



CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION

Endangered Species Program

# Blunt-Nosed Leopard Lizard

(*Gambelia silus*)

# MISSION AND VISION

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## **Mission:**

We protect human health and the environment by fostering sustainable pest management and regulating pesticides.

## **Vision:**

Pest management that is safe, effective, and sustainable for all Californians and our environment.

# BLUNT-NOSED LEOPARD LIZARD

# BLUNT-NOSED LEOPARD LIZARD

## Characteristics

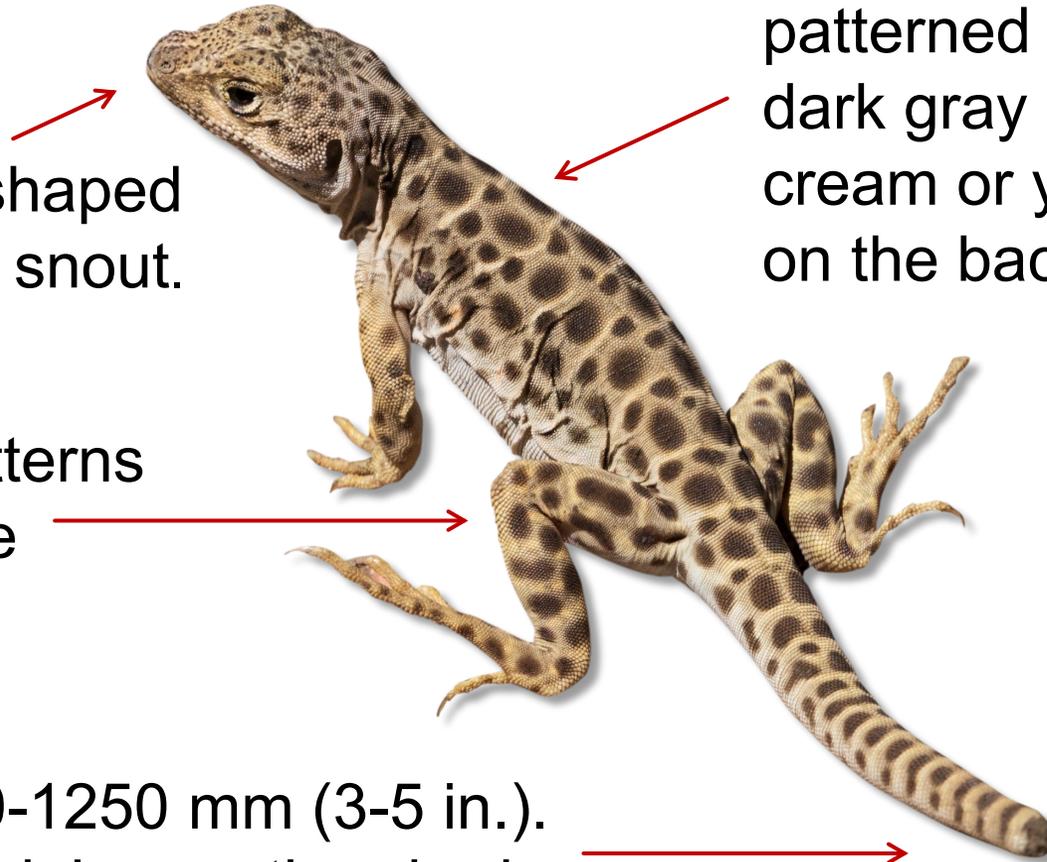
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Broad, triangular-shaped head and truncate snout.

Color and spot patterns intensify during the breeding season.

Body length is 750-1250 mm (3-5 in.).  
Rounded tail at end, longer than body.

Cryptic coloration of patterned bars and spots, dark gray or brown with cream or yellow crossbands on the back (“leopard-like”).



