

PRESCRIBE:

DPR's Online Database Application for Protection of Endangered Species from Pesticide Exposure



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Integrated Pest Management Branch
Endangered Species Program
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Overview

- Endangered Species Introduction
- Endangered Species Program Goals
 1. Address endangered species/pesticide issues
 2. Develop Pesticide Use Limitations
 3. Behind the scenes of PRESCRIBE- Identify endangered species habitats for use in PRESCRIBE
- How to use PRESCRIBE
 - PRESCRIBE desktop and mobile



What is an Endangered Species?



Northern spotted owl



Showy indian clover



San Joaquin kit fox



A plant or animal
with very few of its members left.



Northern spotted owl



Showy indian clover



San Joaquin kit fox



Behren's silverspot butterfly



California red-legged frog



Chinook salmon



How species become endangered

- Loss of the area where they live
- Loss of food/prey
- Human consumption (fish, trees)
- Environmental pollution
- Climate changes
- Other factors



Lotis blue butterfly



Contra Costa goldfields



Giant garter snake



Pesticides and Endangered Species



- Beginning in the 1940s and continuing until it was banned in 1972, the pesticide DDT affected species like the Peregrine falcon and the California brown pelican. It caused them to produce thin-shelled eggs which were crushed by adults.
- We want pesticides to be used carefully, to prevent affecting endangered species.



Endangered Species Protection Issues

- Working with federal funding since 1988.
- **County Bulletins**- DPR coordinated protection strategies with the Department of Fish and Wildlife, the Department of Food and Agriculture, and County Agricultural Commissioners.
- Bulletins were cumbersome to use (40-60 pages) and difficult to update in paper.



Myrtle's Silverspot Butterfly



PRESCRIBE was developed in 2005

- PRESCRIBE online database was developed to replace paper bulletins and take advantage of digital processing speed and ease to update
 - PRESCRIBE desktop went online in 2005
 - PRESCRIBE mobile available in 2013



San Joaquin Kit Fox



DPR's Endangered Species Program Goals

1. Address endangered species/pesticide issues resulting from the use of rodenticides, insecticides, herbicides, or fungicides.
2. Develop Pesticide Use Limitations to reduce effects of pesticides on endangered species.
3. Identify endangered species habitats for use in PRESCRIBE.



Stephen's Kangaroo Rat

Exploring Program Goal 1

Address endangered species/pesticide issues resulting from the use of rodenticides, insecticides, herbicides, or fungicides.

- Pesticide Classification Process

Example- HERBICIDES



Active Ingredients Tables

Active ingredients of pesticides covered by this bulletin are listed in separate tables on the following pages by classification as herbicides, insecticides, fungicides or rodenticides. The active ingredients table for each pesticide class specifies the activity category of each active ingredient and one or more hazard classes that are subsequently used to determine appropriate pesticide use limitations.

Herbicides

Herbicide Exposure Categories

Herbicides are grouped by activity categories (a-e) that broadly define mode of action and use patterns that in turn determine potential routes of exposure to listed species. The activity category of an herbicide is the exposure component that is used with the hazard class of the pesticide and the taxonomic group of the species to define which pesticide use limitations (if any) to apply.

Activity Category	Description
a	Broad spectrum foliar active herbicides with systemic or contact activity and without pre-emergent or residual soil activity.
b	Herbicides with foliar activity on broadleaved plants (dicots) only.
c	Herbicides with foliar activity on grasses (monocots) only.
d	Broad spectrum herbicides with residual soil activity.
e	Broad spectrum, seedling stage, pre-emergent herbicides.

- Products are grouped by activity categories, which broadly define their mode of action and use patterns, to determine potential routes of exposure to listed species.



Active Ingredients (Herbicides)

Active Ingredients	Hazard Class		
	Aquatic Animals (AQ)	Plants	
		Dicot (PD)	Monocot* (PM)
2,4-D		X	
2,4-D, butoxyethanol ester	X	X	
2,4-D, dimethylamine salt		X	
2-(2,4-DP), dimethylamine salt		X	
4(2,4-DB), dimethylamine salt		X	
alachlor		X	X
atrazine		X	X
benefin	X	X	X
bensulfuron methyl		X	X
bensulide		X	X
bentazon, sodium salt		X	X
bromacil		X	X
bromoxynil	X	X	X
butylate		X	X
cacodylic acid		X	X
carfentrazone-ethyl		X	X
chlorsulfuron		X	
chlorthal-dimethyl		X	X
clethodim			X
clopyralid		X	
copper	X		
copper ethanolamine complex	X		

* and gymnosperms

Herbicides

- Each AI is classified by potential hazard class.
- In this example- Aquatic Animals and Plants (Dicots or Monocots).



Species Descriptions

CALIFORNIA RED-LEGGED FROG



Photo: John Brode, CDFG

Scientific Name: *RANA AURORA DRAYTONII*

Federal Status: Threatened

Species Description:

Up to 5 in. long, undersides of adults largely red; backs have black flecks and blotches, on a brown, gray, olive, or reddish background color; tadpoles range from 0.6 to 3.1 long, are dark brown and yellow with darker spots.

Habitat Description:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT. LOWLANDS & FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Hazard Class:

AQ, FS

CHINOOK SALMON (SRWR-ESU)



Photo: NMFS

Scientific Name: *ONCORHYNCHUS Tshawytscha*

Federal Status: Threatened

Species Description:

Chinook are largest of the salmon, adults often exceed 40 pounds. They use a variety of freshwater habitats, but it is more common to see them spawn in larger mainstem rivers than other salmon species.

Habitat Description:

OCCURS IN THE SACRAMENTO RIVER BELOW IMPASSABLE BARRIERS. ENTERS THE RIVER NOVEMBER TO JUNE AND SPAWNS FROM LATE APRIL TO MID-AUGUST.

Hazard Class:

AQ

- A hazard class indicates which types of hazards may impact a given species.
- In this example, Red-legged frog is affected by the Aquatic (AQ) and Fossorial (FS) hazard classes and Chinook Salmon is affected by the AQ hazard class.



