

5-YEAR REVIEW

Blunt-nosed leopard lizard (*Gambelia sila*)

GENERAL INFORMATION

Species: Blunt-nosed leopard lizard (*Gambelia sila*)

Date listed: March 11, 1967

FR citation: 32 FR 4001

Classification: Endangered

Most recent status review:

The most recent status review of the blunt-nosed leopard lizard was a 5-year review completed by the Sacramento Fish and Wildlife Office in 2010.

Methodology used to complete the review:

In accordance with section 4(c)(2) of the Endangered Species Act of 1973, as amended (Act), the purpose of a 5-year review is to assess each listed species to evaluate whether or not the species' status has changed and it should be classified differently or removed from the Lists of Threatened and Endangered Wildlife and Plants. The U.S. Fish and Wildlife Service's (Service) Sacramento Fish and Wildlife Office (SFWO) conducted a Species Status Assessment (SSA) and developed an SSA report on the blunt-nosed leopard lizard (Service 2020) which was used to inform this 5-year review. The SSA report represents our evaluation of the best available scientific information, including the habitat and demographic needs and the current and future condition of the species. Independent peer reviewers and partner representatives reviewed the SSA report. In addition to the SSA report, we used a peer-reviewed publication and information from our files (obtained while writing the SSA report) to complete this review.

FR Notice citation announcing this status review:

A notice announcing the initiation of the 5-year review for this taxon and the opening of a 60-day period to receive information from the public was published in the Federal Register on July 26, 2019 (84 FR 36116). We did not receive any responses to our request for comments.

REVIEW ANALYSIS

Updated Information and Species Status

A summary of new information included throughout the SSA report is included in Chapter 1. The SSA report provides a summary of the factors influencing viability of the species, management and conservation measures, and current status of the species in Chapter 4, and projects potential future condition of the species under three plausible scenarios in Chapter 5. The SSA report provides an analysis of the current and future condition of 24 populations throughout the current range of the species. A summary of species viability is presented in Chapter 6.

The populations analyzed for condition in the SSA report include two hybrid populations between the blunt-nosed leopard lizard and long-nosed leopard lizard (*Gambelia wislizenii*). Although protection of hybrid blunt-nosed leopard lizards is not addressed in the SSA report,

here we present information relevant to a decision tree for evaluating hybrid protection (Wayne and Shaffer 2016, pp. 2682-2683). Application of the decision tree suggests that these hybrid lizards warrant protection by the Act. This justification is based on mitochondrial DNA (mtDNA) introgression throughout the Cuyama River Valley, observations of morphologically pure blunt-nosed leopard lizards and genome traces (RADseq, SNP and microsatellites) in the lower watershed, and isolation of the watershed populations from either of the parent populations. Further, lizards in the Cuyama River Valley face similar pressures as other blunt-nosed leopard lizard populations, reinforcing their need for protection (Westphal *in litt.* 2019).

Threats

Current or potential future threats to blunt-nosed leopard lizards include: fragmentation and development (including agricultural, energy, housing, and infrastructure) (Factor A); habitat modification by non-native plants (Factor A); inappropriate grazing levels (Factor A); above- or below-average precipitation (Factor E); pesticide use (Factor E); small population size (Factor E); and climate change (Factor E).

Recovery Criteria

Recovery Plan: Recovery Plan for Upland Species of the San Joaquin Valley, California (1998)

The Recovery Plan has downlisting and delisting criteria related to three main components: protected habitat, management plans, and population density (Table 1).

Table 1. Downlisting and delisting recovery criteria for the blunt-nosed leopard lizard.

