer size is 15 ft, displayed in the green box.

Ground Boom Application Ecological Spray Buffer Mitigation					
Product Specific Application Information	**Select or Enter Value**	**Ground Application Ecological Drift Buffer Reduction Options**	**Select or Enter Value**	**Percent Reduction in Ecological Spray Buffer Distance**	**Hyperlink to EPA Description**
Enter Ecological Spray Drift Buffer Distance from Product Label or Bulletins Live!Two (ft) as Applicable	100	**Reduced Single Application Rate** (automatically calculated based on product entry information in cells B16, B17, B20 and B21)	0%	0	Hyperlink
Select Minimum Spray Droplet Size Indicated on Product Label	Fine	**Select the width of the application area or number of acres to be applied**	Width of treated area 80ft up to 100ft or area treated 1 acre up to 4 acres	35	Hyperlink
Select Spray Droplet Size for Planned Application	Fine	**Low Boom Application** (24 inches or less above ground or crop canopy; applicable only for fine droplets)	make selection	0	Hyperlink
		Droplet Size Reduction (automatically calculated based on product entry information in cells B16 and B17)	Only applicable if product label allows medium or finer droplets, and intended application droplet is coarser than the label	Only applicable if product label allows medium or finer droplets, and intended application droplet is coarser than the label	Hyperlink
For Ground Sprays Select Required Boom Height Stated on the Label (Select High Boom (greater than 24 inches above ground or crop canopy) or Low Boom (24 inches or less above ground or crop canopy)	High Boom	For Herbicide Application ONLY **Use of Drift Reducing Agents** (select droplet size)	make selection	0	Hyperlink
Enter Required Maximum Labeled Application Rate for Planned Use (keep units of application the same; e.g., oz product/A)	0.600	**Hooded Sprayers, Layby Nozzles, Drop Nozzles**	Over-the-top Hooded Sprayer	50	Hyperlink
Enter Planned Application Rate for this Application (keep units of application the same; e.g., oz product/A)	0.600	**Select Applicable Downwind windbreak**/hedgerow/ riparian/forest/ woodlots/shrubland	make selection	0	Hyperlink
		Relative humidity is 60% or more at time of application? (select "yes" or "no")	make selection	0	Hyperlink
		Adjusted Ground Spray Drift Buffer (ft)		15	

B) Aerial Application Ecological Spray Buffer Mitigation:

The example application: aerial application of an insecticide to corn not in a PULA. The applicator is planning an aerial application of an insecticide with a single maximum application rate of 0.6 lbs active ingredient (ai)/ acre. The maximum required buffer specified on the label is 300 ft. Their adjusted buffer size is reduced by using a larger droplet size (coarse instead of medium) and a basic windbreak.

Step 3) "Product Specific Application Information": The left two columns of the caclulator ask about application parameters including droplet size, boom height, and application rate. Enter the spray drift buffer distances specified on the product label. The example insecticide's label specifies an aerial application buffer of 400 ft. If the field is in a Pesticide Use Limitation Area (PULA), a different buffer size may be specified on Bulletins Live! Two. This application will use a coarse droplet size (the minimum size indicated on the label is medium) and an application rate of 0.6 lbs a.i. per acre (which is the maximum labeled application rate).

Step 4) "Aerial Application Ecological Drift Buffer Reduction Options:" The right two columns ask about different buffer reduction options the applicator may use which reduce the required buffer size. The applicator will go through and select from each drop-down menu the relevant mitigations. For this application, a larger droplet size is being used than the minimum allowed on the label (coarse vs. medium), so the buffer size is reduced by 40% to 170 ft (rounded). The field has a basic windbreak downwind, so the buffer size is reduced by an additional 50% to 85 ft. The final adjusted aerial spray drift buffer size is 85 ft, displayed in the green box.

Aerial Application Ecological Spray Buffer Mitigation

Product Specific Application Information	Select or Enter Value	Aerial Application Ecological Drift Buffer Reduction Options	Select or Enter Value	Percent Reduction in Ecological Spray Buffer Distance	Hyperlink to EPA Description
Enter Ecological Spray Drift Buffer Distance from Product Label or Bulletins LiveTwo (ft) as Applicable	300	**Reduced Single Application Rate** (automatically calculated based on product entry information in cells B31 and B32)	0%	0	Hyperlink
Select Minimum Spray Droplet Size Indicated on Product Label	Medium	**Reduced Buffer For Larger Droplet Size Applied** (automatically calculated based on product entry information in Cells B28 and B29)	Maximum Buffer identified, coarse droplet buffer is 170ft and is used in calculation in cell F34	Maximum Buffer identified Droplet Specific Maximum Buffer Used in cell F34	Hyperlink
Select Spray Droplet Size for Planned Application	Coarse	**Select the width of the application area or number of acres to be applied**	make selection	0	Hyperlink
		For Herbicide Application ONLY **Use of Drift Reducing Agents** (select droplet size)	make selection	0	Hyperlink
Enter Required Maximum Labeled Application Rate for Planned Use (keep units of application the same; e.g., oz product/A)	0.600	**50% reduced boom length during application** (select windspeed at time of application)	make selection	0	Hyperlink
Enter Planned Application Rate for this Application (keep units of application the same; e.g., oz product/A)	0.600	**Select Applicable Downwind windbreak**/hedgerow/ riparian/forest/ woodlots/shrubland	basic windbreak/hedgerow/artificial screen	50	Hyperlink
		Relative humidity is 60% or more at time of application? (select "yes" or "no")	make selection	0	Hyperlink
		Adjusted Aerial Spray Drift Buffer (ft)		85	

C) Airblast Application Ecological Spray Buffer Mitigation:

The example application: airblast application to a single row in peach orchards. The applicator is planning an airblast application of an insecticide with a single maximum application rate of 0.2 lbs active ingredient (ai)/ acre. Only a single row will be treated because the pest is expected to move into the field from an unmanaged area adjacent to a single upwind field border. This means that the last downwind row will not be treated. The maximum required buffer specified on the label is 85 ft.

Step 3) "Product Specific Application Information": The left two columns of the caclulator ask about application parameters including droplet size, boom height, and application rate. Enter the spray drift buffer distances specified on the product label. The example insecticide's label specifies an aerial application buffer of 400 ft. If the field is in a Pesticide Use Limitation Area (PULA), a different buffer size may be specified on Bulletins Live! Two. Droplet size is not

USER GUIDE: SPRAY DRIFT MITIGATION CALCULATOR TOOL

applicable for airblast applications at this time. This application will use an application rate of 0.2 lbs a.i. per acre (which is the maximum labeled application rate).

Step 4) "Airblast Application Ecological Drift Buffer Reduction Options:" The right two columns ask about different buffer reduction options the applicator may use which reduce the required buffer size. The applicator will go through and select from each drop-down menu the relevant mitigations. For this application, only 1 row is being treated which reduces the buffer size by 70% to 25 ft (rounded). The last downwind row is not being treated (is "skipped"), which reduces the buffer size by an additional 50% to 10 ft (rounded). The minimum required ecological spray drift buffer size is 10 ft, so for this application no ecological spray drift buffer is needed, as displayed in the green box.

Airblast Application Ecological Spray Buffer Mitigation

Product Specific Application Information	Select or Enter Value	Airblast Application Ecological Drift Buffer Reduction Options	Select Spray Equipment	Percent Reduction in Ecological Spray Buffer Distance	Hyperlink to EPA Description
Enter Ecological Spray Drift Buffer Distance from Product Label or Bulletins LiveTwo as Applicable (units are in feet)	85	**Reduced Single Application Rate** (automatically calculated based on product entry information in cells B40 and B41)	Typical Spray Equipment	0	Hyperlink
Enter Required Maximum Labeled Application Rate for Planned Use (keep units of application the same; e.g., oz product/A)	0.200	**Number of Rows Upwind Treated** (Select from dropdown in cell E40)	1 row treated	70	Hyperlink
Enter Planned Application Rate for this Application (keep units of application the same; e.g., oz product/A)	0.200	**Skipping the last downwind row?**	yes	50	Hyperlink
		Select Applicable Downwind windbreak/hedgerow/ riparian/forest/ woodlots/shrubland	make selection	0	Hyperlink
		Adjusted Airblast Spray Drift Buffer (ft)		**No Ecological Spray Drift Buffer Needed**	

Repeat the above process for each planned application as needed. The calculator includes a "Clear All User Inputs" button, or the "Create New Worksheet for Another Field/Management Unit" button to create a new separate tab for each field. You can also save or print the filled-out calculator to aid in mitigation tracking.