# BLUNT-NOSED LEOPARD LIZARD

## Behavior

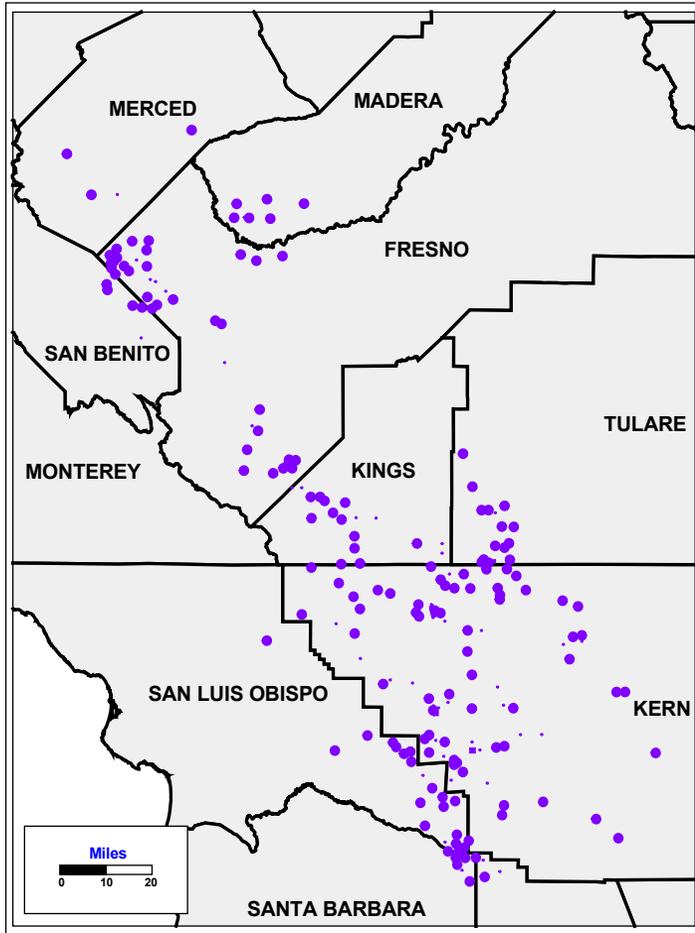
- Diurnal.
- Active when ambient temperatures reach 25-35° C (77-95° F) and soil temperatures reach 30-50° C (86-122° F).
- BNLL use rodent burrows for shelter.
- Hibernates in winter and are active mid-spring to mid-fall.



B. "Moose" Peterson/WRP

# BLUNT-NOSED LEOPARD LIZARD

## Currently Occupied Habitat



- **Preferred habitats:**  
Alkali flats and sparsely vegetated plains.
- Can be found from **30 to 730 m.** above sea level (100-2200 feet).
- **Counties:**  
Merced, Madera, Fresno, San Benito, Kings, Tulare, Kern, San Luis Obispo, Santa Barbara, Ventura.

# BLUNT-NOSED LEOPARD LIZARD

## Tracks

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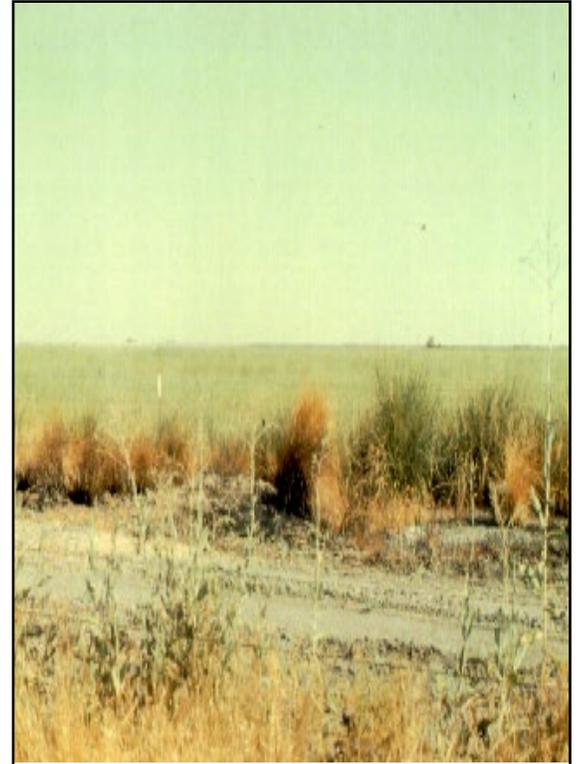