Step	Protected habitat	Management plans	Population density
Downlist	Five or more areas, each of about 2,428 hectares (5,997 acres) or more of contiguous, occupied habitat, including one each on: Valley floor in Merced or Madera Counties; Valley floor in Tulare or Kern Counties; foothills of the Ciervo-Panoche Natural Area, foothills of western Kern County, and the Carrizo Plain Natural Area	A management plan that includes survival of the species as an objective and range-wide population monitoring has been approved and implemented for all protected areas identified as important to the continued survival of blunt-nosed leopard lizard.	Each protected area has a mean density of two or more lizards per hectare (one per acre) through one precipitation cycle (period when annual rainfall includes average to 35 percent above-average through greater than 35 percent below average and back to average or greater)
Delist	Three additional areas with about 2,428 hectares (5,997 acres) or more of contiguous, occupied habitat, one on the Valley floor, one along the western Valley edge in Kings or Fresno Counties, and one in Upper Cuyama Valley	Same as above	Same as above

Our SSA analysis indicated that the criterion related to population density is not met; the criterion related to habitat protection is partially met, and the criterion for management plans is partially met. Details are provided in Chapter 4 of the SSA report. In summary, the downlisting criteria for the species are not met.

Synthesis

At the time that the blunt-nosed leopard lizard was listed, the conversion of native habitat to agriculture was considered to be the primary threat to species. Habitat loss and the degradation of remaining habitat continue to be primary threats to the species' recovery. After reviewing the best available scientific information and comparing current and future condition with the recovery criteria for the species, we conclude that the blunt-nosed leopard lizard remains an endangered species.

RESULTS

Recommended Classification:

- Downlist to Threatened**
- Uplist to Endangered**
- Delist** (*Indicate reasons for delisting per 50 CFR 424.11*):
 - Extinction*
 - Recovery*
 - Original data for classification in error*
- No change is needed**

New Recovery Priority Number: No change

The Service has determined that the current recovery priority number (2C) should remain unchanged. The current recovery number, "2", indicates that a species has a high degree of threat as well as a high recovery potential. The "C" indicates conflict with construction or other development projects or other forms of economic activity.

RECOMMENDATIONS FOR FUTURE ACTIONS

- *Continue demographic and genetic monitoring of the species:* Continued surveys for populations with estimated abundance and genetic diversity will assist with assessing status and trends for the species. Additional data on population responses to environmental variation will help to inform land management strategies and restoration to preserve and enhance populations.
- *Focus on habitat restoration to restore connectivity within and between populations:* Reinstating connectivity can increase genetic diversity and enhance representation for the species. Strategic restoration focuses on the restoration of retired lands adjacent to existing natural areas, and as corridors linking protected areas, to create a network of protected lands. Continued efforts towards restoration, and a better understanding of blunt-nosed leopard lizard use of restored areas, will be an important component of recovery for the species.
- *Encourage conservation and coordination between private landowners and other partners, including the Service:* Lack of access for monitoring or conservation-related

work has led to challenges in understanding population abundance and resiliency in some areas. Conservation by private landowners and cooperation/coordination between private landowners and other partners should be encouraged.

- *Continue research of the species:* Continued research on blunt-nosed leopard lizard ecology, including research on burrow needs, thermal ecology, prey base, response to pesticides, and causes for population decline, will help address areas of uncertainty in the SSA report.

REFERENCES

(Service) U.S. Fish and Wildlife Service. 2020. Species Status Assessment for the Blunt-nosed leopard lizard (*Gambelia sila*) Version 1.0. July 2020. Sacramento, CA.

Wayne, R. K., and H. B. Shaffer. 2016. Hybridization and endangered species protection in the molecular era. *Molecular Ecology* 25: 2680-2689.

In litteris citations

Westphal, Michael. 2019. Email including draft manuscript regarding genome-informed management of blunt-nosed leopard lizards. Email received April 30, 2019.

U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of blunt-nosed leopard lizard

Current Classification: Endangered

Recommendation resulting from the 5-Year Review:

- Downlist to Threatened
- Uplist to Endangered
- Delist
- No change needed

FIELD OFFICE APPROVAL:

Field Supervisor, Sacramento Fish and Wildlife Office

Approve MICHAEL FRIS Digitally signed by MICHAEL FRIS
Date: 2020.07.15 10:04:47 -07'00' Date _____