Table 8. Mitigation measures identified when making broadcast ground applications.

Mitigation Measures	% Reduction in Distance[5]
Application Parameters	
Reduced single application rate	% reduction corresponds to application rate reduction from maximum on pesticide product label[2]
High boom, fine to medium-coarse DSD[1]	55%
High boom, coarse DSD[1]	65%
Low boom, very fine to fine DSD[1]	40%
Low boom, fine to medium-coarse DSD[1]	65%
Low boom, coarse DSD[1]	75%
Over-the-top Hooded Sprayer	50%
Row-middle Hooded Sprayer	75%
Sprays below crop using drop nozzles or layby nozzles	50%
Spray drift reducing adjuvants, Medium DSD	30%
Spray drift reducing adjuvants, Coarse or Very coarse DSD	15%
Reduced Proportion of Field Treated (Number of Ground Application Equipment Passes)[3]	
1 pass	75%
2-4 passes	35%
5-10 passes	15%
Other Mitigation Measures	
Downwind windbreak[4]/hedgerow/riparian/forest/woodlots/shrubland	50% for basic windbreak/hedgerow 75% for advanced windbreak/hedgerow 100% for riparian/forests/woodlots/shrubland ≥ 60 ft width
Relative humidity is 60% or more at time of application	10%

DSD = droplet size distribution
Low boom height=release height is less than 2 feet above the ground
high boom=release height is greater than 2 feet above the ground
[1] This % reduction assumes use of high boom, very fine to fine droplet size for ground.
[2] Example 10% reduction in the spray drift buffer for 10% lower single application rate than labeled maximum single application rate.
[3] A spray drift buffer applies to downwind non-target areas. The reduced number of passes applies to the upwind part of the treated field.
[4] Artificial windbreaks (*e.g.*, a curtain or netting) are also applicable.
[5] After mitigation reductions in the spray buffer are applied, round to the nearest 5ft increment (*e.g.*, 50ft, 35ft)

Roadside Buffer Potential Examples

- Droplets Changing from fine to medium droplets = 65 to 75% reduction depending on boom height
- Drift Reducing Adjuvant (Agent) = 15 to 30% reduction depending on droplet size
- Windbreak or trees around treated area = 50 to 100% reduction

Windbreak-Shelterbelt Criteria

All	50% reduction	75% reduction
downwind of the pesticide application and non-target area		
must run full length of treated area		
dense foliage, non-managed area is not visible from upwind side		
planted to CRP standards		
maintained for functionality		
Tree height	same height or above the application release height	≥ 2X the application release high
Species and Width	1-row of trees and/or shrubs or a 4-ft.-wide strip of non-woody vegetation	≥ 2 rows of trees and/or shrubs with a mixture of vegetation types (e.g., trees, shrubs, herbs), or that have ≥ 8 ft. of depth for herbaceous (nonwoody) vegetation
Semi permeable manmade structure, curtain, netting raised prior to application	same height or above the application release height	same height or above the application release height

Spray Drift Buffer Calculation

Label requires 60 foot buffer for ground application

- Remember managed areas can be inside the spray buffer: ag fields, mowed areas, roads, etc.
- 65% reduction for larger droplets (high boom example)
- 15% reduction for drift reducing adjuvant

Buffer would be 80% lower or 12 feet

If you need a small buffer

- Rate reduction, 20% rate reduction = 20% smaller buffer
- Reduce the area treated (potentially treating just a strip near the road counts)
- Wind breaks on downwind side of area = 50 to 100% reduction

Mitigation for Runoff/Erosion – Point System

- Designed to protect listed species and critical habitat up to 1,000 feet downslope.
- Some areas outside of treated area can be included in the 1,000 feet, such as ag fields, roads, gravel surfaces, field buffers, conservation reserve land, etc.
- Herbicides will need 0 to 9 mitigation points, which will be listed on label
- There are ~ 40 ways to reduce runoff/erosion mitigations

- Some applications do **NOT** need buffers, habitat more than 1,000 feet away, spot treatments, etc.

Runoff/erosion Mitigations

Geographic Location

County-based relief

Field Characteristics

Slope ≤3%

Coarse-textured soils

In-field Measures

Conservation tillage

Cover crops

Vegetative filter strips

Reservoir tillage

Irrigation water management

Field-adjacent Measures

Grass waterway

Vegetative filter

Vegetative ditch

Riparian area

Terrestrial habitat

Other

Mitigation tracking

Specialist or Conservation program

Two from: in-field, field-adjacent, or runoff/discharge

Pesticide Specific

Annual rate reduction

Reduction % field treated

Soil incorporation

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/2025-04/runoff-mitigation-worksheet-april-2025.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 • Vegetative filter strips, field borders, hedgerows, Conservation Reserve Program lands, and other areas for spray drift or runoff mitigation • Managed wetlands • On-farm contained irrigation water sources that are not connected to adjacent water bodies		

General Field/Management Unit Information (Optional Information – Does not Impact Calculation)	
Name:	
Today's Date:	
Field/Management Unit Identification(s)[3]	
Crop(s)	
Pesticide Product Name(s)	
Target Application Date(s)	
Required Number of Mitigation Points (from label – if applicable)	
Required Number of Mitigation Points (from bulletin – if applicable)	
Other restrictions of note	

[1] Bulletins Live! Two Website: https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins
[2] Excel Mitigation Points Calculator: https://www.epa.gov/system/files/documents/2024-10/runoff-mitigation-calculator-tool.xlsm
[3] A field or management unit is defined as the single contiguous piece of land that is managed as a single unit in production or in preparation for production of a single crop. A uniform field may be sub-divided based upon different crops (e.g., vegetables and leafy greens) or sub-divided based upon different features (e.g., flat portion and contoured portion).

Mitigation relief options

Mitigation Relief	**Pesticide Runoff Vulnerability and Field Characteristics**		**Points**	**Score**
County-based mitigation relief	Your county may receive mitigation relief points if in a geographic area with reduced pesticide runoff vulnerability. Check the runoff vulnerability credit of your location at https://www.epa.gov/system/files/documents/2024-10/county-mitigation-relief-points-runoff-vulnerability.pdf	Pesticide runoff vulnerability - very low	6	
		Pesticide runoff vulnerability - low	3	
		Pesticide runoff vulnerability - medium	2	
		Pesticide runoff vulnerability - high	0	
Field Characteristics[3]				
Field with Slope ≤ 3%	Field slope ≤3% (naturally low slope or flat fields; flat laser leveled fields)		2	
Predominantly Sandy Soils[4]	Moderately sandy soils: Fields with 10-20% clay and 50-90% sand (HSG B type soils)		2	
	Predominately sandy soils: Fields with ≤10% clay and ≥90% sand (HSG A type soils)		3	
Conservation Program and Runoff/Erosion Specialists/Mitigation Tracking				
Mitigation Tracking	Documented at the field or farm level, using paper or electronic format (using this worksheet counts for this measure)		1	
Runoff/Erosion Specialists **OR** Conservation Program [Select one; points are not additive for doing both]	Working with and following recommendations from a technical specialist		1	
	Participating in a conservation program		2	
	Participating in an EPA Qualified Conservation program		9+	

