

**90-DAY FINDING ON A PETITION TO DELIST THE STEPHENS' KANGAROO RAT  
UNDER THE ENDANGERED SPECIES ACT**

**Background**

Section 4(b)(3)(A) of the Endangered Species Act (Act) requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. Our standard for substantial scientific or commercial information within the Code of Federal Regulations (CFR) with regard to a 90-day petition finding is “that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted” (50 CFR 424.14(b)).

**Petition History**

On November 10, 2014, we received a petition dated November 7, 2014, from the Riverside County Farm Bureau (RCFB) and the Center for Environmental Science, Accuracy and Responsibility (CESAR), requesting that Stephens' kangaroo rat be delisted and removed from the Act, based on a new analysis of the rat's dispersal ability. The petition clearly identified itself as such and included the requisite identification information for the petitioner, required at 50 CFR 424.14(a). This finding addresses the petition.

**Evaluation of a petition to remove (delist) Stephens' Kangaroo Rat from the List of Endangered and Threatened Wildlife**

*Species and Range*

Does the petition identify an entity that is eligible for delisting (i.e., is the entity a species, subspecies, or DPS)?

- Yes  
 No

*If yes, list common name (scientific name); and range*

Stephens' Kangaroo Rat (*Dipodomys stephensi*); California

*Information in the Petition*

Factor A

1. Does the petitioner claim the entity warrants delisting based on the present or threatened destruction, modification or curtailment of the species habitat or range (Factor A)?

Yes

No

a. If the answer to 1 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

Yes

No

#### Habitat fragmentation

- O'Farrell and Uptain 1989, pp. 5–6.
- Price *et al.* 1994, pp. 735–737.
- RCFB and CESAR 2014, pp. 10–13, Figure 1.

The references cited by the petitioners were thoroughly evaluated for the analysis and determination presented in our 2010 12-month finding and were cited in the finding, along with all the best available scientific and commercial data. The petitioners assert that the Service has, in all previous classifications and actions concerning the Stephens' kangaroo rat, overstated the magnitude of threats to the Stephens' kangaroo rat by underestimating the dispersal ability and range of the species due to our use of low dispersal distances as reported by Price *et al.* (1994). That study found that median maximum distance moved by Stephens' kangaroo rat individuals between capture sites was within 29 meters (m) (96 feet (ft)) of the initial point of capture, with 18 m (58 ft) as the median distance moved between the first and last monthly home-range center (for individuals captured in 2 or more months) (Price *et al.* 1994, pp. 932–935). On average, maximum distances that Stephens' kangaroo rats moved was 37.5 m (123 ft) (based on captures) and 61.5 m (201.8 ft) (based on telemetry), though three male rats moved >400 m (1,312 ft) at the San Jacinto Wildlife Area, including one that dispersed 1,040 m (3,412 ft) (Price *et al.* 1994, pp. 932–935). The petitioners state that, if dispersal has been underestimated, then individual Stephens' kangaroo rats could move between their current fragmented and separated occurrences. As such, the petitioners assert that the effect of habitat fragmentation is of lower magnitude than previously considered by the Service.

In our 12-month finding, we also reported longer movement and dispersal distances as recorded by Price *et al.* (1994). In part, we noted that O'Farrell (1993, p. 12) found that 40 percent of the population was mobile at any one time and, in contrast to Price *et al.* (1994, pp. 933–935), observed some movements in excess of 396 m (1,300 ft) (O'Farrell 1993, p. 66). None of the studies quoted by the petition or in our 12-month finding found any evidence of dispersal distances above 1,040 m (Service 2010, p. 51207). The petitioners further assert that we incorrectly state that the dispersal values are equal throughout the range of the Stephens' kangaroo rat. Our 2010 12-month finding does not make that claim;

rather, we summarize the available studies on maximum dispersal distance for informational purposes. We considered those studies and the references within to be the best available science for maximum dispersal distances for the species at the time of the 2010 12-month finding.

