

## DEPARTMENT OF THE INTERIOR

## Fish and Wildlife Service

## 50 CFR Part 17

[Docket No. FWS-R8-ES-2013-0131;  
FXES1113090000-145-FF09E42000]

RIN 1018-AW04

**Endangered and Threatened Wildlife and Plants; Removing *Oenothera avita* ssp. *eurekensis* From the Federal List of Endangered and Threatened Plants, and Reclassification of *Swallenia alexandrae* From Endangered to Threatened**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule and availability of post-delisting monitoring plan.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), are removing *Oenothera avita* ssp. *eurekensis*, which is now recognized as *Oenothera californica* ssp. *eurekensis* (with a common name of Eureka Valley evening-primrose, Eureka evening-primrose, or Eureka Dunes evening-primrose) from the Federal List of Endangered and Threatened Plants. We are also reclassifying *Swallenia alexandrae* (with a common name of Eureka dune grass, Eureka dunegrass, or Eureka Valley dune grass) from an endangered to a threatened species. For Eureka Valley evening-primrose, this action is based on our evaluation of the best available scientific and commercial information, including comments received, which indicates that the threats have been eliminated or reduced to the point that the subspecies no longer meets the definition of an endangered species or a threatened species under the Endangered Species Act of 1973, as amended (Act).

For Eureka dune grass, this reclassification is based on our evaluation of the best available scientific and commercial information, including comments received. We conclude that the stressors acting upon Eureka dune grass are of sufficient imminence, scope, or magnitude to indicate that they are continuing to result in impacts at either the population or rangewide scales, albeit to a lesser degree than at the time of listing, and we find that Eureka dune grass meets the statutory definition of a threatened species (*i.e.*, the stressors impacting the species or its habitat are of sufficient magnitude, scope, or imminence to indicate that the species is likely to become an endangered species in the foreseeable future

throughout all or a significant portion of its range).

**DATES:** This final rule becomes effective March 29, 2018.

**ADDRESSES:** Comments, materials received, and supporting documentation used in preparation of this final rule are available on the internet at <http://www.regulations.gov> under Docket No. FWS-R8-ES-2013-0131. Additionally, comments, materials, and supporting documentation are available for public inspection by appointment (see **FOR FURTHER INFORMATION CONTACT** below). The post-delisting monitoring plan for *Oenothera californica* ssp. *eurekensis* is available on our Endangered Species Program's national website (<http://endangered.fws.gov>) and on the internet at <http://www.regulations.gov> at Docket No. FWS-R8-ES-2013-0131.

**FOR FURTHER INFORMATION CONTACT:** Mendel Stewart, Field Supervisor, Carlsbad Fish and Wildlife Office, 2177 Salk Avenue, Suite 250, Carlsbad, CA 92008; telephone 760-431-9440; facsimile 760-431-5901. If you use a telecommunications device for the deaf (TDD), call the Federal Relay Service (FIRS) at 800-877-8339.

**SUPPLEMENTARY INFORMATION:**

**Executive Summary**

*Species addressed.* *Oenothera californica* ssp. *eurekensis* (Eureka Valley evening-primrose) and *Swallenia alexandrae* (Eureka dune grass) are endemic to three dune systems in the Eureka Valley, Inyo County, California. Eureka Valley falls within federally designated wilderness within Death Valley National Park and is managed accordingly by the National Park Service (Park Service).

*Why we need to publish this document.* A species that is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range warrants protection under the Endangered Species Act. If a species is determined to no longer to be a threatened species or an endangered species, we may reclassify the species or remove it from the Federal List of Endangered and Threatened Wildlife and Plants. Removing a species from the List or changing its status on the List can only be completed by issuing a rule. We proposed to delist Eureka Valley evening-primrose and Eureka dune grass in 2014.

• This document finalizes the delisting of Eureka Valley evening-primrose. Our evaluation took into consideration information and comments submitted during the public comment period, as well as subsequent

information that became available. At this time, the best available information continues to indicate that there are no longer population- or rangewide-level threats impacting Eureka Valley evening-primrose such that it is in danger of extinction now or is likely to become endangered in the foreseeable future. Thus, we conclude that Eureka Valley evening-primrose no longer meets the definition of an endangered species or threatened species, and we are removing it from the Federal List of Endangered and Threatened Plants in title 50 of the Code of Federal Regulations at 50 CFR 17.12(h).

• This document finalizes the reclassification of Eureka dune grass from an endangered species to a threatened species. Based on our evaluation of the best scientific and commercial information available, including information and comments submitted during the public comment period, we now determine that the stressors identified in the proposed rule are more significant than previously thought. Although threats identified at the time of listing have been substantially removed, Eureka dune grass is currently responding negatively to the stressors to which it is exposed. The best available scientific and commercial data lead us to conclude that Eureka dune grass no longer meets the definition of an endangered species under the Act, but it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Therefore, we are reclassifying the species from an endangered species to a threatened species.

*The basis for our action.* Under the Endangered Species Act of 1973, a species may be determined to be an endangered species or threatened species because of any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We must consider the same factors in delisting a species. We may delist a species if the best scientific and commercial data indicate the species is neither a threatened species nor an endangered species for one or more of the following reasons: (1) The species is extinct, (2) the species has recovered and is no longer endangered or threatened, or (3) the original scientific data used at the time the species was classified were in error.

We have determined that stressors to one or more populations of Eureka Valley evening-primrose no longer exist, or they are not causing significant impacts at either the population or rangewide scales such that the species is currently in danger of extinction or is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Additionally, we have determined that stressors to one or more populations of Eureka dune grass are of sufficient imminence, intensity, or magnitude to cause significant impacts at either the population or rangewide scales such that the species is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

*Peer review and public comment.* We sought comments from independent specialists to ensure that our consideration of the status of Eureka Valley evening-primrose and Eureka dune grass is based on scientifically sound data, assumptions, and analyses. We invited these peer reviewers to comment on our proposed delisting rule. We also considered all public comments and information received during the comment period, and other new information available since publication of the proposed rule. The final decisions do not substantially rely on information received after the close of the comment period, as this new information was supportive of or consistent with information already in the record. Comments are addressed at the end of this **Federal Register** document.

#### **Previous Federal Actions**

Please refer to the proposed delisting rule for Eureka Valley evening-primrose

and Eureka dune grass (79 FR 11053, February, 27, 2014) or the species' profiles available on the internet at [www.ecos.fws.gov](http://www.ecos.fws.gov) for a detailed description of the previous Federal actions concerning these species prior to the publication of the proposed delisting rule. The proposed delisting rule established a 60-day comment period that closed on April 28, 2014, and we did not receive any requests to extend the comment period or hold a public hearing.