Runoff/erosion mitigation options

Mitigation Measure Title[1]	**Measures Included in Mitigation Category[1,2]**	**Points**	**Score**
Application Parameters			
Annual Application Rate Reduction [Select one]	Any application 10% to <30% less than the maximum labeled annual application rate	1	
	Any application 30% to <60% less than the maximum labeled annual application rate	2	
	Any application ≥60% less than the maximum labeled annual application rate	3	
Reduction in Proportion of Field Treated [Select one]	10 to <30% of Field Area NOT treated (Banded application, partial treatment, precision sprayers)	2	
	30 to <60% of Field Area NOT treated (Banded application, partial treatment, precision sprayers)	3	
	≥60% of Field Area NOT treated (Banded application, partial treatment, precision sprayers)	4	
Soil Incorporation	Watering-in or mechanical incorporation before a runoff producing event	1	
In-Field Mitigation Measures[3]			
Conservation Tillage [Select one]	No-till	2	
	Reduced tillage, mulch tillage, strip till, ridge tillage	3	
Reservoir Tillage	Reservoir tillage, furrow diking, basin tillage	3	
Contour Farming	Contour farming, contour tillage, contour orchard and perennial crops	2	
Vegetative Strips – In-Field	Inter-row vegetated strips, strip cropping, alley cropping, prairie strips, contour buffer strips, contour strip cropping, prairie strip, alley cropping, vegetative barrier (occurring in a contoured field)	2	
Terrace Farming	Terrace farming, terracing, field terracing	2	
Cover Crop/Continuous Ground Cover [Select one]	Cover crop or continuous ground cover; with tillage	1	
	Cover crop or continuous ground cover; no tillage; short-term cover crop	2	
	Cover crop or continuous ground cover; no tillage; long-term cover crop	3	
Irrigation Water Management [Select one]	Use of soil moisture sensors/evapotranspiration meters with center pivots & sprinklers; above ground drip tape, drip emitters; micro-sprinklers; general irrigation management	2	
	Use of below tarp irrigation, below ground drip tape; dry farming, non-irrigated lands; no irrigation	3	

Mitigation relief options			
Mitigation Relief	**Pesticide Runoff Vulnerability and Field Characteristics**	**Points**	**Score**
Mulching [Select one]	Mulching with permeable artificial materials (i.e., landscape fabrics, synthetic mulches)	1	
	Mulching with natural materials	3	
Anionic Polyacrylamide (PAM)	Use of Anionic Polyacrylamide (PAM)	2	
Erosion Barriers	Wattles; silt fences	2	
Adjacent to Field Mitigations[5]			
Grassed Waterway	Grassed waterway	2	
Vegetative filter strips (VFS) or field border adjacent to field [Select one]	20 to <30 feet wide	1	
	30 to <60 feet wide	2	
	≥60 feet wide	3	
Vegetated Ditch	Vegetated drainage ditch	1	
Riparian area; riparian forest buffer; riparian herbaceous cover [Select one]	20 to <30 feet	1	
	30 to <60 feet	2	
	≥60 ft	3	
Constructed and Natural Wetlands	Constructed and natural wetlands, wetland and riparian landscape/habitat improvement	3	
Terrestrial Habitat Landscape Improvement [Select one]	20 to <30 feet	1	
	30 to <60 feet	2	
	≥60 ft	3	
Filtering Devices [Select one]	Filters, sleeves, socks, or filtration units containing activated carbon	3	
	Filters, sleeves, socks, or filtration units containing compost amendments	1	
Systems that Capture Runoff and Discharge			
Water Retention Systems	Sediment basins, catch basins, sediment traps, water retention ponds	2	
Subsurface drainages and tile drainage installed without controlled drainage structure	Subsurface tile drains, tile drains without controlled drainage structure	1	
Other Mitigation Measures[6]			
Using mitigation measures from multiple categories	Practices must be used from at least 2 of the following categories: in-field, field-adjacent, or systems that capture runoff and discharge[6]	1	
	TOTAL MITIGATION POINTS SCORE:		

[1] EPA's mitigation menu and measure descriptions specific to pesticides are available in the following websites: https://www.epa.gov/pesticides/mitigation-menu and https://www.epa.gov/pesticides/menu-measure-descriptions. If the state has a more restrictive requirement, that must be followed instead. Not all measures are applicable to all fields and crops.

[2] Only one of the measures that qualify from a 'mitigation menu item' can be used. For example, a user could get mitigation points for cover cropping or double cropping but not both.

[3] Multiple field characteristics may apply to an individual field.

[4] Soil texture is as defined by USDA's soil classification system. See USDA's Web Soil Survey tool to determine soil texture: https://websoilsurvey.nrcs.usda.gov/app/.

[5] Adjacent to the field mitigations should be located downgradient from a treated field to effectively reduce pesticide exposure in runoff and erosion.

[6] For example, if a cover cropping and adjacent to the field VFS are both utilized, the efficacy of the mitigation measures in combination may be increased.

Notes:

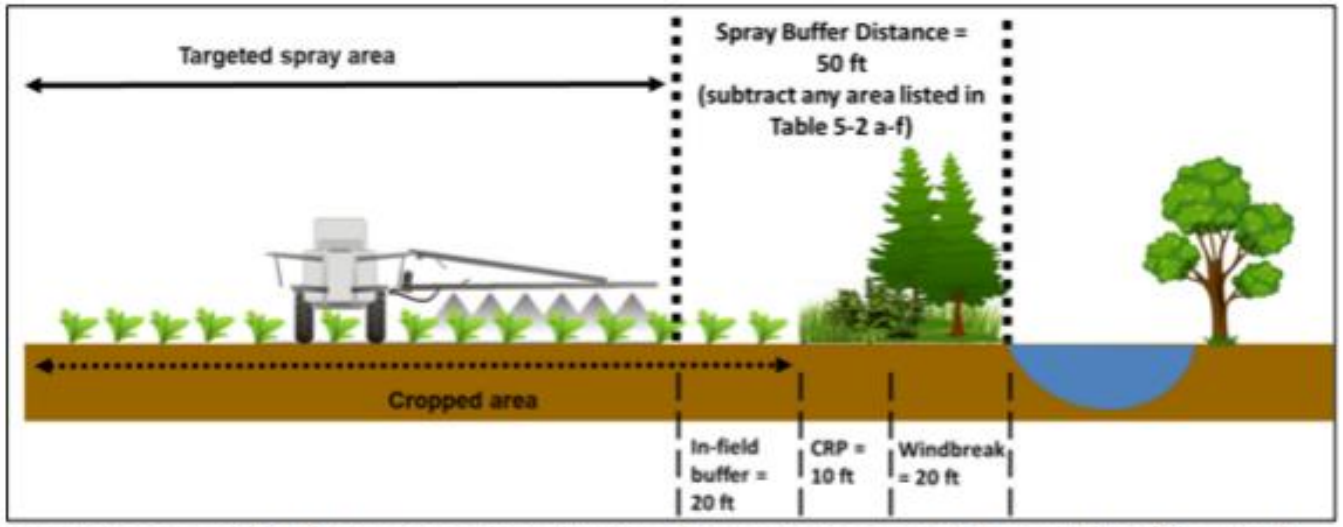


Figure 7. Diagram of the field (cropped area) with a downwind ecological spray drift buffer which includes a portion of the cropped area because the adjacent managed areas are less than the identified spray drift buffer distance.[25]