Relying on Price *et al.* (1994) for the proposition that dispersal distances may be underestimated, the petitioners submitted a population analysis (RCFB and CESAR 2014, pp. 10–13, Figure 1) purporting to show potential population connectedness based on potential Stephens' kangaroo rat dispersal distances of 1 km, 2 km, 5 km, or 10 km. However, petitioners' assumption that Stephens' kangaroo rats can disperse 2 km, 5 km, or 10 km is not supported by Price *et al.* (1994), and petitioners do not provide any other references to support their claim that the Stephens' kangaroo rat is able to disperse over these distances. The petitioners state that Price *et al.* (1994) underestimates dispersal, which the study acknowledges. However, Price *et al.* (1994) concluded that the *frequency* of long-distance moves by Stephens' kangaroo rats was underestimated, not the distance. The farthest dispersal distance for a Stephens' kangaroo rat recorded in the study was 1.04 km. Furthermore, petitioners' analysis ignores any potential barriers to dispersal such as habitat unsuitable for dispersal, paved roads, or other human development (Service 2010, p. 51211). In addition, increased dispersal ability would not alone mitigate impacts from other threats to the species that are related to habitat fragmentation, such as edge effects, increased predation, and increased nonnative grasses (Service 2010, pp. 51210–51222).

Therefore, the petitioners did not provide any scientific data not already considered by the Service in its previous status reviews of the Stephens' kangaroo rat, or otherwise provide any analysis of existing data that reasonably calls into question the Service's prior analyses of the magnitude of the threat of habitat fragmentation to Stephens' kangaroo rat as discussed in the Service's 12-month finding (Service 2010) and 5-year review (Service 2011).

b. Provide additional comments, if any.

No other threats attributable to Factor A are discussed by the petitioner and no sources cited in the petition provide substantial information indicating that Stephens' kangaroo rat may warrant delisting based other threats attributable to Factor A.

Factor B

2. Does the petitioner claim the entity warrants delisting based on overutilization for commercial, recreational, scientific, or educational purposes (Factor B)?

Yes

No

- a. If the answer to 2 is no:

Do sources cited in the petition provide substantial information indicating the entity may warrant delisting based on factor B, even though the petitioner does not make this claim?

Yes

No

- b. Provide additional comments, if any.

The petition does not address threats related to Factor B.

#### Factor C

3. Does the petitioner claim the entity warrants delisting based on disease or predation (Factor C)?

Yes

No

- a. If the answer to 3 is no:

Do sources cited in the petition provide substantial information indicating the entity may warrant delisting based on factor C, even though the petitioner does not make this claim?

Yes

No

- b. Provide additional comments, if any.

The petition does not address threats related to Factor C.

#### Factor D

4. Does the petitioner claim the entity warrants delisting based on the inadequacy of existing regulatory mechanisms (Factor D)?

Yes

No

- a. If the answer to 4 is no:

Do sources cited in the petition provide substantial information indicating the entity may warrant delisting based on Factor D, even though the petitioner does not make this claim?

Yes

No

- b. Provide additional comments, if any.

The petition does not address threats related to Factor D.

Factor E

5. Does the petitioner claim the entity warrants delisting based on other natural or manmade factors affecting its continued existence (Factor E)?

Yes

No

a. If the answer to 5 is yes:

Identify the other natural or manmade factors claimed by the petitioner to not be a threat such that delisting may be warranted.

- Small population dynamics

b. If the answer to 5 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

Yes

No

- O'Farrell and Uptain 1989, pp. 5–6.
- Price *et al.* 1994, pp. 735–737.

The references cited by the petitioners were thoroughly evaluated for the analysis and determination presented in our 2010 12-month finding and were cited in the finding, along with all the best available scientific and commercial data.. The petitioners assert that the Service's prior population analyses for Stephens' kangaroo rat are flawed and cannot properly assess habitat threats attributable to small population size because the Service has never explained what spatial arrangement of habitat patches might constitute a "population" or "meta-population" or specifically defined "small population size." The petitioners assert that without providing such explanations the Service cannot analyze Stephens' kangaroo rat population dynamics with a standard population model.

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Section 4(b)(1)(A) of the Act mandates that we make determinations about whether a species is endangered or likely to become so in the foreseeable future based on the best available scientific and commercial information. We are not obliged to conduct independent studies to improve upon the best available science or to resolve inconclusive aspects of the scientific information. Population data for Stephens' kangaroo rat are generally derived from available survey information, which are difficult to interpret in terms of population estimates; more detailed and consistent survey information is needed to determine more accurate estimates of populations and demographic trends for the Stephens' kangaroo rat rangewide (Service 2010, p. 51206). In the face of the inconclusive data regarding population estimates, we must rely on our analysis of the best available scientific data, as fully discussed in our 2010 12-month finding (Service 2010).