Use Limitation Codes (Herbicides)

The following table identifies use limitation codes for each combination of hazard class (AQ, PM or PD) and herbicide activity category (a-e). Use the hazard class row(s) that corresponds with both (1) the pesticide (from the Active Ingredients table) and (2) the hazard class (taxonomic group) of the species in the section to be treated (as found in the Species Descriptions table) and the activity category column(s) that corresponds with the herbicide(s) you intend to use. If either (1) the hazard class (taxonomic group) of one or more species does not match at least one of the hazard class(es) of the herbicide you intend to use or (2) if the combination of activity category and hazard class results in a double dash (--), then no use limitations apply. Note all applicable codes (11-19). These codes are translated in the Use Limitations table (p 27)

Herbicides

Hazard Class	Herbicide Activity Category				
	a	b	c	d	e
AQ	11, 17	11, 17	11, 17	11, 15, 16, 17	11, 17
PM	11, 17	--	11, 17	11, 16, 17, 19	11
PD	11, 17	11, 17	--	11, 16, 17, 19	11

- Combine Hazard Class and Activity Category to determine the Use Limitation(s) that apply to the Active Ingredient being selected.



Exploring Program Goal 2

Develop Pesticide Use
Limitations to reduce effects of
pesticides on endangered
species.



Clara Hunt's Milkvetch



What to know about DPR's Pesticide Use Limitations

- Seek to protect endangered species from harm due to pesticide use while allowing lawful pest control.
- Apply to any Active Ingredient being considered for use in proximity to endangered species habitat.
- May include specific methods of application, restrictions, or prohibitions that apply to a given pesticide.
- Advisory, not enforceable.



Example of Use Limitation # 15 for run-off containment- requires a 20 foot minimum strip of vegetation on which pesticides should not be applied along rivers, creeks, streams, wetlands, vernal pools, and stock ponds, or on the downhill side of fields where run-off could occur.



Example of Use Limitation # 17 for spray-able or dust formulations- limits applications within 200 yards by air or 40 yards by ground upwind of occupied habitat.



Example of Use Limitation # 19 for soil active herbicides- restricts application within 30 yards upslope of habitat, unless a suitable method is used to contain or divert runoff waters.



Exploring Program Goal 3

Identify endangered species habitats for use in PRESCRIBE.

- Species covered in PRESCRIBE
- How we identify habitats



Bonytail Chub



Species included in PRESCRIBE

- **Federal** Endangered, Threatened, and Candidate Species in California (309 species).



California Red-
legged Frog



Species included in PRESCRIBE

- **California** Endangered, Threatened, and Candidate Species (255 species).



California Black Rail



Species included in PRESCRIBE

- Species with no Federal or California listing but are California Native Plant Society listed **1B.1**, **1B.2**, and **1B.3** (63 species).



Sand-loving (Coast)
Wallflower



Species included in PRESCRIBE

- Other **species of concern** because limited habitat or limited numbers (ex. Burrowing Owl).



Burrowing Owl



How we identify habitats

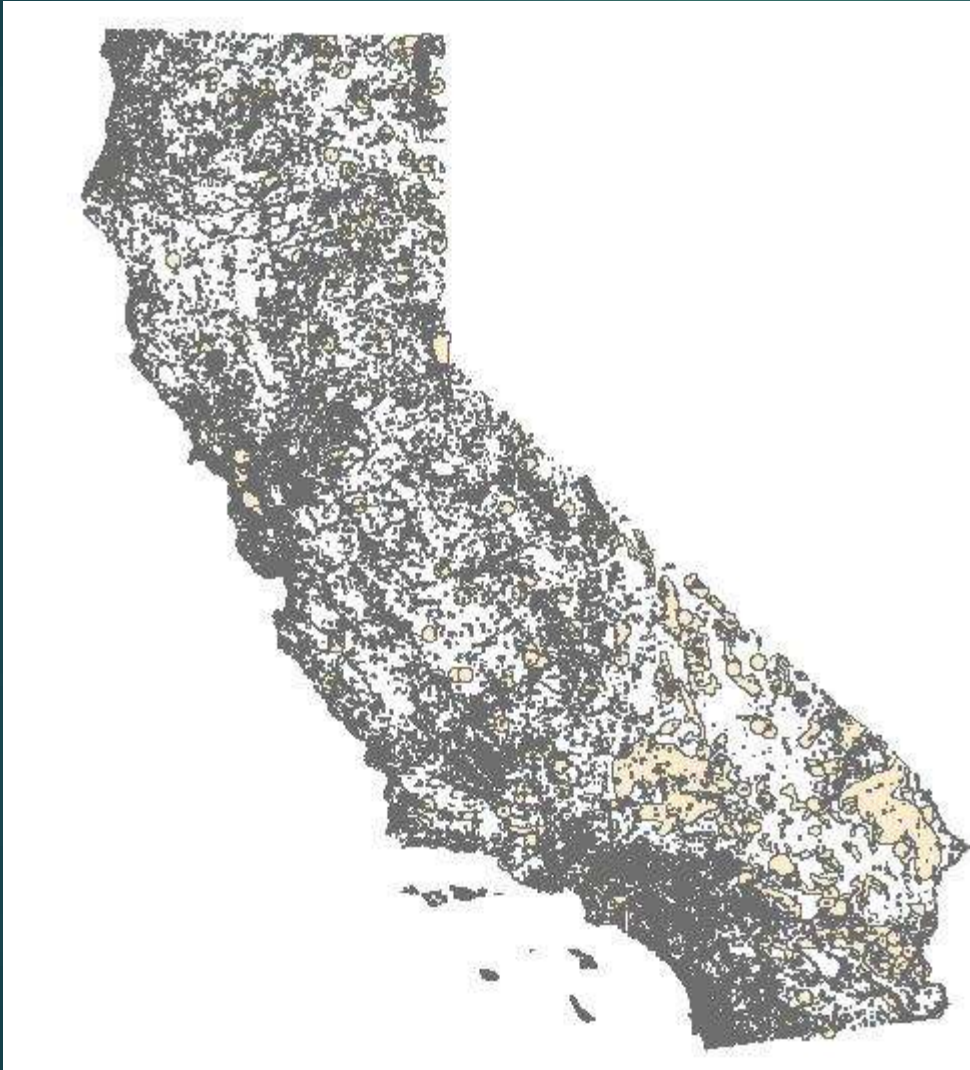
We use the **California Natural Diversity Database (CNDDB)**- it is an inventory of the status and locations of rare plants and animals in California.



California Department of
Fish and Wildlife



Statewide view of CNDDB polygons



- We convert polygon information for each species to a Township/Range/Section list.