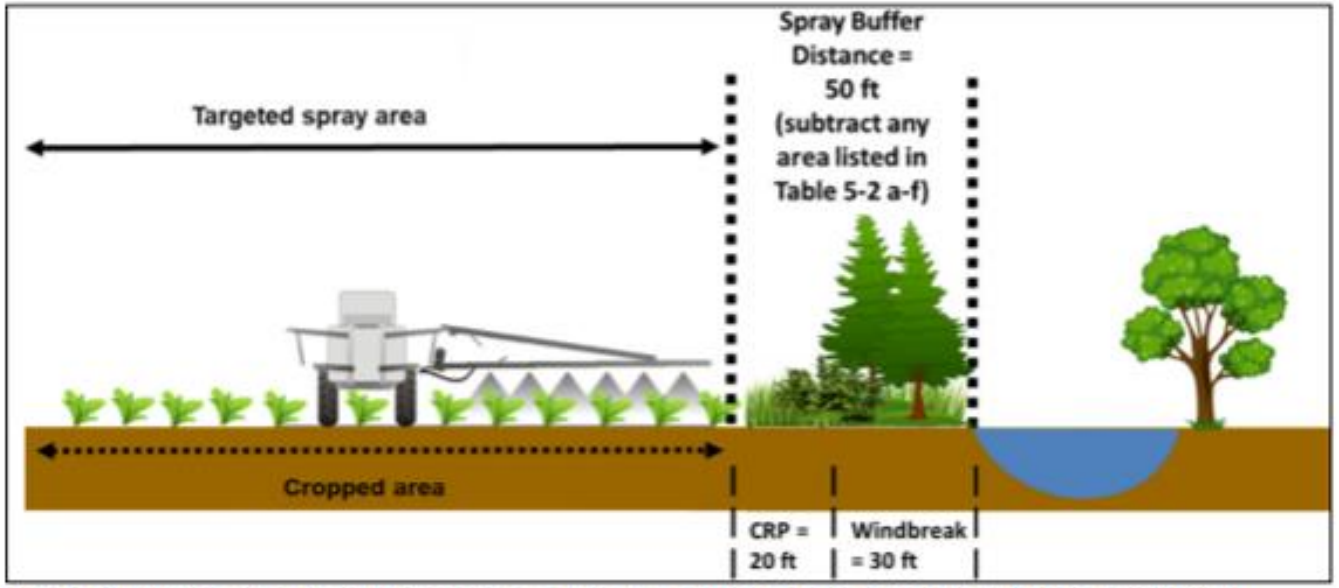
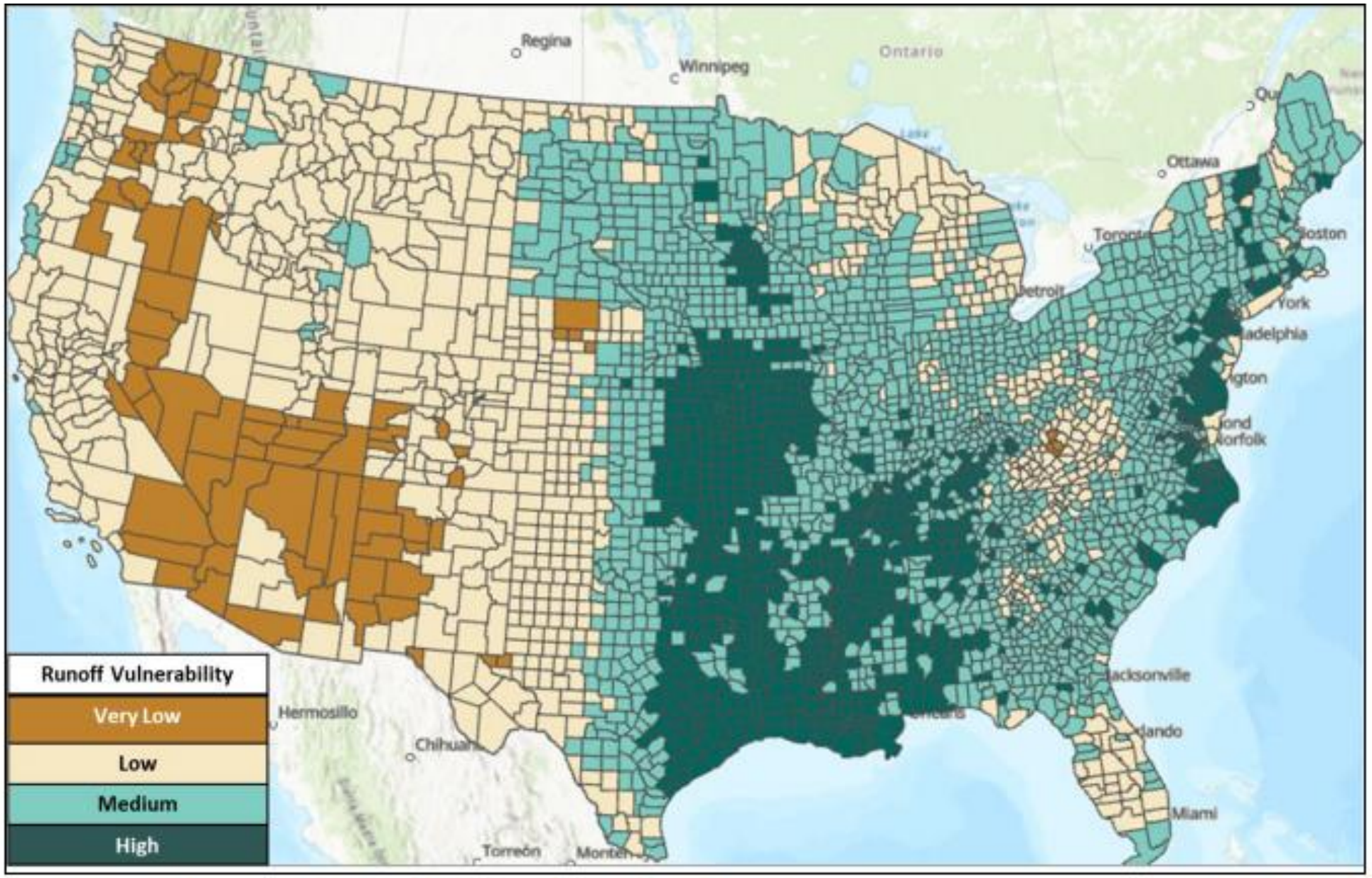


Figure 8. Diagram of the field (cropped area) with no cropped area included in the downwind ecological spray drift buffer because adjacent managed areas are equal to the identified spray drift buffer distance.[25]

Spray Drift Example: 50 Foot Buffer Requirement

Runoff Vulnerability Relief Points (0 to 6 pts of Relief)



Relief Points

- Dark Brown = 6 pts
- Light Brown = 3 pts
- Light Green = 2 pts
- Dark Green = 0 pts