Photo: Jonah Evans (naturetracking.com)

# BLUNT-NOSED LEOPARD LIZARD

## Preferred Habitats

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Photos: John Brode (CDFG)

# BLUNT-NOSED LEOPARD LIZARD

## Reproduction

May

June

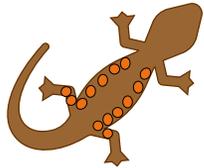
July

August

**BNLLs breed from May to mid-June**

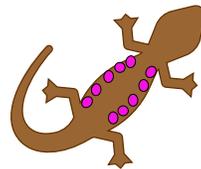
**Young hatch in July and August**

### Females



- Develop orange-reddish spots on sides and thighs
- Lay the eggs in old rodent burrows

### Males



- Develop bright, pink coloration on their sides
- Are very territorial during breeding

### Clutches



- Lay two or more clutches/year, with 2 eggs per clutch

### Hatchlings



# BLUNT-NOSED LEOPARD LIZARD

## Food and Water

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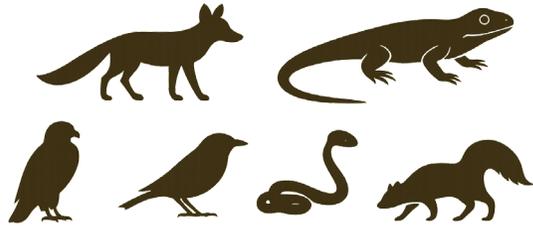
- BNLLs are insectivorous, they eat grasshoppers, cicadas, and other insects.
- Occasionally they will supplement their diet with small lizards.
- They don't appear to require free water.



# BLUNT-NOSED LEOPARD LIZARD

## Mortality Factors

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### **Predation:**

Bigger leopard lizards, kit fox, skunks, whipsnakes, gopher snakes, loggerhead shrikes and various diurnal raptors.



### **Burrow destruction:**

Agricultural activities or urban development.



### **Burrow fumigation:**

Possibly from burrow fumigation.

# BLUNT-NOSED LEOPARD LIZARD

## Rodenticides

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- Blunt-nosed leopard lizards make use of abandoned California ground squirrel burrows.
- Burrow fumigation for burrowing pest species, if necessary, should be performed after a thorough inspection of the suspected burrow.



Photo: Richard Bartlett

# BLUNT-NOSED LEOPARD LIZARD

## Rodent Control and Protection

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- When possible, try baiting first.
- If baiting doesn't work, **then** try burrow fumigation.
- Before fumigating burrows, make sure you are targeting **active** ground squirrel burrows.

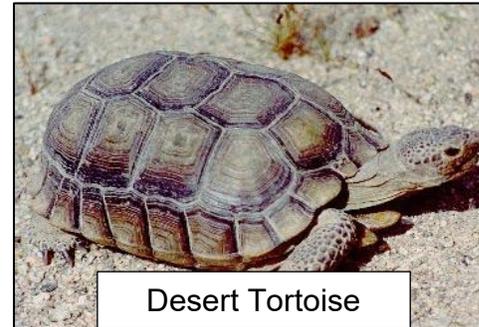
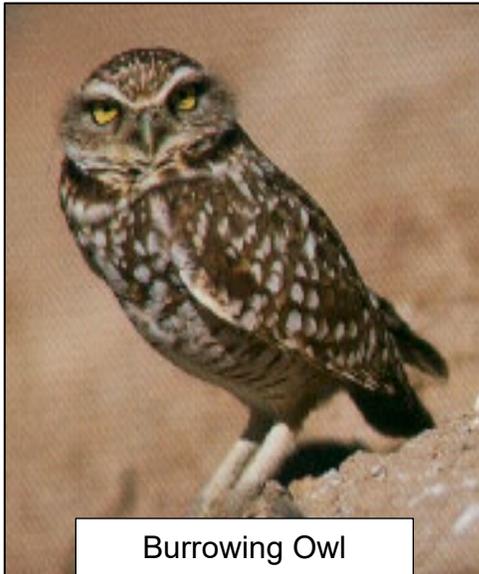
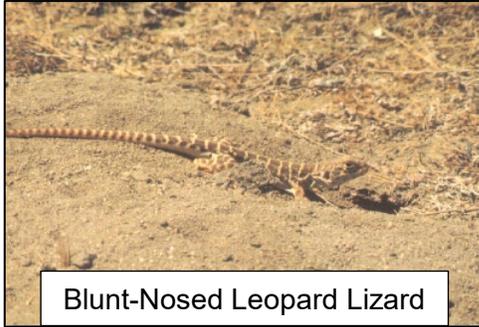