#### **Background**

For the proposed delisting rule, we conducted a scientific analysis as presented in this document and supplemented with additional information presented in the Background Information document (Service 2014, entire; available at <http://www.regulations.gov>, Docket No. FWS-R8-ES-2013-0131). The Background Information document was prepared by Service biologists to provide additional discussion of the environmental setting for the Eureka Valley, and other information on the life history, taxonomy, genetics, seed bank ecology, survivorship and demography, rangewide distribution, and abundance surveys, as well as additional information on the stressors that may be impacting Eureka Valley evening-primrose and Eureka dune grass. Also, see the Final Species Analysis available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov> (Service 2017).

#### *Eureka Dune Ecosystem*

Eureka Valley evening-primrose and Eureka dune grass are endemic (unique to a geographic area) to the sand dunes of Eureka Valley (Figure 1), which occur

within Death Valley National Park, Inyo County, California. Three dune systems (collectively referred to as "the Eureka Dunes") occur in Eureka Valley and are located between the Last Chance Mountains to the east, the Saline Mountains to the south, and the Inyo Mountains to the west and north (Rowlands 1982, p. 2). The Main Dunes (sometimes referred to in literature as "Eureka Dunes") system parallel the Last Chance Mountains (Service 1982, p. 12) and are the largest of the three dunes, covering a total area of about 2,003 acres (ac) (811 hectares (ha)) (Service 2013 based on Shovik 2010). The Saline Spur and Marble Canyon Dunes, two smaller dune systems, cover an area of about 238 ac (96 ha) and 610 ac (247 ha), respectively (Service 2013 based on Shovik 2010). Saline Spur Dunes and Marble Canyon Dunes, including a southern extension of Marble Canyon Dunes known as the unnamed site, are located approximately 4 miles (mi) (6.4 kilometers (km)) and 9 mi (14.4 km) west of the Main Dunes (Bagley 1986, p. 4). The southern extension of Marble Canyon Dunes (the unnamed site) was previously treated as a separate dune system, but we refer to this area and the rest of the dune system as the Marble Canyon Dunes. See additional discussion in Service 2014 (pp. 4–7). Temperature regime, wind speeds, and precipitation patterns vary among the three dunes likely due to their relative position within Eureka Valley. For instance, the Main Dunes (labeled as "Eureka Dunes" in Figure 1, below) has lower daily temperatures than the other two dunes, while other patterns, such as rainfall, vary among the three dunes on both a temporal and spatial scale (Scoles-Sciulla and DeFalco 2017).

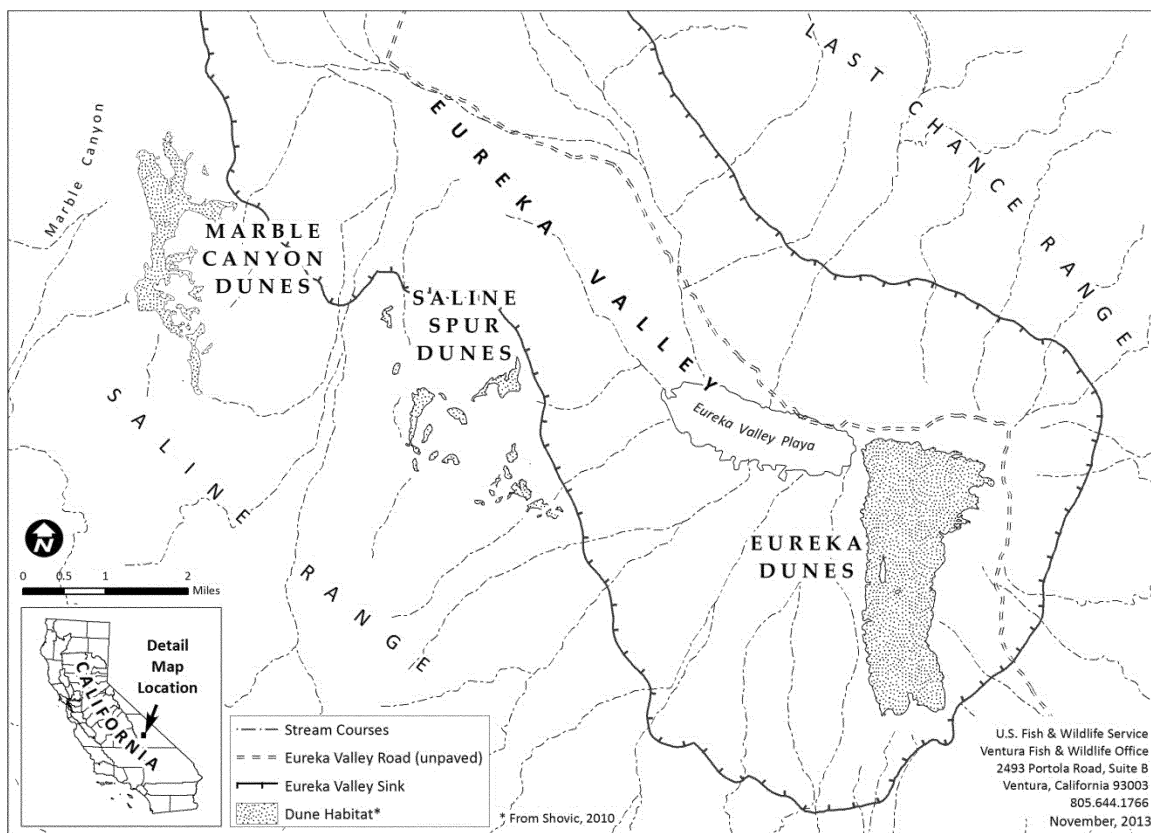


FIGURE 1—Sand dune systems of Eureka Valley, which comprise the Main Dunes (also referred to as “Eureka Dunes” in this figure and in some literature), Saline Spur Dunes, and Marble Canyon Dunes, Inyo County, California.

#### *Eureka Valley Evening-Primrose*

See the proposed delisting rule (79 FR 11053) and the Background Information document (Service 2014) for a detailed discussion of Eureka Valley evening-primrose’s description, taxonomy, life history, rangewide distribution, abundance surveys, and population estimates, which are available under Docket No. FWS–R8–ES–2013–0131 at <http://www.regulations.gov>.