Texas

6 points for

El Paso
Loving
Winkler

Majority west TX
3 points

Texas	Points
Anderson County	2
Andrews County	3
Angelina County	2
Aransas County	0
Archer County	2
Armstrong County	3
Atascosa County	2
Austin County	0
Bailey County	3
Bandera County	2
Bastrop County	0
Baylor County	2
Bee County	2
Bell County	0
Bexar County	2
Blanco County	2
Borden County	3
Bosque County	2
Bowie County	0
Brazoria County	0
Brazos County	0
Brewster County	3
Briscoe County	3
Brooks County	3
Brown County	2
Burleson County	0
Burnet County	2
Caldwell County	0
Calhoun County	0
Callahan County	2
Cameron County	2
Camp County	0
Carson County	3
Cass County	0
Castro County	3
Chambers County	0
Cherokee County	2
Childress County	3
Clay County	2
Cochran County	3
Coke County	3
Texas cont.	**Points**
Coleman County	2
Collin County	0
Collingsworth County	3
Colorado County	0
Comal County	2
Comanche County	2
Concho County	2
Cooke County	0
Coryell County	2
Cottle County	3
Crane County	3
Crockett County	3
Crosby County	3
Culberson County	3
Dallam County	3
Dallas County	2
Dawson County	3
Deaf Smith County	3
Delta County	0
Denton County	0
DeWitt County	2
Dickens County	3
Dimmit County	3
Donley County	3
Duval County	3
Eastland County	2
Ector County	3
Edwards County	3
El Paso County	6
Ellis County	0
Erath County	2
Falls County	0
Fannin County	0
Fayette County	0
Fisher County	3
Floyd County	3
Foard County	2
Fort Bend County	0
Franklin County	0
Freestone County	0
Frio County	2
Gaines County	3
Galveston County	0
Garza County	3
Gillespie County	2
Glasscock County	3
Goliad County	2
Gonzales County	2
Gray County	3
Grayson County	0
Gregg County	0
Grimes County	0
Guadalupe County	0
Hale County	3
Hall County	3
Hamilton County	2
Hansford County	3
Hardeman County	3
Hardin County	0
Harris County	0
Harrison County	0
Hartley County	3
Texas cont.	**Points**
Haskell County	2
Hays County	2
Hemphill County	3
Henderson County	2
Hidalgo County	3
Hill County	0
Hockley County	3
Hood County	2
Hopkins County	0
Houston County	0
Howard County	3
Hudspeth County	3
Hunt County	0
Hutchinson County	3
Irion County	3
Jack County	2
Jackson County	0
Jasper County	0
Jeff Davis County	3
Jefferson County	0
Jim Hogg County	3
Jim Wells County	2
Johnson County	0
Jones County	3
Karnes County	2
Kaufman County	0
Kendall County	2
Kenedy County	3
Kent County	3
Kerr County	2
Kimble County	2
King County	3
Kinney County	2
Kleberg County	2
Knox County	3
La Salle County	3
Lamar County	0
Lamb County	3
Lampasas County	2
Lavaca County	0
Lee County	0
Leon County	0
Liberty County	0
Limestone County	0
Lipscomb County	3
Live Oak County	2
Llano County	2
Loving County	6
Lubbock County	3
Lynn County	3
Madison County	0
Marion County	0
Martin County	3
Mason County	3
Matagorda County	0
Maverick County	3
McCulloch County	2
McLennan County	0
McMullen County	2
Medina County	2
Menard County	3
Midland County	3
Texas cont.	**Points**
Milam County	0
Mills County	2
Mitchell County	3
Montague County	2
Montgomery County	0
Moore County	3
Morris County	0
Motley County	3
Nacogdoches County	2
Navarro County	0
Newton County	0
Nolan County	2
Nueces County	2
Ochiltree County	3
Oldham County	3
Orange County	0
Palo Pinto County	2
Panola County	0
Parker County	2
Parmer County	3
Pecos County	3
Polk County	0
Potter County	3
Presidio County	3
Rains County	0
Randall County	3
Reagan County	3
Real County	2
Red River County	0
Reeves County	3
Refugio County	0
Roberts County	3
Robertson County	0
Rockwall County	0
Runnels County	2
Rusk County	0
Sabine County	0
San Augustine County	0
San Jacinto County	0
San Patricio County	2
San Saba County	2
Schleicher County	3
Scurry County	3
Shackelford County	2
Shelby County	0
Sherman County	3
Smith County	2
Somervell County	2
Starr County	2
Stephens County	2
Sterling County	3
Stonewall County	3
Sutton County	3
Swisher County	3
Tarrant County	0
Taylor County	3
Terrell County	3
Terry County	3
Throckmorton County	2
Titus County	0
Tom Green County	3
Travis County	2
Texas cont.	**Points**
Trinity County	0
Tyler County	0
Upshur County	2
Upton County	3
Uvalde County	2
Val Verde County	3
Van Zandt County	0
Victoria County	0
Walker County	0
Waller County	0
Ward County	3
Washington County	0
Webb County	3
Wharton County	0
Wheeler County	3
Wichita County	2
Wilbarger County	2
Willacy County	2
Williamson County	0
Wilson County	2
Winkler County	6
Wise County	2
Wood County	0
Yoakum County	3
Young County	2
Zapata County	2
Zavala County	2

Pesticide runoff Vulnerability Mitigation relief Points

Alphabetized by State and county

Mitigation Menu

Runoff/Erosion Mitigation Options

You may use the measures in Tables 1 and 2 unless you see more restrictive limitations on individual labels or bulletins. If you use these tables, you may select any combination of measures in the tables to achieve the minimum points required by the label or bulletin.

Table 1. Mitigation relief options.

Mitigation Relief	Pesticide Runoff Vulnerability and Field Characteristics	Points
County-based mitigation relief [see runoff vulnerability map by county and County list (pdf)] ***Select one option***	Pesticide runoff vulnerability - very low	6
	Pesticide runoff vulnerability – low	3
	Pesticide runoff vulnerability - medium	2
	Pesticide runoff vulnerability – high	0
Field slope	Field slope ≤3% (naturally low slope or flat fields; flat laser leveled fields)	2
Predominantly sandy soils ***This option can only be used if the product label does not prohibit application on sandy soils***	Fields with 10-20% clay and 50-90% sand (includes loam, silt loam, or silt soil) without a restrictive layer that impedes the movement of water through the soil (also described as Hydrologic Soil Group B)	2
	Fields with ≤10% clay and ≥90% sand (includes sand, loamy sand, or sandy loam soil) without a restrictive layer that impedes the movement of water through the soil (also described as Hydrologic Soil Group A)	3
Mitigation tracking	Documented at the field or farm level, using paper or electronic format	1
Working with and following recommendations from a technical specialist **OR** Participating in a conservation program (non-qualified) ***Select one; points are not additive for doing both***	**The technical specialist must meet the following characteristics:** • Have technical training, education and/or experience in an agricultural discipline, water or soil conservation, or other relevant disciplines that provides training and practice in the area of runoff or erosion mitigation technologies/measures; **and** • Participate in continued education or training in the area of expertise which should include runoff and erosion control; **and** • Have experience advising on conservation measures designed to develop site specific runoff and erosion	1

Table 1. Mitigation relief options.

Mitigation Relief	Pesticide Runoff Vulnerability and Field Characteristics	Points
	plans that include mitigation measures described in Table 2 below.	
	The conservation program must meet the following characteristics: • Provides advice from individuals who meet the same characteristics provided above for technical specialists; **and** • Provides site-specific guidance tailored to the grower/applicator's crop and/or location; **and** • Focuses on reducing or managing runoff and/or erosion (including for example, soil loss, soil conservation, water quality protection) from agricultural fields or other pesticide use sites; **and** • Provides documentation of program enrollment for the program enrollee. This documentation does not need to be provided to EPA; **and** ○ Includes verification of implementation of the recommended measures or activities (measures were established and maintained). Verification can be done through the conservation program and provided to the program enrollee. Verification is **not** required to be submitted to EPA. **Conservation programs will be 2 points until they have been designated by EPA as an EPA-Qualified Conservation Program.**	2
Participating in an EPA-Qualified Conservation Program	**The conservation program must meet the characteristics described above and meet the maximum of 9 points.** **Additionally:** • Operations that consist of multiple distinct "farms" that consist of multiple fields with similar runoff/erosion concerns, need to have a program implemented on each farm, **and** • Programs would achieve a minimum of 9 points at the time of application, which would include 2 points for being part of a conservation program, **and** • A program would maintain the above elements once it has been "qualified." The rationale and additional characteristics that are necessary to support designation as an EPA-Qualified Conservation Program are described in more detail in the Final Insecticide Strategy and Ecological Mitigation Support Document to	9

Table 1. Mitigation relief options.

