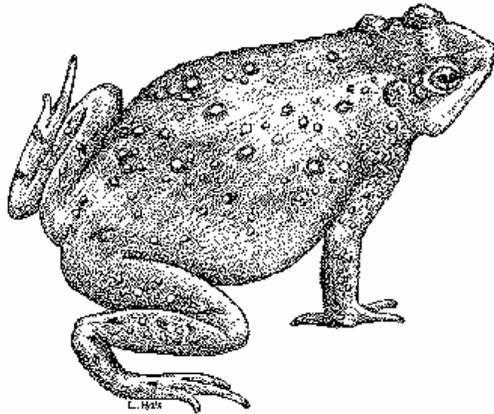


**Species Notes for
Red-spotted Toad (*Bufo punctatus*):**

**California Wildlife Habitat Relationships (CWHR) System
Level II Model Prototype**



**William F. Laudenslayer, Jr. (author)¹ and
Monica D. Parisi (editor)²**

**California Department of Fish and Game
California Interagency Wildlife Task Group**

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¹ United States Forest Service, Pacific Southwest Research Station (ret.)

² California Department of Fish and Game, Biogeographic Data Branch

PREFACE

This document is part of the California Wildlife Habitat Relationships (CWHR) System, operated and maintained by the California Department of Fish and Game (CDFG) in cooperation with the California Interagency Wildlife Task Group (CIWTG). The information will be useful for environmental assessments and wildlife habitat management. For more information on the CWHR System and all of its components, please see <http://www.dfg.ca.gov/biogeodata/cwahr/>.

Notes such as these were prepared for 32 species by the US Forest Service Pacific Southwest Research Station as part of a 2000/2001 contract with CDFG. Each is part of a prototypical “Level II” model for a species. As compared with the “Level I” or matrix models initially available in the CWHR System, “Level II” models incorporate spatial issues such as size of a habitat patch and distance between suitable habitat patches.

The notes are divided into three major sections. First, “Distribution, Seasonality and Habitats” represents information in the existing Geographic Information System (GIS) range data and in the Level I matrix model for a species. There is a vector-based GIS layer of geographic range and seasonality for each species in CWHR as well as a matrix containing all suitability ratings – High (H), Medium (M), Low (L) or Unsuitable (-) – by habitat (e.g. BOW or Blue Oak Woodland), stage (e.g. 4P or small tree, open canopy) and life requisite (reproduction, cover, or feeding.). Tools such as “Bioview” within the CWHR software will return these suitability ratings for a species to a user-supplied data set containing habitats and either stages (e.g. 4P) or stage values (e.g. trees of 16.0 average diameter at breast height in a stand of 30% canopy closure).

Second, “Required Attributes of Suitable Habitat Patches” represents spatially-explicit requirements of a species. The information here builds upon what is known about habitat patch size and the most critical attributes of a habitat patch needed by an individual of the species. Applications such as “GRABS”, which stands for “Grouping Resources Algorithm for Biological Data Sets”, will “clump” pixels of a user-supplied raster-based GIS data set representing patches of a suitable habitat and stage for a species. It will calculate area, perimeter, and complexity within each patch and analyze its outside edge for juxtaposition with other habitats and stages of interest. Many of the attributes are what were once called “elements” in the CWHR model.

Third, “Spatial Habitat Requirements for Persistence of Population” represents estimates of the amount of habitat needed to maintain a population of a species. This may be considered the starting point for a “Level III” CWHR model, which would take into account spatial issues as well as a number of population parameters not yet incorporated into CWHR. Such information is included for most, but not all, Level II-modeled species.

A036 Red-spotted Toad *Bufo punctatus*

Distribution, Seasonality and Habitats

<i>Model Parameter</i>	<i>Threshold Value(s) for Species</i>
<p><u>Biogeographic Range and Seasonality</u> range of the species, by season, in the state</p>	Species is found in arid and semi-arid areas in southeastern California from below sea level in Death Valley to 2,000 meters.
<p><u>Suitable Habitats</u> habitats rated in the California Wildlife Habitat Relationships (CWHR) System as high (H), medium (M), or low (L) suitability for reproduction, cover, or feeding</p>	Species finds suitability (H --->L) for reproduction, cover and/or feeding in some or all stages of: Alkali Desert Scrub, Desert Riparian, Desert Scrub, Desert Succulent Shrub, Desert Wash, Joshua Tree, Lacustrine, Mixed Chaparral, Palm Oasis, Pasture, Pinyon-Juniper, and Riverine.
<p><u>Water</u> whether water is required, enhances, or is irrelevant for habitat suitability</p>	<p>Water is required for suitability. However, species is capable of moving from burrow to breeding locations. Vernal pools, intermittent streams, slow-moving water, or a riparian inclusion are essential. Ponds, springs, and created water bodies are also used.</p> <p>Breeding requires permanent ponds or temporary pools of at least 2 months duration; species requires 72 hours to hatch and 60 days to metamorphose to adult form. Breeding starts after rainfall. Air temperatures must be above 21-24oC and water temperatures between 22 and 36oC for normal larval development.</p>

Required Attributes of Suitable Habitat Patches

<i>Model Parameter</i>	<i>Threshold Value(s) for Species</i>
<p><u>Patch Size</u> L = low suitability. This is the minimum patch size for persistence of an individual. H = high suitability. Above</p>	0.5 acre (L), if suitable breeding areas are within 0-15 meters 10 acres (H), if suitable breeding areas are within 0-15 meters

<p>this patch size, area alone does not increase habitat suitability for an individual.</p>	
<p>Edges requirements for a transition between two life form types – tree/shrub, tree/grass, tree/water, tree/agricultural, shrub/grass, shrub/water, shrub/agricultural, grass/water, grass/agricultural, or water/agricultural</p>	<p>Edges are not essential. However, water must be relatively close to burrowing habitat.</p>
<p>Structural Habitat Attributes requirements for live vegetation, dead or decadent vegetation, vegetation residues, physical features, or human-made features</p>	<p>Species requires burrows or rocky areas for denning relatively close to suitable water areas for breeding and cover. Friable soils, saline soil, lithic or rock are essential for cover.</p>
<p>Food vegetative or animal diet requirements</p>	<p>Invertebrates, especially terrestrial insects, are essential.</p>

Spatial Habitat Requirements for Persistence of Population

<p>Lowest suitability = 100 acres, if suitable patches cover at least 75% of area, are of a minimum size (see above), and are a maximum of 20 meters apart</p> <p>Highest suitability = greater than 300 acres, if suitable patches cover at least 75% of area, are of a minimum size (see above), and are less than 5 meters apart</p>