The petitioners also state that, per their habitat analysis and the asserted underestimated dispersal ability of Stephens' kangaroo rat, increased chance of extinction based on stochastic events exacerbated by habitat fragmentation and small population size is unlikely, and that the chance of such events has been overstated. As discussed above under Factor A, the petitioners have not presented any reliable information to support their assertion that we have inaccurately assessed the dispersal ability of Stephens' kangaroo rat or have otherwise not fully considered the best available scientific data related to the dispersal ability of the species. Furthermore, they have not provided any new information to indicate that small population size is not exacerbating the threats impacting the species.

Petitioners point to a study conducted by O'Farrell and Uptain (1989) as evidence that we relied on a flawed population analysis to conclude that small population size is exacerbating threats to the species due to the number of "populations" identified in the study. However, as the petitioners acknowledge in footnote 2 of the petition, O'Farrell and Uptain's assignment of numbers to designate separate populations was primarily a matter of convenience (O'Farrell and Uptain 1989, p. 4). The study recognized "that there has been and may be interchange between some populations artificially designated as separate in this report" (O'Farrell and Uptain 1989, p.4). Thus, O'Farrell and Uptain's conclusions regarding population size were not dependent upon the number of populations identified but on the results of their collection and analysis of Stephens' kangaroo rat density data. Furthermore, in our 2010 12-month finding, we did not rely solely on the number of populations designated by O'Farrell and Uptain but on the underlying population data presented in the study (Service 2010, p. 51221).

In that finding, we also utilized multiple other sources besides O'Farrell and Uptain 1989 that describe Stephens' kangaroo rat population size and dynamics, such as Thomas 1975, Price and Endo 1989, Burke *et al.* 1991, Kelly and Price 1992, and Diffendorfer and Deutschman 2003 (Service 2010, p. 51221). We also acknowledged that more detailed and consistent survey information is needed to determine useful accurate and defensible estimates of populations and demographic trends for the Stephens' kangaroo rat rangewide (Diffendorfer and Deutschman 2003, p. 6; Service 2010, p. 51206). However, as stated above, we relied on the best scientific information available to us at the time regarding population analysis. No new information was provided by the petitioner that would contradict our analysis.

Therefore, the petitioners did not provide any reliable information or analysis to support their conclusion that we incorrectly concluded that small population size continues to affect Stephens' kangaroo rat throughout its range and that it exacerbates the effects of other threats, such as habitat fragmentation, making the species susceptible to stochastic events.

- c. Provide additional comments, if any.

No other threats attributable to Factor E are discussed by the petitioner and no sources cited in the petition provide substantial information indicating that Stephens' kangaroo rat may warrant delisting based other threats attributable to Factor E.

### Cumulative Effects

1. Does the petitioner claim that the threats they have identified may have synergistic or cumulative effects such that the entity may warrant delisting?

Yes

No

- a. If the answer to 6 is yes: N/A

Do the sources cited in the petition provide substantial information to support the claim?

Yes

No

*If yes, indicate which threats the petitioner claims may have synergistic or cumulative effects and list the citations with page numbers. If no, please indicate which threats and explain.*

- b. Provide additional comments, if any.

In our August 19, 2010, 12-month finding, we found that multiple threats continued to impact the Stephens' kangaroo rat, including continued degradation and fragmentation of habitat due to urban development, off-highway vehicle use, trash dumping, lack of appropriate management to maintain habitat conditions, agricultural activities, encroachment of nonnative species, predation, and rodenticide use (Service 2010; 75 FR 51204). We also found that existing regulatory mechanisms were inadequate to conserve Stephens' kangaroo rat throughout its range. The petition did not address any of these threats, and did not present any new or substantial information regarding the impacts of habitat fragmentation on populations or on the effects of small population size on exacerbating extinction risk that would lead a reasonable person to believe that delisting Stephens' kangaroo rat may be warranted.

### Petition Finding

Based on our review of the petition and sources cited in the petition, we find that the petition does not present substantial scientific or commercial information indicating that the petitioned action may be warranted for the Stephens' kangaroo rat (*Dipodomys stephensi*).

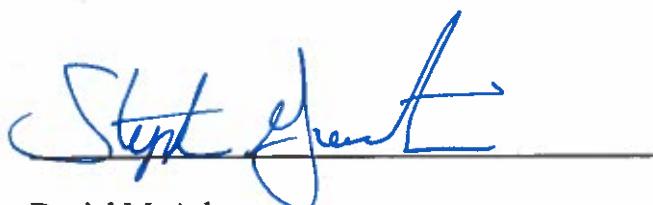
### Authors

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Date: 8/31/15

A handwritten signature in blue ink that reads "Scott Flaherty".

Daniel M. Ashe,  
Director, U.S. Fish and Wildlife Service

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