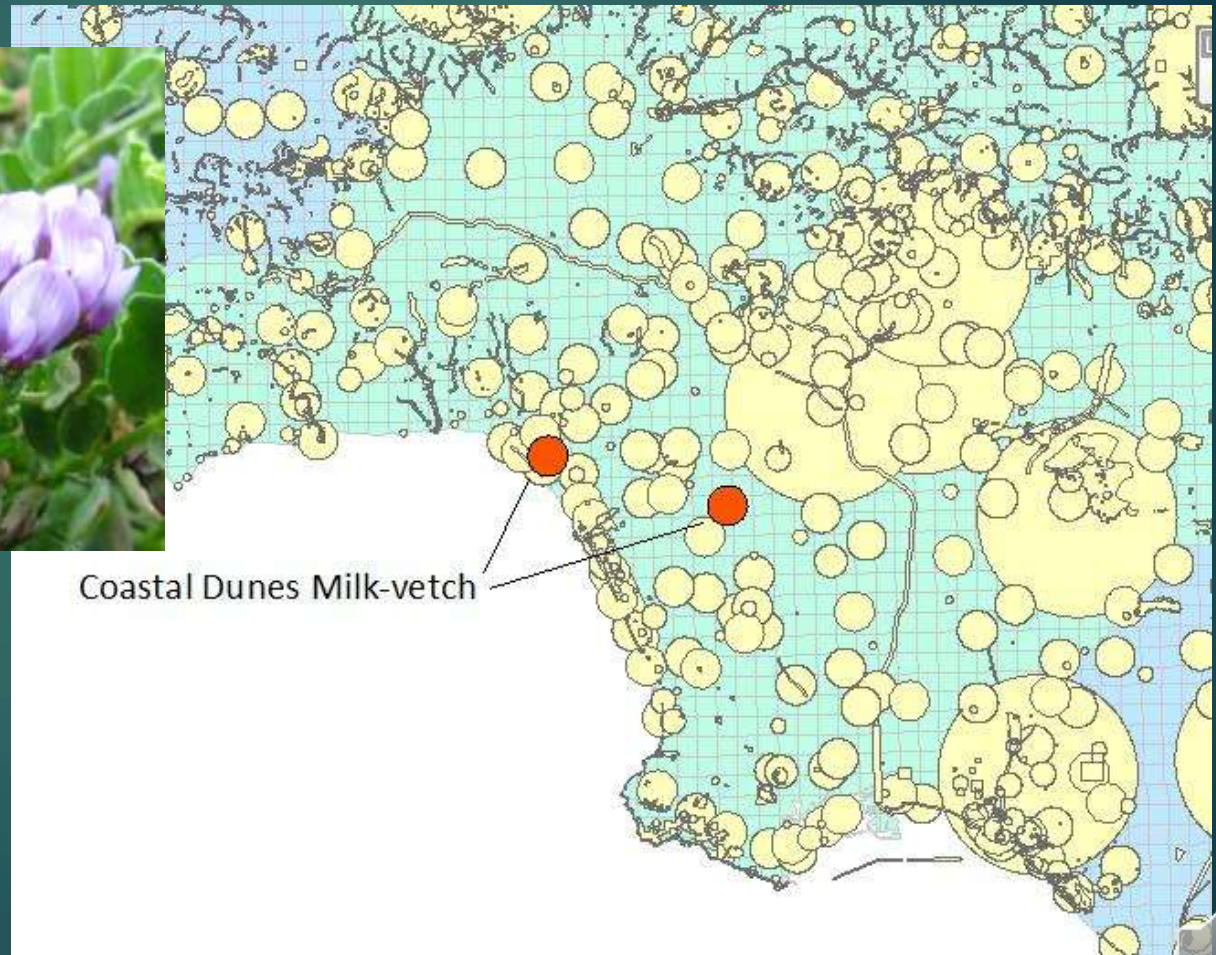


Close-up view of CNDDB polygons

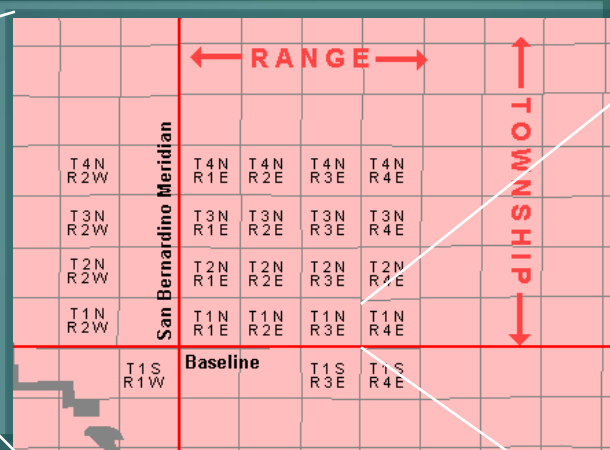
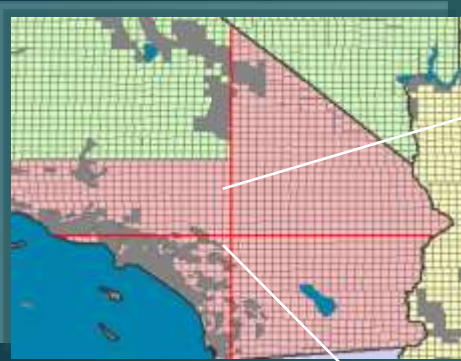
Example: Coastal Dunes Milk-vetch in Orange County



© 2005 Bob Huettmann



We overlay the Public Land Use Survey System Coordinates (TRS)



Range (East-West axis)

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Township (North-South axis)

- In California there are over 4,000 Townships, each one containing 36 sections.
- Each section has a unique T/R/S coordinate code.

