A.13 BLAINVILLE'S HORNED LIZARD (*PHRYNOSOMA BLAINVILLII*)


photo courtesy © John Game

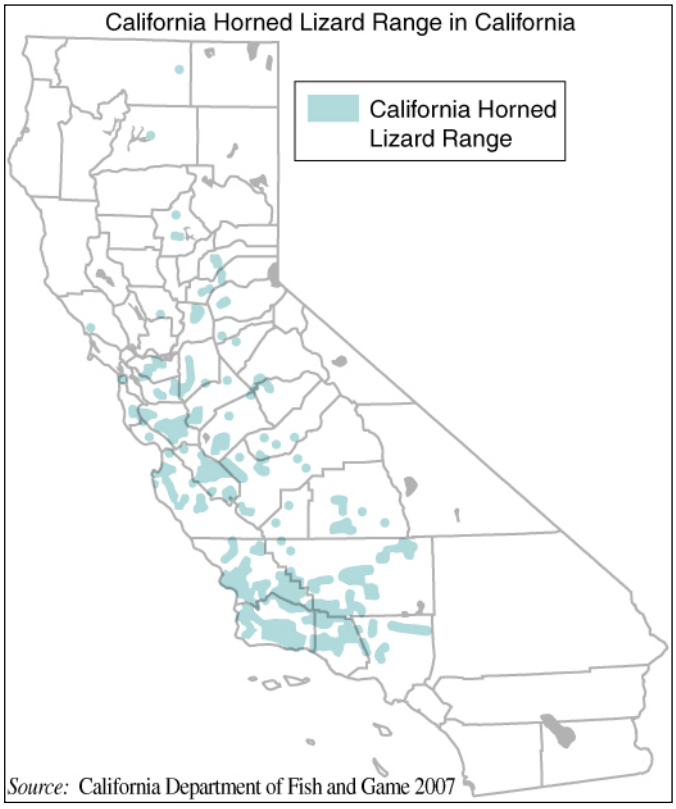
A.13.1 Legal and Other Status

Blainville's horned lizard[1] is designated as a Department of Fish and Game (DFG) Species of Concern.

A.13.2 Species Distribution and Status

A.13.2.1 Range and Status

This California endemic is distributed from known localities in Shasta County southward to Los Angeles County and extending east into the Sierra Nevada and Cascade Mountain foothills. The distribution includes historical locations in Santa Barbara and Ventura counties (DFG 2007). DFG notes that this subspecies remains abundant only in localized areas along the South Coast Ranges and in isolates sections of natural habitat in the Central Valley (DFG 2007). Blainville's horned lizard has disappeared from approximately 35 percent of its range in central and Northern California. In addition, extant populations are becoming increasingly fragmented as development in the region continues (Jennings and Hayes 1994).



A.13.2.2 Distribution and Status in the Plan Area

DFG has one record of the Blainville's horned lizard within Butte County (CNDDB 2011). The occurrence is located north of Oroville, on North Table Mountain, just east of Coal Canyon (see Figure A.13-1, *Blainville's Horned Lizard Recorded Occurrences*).

A.13.3 Habitat Requirements and Special Considerations

The Blainville's horned lizard can occur in many habitat types, including grassland, oak woodland, and riparian habitats.