Mitigation Relief	Pesticide Runoff Vulnerability and Field Characteristics	Points
	Support Endangered Species Strategies (version 2.0) (pdf) (5.07 MB) .	
	EPA's first designated "EPA-Qualified Conservation Program" USDA-Natural Resources Conservation Service's (NRCS) Environmental Quality Incentives Program (EQIP), when incorporating NRCS Conservation Program Standard (CPS) 595 Pest Management Conservation System with the "Additional Criteria" for water quality in the development of the conservation plan, and implements the recommended practices identified in the conservation plan before or at the time of pesticide application	9

Table 2. Runoff/erosion mitigation options

Mitigation	Qualifying Practices	Points
Application parameters		
Annual application rate reduction ***Select one option***	Any application 10% to <30% less than the maximum labeled annual application rate	1
	Any application 30% to <60% less than the maximum labeled annual application rate	2
	Any application ≥60% less than the maximum labeled annual application rate	3
Anionic Polyacrylamide (PAM)	Application of water-soluble formulations of anionic PAM	2
Reduction in the proportion of field treated (banded application, partial field treatment, ground precision sprayer, smart sprayer, or other specialized method) ***Select one option***	Portion of field not treated: 10 to <30%	2
	Portion of field not treated: 30 to <60%	3
	Portion of field not treated: ≥60%	4
Soil incorporation	Watering-in or mechanical incorporation before a runoff producing event. A runoff producing event is considered as follows: • A 50% or greater chance of rainfall of 1 inch or more is expected to occur within 48 hours of the application as predicted by the NOAA/National Weather Service. AND, • The precipitation potential is 50% or greater at any point during the 48-hr period.	1
In-field mitigation measures		

Table 2. Runoff/erosion mitigation options

Mitigation	Qualifying Practices	Points
Conservation tillage ***Select one option***	No-till, including perennial crops (e.g., orchards that are not tilled)	3
	Reduced tillage, strip tillage, ridge tillage, mulch tillage	2
Reservoir tillage	Reservoir tillage, furrow diking, basin tillage	3
Contour farming	Contour farming, contour tillage, contour orchard and perennial crops	2
Vegetative Strips - In-Field	Inter-row vegetated strips, strip cropping or intercropping, alley cropping, prairie strips, contour buffer strips, contour strip cropping, vegetative barrier (occurring in a contoured field)	2
Terrace farming	Terrace farming, terracing, field terracing	2
Cover crop or continuous ground cover ***Select one option***	Cover crop or continuous ground cover; with tillage	1
	Cover crop or continuous ground cover; no tillage; short-term cover crop	2
	Cover crop or continuous ground cover; no tillage; long-term cover crop	3
Irrigation water management ***Select one option***	Use of soil moisture sensors/evapotranspiration meters with center pivots & sprinklers; above ground drip tape, drip emitters; micro-sprinklers General irrigation management	2
	Use of below tarp irrigation, below ground drip tape; dry farming, non-irrigated lands No irrigation	3
Mulching ***Select one option***	Mulching with permeable artificial materials (i.e., landscape fabrics, synthetic mulches)	1
	Mulching with natural materials	3
Erosion barriers	Wattles, silt fences	2
Field-adjacent mitigation measures		
Grassed waterway	Grassed waterway	2
Vegetative filter strips (VFS) or field border adjacent to field ***Select one option***	20 to 30 ft wide	1
	30 to <60 ft wide	2
	≥60 ft wide	3
Vegetated ditch	Vegetated ditch	1
Riparian area; riparian forest buffer; riparian herbaceous cover ***Select one option***	20 to <30 ft	1
	30 to <60 ft	2
	≥60 ft	3

Table 2. Runoff/erosion mitigation options

Mitigation	Qualifying Practices	Points
Constructed and natural wetlands	Constructed and natural wetlands, wetland and riparian landscape/habitat improvement	3
Terrestrial habitat landscape improvement (i.e., critical area planting, cross wind trap strips, hedgerow planting, herbaceous wind barriers, windbreak-shelterbelt establishment and renovation, tree shrub planting, forest stand improvement, upland wildlife habitat management) ***Select one option***	20 to <30 ft	1
	30 to <60 ft	2
	≥60 ft	3
Filtering devices ***Select one option***	Filters, sleeves, socks, or filtration units containing activated carbon	3
	Filters, sleeves, socks, or filtration units containing compost amendments	1
Systems that capture runoff and discharge		
Water retention systems	Sediment basins, catch basins, sediment traps, water retention ponds	2
Subsurface drainages and tile drainage installed without controlled drainage structure	Subsurface tile drains, tile drains without controlled drainage structure	1
Using mitigation measures from multiple categories	Practices must be used from at least 2 of the following categories: in-field, field-adjacent, or systems that capture runoff and discharge Examples: 1 in-field measure + 1 field-adjacent measure OR 1 in-field measure + 1 system that captures runoff and discharge OR 1 field-adjacent measure + 1 system that captures runoff and discharge	1

Pesticide App for Label Mitigations

EPA released the Pesticide App for Label Mitigations (PALM), a mobile-friendly tool to serve as a one-stop shop that helps farmers and applicators use EPA's mitigation menu to reduce pesticide exposure to nontarget species from agricultural crop uses. PALM combines the functionality of the spray drift and runoff calculators in a mobile-friendly and easy-to-use web interface. This application also provides a useful summary to show how users calculated their runoff and erosion mitigation points or ecological spray drift buffer reductions and what field characteristics or application parameters are applicable to their individual applications.

These calculators are tools for informational purposes to assist pesticide users in determining whether the necessary level of mitigation has been met before applying a pesticide product. Pesticide users remain responsible for ensuring that all pesticide labeling requirements are met. Not all labels permit use of runoff/erosion mitigation measures or spray drift reduction.

This tool will not retain any of the information entered here.

Contact Us to ask about questions related to PALM.

Runoff/Erosion calculator **Spray drift calculator**

Last updated on August 14, 2025

WSSA
WEED SCIENCE
SOCIETY of AMERICA
RESEARCH - EDUCATION - INNOVATION
FOUNDED 1956

Register for EPA's Webinar on Mitigation Measures to Protect Endangered Species from Pesticides

The U.S. Environmental Protection Agency (EPA) will hold a public webinar on September 16, 2025, at 2:00 PM ET to provide information on the ecological runoff/erosion and spray drift mitigation measures that can be used to protect endangered species from pesticides. These measures are part of EPA's online menu of mitigation measures pesticide users can choose from depending on their crop, region, agronomic practices, and the individual field to protect endangered species. The mitigation menu approach is intended to improve flexibility

ESA: Compliance and Will It Go Away?

- Compliance with label mitigations.
  - State Lead Agencies will enforce labels.
  - Each state will decide the best way to do that.

- Will it go away?
  - Any modifications would require bipartisan support (e.g., some years Congress can't even pass the Budget).
  - The ESA has been successfully functioning for 50 years, and people want to protect golden eagles, Florida manatees, etc.

Press release | 21 Jul, 2022

Migratory monarch butterfly now Endangered - IUCN Red List

Gland, Switzerland, 21 July 2022 (IUCN) – The migratory monarch butterfly (*Danaus plexippus plexippus*), known for its spectacular annual journey of up to 4,000 kilometres across the Americas, has entered the IUCN Red List of Threatened Species™ as Endangered, threatened by habitat destruction and climate change. All surviving sturgeon species – also migratory, found across the northern hemisphere – are now at risk of extinction due to dams and poaching, pushing the world's most Critically Endangered group of animals yet closer to the brink. The tiger (*Panthera tigris)* has been reassessed, revealing new population figures.

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R3–ES–2024–0137; FXES1111090FEDR–256–FF09E21000]

RIN 1018–BE30

Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for Monarch Butterfly and Designation of Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to

ADDRESSES: You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal: *https://www.regulations.gov.* In the Search box, enter FWS–R3–ES–2024–0137, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on ''Comment.''