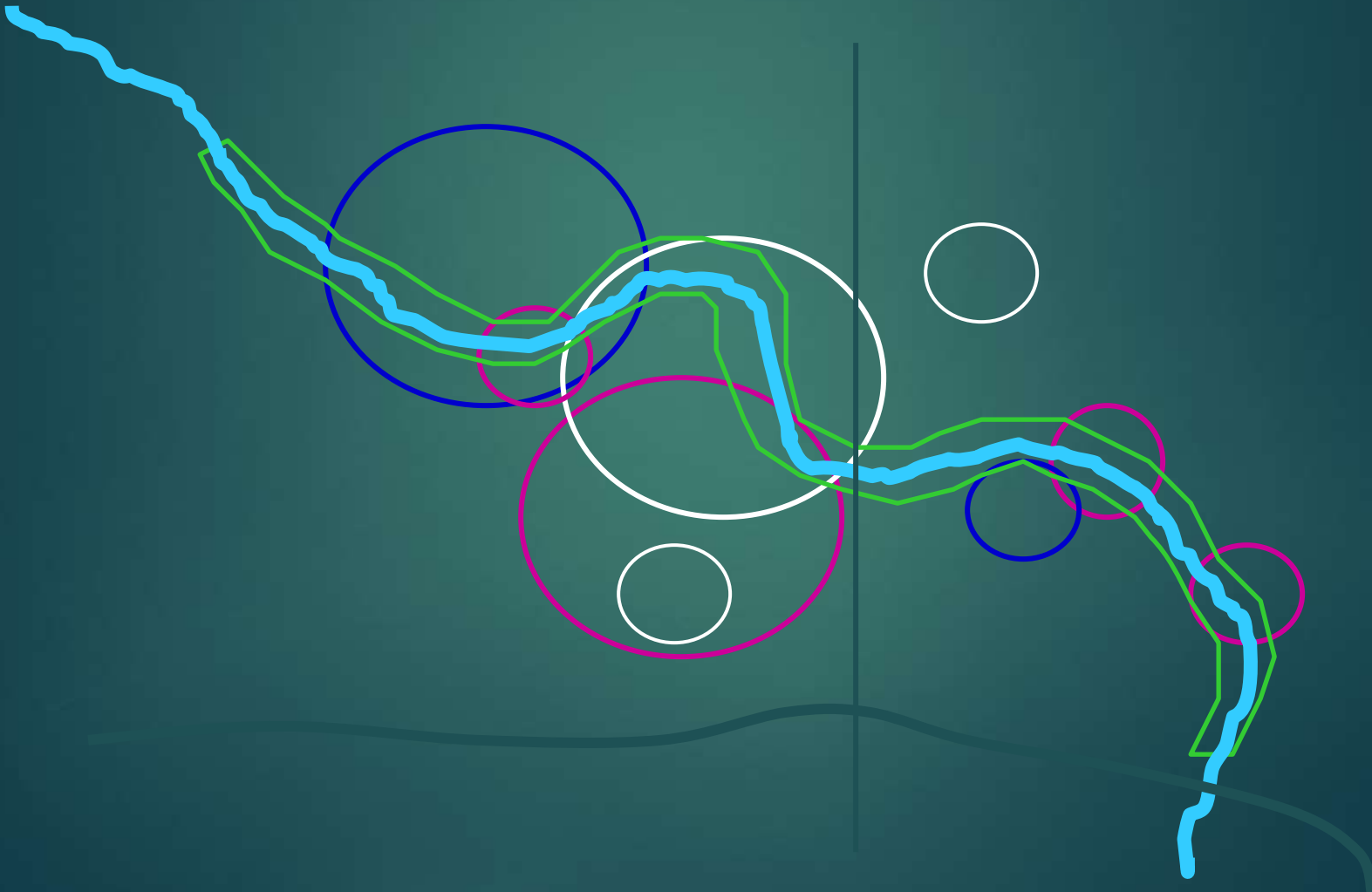
Section

Example:
T01NR4ES14



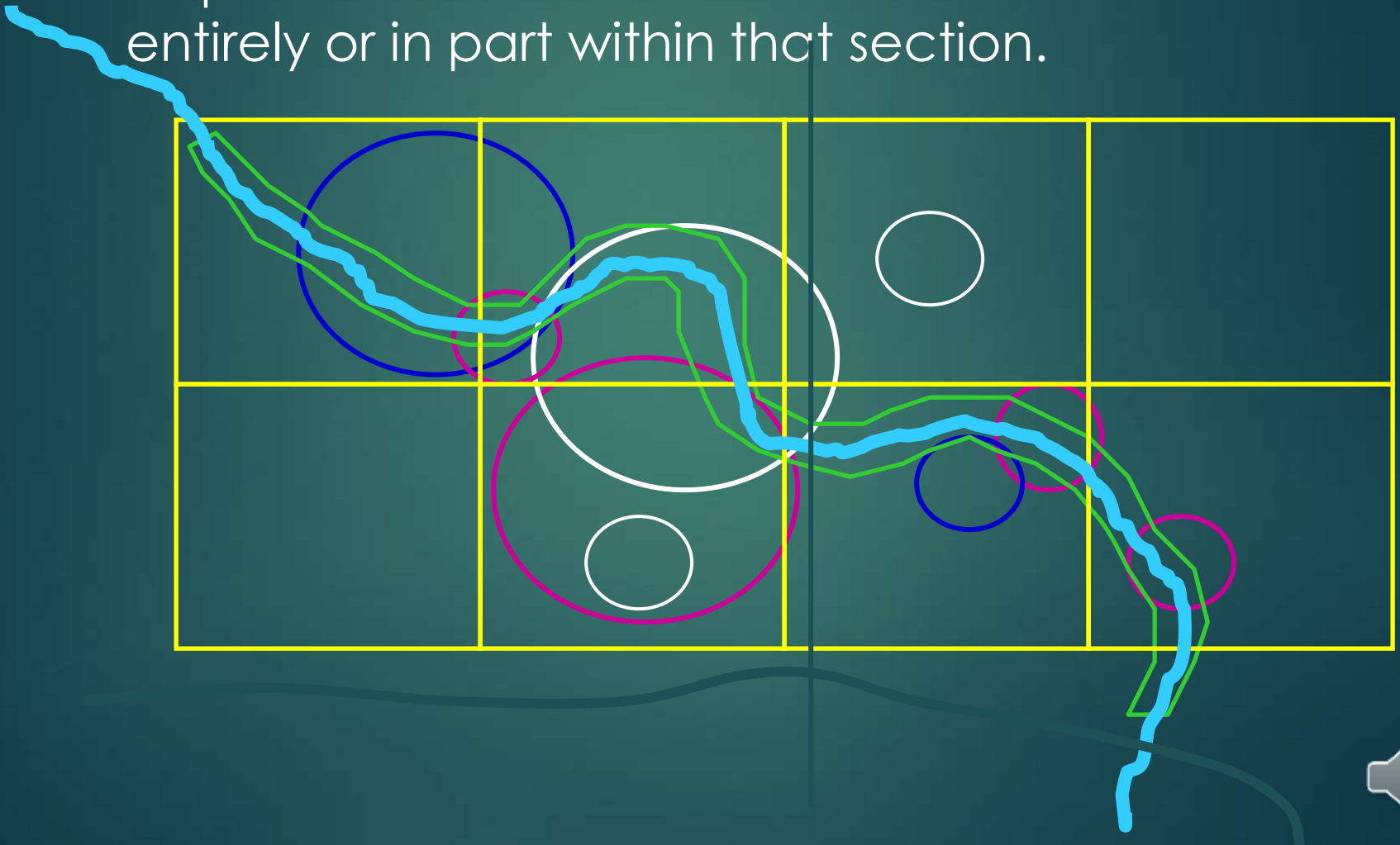
Creating a Section List- Step 1

- Add endangered species location polygons from CNDDDB.