[1] Formerly California horned lizard (*Phrynosoma coronatum frontale).*

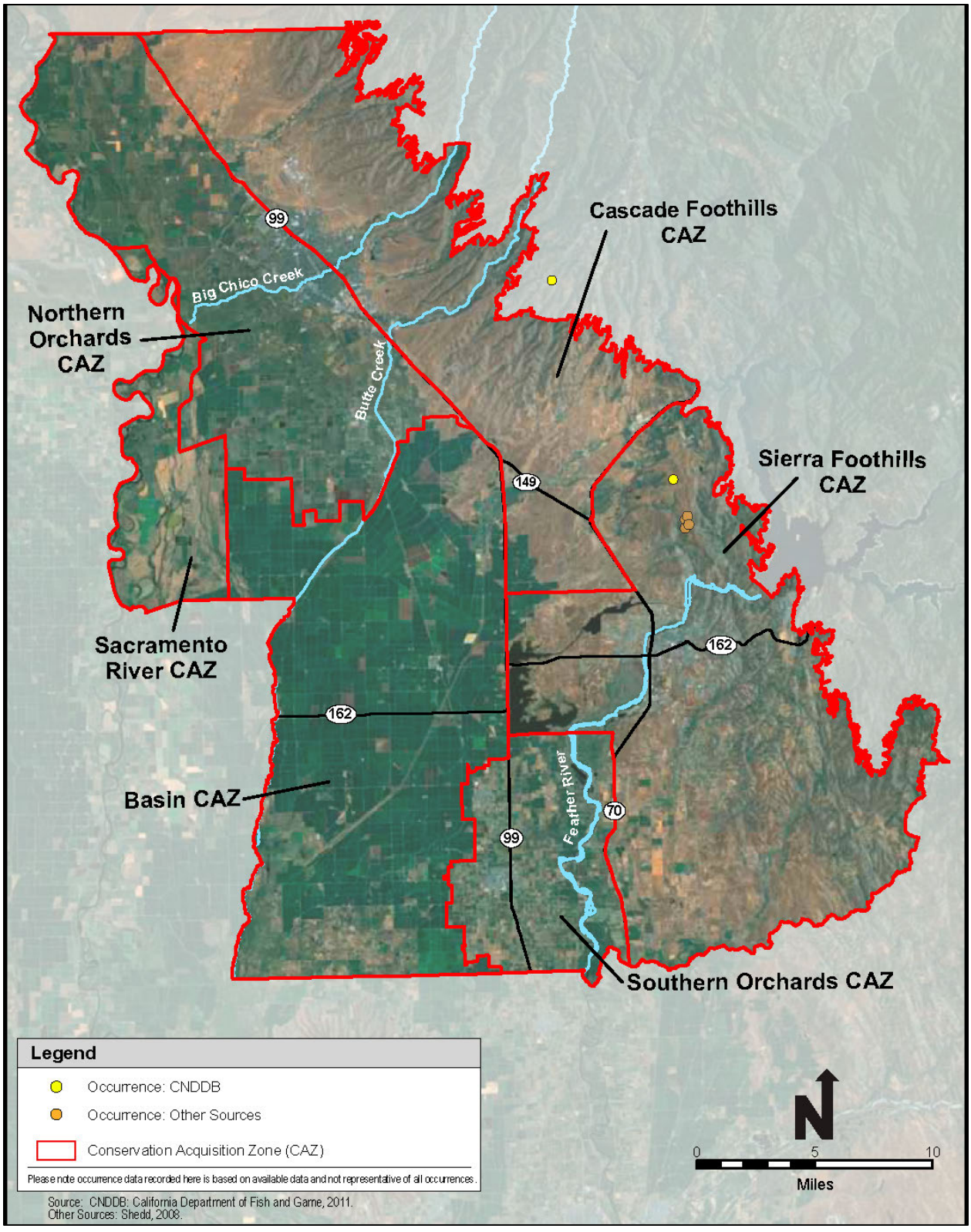


Figure A-13-1. Blainville's Horned Lizard Recorded Occurrences

Limiting habitat requirements are believed to include an exposed gravelly sandy substrate such as clearings in riparian woodlands, or annual grassland with scattered perennial species (Jennings and Hayes 1994, SDNHM 2007). Individuals burrow into loose soil to escape extreme heat and predators (Morey 2000). Periods of inactivity and winter hibernation are also spent burrowed into the soil under surface objects such as logs or rocks, in mammal burrows, or in crevices (Morey 2000). Blainville's horned lizard is found below 2,000 ft (600 m) in the northern part of its range and 3,000 ft (900 m) in the southern part of its range (Morey 2000). Within the Plan Area, the only known occurrence is on North Table Mountain, which generally supports annual grassland with scattered rocks (CNDDB 2006). Historically, this taxon was identified as most abundant in relict lake sand dunes and old alluvial fans bordering the San Joaquin Valley (DFG 2007).

