

5-YEAR REVIEW

Riparian brush rabbit (*Sylvilagus bachmani riparius*)

GENERAL INFORMATION

Species: Riparian brush rabbit (*Sylvilagus bachmani riparius*)

Date listed: February 23, 2000

FR citation: 65 FR 8881

Classification: Endangered

Most recent status review: This is the first status review since the riparian brush rabbit was listed.

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 riparian brush rabbit (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. Internal partner review and independent peer review of the SSA report were conducted prior to finalization of the report.

FR Notice citation announcing the species is under active review:

A notice announcing the initiation of the 5-year review for the riparian brush rabbit 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 Federal Register request for information.

REVIEW ANALYSIS

Updated Information and Species Status

A description of new biological and ecological information obtained since listing is included in the riparian brush rabbit SSA report (Service 2020), primarily in Chapter 2. New information includes additional data regarding the species' life history and habitat requirements, distribution, vital rates, genetic structure and diversity, phylogenetic relationships, and response to fires and floods. An evaluation of the significant past, current, and future influences that are affecting riparian brush rabbit viability is in Chapter 6 of the SSA report; analysis of the current condition of the species is in Chapter 7; and analysis of the potential future condition of the species under three plausible scenarios is in Chapter 8. A summary of overall species viability, in addition to the current and potential future conditions of riparian brush rabbit populations, is presented in the final section of Chapter 8.

The final listing rule (65 FR 8881; Service 2000) for the riparian brush rabbit referred to only

one known population, located in Caswell Memorial State Park on the border of San Joaquin and Stanislaus counties. However, over the course of several years beginning in late 1998, a series of fragmented riparian brush rabbit occurrences was discovered in the delta region of San Joaquin County (Kelly 2018, p. 211). Rabbits from the newly discovered occurrences were captured for a captive propagation program that began reintroducing riparian brush rabbits to restored habitat at the San Joaquin National Wildlife Refuge and neighboring properties in 2002 (Kelly 2018, pp. 211-212). According to the SSA analysis, the reintroduced population is the only riparian brush rabbit population that demonstrates resiliency to withstand or bounce back from environmental or demographic stochastic events (Service 2020, p. 74, table 8).

Current or potential future threats to the riparian brush rabbit are largely the same to those described in the final listing rule. Threats include, development and land use change (Factor A), anthropogenic hydrological changes (Factors A and E), flooding (Factors A and E), wildfire (Factors A and E), drought (Factors A and E), predation (Factor C), vegetation/brush removal (Factor A), disease (Factor C), and effects of small population size (Factor E). Threats identified since the final listing rule include forest succession (Factor A) and climate change (Factor E). Each riparian brush rabbit population is affected by several of these threats; however, the combinations and magnitudes of threats differ for each population (Service 2020, pp. 75-76, table 9).

Since the SSA report was written and peer reviewed, the threat of fatal disease (Factor C) to the riparian brush rabbit has drastically increased. On April 7, 2020, the New Mexico Department of Game and Fish (NMDGF) and New Mexico Livestock Board reported the first cases of rabbit hemorrhagic disease virus 2 (RHDV2) in wild rabbit populations within the United States (NMDGF & New Mexico Livestock Board 2020, not paginated; National Wildlife Health Center 2020, not paginated). Rabbit hemorrhagic disease virus 2 is a foreign animal disease that is highly contagious and is fatal to both wild and domestic rabbits (USDA 2019, p. 1). Since the first wild rabbit cases were discovered during early March 2020 (NMDGF & New Mexico Livestock Board 2020, not paginated), RHDV2 has been confirmed in both wild and domestic rabbits in numerous counties across Arizona, Colorado, New Mexico, and Texas (USDA 2020, not paginated). There have also been confirmed cases of RHDV2 in domestic rabbits in Clark County, Nevada, and in wild rabbits from three counties in southern California (Riverside, San Bernardino, and San Diego counties) (USDA 2020, not paginated). The rapid spread of RHDV2 poses an imminent threat to the survival of the riparian brush rabbit.

Recovery Criteria

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

There are currently no recovery criteria for the riparian brush rabbit. Riparian brush rabbit recovery criteria were not included in the Recovery Plan for Upland Species of the San Joaquin Valley, California (1998) because the recovery plan was written and finalized before the species was listed under the Act.