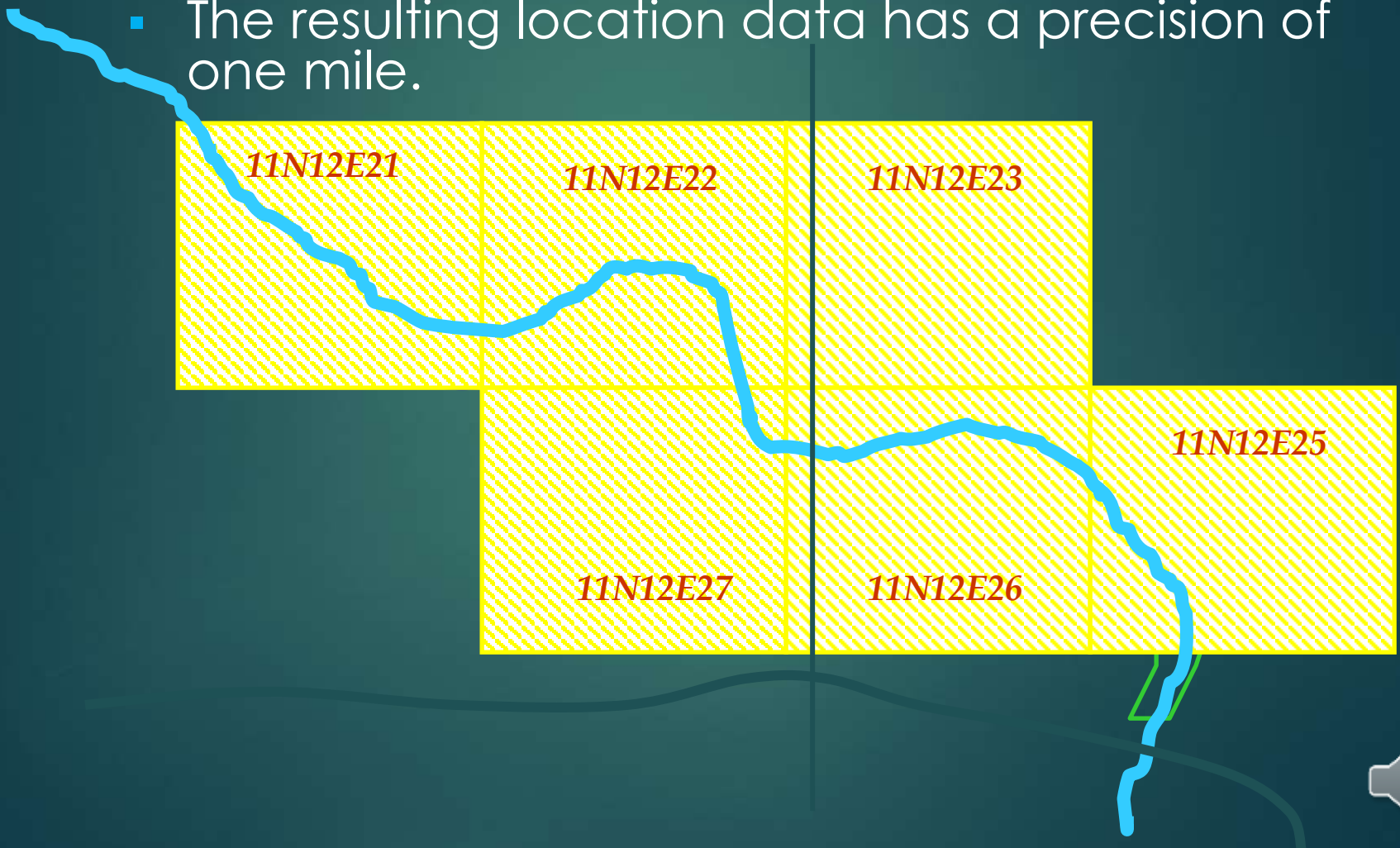
Creating a Section List- Step 2

- Overlay the Township/Range/Section (TRS) grid.
- A species is included in a section if it is contained entirely or in part within that section.