Eureka Valley evening-primrose is a short-lived perennial in the evening-primrose family (Onagraceae). It forms leaf rosettes for the first 1 or 2 years, then develops decumbent or ascending stems to 31.5 inches (in) (8 decimeters) high. Large individuals have the potential to produce tens of thousands of seeds (Pavlik and Barbour 1985, pp. 15, 21). Eureka Valley evening-primrose has mechanisms for both short- and long-distance seed dispersal (Pavlik 1979a, p. 59; 1979b, p. 71; Pavlik and Barbour 1985, pp. 27, 41; 1986, pp. 31, 81). *Oenothera californica* ssp. *eurekaensis* is currently the accepted scientific name (Wagner 1993, p. 803; Wagner 2002, p. 395; Wagner *et al.* 2007, p. 180; Wagner 2012, p. 952;

California Native Plant Society (CNPS) 2013). We have no specific information for Eureka Valley evening-primrose indicating the level of genetic diversity within or among the populations.

In general, Eureka Valley evening-primrose individuals spend most of the year as a small rosette of leaves (Pavlik 1979a, pp. 47–49, 52; 1979b, pp. 87–88). However, observations indicate that, under optimal conditions, recruits (first-year plants) can bloom in the year in which they germinate (Pavlik 1979a, p. 66). In April and May, mature plants undergo rapid stem elongation and bloom between April and July. Plants sometimes bloom again in the fall with additional summer or fall rains (Pavlik 1979a, p. 53; 1979b, p. 89). However, abundance and timing of rainfall appear to be important not only for germination, but for successful recruitment of individuals into the population; sufficient rainfall for germination in the fall months needs to be followed by additional rainfall events during the winter months for recruitment to occur (Pavlik and Barbour 1986, p. 10).

In addition to the production of seed through sexual reproduction, Eureka Valley evening-primrose reproduces vegetatively through the production of clonal rosettes that arise from a branched rootstock (Pavlik 1979a, p. 68; Pavlik and Barbour 1986, p. 84; Pavlik and Barbour 1988, p. 240). If conditions are favorable, a large individual can produce both rosettes and flower in the same year. In years with unfavorable climatic conditions, established plants may remain dormant and persist underground by their fleshy roots. Therefore, the number of above-ground plants observed in any year represents only a portion of the population and may consist of multiple individuals of the same genetic identity.

In general, evening-primrose taxa are pollinated by hawkmoths, butterflies, and bees (Gregory 1964, pp. 387, 398, 403, 407; Moldenke 1976, pp. 322, 346, 358). In particular, a hawkmoth known as the white-lined sphinx moth (*Hyles lineata*), bees (*Haprobroda* spp. (no common name), *Hesperapis* spp. (no common name)), and sweat bees (*Lasioglossum lusoria*) have been

observed on Eureka Valley evening-primrose (Griswold *in litt.* 2012).

New information made available during the comment period or since publication of the proposed rule is summarized in the next three sections below.

#### Species Description, Taxonomy, and Life History

New information comprises the following: Over two growing seasons (2014, 2015), rooting depth for Eureka Valley evening-primrose was observed to be within the top 11.8 in (30 centimeters (cm)) of substrate (Scoles-Sciulla and DeFalco 2016, p. 9); compared to Eureka dune grass, which roots at a deeper level, Eureka Valley evening-primrose accesses water that is closer to the surface of the sand. Additionally, Eureka Valley evening-primrose seeds buried in all three dunes in July of 2014 and retrieved after 3, 6, 9, and 14 months had high germination rates, regardless of burial depth or which dune they were buried at. By comparison, seeds that were stored indoors starting July 2014 had lower total germination after 3 and 6 months, but had similar total germination after 14 months (Scoles-Sciulla and DeFalco 2016, p. 8). Overall, this information suggests that exposure to high temperatures during the summer months facilitates after-ripening (the period of internal change that is necessary in some apparently mature seeds before germination can occur) in this species (Scoles-Sciulla and DeFalco 2016, p. 8).

#### Rangewide Distribution

New information comprises the following: Continued monitoring for visible presence/absence within the rangewide 1-ha grid system resulted in documentation of the largest expanse of Eureka Valley evening-primrose ever recorded at all three dune systems since this monitoring effort began in 2007 (Park Service 2015). While the taxon remains tied to the sandy soils associated with the three dune systems, in “good” years such as 2014, individuals may be found farther away from the three dunes (Park Service 2014); however, the areas closer to the dunes continue to be the “core” areas where the taxon is found, even in years of lower abundance and productivity (Park Service 2013a, 2014, 2015). This information indicates that Eureka Valley evening-primrose has the ability to withstand years of less-than-favorable climatic conditions, and take advantage of years with more favorable climatic conditions.

#### Abundance Surveys and Population Estimates

New information comprises the following: Based on two additional years (2014, 2015) of monitoring Eureka Valley evening-primrose beyond the 2008–2013 monitoring period described in the proposed rule, the Park Service has continued to observe great annual variability in the abundance of the taxon, with 2014 being a “superbloom” year with the number of individuals estimated at well over 1 million (Park Service 2014, p. 6). In 2015, the abundance was not as large as in 2014, but larger than it had been other years previous to 2014; based on Park Service data, we estimated the visible abundance to be in the tens of thousands (see Park Service 2015, Figure 12 on p. 16). Overall, this information suggests that the visible abundance is only a portion of the total number of individuals that are present from year to year (with other individuals remaining dormant if climatic conditions are less than optimal), and that this characteristic contributes to the resiliency of the species.

#### Eureka Dune Grass

See the proposed delisting rule (79 FR 11053) and the Background Information document (Service 2014) for a detailed discussion of Eureka dune grass’s description, taxonomy, life history, rangewide distribution, abundance surveys, and population estimates, which are available under Docket No. FWS–R8–ES–2013–0131 at <http://www.regulations.gov>.

Eureka dune grass is a perennial, hummock-forming (development of mounds of windblown soil at the base of plants on dune landscapes) grass comprising a monotypic genus (genus containing only one single species) of the grass family (Poaceae). The coarse, stiff stems reach 20 in (50 cm) in height, and the lanceolate leaves are tipped with a sharp point (DeDecker 1987, p. 2). Flowers are clustered in spike-like panicles and produce seeds that are 0.16 in (4 millimeter (mm)) long and 0.08 in (2 mm) wide (Bell and Smith 2012, p. 1,496). The root system becomes fibrous and extensive over time and can give rise to adventitious stems. Based on its morphological characteristics and taxonomic affinities, the species is thought to be a relictual species, which exists as a remnant of a formerly widely distributed group in an environment that is now different from where it originated.

Eureka dune grass is dormant during the winter and begins to produce new

shoot growth around February. Growth accelerates in May, with flowering from April to June and seed dispersal between May and July (Pavlik 1979a, pp. 47–49; Pavlik 1979b, p. 87; Service 1982, pp. 4–6). Like all grass taxa, the flowers of Eureka dune grass are wind-pollinated and, therefore, do not rely on insect pollinators. Eureka dune grass does not appear to propagate asexually (Pavlik and Barbour 1985, p. 4); therefore, sexual reproduction is considered to be the dominant form of reproduction for this species.

