5-YEAR REVIEW
Giant kangaroo rat (*Dipodomys ingens*)

GENERAL INFORMATION

Species: Giant kangaroo rat (*Dipodomys ingens*)
Date listed: January 5, 1987
FR citation: 52 FR 283
Classification: Endangered
Most recent status review:
The most recent status review of the giant kangaroo rat was a 5-year review completed by the Sacramento Fish and Wildlife Office in 2010 (Service 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 giant kangaroo rat (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.

FR Notice citation announcing the species is under active review:
A notice announcing the initiation of the 5-year review for this species 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; Service 2019). We received one response to our request for comment, which aligns with our analysis in the SSA report.

REVIEW ANALYSIS

Updated Information and Species Status

New species information included throughout the SSA report is summarized 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 3, and projects potential future condition of the species under three plausible scenarios in Chapter 4. The SSA report provides an analysis of the current and future condition of six geographic units throughout the current range of the species. A summary of species viability is presented in Chapter 5.

Threats

Current or potential future threats to the giant kangaroo rat include: reduction of available habitat from land conversion for urbanization, energy development, transportation infrastructure, and agricultural production (Factor A); small population size (Factor E); the use of rodenticides

(Factor E); intensive and inadequate grazing regimes (Factor E); invasive plant species (Factor E); wildfire (Factor E), and climate change and variability (Factor E).

Abundance

As described in Chapter 3 of the SSA report, areas which had the highest abundance of giant kangaroo rats historically continue to have the largest populations today. These areas include the Ciervo-Panoche Region, Lokern and Elk Hills area of western Kern County, Carrizo Plain Natural area, and in the Cuyama Valley, although there have not been surveys in the Cuyama Valley for many years (Bean *in litt.* 2020). Recent trapping efforts in the San Juan Creek and Kettleman Hills units confirmed the presence of giant kangaroo rats, and aerial footage and personal observations suggest small, isolated populations continue to persist in both these units (San Joaquin Valley Upland Species SSA: Expert elicitation meeting 2019; Semerdjian 2019). Since the 2010 status review (Service 2010), populations have fluctuated on a semi-annual basis. From 2012 – 2016 California experienced a prolonged drought, during which time populations across the range saw declines in abundance. Once the drought ended, populations appeared to rebound within the affected regions (Bean *in litt.* 2019), but in the summer of 2019 researchers across the range documented additional population declines. The cause of these declines is unknown, but could be due to unseasonably wet weather and a prolonged wet season which lasted well into the normally dry summer months (Semerjian *in litt.* 2019). Giant kangaroo rat populations have seen similar population declines in years with high summer precipitation and have rebounded successfully. Because of inter-annual population fluctuations, it is difficult to determine long-term population trends in many places.

Recovery Criteria

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

Recovery criteria for downlisting of the giant kangaroo rat includes the acquisition, protection, and management of 80-90 percent of all lands occupied by the giant kangaroo rat in the six population recovery units identified in the Recovery Plan. The Recovery Plan also defines an additional criteria for downlisting as population monitoring that shows, during a 5-year period, no greater than a 20 percent change in population size during years without drought, or when annual precipitation is not greater than 35 percent above average. The Recovery Plan states that delisting of the giant kangaroo rat will be considered when 100 percent of occupied habitat on public lands in the Cuyama Valley, San Juan Creek Valley, and Kettleman Hills is protected, and populations are stable or increasing in the Carrizo, Panoche, and western Kern County metapopulations through one precipitation cycle.

As seen in Table 10 of the SSA report, none of the units are currently in a high condition for the land protection habitat factor (defined as >80% land protection within the unit); therefore, the land protection downlisting and delisting criteria have not been met. Furthermore, because the San Joaquin Valley experienced a prolonged drought from 2012-2016 followed by prolonged wet seasons into the summer through 2019, population monitoring during a 5-year period without drought or excessive precipitation has not been possible. As such, the population

monitoring downlisting and delisting criteria for the giant kangaroo rat have also not been met. Because only a portion of protected land have management plans, the management plan downlisting criterion has only partly been met (Service 2010).