A.13.4 Life History

Blainville's horned lizards have been observed to be active between April and October with activity being more conspicuous in April and May (Jennings and Hayes 1994). They are most active midday during spring and fall, and in the morning and late afternoon during mid-summer months (Zeiner et al. 1988). Nocturnal activity may occur during particularly warm periods (Morey 2000). Little information is available on suitable nesting sites; however, this species appears to require fine, loose soils where it can bury itself. Blainville's horned lizards have been observed to copulate in late April and early May in captivity (Banta and Morafka 1968), while courtship activities have been observed in the wild during April (Tollestrup 1981). Males may use elevated "viewing platforms" such as cow dung (Tollestrup 1981) to locate potential mates. Little information is available on specific habitat requirements for breeding and egg-laying. However, eggs are apparently laid in nests constructed in loose soils and hatch after 2 months (Morey 2000). A clutch of 6 to 21 eggs is laid in April to June (Stebbins 1985) and hatchlings appear July to September (Jennings and Hayes 1994, SDNHM 2007). Longevity in the wild is unknown, but captive individuals have been maintained for over 8 years (Jennings and Hayes 1994). Members of this species often remain motionless, blending in with their background and feeding on native ants and beetles.

Reported predators of horned lizards include leopard lizards, sidewinders, striped whipsnakes and other snakes, loggerhead shrikes, and hawks (Morey 2000). Blainville's horned lizard relies on cryptic coloration and motionless behavior to avoid detection by predators (Jennings and Hayes 1994). Blainville's horned lizards forage on ant species, but do not appear to feed on nonnative species, such as Argentine ants, that have been introduced to western United States and that have replaced native ants over much of central and southern California (Jennings and Hayes 1994, Suarez et al. 2000). Other insects foraged include wasps, grasshoppers, flies, and caterpillars (Stebbins 1954), and small beetles when abundant (Morey 2000).

A.13.5 Threats

Primary threats to the species include the ongoing fragmentation and loss of habitat. The conversion of alluvial fans and relict lake sand dunes to agriculture has resulted in the disappearance of this species in many areas. As stated in Section A.13.2 *Species Distribution and Status,* Blainville's horned lizard has disappeared from approximately 35 percent of its range in central and northern California; and extant populations are becoming increasingly fragmented as development continues (Jennings and Hayes 1994).

Invasion of nonnative ant species, especially Argentine ants, poses a significant threat to Blainville's horned lizard (Stephenson and Calcarone 1999). Invasion of this species has resulted in the displacement of the native ant food base (SDNHM 2008). Experiments show that horned lizards reared solely on Argentine ants and the arthropods typical of an invaded community show negative or neutral growth rates, suggesting that horned lizards are disappearing from habitat remnants at least in part due to the deterministic effects of biological invasion (Suarez and Case 2002). The recent arrival of nonnative red fire ants could have a similar detrimental effect on the native ant food base (Stephenson and Calcarone 1999). Domestic cats are also known to threaten Blainville's horned lizards (Jennings and Hayes 1994). Domestic cats have been observed to eliminate horned lizards within a several square-kilometer area from a cat's home base (Jennings and Hayes 1994).

A.13.6 Relevant Conservation Efforts

Extensive surveys, studies, and monitoring of this taxon are needed that focus on impacts of domestic pets, the invasion of Argentine ant, and nonnative red fire ants into remaining suitable horned lizard habitat. Reserves should be managed to prevent invasion and expansion of Argentine ants to reduce negative direct and indirect effects to natural communities supporting horned lizard (Suarez et al. 2000).

A.13.7 Species Habitat Suitability Model

A habitat suitability model has not been developed for Blainville's horned lizard because there is insufficient information regarding the distribution of the physical attributes that supports its habitat in the Plan Area (e.g., gravelly sandy substrates).

A.13.8 Recovery Plan Goals

Currently there is no recovery plan for the Blainville's horned lizard.

A.13.9 References

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Personal Communication

Jackson Shedd, Wildlife Biologist. 2008. Blainville's Horned Lizard occurrence locations.