(2) *By hard copy:* Submit by U.S. mail to: Public Comments Processing, Attn: FWS–R3–ES–2024–0137, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments

Executive Summary

Why we need to publish a rule. Under the Act, a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range). If we determine that a species warrants listing, we must list the species promptly and designate the species' critical habitat to the maximum extent prudent and determinable. We have determined that the monarch butterfly meets the Act's definition of a threatened species; therefore, we are proposing to list it as such and proposing a designation of its critical habitat. Both listing a species as an

Dec. 12, 2024
March 12, 2025

March 2026
Reopened March 19, 2025
May 19, 2025

May 2026

07 JAN FWS Proposes Listing the Monarch Butterfly as "Threatened" Under the ESA

Categorized Brigit Rollins, Endangered Species Act, Environmental Law, Fish and Wildlife Service

Particularly relevant to agriculture is the first category of activity which would exempt actions done to maintain, enhance, remove, or establish milkweed and nectar plants within the monarch's range. FWS has specifically identified various agricultural activities that would fall under this category, including:

- Habitat restoration and management actions such as mowing and haying or the elimination of invasive plants or noxious weeds;
- Livestock grazing and routine ranching activities such as rotational grazing, patch-burn grazing, vegetation and invasive species management, the gathering and management of livestock, construction and maintenance of fences, and maintenance of livestock watering facilities;
- Routine agricultural activities such as plowing, drilling, disking, mowing, mechanical manipulation of agricultural land, operation of existing infrastructure, and routine conservation practices;
- Fire management;
- Silviculture practices and forest management activities;
- Maintenance, enhancement, remove, and establishment of milkweed and nectar plants on residential and other developed properties; and
- Vegetation management activities that remove milkweed/nectar plants during times of the year when monarchs are not present.

FWS added that "routine agricultural activities on lands already in use for agricultural production" would result in levels of milkweed loss that are considered "inconsequential to the conservation of the species."

UF/IFAS study: new mosquito species reported in Florida

A mosquito known only by its scientific name, Culex lactator, is the latest to establish in the Sunshine State.

Another new mosquito species has made its way across the tropics into Florida, making a permanent home in at least three counties.

Mississippi State Department of Health ·
Follow
15h ·

Mississippi State Department of Health investigators, in partnership with the CDC, have discovered the bacteria Burkholderia pseudomallei living in Mississippi soil. This is the first detection of this type of bacteria occurring environmentally in the U.S. The bacteria can cause melioidosis, a rare disease that can lead to pneumonia and sepsis, and be a serious health risk to those with chronic illnesses. Full details and precautions: https://msdh.ms.gov/page/23,24573,341.html

MISSISSIPPI STATE DEPARTMENT OF HEALTH
July 27, 2022

Rare Bacteria Discovered on the Mississippi Gulf Coast

al.com Follow

New swamp-dwelling salamander discovered in Alabama

"This discovery shows us how much more there is to learn even in our own backyards," lead author R. Alexander Pyron said in a news release.

BY DENNIS PILLION
MAY 5, 2022

A new species of swamp-dwelling salamander has been discovered in the south Alabama region called "America's Amazon," adding another name to the impressive list of amphibian species living there.

Researchers at George Washington University published a study this week identifying the new salamander and ~~naming it *Desmognathus*~~

www.sciencenews.org

ScienceNews

INTRODUCING ANIMALS

A clam presumed extinct for 40,000 years has been found alive

Researchers still don't know how the bivalve evaded science for so long

This tiny *Cymatioa cooki* extends the foot it uses to move around the sand beyond its translucent, white shell. Until now, the clam had been known only from fossils.

J. GODDARD

By Allison Gasparini

NOVEMBER 15, 2022 AT 9:59 AM

A species of clam is back from the dead.

Known as *Cymatioa cooki*, the clam had only ever

Near-extinct species spotted for first time in two hundred years: 'Nature surprises us'

Story by Sara Klimek • 5h

It was the ninth "most wanted" lost species — a list that comprises over 2,000 species across 160 countries.
© Provided by The Cool Down

5 October 2022 / Matthew Agius

Extinct animal was just hiding under a rock

Scientists find long-lost insect after an 80-year absence.

Share Tweet

Nicholas Carlile, scientist with NSW Department of Planning and Environment holds a (hidden) wood-eating cockroach / Credit: Justin Gilligan DPE

WITN News First Alert Weather

2 new crayfish species discovered off NC mountains

The Falls crayfish is one of two new species discovered in North Carolina. (NC Museum of Natural Sciences)

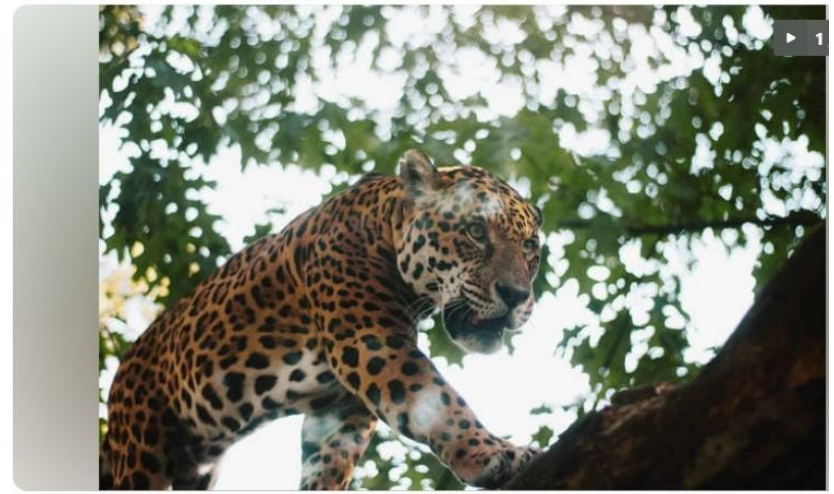
By Debra Worley

Published: Apr. 21, 2023 at 12:16 PM CDT

RALEIGH, N.C. (Gray News) – Two new species of crayfish were found only in North Carolina and nowhere else on the planet, according to the NC Museum of Natural Sciences.

Bronwyn Williams, the research curator of non-molluscan invertebrates at the museum, said the new species - the Stony Fork crayfish and the Falls crayfish - can only be found in the upper Yadkin River basin.

According to Williams, they are both highly restricted in their geographic ranges and acclimated to specific environmental conditions.



New Species of Wild Jaguar in Arizona, All the Details

©Image Credit: Molnár Tamás Photography™

A trail camera set up deep in the Huachuca Mountains near Tucson, Arizona, captured footage of a new, rare species of wild jaguar. The sighting of this beast has garnered great buzz among conservationists and scientists alike. Only the 8th wild jaguar recorded in the United States since the 1990s, this rare cat is a...

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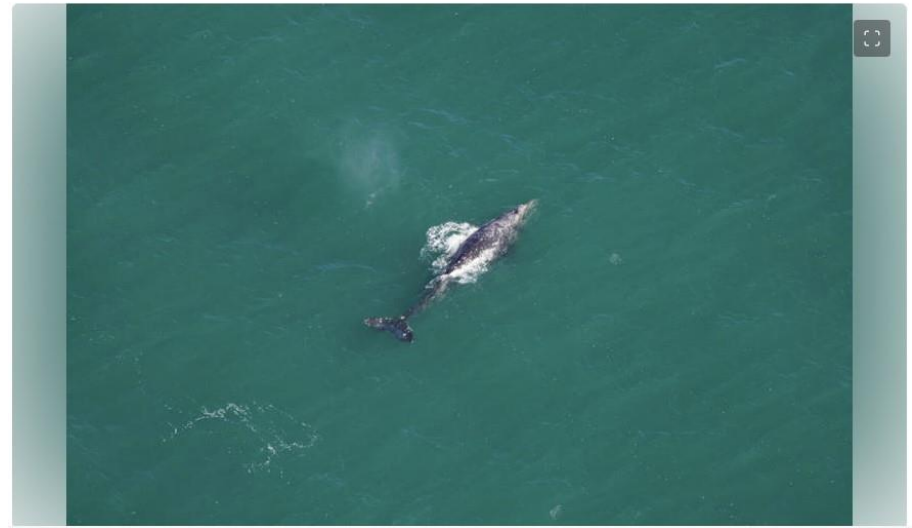
Story by Anna Skinner • 2h



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After 3,000 Years Absence, Tasmanian Devil Cubs Reappear In The Wild Of Australian Mainland

by Daniel 18/02/2022

Vermont botanists find threatened orchid not seen in state since 1902

Darryl Coote - 3h ago

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June 9 (UPI) -- Botanists in Vermont have found a federally protected orchid believed to have gone extinct in the state in 1902, officials said.