Synthesis

The 1998 Recovery Plan indicated that the primary threat to the survival and recovery of the giant kangaroo rat was the reduction of available habitat from land conversion for agricultural production, energy development, and urbanization. While conservation practices and land acquisitions have increased the amount of protected land since the recovery plan was published, the reduction of available habitat has continued to be the primary threat to the survival and recovery of the giant kangaroo rat. Therefore, after reviewing the best available scientific information and comparing current and future conditions with the recovery criteria for the species, we conclude that the giant kangaroo rat 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*
_X_ 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 the taxon is a full species that faces a high degree of threat and has a high potential for recovery. The “C” indicates conflict with construction or other development projects or other forms of economic activity.

RECOMMENDATIONS FOR FUTURE ACTIONS

Locations that should be targeted for protection

- Dispersal corridors within the northern range along Panoche Creek and Silver Creek in western Fresno County.
- The Panoche Valley in eastern San Benito County as an important source of regional expansion within the northern range.
- Buena Vista Valley in western Kern County.
- Co-locate the conservation lands acquired for San Joaquin kit fox and blunt-nosed leopard lizard with giant kangaroo rat habitat.

Approval and implementation of habitat management plans

- Include in all habitat management plans (including the Carrizo Plain National Monument) the flexibility to alter the dates and stocking rates of livestock to respond to annual plant production to prevent the dominance of exotic grasses in giant kangaroo rat habitat.

Future research and monitoring

- Continued long-term monitoring in western Kern County and the Carrizo Plain.
- Begin long-term monitoring of populations within the Ciervo-Panoche area of western Fresno and eastern San Benito Counties.
- Census and monitor giant kangaroo rats in the satellite populations in the Cuyama Valley (eastern San Luis Obispo and eastern Santa Barbara Counties), San Juan Creek Valley (eastern San Luis Obispo County), and Kettleman Hills (southwestern Kings County).

Acquire and protect habitat

- Acquire fallowed croplands for aggressive restoration throughout the range of the giant kangaroo rat to increase connectivity.

REFERENCES

Semerdjian, A. 2019. Evaluation of range-wide occupancy and survey methods for the giant kangaroo rat (*Dipodomys ingens*). Master's thesis, Humboldt State University, Arcata, California. Retrieved from: https://digitalcommons.humboldt.edu/cgi/viewcontent.cgi?article=1279&context=etd.

U.S. Fish and Wildlife Service (Service). 1998. U.S. Fish and Wildlife Service recovery plan for upland species of the San Joaquin Valley, California. Region 1 Portland, Oregon.

U.S. Fish and Wildlife Service (Service). 2010. Giant kangaroo rat (*Dipodomys ingens*) – 5-year review: summary and evaluation. Sacramento, California.

U.S. Fish and Wildlife Service (Service). 2019. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews for 58 Species in California, Nevada, and the Klamath Basin of Oregon. Federal Register 84(144): 36116 – 36118.

U.S. Fish and Wildlife Service (Service). 2020. Species Status Assessment for the giant kangaroo rat (*Dipodomys ingens*) Version 1.0. August 2020. Sacramento, CA.

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Bean, W. T. 2019. Giant Kangaroo Rat Unique Sites 2010-2017 (trapping occurrence dataset).Data received through electronic mail from professor at Humboldt State University to Elizabeth Bainbridge, Listing and Recovery Division, Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service, Sacramento, California.

Bean, W. T. 2020. Professor of Wildlife Biology, California Polytechnic State University. Peer Review Comments on the Giant Kangaroo Rat Species Status Assessment.

Semerdjian, Alyssa. 2019. Electronic mail from Alyssa Semerdjian, Humboldt State University, to Elizabeth Bainbridge, U.S. Fish and Wildlife Service. Subject: GKR summary 2019: July 26, 2019.

Personal Communication

San Joaquin Valley Upland Species SSA: Expert elicitation meeting. 2019. Minutes of Elicitation Meeting, September 30, 219. Fresno Chaffe Zoo, Fresno California.

U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of giant kangaroo rat

Current Classification: Endangered

Recommendation resulting from the 5-Year Review:

____ Downlist to Threatened
____ Uplist to Endangered
____ Delist
_X_ No change needed

FIELD OFFICE APPROVAL:

Field Supervisor, Sacramento Fish and Wildlife Office

Approve MICHAEL SENN Digitally signed by MICHAEL SENN Date: 2020.08.12 16:36:53 -07'00' Date _____