Photo: Zachary Cava

# GROUND SQUIRREL BURROWS

# GROUND SQUIRREL BURROWS

Species known to occupy abandoned burrows



# GROUND SQUIRREL BURROWS

## How do we know it is an active burrow?

- Often active ground squirrel burrows have large deposits of dirt accumulated around their entrance. However, not all burrows show such deposits at the entrance and must be monitored more closely.
- Look also for debris such as nutshells, fruit rinds, and scat dispersed near the entrance.
- **Inactive** burrows typically have cobwebs at the entrance.



Photos: Paul Gorenzel, UC Davis

# GROUND SQUIRREL BURROWS

## Looking for tracks

- Look for tracks (see pictures).
- If the substrate is hard, try softening up the area around the entrance by wetting it down, thus forming a “mud plate”. Track plates made by smoking aluminum or tin sheets can be used. Chalk can also be spread around the entrance, this creates a “more durable” soft surface where tracks can be observed.



Photos: Paul Gorenzel, UC Davis

# GROUND SQUIRREL BURROWS

How do we know it is an active burrow? Use a borescope

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A borescope is a burrow-probe camera system used for viewing the interior and contents of California ground squirrel burrows and visually determine if they are actively occupied or contain any non-target species.



Photos: Kurt Verkauteren

# GROUND SQUIRREL BURROWS

How do we know it is an active burrow? Remote cameras



# GROUND SQUIRREL BURROWS

## Remote cameras to identify burrow occupants

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- Allow for burrow monitoring without the need for human observers.
- Can be programmed to record video or images, triggered by wildlife passing through camera's field of view.
- Some available with infrared/nighttime "vision" to record species presence.

PRESCRIBE

# BURROW FUMIGANT USE LIMITATIONS

(per PRESCRIBE, DPR's Database)

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**Use Limitation Code 5:** “Use shall be supervised by a person (wildlife biologist, county agricultural commissioner, university extension advisor, state or federal official or others) who is trained to distinguish dens and burrows of target species from those of non-target species. Use shall occur only in the **active** burrows of target species. The person responsible for supervision shall be aware of the conditions at the site of application and be available to direct and control the manner in which applications are made (per Section 6406 of Title 3, California Code of Regulations). Contact your county agricultural commissioner for information on training.

# PRESCRIBE

## DPR website

<https://calpip.cdpr.ca.gov/county.cfm?ds=PRESCRIBE>

Official website of the State of California  
State of California  
dpr Department of Pesticide Regulation

CalPIP Navigation Menu  
CalPIP Application  
Home  
My Selections  
Data Sources  
PUR  
GWPA  
PRESCRIBE  
Selected Data Source  
Endangered Species Bulletin  
Location  
County  
COMTRS  
Zip Code  
Product  
Name Search  
Spatial Data Files  
California PLSS  
Groundwater  
Protection Areas  
Other Datasets  
Well Inventory  
Database  
Help

### CALIFORNIA PESTICIDE INFORMATION PORTAL (CALPIP) APPLICATION

Endangered Species Custom Bulletin

#### Select County

Default selection: Dependent on selections of all three location categories: County, COMTRS, and Zip Code. If no selections made for any location categories, the defaults are statewide.