Individuals have been observed to continue growing for at least 12 years with no signs of senescence (Henry n.d., pers. comm. *in* Pavlik and Barbour 1986, p. 11), and likely can grow for decades; older individuals form large hummocks that can reach on the order of 2,500 cubic decimeters (88 cubic feet; extrapolated from Pavlik and Barbour (1988, p. 229)). Germination of new individuals appears to occur infrequently, typically in response to rainfall during the summer months (Pavlik and Barbour 1986, pp. 47–59).

The amount of Eureka dune grass seed produced per individual increases with canopy size, which means that larger individuals may contribute more seed to the seed bank (Pavlik and Barbour 1985, p. 14). Compared to other perennial grass species, Eureka dune grass produces low numbers of seeds per individual (Pavlik and Barbour 1986, p. 30); this low seed production could be due to the inefficiency of wind pollination and the low density of individuals across the dunes (Pavlik and Barbour 1985, p. 17).

New information made available during the comment period or since publication of the proposed rule is summarized in the next three sections below.

#### Species Description, Taxonomy, and Life History

New information comprises the following: Over two growing seasons (2014, 2015), rooting depth for Eureka dune grass was observed to be 35.4 in (90 cm) (Scoles-Sciulla and DeFalco 2016, p. 9).

#### Rangewide Distribution

New information comprises the following:

(1) In 2014 and 2015, the Park Service continued to monitor presence/absence of Eureka dune grass across all three dunes. Comparing the area (*i.e.*, number of acres/hectares) that contained Eureka dune grass in 2015 with the area that contained Eureka dune grass in 2011, they found: On the Main Dunes, there was a 20 percent loss (from 1,102 to 885

ac (446 to 358 ha)); on Marble Canyon Dunes, there was a 1 percent loss (from 195 to 193 ac (79 to 78 ha)); and on Saline Spur Dunes, there was a 7 percent gain (from 215 to 230 ac (87 to 93 ha)) (Park Service 2015 p. 5).

(2) Since 2012, the Park Service has continued to map individual clumps of Eureka dune grass on the Main Dunes with Global Positioning System (GPS) (National Park Service 2015). Due to inconsistent application of mapping protocols in earlier years, the Park Service considers data from 2014 and 2015 to be the most accurate. From 2014 to 2015, the area covered with dune grass declined by 19.2 percent (from 69.39 to 56.05 ac (280,799 square meter (m<sup>2</sup>) to 226,846 m<sup>2</sup>)) (Park Service 2015). The greatest losses appear to be in the central and south-central portions of the Main Dunes.

(3) Photopoints continued to be monitored by the Park Service in 2014 and 2015. These photopoints, including some that were established in 1974, provide a qualitative assessment of the changes in coverage of Eureka dune grass within the viewsheds they include. For the Main Dunes, the combined viewshed of all photopoints represents 33.4 percent of the dune; for Marble Canyon Dunes, the combined viewshed represents 21 percent of the dune; all photopoints from these two dunes document a substantial loss of Eureka dune grass coverage since the time they were established (Park Service 2014). The Park Service also noted that between 2014 and 2015, no substantial change was observed (Park Service 2015), suggesting that the losses occurred prior to 2014. Photopoints were not established on the Saline Spur Dunes until 2008 and 2010 (Park Service 2014); therefore, data is not available for a long-term qualitative evaluation of dune grass coverage in this population.

While a reduction in visible Eureka dune grass individuals is clearly noticeable from a visual inspection, it is difficult to quantify this reduction in terms of estimating changes in population distribution, densities, or abundance. Without other quantitative data to assist in interpretation, it would be difficult to distinguish whether visual changes represent local shifts in distribution and density or rangewide changes in the population. The additional information provided by the presence/absence monitoring, as well as the GPS mapping of clumps on the Main Dunes corroborates the observations of the loss of Eureka dune grass that has occurred over the last 35 years.

The most robust analysis can be made for the Main Dunes, for which there are

all three sets of data (photopoints, presence/absence surveys, and GPS mapping), and all of which show a loss of individuals over time. The Main Dunes also represents over half of all the Eureka dune grass in Eureka Valley, so the loss from this dune is significant for the entire range of the species. Three sets of data (photopoints, presence/absence surveys, and GPS mapping), are also available for Marble Canyon Dunes, though presence/absence surveys and GPS mapping were initiated in both cases a year later than at the Main Dunes. Photopoints taken in the northern and northeastern portion of the dune show a loss of individuals between 1985 and 2013; presence/absence surveys indicate slight gains and losses between 2008 and 2015; and GPS mapping was not considered accurate by the Park Service until 2015, and therefore comparisons with earlier years cannot be made. Photopoint monitoring from the Main Dunes and from Marble Canyon Dunes both qualitatively indicate that extensive losses of dune grass occurred during the earlier portion of the 28-year monitoring period. More frequent photopoint monitoring was not initiated until 2007; by this time, most of the loss had already occurred, and more recent photos show less change.

Only presence/absence surveys (initiated in 2008) and GPS mapping of individuals (initiated in 2012 but not considered accurate until 2015) is available for Saline Spur Dunes. These two data sets have established that the western edge of Saline Spur Dunes contains the largest continuous population of Eureka dune grass at all three dunes (Park Service 2015 p. 2). Photopoint monitoring at this dune was only established in 2008 and 2010, and as of 2014 did not indicate any visible change (Park Service 2014, p. 6).

On a small scale, the usefulness of comparing recent maps with historical maps is limited because of the higher precision that was possible in the 2007 to 2015 surveys. Overall and on a large scale, the most recent maps indicate that Eureka dune grass populations are still present in the same general locations from which they were known at the time of our 2007 5-year status review. The precision that has been available with the hectare grid surveys and the GPS mapping has provided more useful examination of the distribution of Eureka dune grass on a smaller scale and a means by which to compare changes in distribution over time. The total extent of Eureka dune grass on all three dunes as of 2015 (Park Service 2015) is presented in the “*Swallenia* Maps” document available on the

internet at <http://www.regulations.gov> under Docket No. FWS-R8-ES-2013-0131.

