Dark Kangaroo Mouse (*Microdipodops megacephalus*)

**Species Status Statement.**

Distribution

Dark kangaroo mouse is an inhabitant of the Great Basin Desert. Most of its distribution lies in Nevada and Utah, but it also occurs in small areas of California, Idaho, and Oregon (Auger and Black 2006, Hafner and Upham 2011). Within Utah, individual specimens of this species have been classified in two ways. They have either been attributed to one of two state-endemic subspecies (*Microdipodops megacephalus leucotis* and *M. megacacephalus paululus*) (Oliver 2018), or they have been attributed to one of three or four genetically distinct units (Hafner and Upham 2011, Light 2013, Andersen et al. 2013).

Table 1. Utah counties currently occupied by this species.

| **Dark Kangaroo Mouse** |
|---|
| BEAVER |
| IRON |
| JUAB |
| MILLARD |
| TOOELE |

Abundance and Trends

When first described in the 1800's, dark kangaroo mouse was considered locally common. Research in Utah over the last two decades failed to locate any individuals at most historically documented locations (Auger and Black 2006, Haug 2010, Phillips 2018). The Utah findings mirror rangewide concern of small, fragmented, and declining populations (Hafner and Upham 2011, Andersen et al. 2013).

**Statement of Habitat Needs and Threats to the Species.**

Habitat Needs

Dark kangaroo mouse habitat generally consists of sandy shrubland with sparse vegetative cover. In Utah, most localities are in stabilized dunes along the margins of historical Lake Bonneville. Appropriate habitat is naturally fragmented and isolated.

Threats to the Species

Invasive plants, specifically cheatgrass, and the resulting changes in vegetative cover and fire cycle are the greatest threat to dark kangaroo mouse. Utah studies found that as cheatgrass increases, small mammal diversity decreases, with dark kangaroo mouse among the first species disappearing (Haug 2010, Freeman et al. 2014, Phillips 2018). Remotely-sensed data indicate that monocultures of cheatgrass dominate at least 40,000 square kilometers (nearly 10%) of the Great Basin. Additionally, cheatgrass is a major understory component across a larger area, and 200,000 additional square kilometers are vulnerable to invasion. Activities such as off-trail OHV use, renewable energy, and infrastructure development that can serve to disturb or fragment habitat, or lead to invasive plant introduction, are also threats.

Table 2. Summary of a Utah threat assessment and prioritization completed in 2014. This assessment applies to the species' entire distribution within Utah. For species that also occur elsewhere, this assessment applies only to the portion of their distribution within Utah. The full threat assessment provides more information including lower-ranked threats, crucial data gaps, methods, and definitions (UDWR 2015; Salafsky et al. 2008).

| **Dark Kangaroo Mouse** |
|---|
| **High** |
| Inappropriate Fire Frequency and Intensity |
| Invasive Plant Species – Non-native |
| **Medium** |
| OHV Motorized Recreation |
| Problematic Animal Species – Native |

**Rationale for Designation.**

Several studies have found that as cheatgrass invades the Great Basin, rodent diversity and abundance decreases. Dark kangaroo mouse appears to be among the most sensitive to these changes, and there is great concern for this and other Great Basin habitat-specialist rodent species. Additionally, alterations in the community structure of small mammals may have cascading implications for both plant and predator communities. The remaining population centers of dark kangaroo mouse in Utah appear to be widely scattered and unconnected by movement corridors, leaving the current populations vulnerable to extirpation. Conservation actions will focus on locating extant populations, and protecting those areas against fire and invasive grasses.

**Economic Impacts of Sensitive Species Designation.**

Sensitive species designation is intended to facilitate management of this species, which is required to prevent Endangered Species Act listing and lessen related economic impacts. Dark kangaroo mouse is primarily found on BLM-administered lands, and its distribution coincides with areas identified for utility-scale renewable energy potential – particularly solar. An ESA

listing of dark kangaroo mouse could trigger environmental review and potential mitigation and land-use restrictions for a wide variety of other multiple-use activities including management of vegetation, grazing, OHVs, wild horses, and utility rights-of-way. Dark kangaroo mouse is also found on Dugway Proving Ground and the Utah Test and Training Range. Therefore, ESA listing could affect the military's ability to carry out its mission on those lands.

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