To search for specific county(s):

- Enter full or partial words in the Search box to see matching counties or scroll through the in the Available Counties menu
- Click the 'Clear Search' button to clear your search and return the full list of counties

To select County(s):

- Click on county names of interest in the Available Counties menu.
- Hold the Shift key on your keyboard while clicking to select multiple adjacent counties or hold the Ctrl key to select multiple non-adjacent counties.
- Once highlighted, click the 'Add Selected' button. Clicking on the 'Add All' button will add all counties currently listed in the menu.

[About PRESCRIBE \(Endangered Species Bulletin\)](#)

[PRESCRIBE Mobile](#)

#### 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 Add All  
Clear Search Add Selected

58 items displayed

- 01 Alameda
- 02 Alpine
- 03 Amador
- 04 Butte
- 05 Calaveras

Selected Items

0 items selected Remove All Remove Selected

Detail

#### Step 1: Select County

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

#### Available Counties

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Clear Search Add Selected

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- 01 Alameda
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#### Selected Items

0 items selected Remove All Remove Selected

Confirm that the counties of interest appear in the 'Selected Items' box below the menu. Highlight any counties to be removed and click 'Remove Selected'. Click 'Remove All' to remove all counties.

To continue, click on Next.

Reset Page Start Over Next

# PRESCRIBE

## Background

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- PRESCRIBE – Pesticide Regulation’s Endangered Species Custom Real-time Internet Bulletin Engine.
- Species-Section Database for protection of endangered species from 1997 thru 2000 – included rodenticides only.
- PRESCRIBE was developed as an alternative to paper bulletins by DPR staff in 2001-2002.
- Launched on external server through CalPIP platform in 2005.

# PRESCRIBE

## Data Sources

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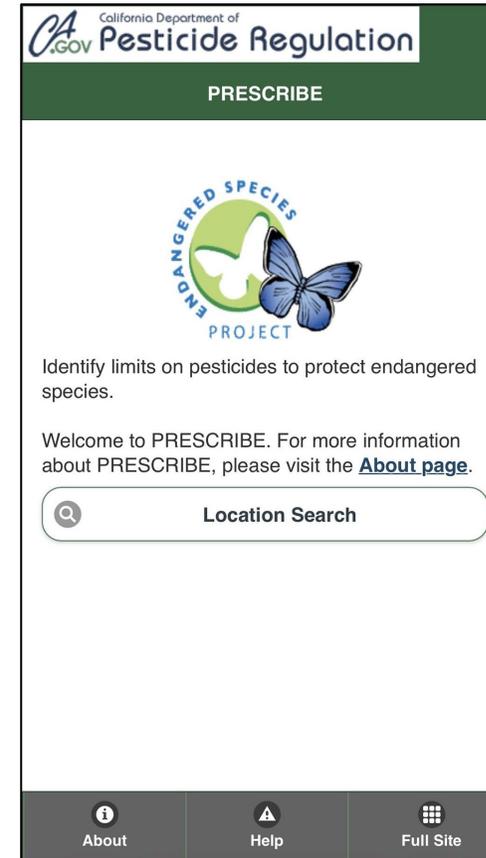
- Habitat data mainly from California Dept. of Fish and Wildlife (CDFW) Natural Diversity Data Base (NDDDB). Additional data from U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS).
- Pesticide toxicology data from U.S. EPA Federal Consultations, DFW Pesticide Investigations Unit, and DPR label Database.
- Species biology from FWS, CDFW, and published references.
- Use limitations from FWS Biological Opinions, and local (county) plans developed by DPR as needed (public meetings).

# PRESCRIBE

## Mobile

### OVERVIEW

- PRESCRIBE is now available for mobile devices such as smart phones, tablets, etc.
- It can be accessed at:  
<https://mobile.cdpr.ca.gov/Prescribe>



# QUESTIONS

Email us: [EndangeredSpecies@cdpr.ca.gov](mailto:EndangeredSpecies@cdpr.ca.gov)