#### Abundance Surveys and Population Estimates

For a detailed discussion of the abundance and population estimates for Eureka dune grass, see the Background Information Document (Service 2014), which is available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>. In that previous discussion, we stated that developing population estimates for Eureka dune grass is challenging because of: Lack of historical information regarding population sizes at the time of listing (to establish baseline for comparison), the site-specific transects that were done in 1976 and 1986 (e.g., see Henry (1976) and Bagley (1986)), and followup surveys conducted by the Park Service (Park Service 2008a, pp. 5–6 and 17–18), were too spatially limited to be useful for population estimates, and estimating numbers of individuals is inherently difficult because of their clumping growth form. The Park Service previously attempted estimating population size based on the monitoring of the hectare grid at all three dunes: For the year 2011, the estimate was 8,014 individuals, and for 2013, it was 8,176 individuals (Park Service 2013a, p. 7). The Park Service cautions that the true population size could vary greatly due to a variety of limitations and assumptions. Even so, we know that, based on this information, thousands of Eureka dune grass individuals exist, and the number was relatively stable across the 2 years compared.

New information comprises the following: The Park Service has not attempted a revised method for estimating population size due to the inherent difficulty of doing so. However, because the estimates were based on the area occupied by Eureka dune grass in the monitoring of the hectare grid, we refer back to that metric (see section on *Rangewide Distribution* for Eureka dune grass, above) as a surrogate.

The best available data indicate the species continues to occur within Eureka Valley at all three dunes within its range (and as stated above, we have no information regarding population size at the time of listing for comparison, with population surveys prior to listing being limited to the northern end of the Main Dunes). Based on the combination of all data available (photopoints monitoring, presence/absence surveys based on the hectare grid, and GPS mapping of individual clumps), indications are that, between

2011 and 2015, the amount of Eureka dune grass has declined at the Main Dunes by 20 percent; the changes at Marble Canyon Dunes and Saline Spur Dunes have been of a smaller magnitude, with Marble Canyon Dunes showing a one percent loss, and with Saline Spur Dunes showing a seven percent increase (Park Service 2015, p. 5).

### History of Threats Analyses for Eureka Valley Evening-Primrose and Eureka Dune Grass

For a brief history of the threats analyses that we conducted since the time Eureka Valley evening-primrose and Eureka dune grass were listed in 1978, see our proposed delisting rule (79 FR 11053, February 27, 2014). For a detailed discussion of the status review initiated with our 2011 90-day finding (76 FR 3069, January 19, 2011), see the Background Information document (Service 2014, pp. 38–65). Both the proposed listing rule and Background Information document are available on the internet at <http://www.regulations.gov> at Docket No. FWS–R8–ES–2013–0131.

### Summary of Changes From the Proposed Rule

(1) We updated information on annual survey results based on monitoring for abundance and distribution undertaken by the Park Service in 2014 and 2015 (Park Service 2014, 2015). Also included is the Park Service's new subsampling methodology (Park Service 2017).

(2) We updated information on abiotic characteristics of the dune habitat (temperature, wind, and precipitation patterns) within the description of the Eureka Dunes Ecosystem in the Background section based on observations made by the United States Geological Survey (USGS) (Scoles-Sciulla and DeFalco 2017).

(3) We updated information on life-history characteristics, specifically rooting depth, for both species, and seed longevity for Eureka Valley evening-primrose, based on observations made by USGS (Scoles-Sciulla and DeFalco 2017).

(4) We added new information to the section on potential competition between *Salsola* spp. (Russian thistle) and Eureka Valley evening-primrose, based on research conducted by Chow (2016).

(5) On July 1, 2014, we published a final policy interpreting the phrase “significant portion of its range” (79 FR 37578). We have revised our discussion of “significant portion of its range” as it relates to both Eureka Valley evening-

primrose and Eureka dune grass in the Determinations section below to be consistent with our policy. Although the final policy's approach differed slightly from that discussed in the proposed rule, applying the policy did not affect the outcome of the final status determinations.

(6) We have revised our determination regarding Eureka dune grass based on new information and analyses, and now conclude it best fits the definition of a threatened species.

### Recovery and Recovery Plan Implementation

Section 4(f) of the Act directs us to develop and implement recovery plans for the conservation and survival of endangered and threatened species unless we determine that such a plan will not promote the conservation of the species. Under section 4(f)(1)(B)(ii), recovery plans must, to the maximum extent practicable, include: “Objective, measurable criteria which, when met, would result in a determination, in accordance with the provisions of [section 4 of the Act], that the species be removed from the list.” However, revisions to the list (adding, removing, or reclassifying a species) must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is an endangered species or threatened species (or not) because of one or more of five threat factors. Section 4(b) of the Act requires that the determination be made “solely on the basis of the best scientific and commercial data available.” Therefore, recovery criteria should help indicate when we would anticipate that an analysis of the species' status under section 4(a)(1) would result in a determination that the species is no longer an endangered species or threatened species.

Thus, while recovery plans provide important guidance to the Service, States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are not regulatory documents and cannot substitute for the determinations and promulgation of regulations required under section 4(a)(1) of the Act. A decision to revise the status of or remove a species from the Federal List of Endangered and Threatened Plants (50 CFR 17.12) is ultimately based on an analysis of the best scientific and commercial data then available to determine whether a species is no longer an endangered species or a threatened species, regardless of whether that information differs from

the recovery plan. Below, we summarize the recovery plan goals and discuss progress toward meeting the recovery objectives and how they inform our analyses of the species' status and the stressors affecting them.

In 1982, we finalized the Eureka Valley Dunes Recovery Plan, which included recovery objectives for both Eureka Valley evening-primrose and Eureka dune grass (Recovery Plan; Service 1982). While the Recovery Plan did not include recovery criteria, the plan followed guidance in effect at the time it was finalized and we consider its recovery objectives to be similar to what are considered to be recovery criteria under current recovery planning guidance. The Recovery Plan identified two objectives, each with specific recovery tasks, to consider Eureka Valley evening-primrose and Eureka dune grass for downlisting to threatened status, and eventually, delisting (Service 1982, pp. 26–41). These two objectives are:

(1) Restore the Eureka dune grass and the Eureka Valley evening-primrose to threatened status by protecting extant populations from existing (*i.e.*, in 1982) and potential human threats.

(2) Determine the number of individuals, populations, and acres of habitat necessary for each species to maintain itself without intensive management, in a vigorous, self-sustaining manner within their natural historical dune habitat (estimated 6,000 ac (2,428 ha)) and implement recovery tasks to attain these objectives.

*Objective 1: Restore the Eureka dune grass and the Eureka Valley evening-primrose to the threatened status by protecting extant populations from existing (*i.e.*, in 1982) and potential human threats.*

Objective 1 is intended to remove existing human threats to populations of Eureka Valley evening-primrose and Eureka dune grass through enforcement of existing laws and regulations, and management of human access to Eureka Valley (Service 1982, p. 26). At the time of listing, the primary threat to both species was off-highway vehicle (OHV) activity, and a lesser threat was camping on and around the dunes (43 FR 17910, April 26, 1978). Since listing, potential human threats have included other recreational activities such as sandboarding and horseback riding.