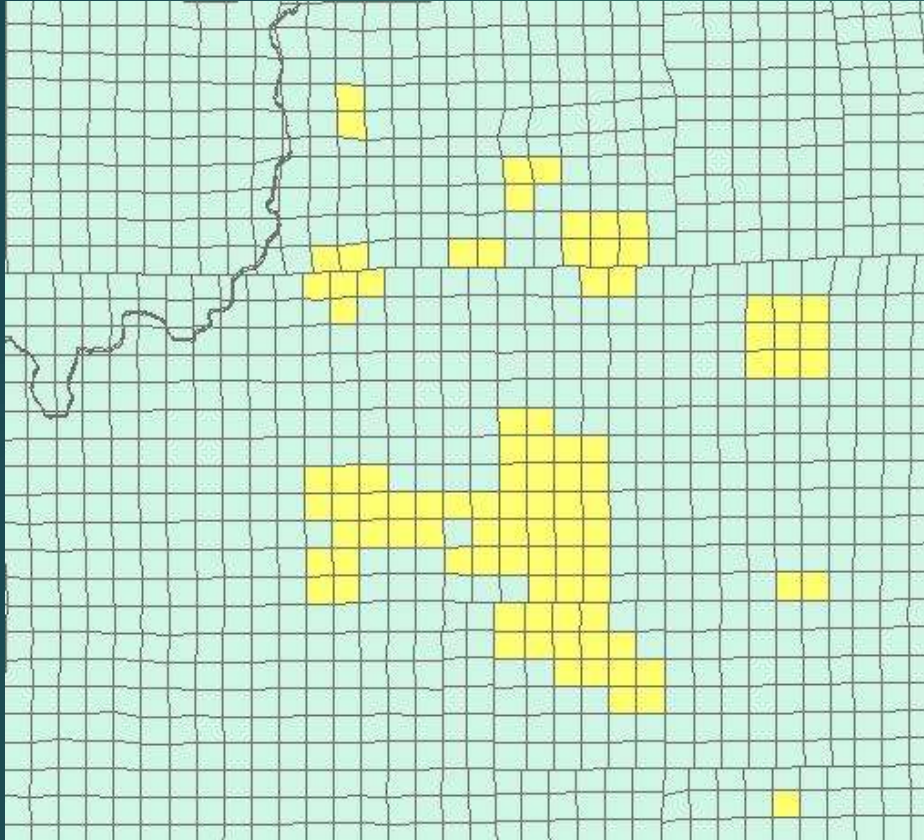


Creating a section list- Step 3

- The Township/Range/Section (TRS) coordinates are used to “cut” the polygons and create a section list for each species.
- The resulting location data has a precision of one mile.



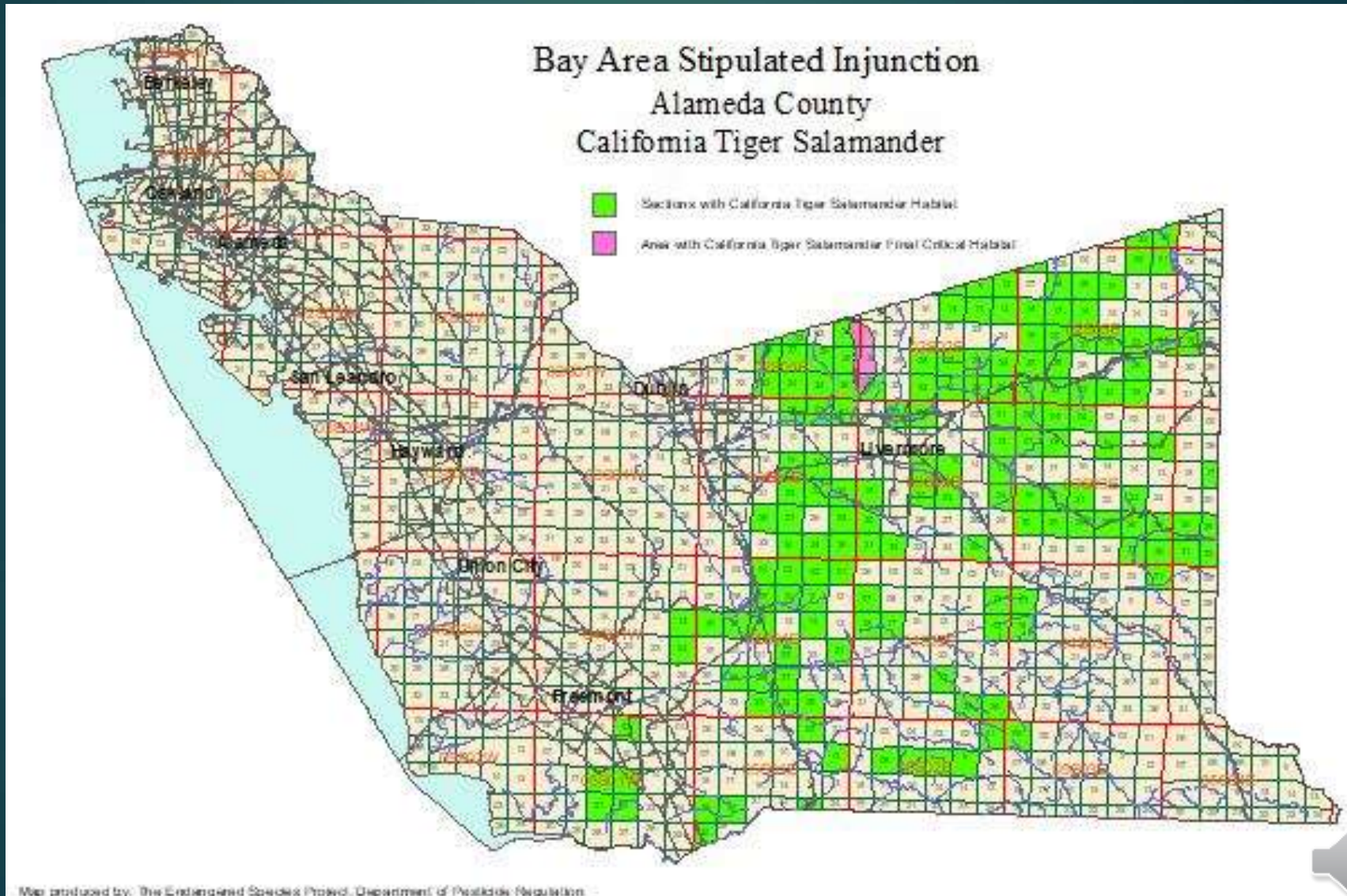
Creating Layers and Maps



- Sections can be added to ArcMap to create species layers and maps.



Example- map of California Tiger Salamander in Alameda County



Bringing It All Together



PRESCRIBE

DPR's online database application
for protection of endangered
species from pesticide exposure



PRESCRIBE stands for:

- **P**esticide
- **R**egulation
- **E**ndangered
- **S**pecies
- **C**ustom
- **R**ead-time
- **I**nternet
- **B**ulletin
- **E**ngine