Synthesis

After reviewing the best available scientific information, we conclude that the riparian brush rabbit remains an endangered species, as defined in the Act. Research efforts since the species was listed have greatly improved our understanding of the species' ecology and status. Conservation efforts since listing have also improved the species' viability by increasing the amount of available habitat and establishing a new, resilient population. However, the conditions of all but the reintroduced population are poor. Therefore, the riparian brush rabbit is in danger of extinction throughout all or a significant portion of its range because of its low viability (i.e. low resiliency, low redundancy, and low representation) and the seriousness of threats (e.g. flooding, climate change, and disease) to its populations.

RESULTS

Recommended Classification:

- Downlist to Threatened**
- Uplist to Endangered**
- Delist:**
 - Extinction*
 - Recovery*
 - Original data for classification in error*
- No change is needed**

New Recovery Priority Number: 3C

Prior to this 5-year review, the riparian brush rabbit had not been assigned a recovery priority number because the species' recovery plan was written and finalized before the riparian brush rabbit was listed under the Act. In this 5-year review, we are assigning a recovery priority number of 3C. The riparian brush rabbit is assigned a "3" because it is a subspecies that faces a high degree of threat (especially from flooding and disease) and it has a high potential for recovery, as demonstrated by the success of habitat restoration, captive propagation, and reintroduction at the San Joaquin National Wildlife Refuge. The riparian brush rabbit is assigned a "C" because the species is in conflict with construction, development projects, and other forms of economic activity (e.g. residential development, hydrological infrastructure projects, and agriculture).

RECOMMENDATIONS FOR FUTURE ACTIONS

1. Take immediate steps to prevent the extinction of the riparian brush rabbit from the imminent threat of RHDV2. Approaches might include one or more of the following strategies:
 - a. Develop a plan that can be rapidly implemented to bring rabbits into captivity, should the Service determine that such a measure is necessary.
 - b. Develop and implement a RHDV2 vaccination plan.

- c. Plan and execute prudent measures that are likely to quickly increase riparian brush rabbit resiliency by increasing abundance, population growth rate, distribution, availability of flood refugia, habitat quantity, and/or habitat quality. If deemed appropriate, such measures might include assisted migration to unpopulated, or underpopulated, habitat.
 - d. Implement measures to slow the rate of spread of the disease to riparian brush rabbit populations. Such measures might include biosafety practices such as disinfecting boots and vehicles before entering areas near rabbit populations and/or educational outreach to local landowners and public visitors to the San Joaquin National Wildlife Refuge and Caswell Memorial State Park.
 - e. Develop and implement a lagomorph monitoring strategy in southern California and the San Joaquin Valley to allow for early detection of RHDV2 in unaffected areas and estimate mortality in affected areas.
2. Establish an emergency plan and monitoring system to provide swift action to save individuals and habitat in the event of flooding, wildfire, or a disease epidemic (modified from Conservation Action 1 in the 1998 Recovery Plan).
 3. Develop and implement a monitoring program of all riparian brush rabbit populations to assess population trends and status (Conservation Action 2d in the 1998 Recovery Plan).
 4. Prepare a species-specific Recovery Plan for the riparian brush rabbit.

REFERENCES

- Kelly, P. A. 2018b. Reintroduction of the riparian brush rabbit in the San Joaquin Valley, California, USA. In: *Global Reintroduction Perspectives: 2018* (Ed. by P. S. Soorae), pp. 210-215. IUCN/SSC Reintroduction Specialist Group & Environment Agency, Abu Dhabi.
- National Wildlife Health Center. 2020. Rabbit Hemorrhagic Disease Virus 2 Confirmed in Wild Rabbits in the United States. *Wildlife Health Bulletin* 2020-04, dated April 13, 2020. U.S. Geological Survey. https://www.usgs.gov/centers/nwhc/science/wildlife-health-bulletins?qt-science_center_objects=0#qt-science_center_objects. Retrieved June 15, 2020.
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———. 2000. Endangered and Threatened Wildlife and Plants; Final Rule to List the Riparian Brush Rabbit and the Riparian, or San Joaquin Valley, Woodrat as Endangered. Federal Register 65(36): 8881–8890.

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**U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of riparian brush rabbit**

Current Classification: Endangered

Recommendation resulting from the 5-Year Review:

- Downlist to Threatened**
- Uplist to Endangered**
- Delist:**
 - Extinction*
 - Recovery*
 - Original data for classification in error*
- No change is needed**

Appropriate Listing/Reclassification Priority Number, if applicable: 3C

FIELD OFFICE APPROVAL:

Field Supervisor, Sacramento Fish and Wildlife Office

Approve MICHAEL FRIS Digitally signed by MICHAEL FRIS
Date: 2020.07.31 16:52:12 -07'00' Date _____