Various land management decisions and activities have been implemented by the Bureau of Land Management (BLM; prior to Park Service acquisition of the Eureka Valley area in 1994) and the Park Service (since 1994). All of the dune systems within Eureka Valley have also been designated as Federal

wilderness areas. A number of land use decisions and management activities have been implemented to support the long-term protection of Eureka Valley evening-primrose and Eureka dune grass within the Federal wilderness area, including (but not limited to): Making OHV activity illegal; conducting patrols to enforce laws, regulations, and restrictions; closing and restoring unauthorized roads; installing interpretative signs, barriers, and wilderness boundary signs; and delineating and maintaining campsites (Park Service 2008a, 2009, 2010).

Additionally, various education and public outreach (e.g., public awareness program, interpretive displays) have been conducted to reduce overall impacts to both species. Because all three populations occur within Federal wilderness areas that are now protected against the threats identified as imminent at the time of listing and in the Recovery Plan, we conclude that the condition of the habitat for Eureka Valley evening-primrose and Eureka dune grass has improved due to management activities that have been implemented by BLM and the Park Service, and that this recovery objective has been met.

*Objective 2: Determine the number of individuals, populations, and acres of habitat necessary for each species to maintain itself without intensive management, in a vigorous, self-sustaining manner within their natural historical dune habitat (estimated 6,000 ac (2,428 ha)) and implement recovery tasks to attain these objectives.*

At the time the recovery plan was developed, our knowledge of the demographic characteristics of the two species was limited. The intent of this objective was to gather and develop information necessary to evaluate the status of both species with regards to demographic characteristics to determine at what point they could be considered recovered, and more importantly to attain the desired demographic levels necessary for recovery. While we have not yet developed precise values for all of the various demographic characteristics that help us determine whether actions to remove threats have the desired effect (e.g., stable populations, positive growth), both species still occupy all three dune systems, and the best available monitoring data indicate thousands of plants are present at each dune system. Additionally, the best available information indicates that the BLM and Park Service have sufficiently minimized OHV and other recreation activities that were previously impacting the populations and their

habitat. Even though the precise values of all demographic characteristics are not known, we note that many research and monitoring efforts have occurred for both species since the time of listing (unless otherwise noted), which have provided information on the life-history needs of both Eureka Valley evening-primrose and Eureka dune grass, as well as potential impacts to both species, including (but not limited to) the following studies:

(1) Conducting a series of studies on both species to investigate effects of pollination on seed set, seed ecology, species' demography, and plant and animal interactions (herbivory, seed predation, and dispersal) (Pavlik and Barbour 1985, 1986).

(2) Establishing baseline conditions for monitoring trends of both species across all three dune systems (Bagley 1986).

(3) Studying the genetic diversity of all Eureka dune grass populations (Bell 2003).

(4) Conducting partial distribution surveys of both species on portions of various dunes (Beymer *in litt.* 1997; Peterson *in litt.* 1998), as well as documenting the distribution and abundance of Russian thistle, a potential competitor, across all three dune systems (Park Service 2011a).

(5) Documenting distribution, abundance, and demography of both species (Park Service 2008b, 2008c, 2010a, 2011a, 2011b, 2012, 2013a, 2014, 2015, 2017).

(6) Determining if vegetation succession at the northern end of the Main Dunes (Eureka dune grass habitat) is associated with changes in subsurface hydrology (Park Service 2008c, p. 4).

(7) Investigating potential competition between Russian thistle and Eureka Valley evening-primrose, and the effects of herbivory on Eureka Valley evening-primrose (Chow and Klinger 2013a; Chow *in litt.* 2011; Chow 2016).

(8) Monitoring photopoint stations over time, starting in 1985, and retaken at various intervals (Park Service 2008c, 2011b, 2014).

(9) Investigating the correlations between abiotic factors (temperature, wind, and precipitation patterns) and growth response in Eureka Valley evening-primrose and Eureka dune grass (Scoles-Sciulla and DeFalco 2017).

As a result of the considerable work that has been undertaken to understand the population dynamics and life histories of these two species, we have:

(1) Established detailed baseline information regarding the abundance and distribution of both species with which to compare their status in future years, including the documentation of a

population estimate for over a million individuals of Eureka Valley evening-primrose in the "superbloom" year of 2014; (2) investigated potential stressors more closely and determined that some potential stressors are of more concern than others; (3) clarified how the life-history strategies of the two species are different and lead to resiliency for Eureka Valley evening-primrose but not Eureka dune grass; and (4) suggested other potential stressors for the two species that should be monitored into the future. Overall, we consider the intent of Objective 2 has been partially met.

In summary, based on our review of the Recovery Plan and the information obtained from the various management activities, surveys, and research that have occurred to date, we conclude that the habitat for Eureka Valley evening-primrose and Eureka dune grass has been protected and its status improved due to land use decisions and management activities that have been implemented by BLM and the Park Service to reduce human-caused threats (Objective 1). Further, we conclude, as detailed below, that the status of Eureka Valley evening-primrose has improved substantially as documented by its resiliency and elucidated by the surveys and research undertaken since the time of listing (Objective 2). Therefore, the intent of both objectives has been met for the Eureka Valley evening-primrose. However, Objective 2 has not been met for the Eureka dune grass because monitoring data indicate declining trends at the Main Dunes and Marble Canyon Dunes.

#### **Summary of Factors Affecting the Species**

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for listing species, reclassifying species, or removing species from listed status. "Species" is defined by the Act as including any species or subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature (16 U.S.C. 1532(16)). A species may be determined to be an endangered or threatened species because of any one or a combination of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or



human made factors affecting its continued existence. A species may be reclassified or removed from the Federal List of Endangered and Threatened Plants (50 CFR 17.12) on the same basis.

Determining whether the status of a species has improved to the point that it can be downlisted or delisted requires consideration of whether the species is an endangered species or threatened species because of the same five categories of threats specified in section 4(a)(1) of the Act. For species that are already listed as endangered species or threatened species, this analysis of threats is an evaluation of both the threats currently facing the species and the threats that are reasonably likely to affect the species in the foreseeable future following the delisting or downlisting and the removal or reduction of the Act's protections.

A species is an "endangered species" for purposes of the Act if it is in danger of extinction throughout all or a significant portion of its range and is a "threatened species" if it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The word "range" in the significant portion of its range phrase refers to the range in which the species currently exists, and the word "significant" refers to the value of that portion of the range being considered to the conservation of the species. The "foreseeable future" is the period of time over which events or effects reasonably can or should be anticipated, or trends extrapolated. For the purposes of this analysis, we first evaluate the status of the species throughout all its range, then consider whether the species is in danger of extinction or likely to become so in a significant portion of its range.