Tree thought to be extinct rediscovered in Texas

Talker News - 5h ago

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Chisos Mountains oak

Quercus tardifolia

By Danny Hapin via SWNS

A type of oak tree thought to have become extinct in 2011 has just been rediscovered in Texas, scientists have announced.

The 10 Steps Required to Bring Extinct Animals Back to Life And When It's Happening

Story by Jane Kenney • 7mo







1. DNA Extraction and Analysis

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The first and most crucial step in bringing an extinct species back to life is obtaining viable DNA. According to The University of Adelaide, this involves extracting preserved DNA from fossils, ancient remains, or preserved specimens. However, DNA degrades over time, so it's difficult to find complete, intact genetic material from extinct animals.

For example, the DNA of the woolly mammoth, which went extinct around 10,000 years ago, has been successfully extracted from frozen remains found in Siberian permafrost. Once extracted, scientists analyze the DNA to determine if it is sufficiently preserved to be used in the cloning process. The DNA must be intact enough to reconstruct the full genome of the extinct species.







5. Ethical and Ecological Considerations

©Flickr / William Warby

Before any extinct species is brought back to life, there are a host of ethical and ecological considerations that must be addressed as discussed by the American Veterinary Medical Association. For instance, if a species is resurrected, how will it interact with the current ecosystem? Will the animal survive in the modern world, where conditions may have changed significantly?

Additionally, there are concerns about the welfare of the animal, as well as the potential consequences of reintroducing a species that has been absent for thousands of years. Ethical questions also arise about whether we should resurrect animals for the sake of novelty or science, or if the effort should be focused on preserving current species that are on the brink of extinction.

8. Public Support and Funding

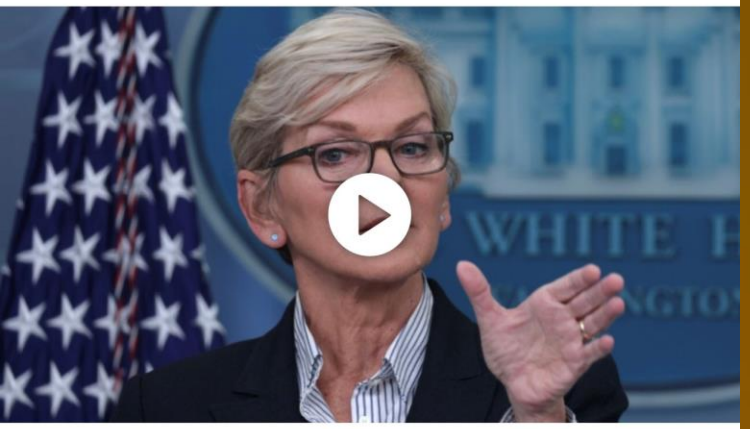
De-extinction projects require significant funding and public support to move forward. Currently, several organizations and research institutions, such as the Woolly Mammoth Revival Project and the Revive & Restore initiative, are leading efforts to resurrect extinct species. These projects rely on donations, grants, and investments to fund research and development.

As public interest in de-extinction grows, more resources are being allocated to these projects. However, funding is often limited, and the debate over the ethical implications of resurrecting extinct species can hinder widespread support. Public opinion will play a critical role in determining whether de-extinction projects continue to receive funding and support.

This prairie chicken is Biden's latest weapon in his war on fossil fuels

Biden and the left's war on fossil fuels appears to have no limits. That's why the lesser prairie chicken is so valuable to the administration in this fight

OPINION By Kris Kobach | Fox News



Biden admin shelling out millions for green energy projects in coal mining towns

Bo Copley, a former West Virginia coal miner, weighs in on the Biden administration's push to bring green energy to coal mining towns after pushing to shut down coal plants.

The left's war on fossil fuels knows no boundaries. Every line of attack will be pursued. The latest salvo came with the January listing of the lesser prairie chicken as a threatened or endangered species by the Biden administration's U.S. Fish and Wildlife Services (USFWS). The listing covers the entirety of the bird's habitat—which includes the southwest quarter of Kansas as well as the panhandles of Texas and Oklahoma.

Recently I, along with the attorneys general of Texas

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U.S. NEWS

Rare snake that grows over 8 feet found in Alabama for only second time in more than 60 years

The Eastern indigo found in the Conecuh National Forest is part of a breeding program to reintroduce the species back into the state, officials say.

— The Eastern indigo snake is a large non-venomous snake native to the Eastern United States.

sstaton / Getty Images / iStockphoto

2022

Alabama landowner prevails in legal battle vs. U.S. Fish & Wildlife after 10,000 acres private timberland declared habitat for Eastern Indigo snake

August 23, 2025

August 23, 2025

Written by Mike Hobson

In February 2020, US Fish & Wildlife Service (FWS) classified 324,679 acres in South Alabama and Mississippi as critical habitat for the endangered black pine snake. The designation made the land restricted to development and subject to rigorous regulation. More than 93,000 acres were private land. In public meetings, FWS told impacted landowners that restrictions would not be implemented. But Gray Skipper, whose family owns and manages a timber operation on 10,000 of those acres, sued the federal agency, claiming there is

THE MAHA REPORT

09/09/2025

- **Crop Protection Tools**: including pesticides, herbicides, and insecticides. Some studies have raised concerns about possible links between some of these products and adverse health outcomes, especially in children, but human studies are limited.[299] [300] [301] For example, a selection of research studies on a herbicide (glyphosate) have noted a range of possible health effects, ranging from reproductive and developmental disorders as well as cancers, liver inflammation and metabolic disturbances.[302] [303] [304] [305] In experimental animal and wildlife studies, exposure to another herbicide (atrazine) can cause endocrine disruption and birth defects.[306] Common exposures include lawn care, farming, and pesticide residues; however, a large-scale FDA study of pesticide residues (2009-2017) found the majority of samples (>90%) were compliant with federal standards.[307] More recent data from the USDA's Pesticide Data Program found that 99% of food samples tested in 2023 were compliant with EPA's safety limit.[308] Federal government reviews of epidemiologic data for the most common herbicide did not establish a direct link between use according to label directions and adverse health outcomes, and an updated U.S. government health assessment on common herbicides is expected in 2026.

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Cumulative Exposure

The EPA, U.S. Department of Agriculture (USDA), and NIH will develop a research and evaluation framework for cumulative exposure across chemical classes. This research will focus on using and developing NAMs, including advancing the use of computational tools. Additional EPA research will focus on using NAMs to improve methods for evaluating human health and environmental risks of chemical contaminants. Consistent with statutory obligations under the Federal Insecticide, Fungicide, and Rodenticide Act and the Food Quality Protection Act, EPA will focus on pesticides acting through a common mode of action.

Precision Agricultural Technology

USDA and EPA will prioritize research and programs to help growers adopt precision agricultural techniques, including remote sensing and precision application technologies that will further optimize crop applications. The research and programs should emphasize ways in which precision technology can help to decrease pesticide volumes, improve the soil microbiome, and have a significant financial benefit for growers.

Precision Agriculture

USDA and EPA will launch a partnership with private-sector innovators to ensure continued investment in new approaches and technologies to allow even more targeted and precise pesticide applications. This can support increased crop productivity and reduce the total amount of pesticides needed. These partnerships should focus on precision application methods, including targeted drone applications, computer-assisted targeted spray technology, robotic monitoring, and related innovations.

Pesticides

EPA, partnering with food and agricultural stakeholders, will work to ensure that the public has awareness and confidence in EPA's pesticide robust review procedures and how that relates to the limiting of risk for users and the general public and informs continual improvement.