Starting a PRESCRIBE query

We have two modes of querying PRESCRIBE-

- Desktop or laptop
- PRESCRIBE mobile



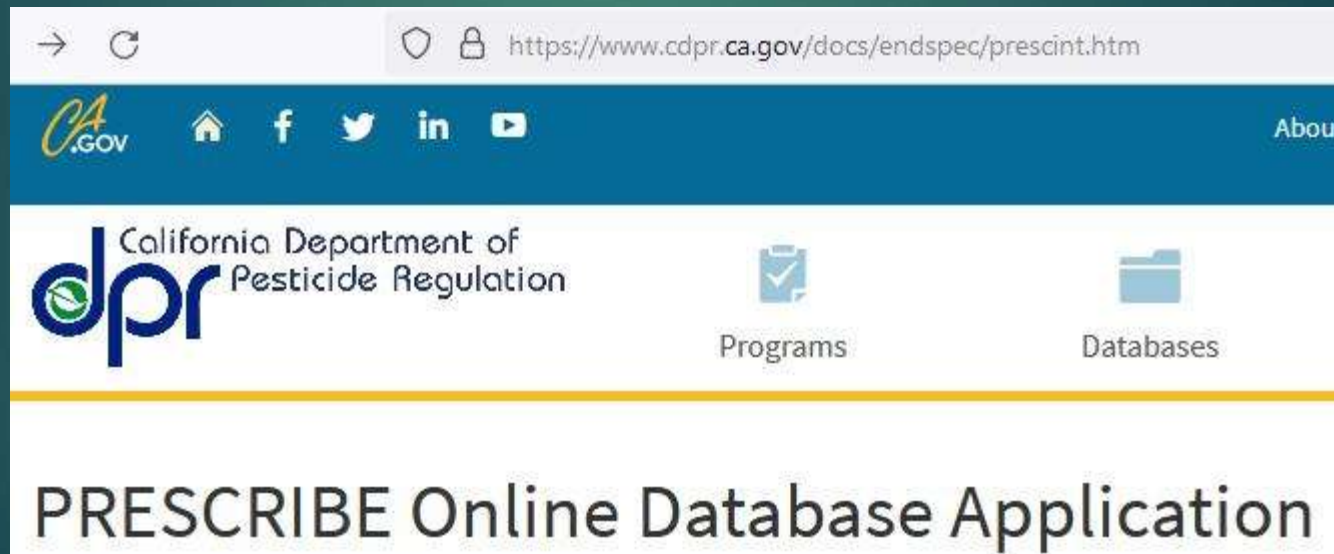
PRESCRIBE Desktop

PRESCRIBE is accessible on desktops and laptops

- It can be accessed at:

<https://www.cdpr.ca.gov/docs/endspec/>

- Or search CDPR PRESCRIBE



PRESCRIBE Desktop- Step 1

Step 1: Select County

To begin, select a county where your pesticide use will occur then click on the Select button.

Available Counties

Search...	Search	Clear Search	Add All	Add Selected
57 items displayed				
36 San Bernardino				
37 San Diego				
38 San Francisco				
40 San Luis Obispo				
41 San Mateo				

Selected Items

1 items selected	Remove All	Remove Selected
39 San Joaquin		

The user selects a county from the pick list and then selects "Next."

In this example San Joaquin County is selected.



PRESCRIBE Desktop- Step 2

Available COMTR Township and Range under selected county(s)

Search...	Search	Clear Search	Add All	Add Selected
51 items displayed				
39 M04N05E				
39 M04N06E				
39 M04N07E				
39 M04N08E				
39 M04S04E				

Selected Items

1 items selected	Remove All	Remove Selected
39 M04N08E		

Available COMTRS Sections within available selected Township-Range

Search...	Search	Clear Search	Add All	Add Selected
36 items displayed				
39 M04N08E 20				
39 M04N08E 21				
39 M04N08E 22				

The user selects Township, Range, and Section(s) where a pesticide will be applied. In this example Township 04N, Range 08E, Sections 20,21, and 22 are selected.



PRESCRIBE Desktop- Step 3

Species Located

Step 3: Non-target species in selected section(s) by status:

- [FT] STEELHEAD - CENTRAL VALLEY DPS
- [FT] VALLEY ELDERBERRY LONGHORN BEETLE
- [R] BANK SWALLOW
- [R] SWAINSON'S HAWK

Species Status Key:

- [FE] = Federal Endangered
- [FT] = Federal Threatened
- [FPE] = Federal Proposed Endangered
- [FPT] = Federal Proposed Threatened
- [R] = Rare, Not Currently Listed

- PRESCRIBE produces a list of species occurring in the selected sections. In this example: Steelhead, Valley Elderberry Longhorn Beetle, Bank Swallow, and Swainson's Hawk.
- Click on a species for more information.



PRESCRIBE Desktop- Species Details

Species Details



Photo by Richard T. Grost

Photo by: Richard T. Grost

STEELHEAD - CENTRAL VALLEY DPS

Scientific Name: *ONCORHYNCHUS MYKISS IRIDEUS*

Species Description: A genetically distinct and evolutionarily significant anadromous species of rainbow trout.

General Habitat Information:

POPULATIONS IN THE SACRAMENTO AND SAN JOAQUIN RIVERS AND THEIR TRIBUTARIES

Specific Habitat Information:

These pages provide details about the species found in the selected sections.



PRESCRIBE Desktop- Step 4

Select Product / Labels

Step 4. Product Search

To identify the products that you intend to use, please enter product name or keyword into the Search box. You will see a list of search results in the Available Products box below. Click on the product name and click S

Enter full or partial product name to search : (Use '%' for wildcard between strings. Enter a '\' if you want to search for a specific character. Enter a '\' at the end to indicate the last word of a label.)

Click to Display Available Product Labels by Letter:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Misc

Available Product [Registration Number]s

balan	Search	Clear Search
201 items displayed		
TURF SUPREME PLUS BALAN (15-4-7) [7001- 136-AA]		
TURF SUPREME PLUS BALAN 15-4-7 [7001- 271-AA]		
TURF SUPREME PLUS BALAN [20954- 37-AA]		
TURFGO PROFESSIONAL TURF PRODUCTS BALAN 2.5G [62719- 96-AA- 65783]		
UNITED HORTICULTURAL SUPPLY BALAN 2.5G TURF HERBICIDE [62719- 96-ZA- 65783]		

Selected Items

0 items selected
TURFGO PROFESSIONAL TURF PRODUCTS BALAN 2.5G [62719- 96-AA- 65783]

Chemicals can be searched by their U.S. EPA Registration number or their commercial name. In this example the search is for “Balan”, and then “Turfgo Professional.”



PRESCRIBE Desktop- Step 5

Endangered Species Pesticide Use Limits

Step 5: Use Limit Codes for Selected Products

Pesticide use limitations for the products that you have selected, applicable to the species identified in your locations, if they exist, are listed below. Scroll to the bottom of the page to see a description/instruction of the use limits.