#### *Summary of Factors Affecting Eureka Valley Evening-Primrose*

##### A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range OHV Activity

For a detailed discussion of the types and amount of OHV activity, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>. OHV activity has not been authorized on the dunes in Eureka Valley since 1976, and not anywhere off established roads since 1994, when all the lands in Eureka Valley were included in a wilderness area designation.

OHV activity could affect Eureka Valley evening-primrose habitat in multiple ways, as evidenced from many studies that have occurred within dune ecosystems (such as Wilshire and Nakata 1976, Webb and Wilshire 1983). Physical impacts on dunes can include compaction or erosion of sandy substrates, acceleration of wind erosion (Gillette and Adams 1983, pp. 97–109), and acceleration of dune drift (Gilberston 1983, pp. 362–365). OHV activity can also change the unique hydrologic conditions of dunes. Because dunes have the capacity to hold moisture for long periods of time, disturbance of the surface sands resulting in exposure of moist sands underneath can increase moisture loss from the dunes (Geological Society of America 1977, p. 4). Changes in physical and hydrologic properties of the dunes from heavy OHV activity could in turn affect the suitability of the dune habitat for germination and recruitment of seedlings, clonal expansion of existing individuals, and dispersal of seeds to favorable microsites.

The same potential OHV impacts that affect dune habitat can also affect Eureka Valley evening-primrose individual plants. Normally, these types of impacts would be discussed under Factor E (Other Natural or Manmade Factors Affecting Its Continued Existence), but are included here in the Factor A discussion for ease of analysis. OHV impacts to individual plants within dune systems and other desert ecosystems have been extensively studied (such as Bury and Luckenbach 1983, Gilbertson 1983, and Lathrop 1983). Within dunes systems, for instance, while OHV activity alters the physical structure and hydrology of the dunes (rendering the dune habitat less suitable for supporting individuals and populations of the two species), it also affects individuals directly by shredding plants or damaging root systems, thereby killing or injuring (e.g., reducing the reproduction or survival of individuals) the plants.

Although unauthorized OHV activity has occasionally occurred on the Eureka Dunes, it has not approached the levels seen prior to listing Eureka Valley evening-primrose as an endangered species. Existing regulatory mechanisms (such as through the Park Service's Organic Act and other laws guiding management of Park Service lands) in place since listing have resulted in beneficial effects to the species (e.g., management measures to control OHV and recreational activities) (see additional discussion under Factor D, below). The management of OHV

activity through land use designations (i.e., Area of Critical Environmental Concern, Federal wilderness areas) has resulted in the near elimination of OHV activity on Eureka Dunes at the current time. We anticipate this situation will continue into the future because we expect Federal wilderness areas to remain in place indefinitely, and we expect the Park Service's current management to be implemented over the next 20 years, as well as modified periodically into the future with adaptive management strategies (as demonstrated by the Park Service's natural resource management strategies to date and anticipated in the future per Park Service policies and regulations (see Factor D)). Additionally, the remote location, inaccessibility, and wilderness status of the Saline Spur and Marble Canyon Dunes appear to be providing sufficient protection for dune habitats and plants at these locations both currently and in the future. Although the Park Service has documented sporadic occurrences of unauthorized OHV activity, these occurrences are almost entirely localized to areas on and adjacent to the northern end of the Main Dunes (Park Service 2013a, p. 3).

In response to the publication of the proposed delisting rule, Park Service stated that OHV trespass on the dunes still occurs and is documented at least annually, and that current staffing and funding levels do not allow for a constant park presence at the dunes, which would be required to completely prevent OHV trespass (Park Service 2014, p. 5). Regardless, the best available information indicates that OHV trespass activity is no longer causing significant population- or rangewide-level impacts to Eureka Valley evening-primrose.

##### Other Recreational Activities

In addition to unauthorized OHV activity that may occur currently (as described above), other recreational activities have been known historically and currently occur (occasionally) within the Eureka Dunes, including horseback riding, sandboarding, camping outside of designated areas, and creation of access routes. For a detailed discussion regarding these recreational activities, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>. Camping and associated access routes were identified as a minor threat in the Recovery Plan because their proximity to Eureka Dunes



facilitated unauthorized OHV activity (Service 1982, pp. 22–23). Horseback riding and sandboarding were potential threats to Eureka Valley evening-primrose and Eureka dune grass identified after listing, and were discussed in the 5-year status reviews published in 2007 (Service 2007a, p. 10; Service 2007b, pp. 7–8). All of these activities were discussed in our 5-year review under Factor A because, like OHV activity, they have the ability to have physical impacts on the dune habitat (such as destabilization and displacement of sands); however, these same activities have the potential for damaging individual plants through crushing, trampling, and uprooting. Although impacts to individual plants are more appropriately discussed under Factor E, for ease of analysis we also discuss impacts to individual plants here.

New information regarding impacts specifically to Eureka Valley evening-primrose individual plants (as opposed to habitat) comprises the following: In response to the publication of the proposed delisting rule, the Park Service referred back to a study conducted by Pavlik (1979a), which found that seedlings of both Eureka dune grass and Eureka Valley evening-primrose are extremely fragile and cannot tolerate even the lightest disturbance by foot traffic. Although the Park Service has not been able to measure the amount of foot traffic, the potential impacts from such traffic can be qualitatively observed on stabilized sand following rain events (Park Service 2014, p. 5). In addition, one peer reviewer observed evidence (*i.e.*, tracks) of unauthorized OHV activity at the base of the Main Dunes, as well as increased visitor use, specifically camping, at the dunes since the 1980s (McLaughlin *in litt.* 2014).

Our current assessment is that, while the Park Service has documented some unauthorized activity (*e.g.*, sandboarding, OHV activity in closed areas) that may result in minor or occasional impact to individual plants, these are infrequent occurrences and affect very small areas and are not spread throughout the range of the species. Additionally, existing regulatory mechanisms (such as through the Park Service's Organic Act and other laws guiding management of Park Service lands) in place since listing have resulted in beneficial effects to the species (including management measures to control recreational activities) (see additional discussion under Factor D, below). Therefore, the best available information at this time indicates that other recreational activities, if they occur, are not causing

population-level effects (as compared to pre-listing levels) to Eureka Valley evening-primrose currently, nor are they expected to do so in the future, in large part due to the extensive protections and management provided by the Park Service.

As discussed in the proposed rule (79 FR 11053, February 27, 2014), regulatory provisions of the Wilderness Act, the Park Service Organic Act, and the other laws guiding management of Park Service lands are adequate to minimize threats to populations of Eureka Valley evening-primrose from OHV activity, sandboarding, and horseback riding.