For protection of the following species:

- [T] STEELHEAD - CENTRAL VALLEY DPS
- [T] VALLEY ELDERBERRY LONGHORN BEETLE
- [R] BANK SWALLOW
- [R] SWAINSON'S HAWK

That occur in the following selected sections:

County	Township	Range	Sections
39 San Joaquin	04N	08E	22

When using selected products:

Product	Use Limits
TURFGO PROFESSIONAL TURF PRODUCTS BALAN 2.5G	11, 17

That contain these active ingredients (chemicals):

- BENEFIN

Observe Use Limits for Selected Products:

Code	Use Limitations
11	Occupied Habitat: Do not use in currently occupied habitat except: (1) if specified in Species Descriptions, or (2) in organized habitat recovery programs, or (3) for selective control of invasive exotic plants.
17	Spray Drift: For sprayable or dust formulations: when the air is calm or moving away from habitat, commence applications on the side nearest the habitat and proceed away from the habitat. When air currents are moving toward habitat, do not make applications within 200 yards by air or 40 yards by ground upwind from occupied habitat. The county agricultural commissioner may reduce or waive buffer zones following a site inspection, if there is an adequate hedgerow, windbreak, riparian corridor or other physical barrier that substantially reduces the probability of drift.

Custom report detailing species that are present, the location, the product being applied, and applicable use limitations.



PRESCRIBE Mobile



PRESCRIBE is available for mobile devices such as smartphones, tablets, etc.

- It can be accessed at:
<https://mobile.cdpr.ca.gov/prescribe>



PRESCRIBE Mobile- Step 1

mobile.cdpr.ca.gov/pre

California Department of Pesticide Regulation

Location

Use My Location:

On

Select a County:

Sacramento

Select a Township and Range:

34M09N04E

Select a Section:

36

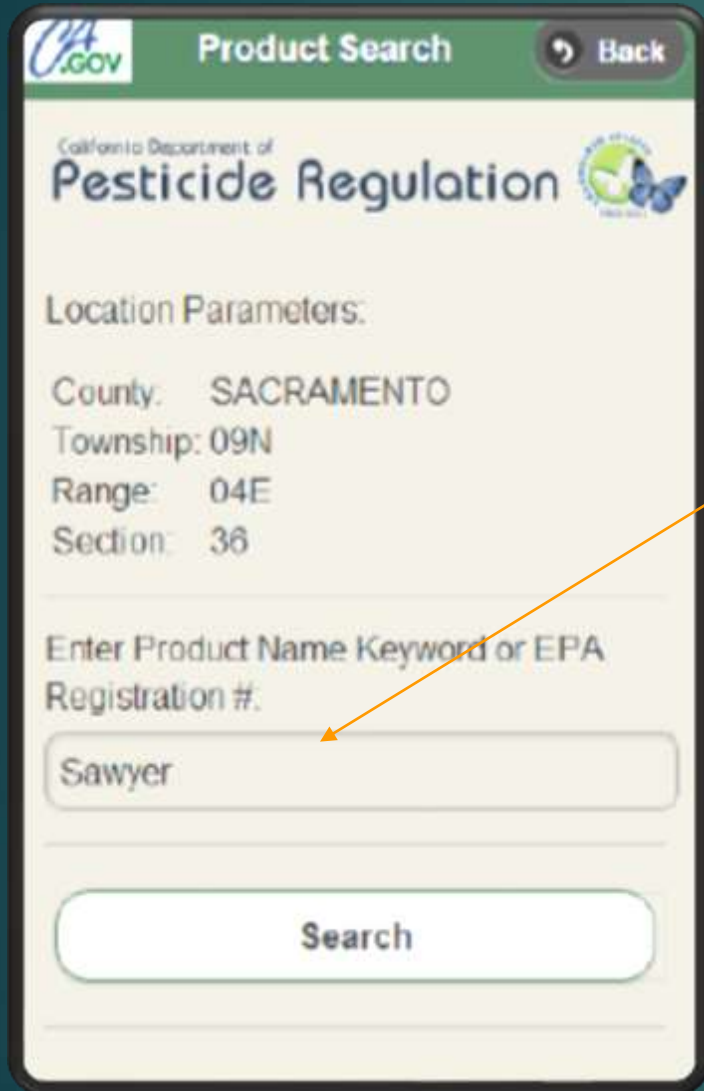
Submit Location

Search by Use My Location (On)

- The program finds the corresponding County and TRS coordinates based on where your mobile device is at that moment.
- Easy to use, particularly for those not familiar with the TRS coordinate system.
- Click “Submit Location” button.



PRESCRIBE Mobile- Step 2



Product Search [Back](#)

California Department of
Pesticide Regulation

Location Parameters:

County: SACRAMENTO
Township: 09N
Range: 04E
Section: 36

Enter Product Name Keyword or EPA
Registration #.

Sawyer

Search

Product Search

- Type the product name or U.S. EPA Registration Number.
- Click the “Search” button.



PRESCRIBE Mobile- Step 3



Product Results Screen

- By clicking on a product's box, the full report is available.



PRESCRIBE Mobile- Step 4

Full Report Screen

- Click on each box to expand it.

Full Report [Back](#)

California Department of
Pesticide Regulation

For the following location:

County: SACRAMENTO
Township: 09N
Range: 04E
Section: 36

The following product has these use limits:

Product: SAWYER PERMETHRIN
TICK REPELLENT

Active Ingredients

Use Limits: 10, 15, 16, 17

Use Limits Key

10
Do not use in currently occupied habitat (see

15
Provide a 20-foot minimum strip of vegetatio

Active Ingredients

Permethrin

Use Limits: 11, 17

Use Limits Key

11
Occupied Habitat: Do not use in currently occupied hab


17
Spray Drift: For sprayable or dust formulations: when t


The following species are protected:


Protected Species

The following species are protected:

Species List

 **[T] STEELHEAD - CENTRAL VALLEY DPS** [▶](#)

 **[T] VALLEY ELDERBERRY LONGHORN BEETLE** [▶](#)

 **[R] BANK SWALLOW**





Species Detail

Back

California Department of

Pesticide Regulation



**STEELHEAD -
CENTRAL VALLEY DPS**



Photo by Richard T. Grost

Scientific Name
*ONCORHYNCHUS MYKISS
IRIDEUS*

Species Description
A genetically distinct and evolutionarily significant anadromous or freshwater fish related to rainbow and cutthroat trout.

General Habitat Information
POPULATIONS IN THE

PRESCRIBE Mobile-Species' Details

This screen provides details about the species found in the selected sections.



Recap-

- Endangered Species Program Goals
 1. Address endangered species/pesticide issues
 2. Develop Pesticide Use Limitations
 3. Behind the scenes of PRESCRIBE- Identify endangered species habitats for use in PRESCRIBE
- How to use PRESCRIBE
 1. Desktop
 2. Mobile