#### B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Utilization for commercial, recreational, scientific, or educational purposes was not identified as a threat to Eureka Valley evening-primrose in the listing rule. There is no known commercial or recreational value that we consider consumptive (that is, based on physical use or removal of the plants). Educational groups frequently visit Eureka Dunes, but we are unaware of any activities that would be considered consumptive use. Since listing, there have been three section 10(a)(1)(A) permits issued for studies involving the removal of plants, seeds, or plant parts; only two of these permits included Eureka Valley evening-primrose. These studies usually involve collection of seeds or leaves for laboratory experiments or collection of voucher specimens for herbaria; in each case we analyzed potential impacts during the permitting process and determined that the collection activities would not jeopardize the continued existence of the species. We do not consider this level of research and collection to pose any potential threat of overutilization for the species. Furthermore, the State of California and the Park Service have regulatory mechanisms in place to control any potential utilization in the future (see also Factor D below). Any collection of plants would require permits from the State of California and the Park Service. We do not have any new information regarding this factor, and we conclude that overutilization for commercial, recreational, scientific, or educational purposes are not a short-term or long-term threat to the continued existence of Eureka Valley evening-primrose.

#### C. Disease or Predation

At the time of listing, disease and predation were not identified as a potential threat to Eureka Valley

evening-primrose. Since then, studies (Pavlik and Barbour 1985, 1986; Scoles-Sciulla and DeFalco 2013) and observations (Chow *in litt.* 2011, 2012b) imply that herbivory and seed predation may be a potential stressor for the species. For a detailed discussion regarding disease and predation, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>.

New information comprises updated results from two studies that were ongoing at the time the proposed rule published.

(1) Chow and Klinger (2014) evaluated the effects of lagomorph (taxonomic order of mammals comprising rabbits, hares, and pikas) herbivory on Eureka Valley evening-primrose competition, both with itself, and with Russian thistle (see discussion of the latter under Factor E) in an *ex situ* setting. While herbivory can result in the removal of aboveground vegetative material, it was not found to exacerbate intraspecific competition in Eureka Valley evening-primrose (Chow and Klinger (2013b, p. 21). However, herbivory can result in mortality of plants if individuals are repeatedly consumed or the roots are eaten, and it could also impact flower and fruit production (Chow and Klinger 2014, pp. 19, 21).

(2) USGS (Scoles-Sciulla and DeFalco 2013) observed that up to 99 percent of the surface area of Eureka Valley evening-primrose individuals were consumed over the growing season in 2012, contributing to low survival rates at all dune sites that year. In subsequent years, USGS reported on survival rates over the course of the growing season (*e.g.*, 100 percent in 2013 (Scoles-Sciulla and DeFalco 2014, pp. 8–9), and between 20 and 70 percent at various dunes in 2014 (Scoles-Sciulla and DeFalco 2015, pp. 8–9); however, no other herbivory effects were discussed with the findings for these years.

Seed predation and herbivory are naturally occurring processes. We expect that Eureka Valley evening-primrose has adapted to withstand some level of herbivory and seed predation. Given that Eureka Valley evening-primrose continues to occupy the same general distribution identified at the time of listing, it does not appear that herbivory and seed predation by themselves are occurring at such a level to cause population-level declines or other adverse effects to the species as a whole. Based on the best available

information at this time (including the research observations provided by Chow and Klinger (2013b) and USGS (Scoles-Sciulla and DeFalco 2014, 2015); the expectation that this species has evolved with some level of herbivory/seed predation; and the fact that herbivory/seed predation is naturally occurring and some level of herbivory/seed predation is expected, we conclude that the observed impacts are not causing population-level effects for Eureka Valley evening-primrose currently, nor are they expected to do so in the future.

#### D. The Inadequacy of Existing Regulatory Mechanisms

Under this factor, we evaluate whether the stressors identified within the other factors may be ameliorated or exacerbated by any existing regulatory mechanisms or conservation efforts. Section 4(b)(1)(A) of the Act requires that the Service take into account “those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species. . . .” In relation to Factor D under the Act, we interpret this language to require the Service to consider relevant Federal, State, and Tribal laws, regulations, and other such binding legal mechanisms that may ameliorate or exacerbate any of the threats we describe in threat analyses under the other four factors or otherwise enhance the species’ conservation. Our consideration of these mechanisms is described in detail within each of the threats or stressors to the species (see discussion under each of the other factors).

The following existing regulatory mechanisms and conservation actions were specifically considered and discussed as they relate to the stressors, under the applicable factors, affecting Eureka Valley evening-primrose: The Wilderness Act, the Park Service Organic Act, and the other laws guiding management of Park Service lands are adequate to minimize threats to populations of Eureka Valley evening-primrose from OHV activity, sandboarding, and horseback riding. Beneficial effects for Eureka dune grass include: (1) Management measures to control illegal OHV activity (see Factor A discussion, above), including the Park Service’s management policies (Park Service 2006); (2) the Organic Act; (3) the legal and stewardship mandates outlined in the Park Service’s General Management Plan (Park Service 2002, entire); and (4) the Wilderness and Backcountry Stewardship Plan (Park Service 2013b, pp. 4, 5, 10, 16), given all areas containing populations of the

species are within congressionally designated wilderness. The best available information indicates that these existing regulatory mechanisms have reduced the previously identified significant adverse effects to individual plants and populations, especially impacts associated with OHV activity (Factors A and E) and other recreational activities (*i.e.*, sandboarding, camping, and associated access routes) (Factors A and E). There are no existing regulatory mechanisms to address other potential stressors, including herbivory, seed predation, competition with Russian thistle, effects of climate change, and stochastic events.

While most of these laws, regulations, and policies are not specifically directed toward protection of Eureka Valley evening-primrose, they mandate consideration, management, and protection of resources that benefit the species. We expect these laws, regulatory mechanisms, and management plans to remain in place into the future.

For a detailed discussion regarding inadequacy of existing regulatory mechanisms, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS–R8–ES–2013–0131 at <http://www.regulations.gov>. There is no new information concerning these regulatory mechanisms.

#### E. Other Natural or Manmade Factors Affecting Its Continued Existence OHV Activity and Other Recreational Activities

See the “OHV Activity” and “Other Recreational Activities” sections, above under Factor A, for a complete discussion of realized and potential impacts since the time of listing. As stated there, we included a complete discussion of potential impacts to both habitat and individual plants under Factor A for ease of analysis. We conclude, based on the best available information, that the Wilderness Area designation, coupled with Park Service management of OHV activity and other recreational activity, has significantly reduced potential impacts to Eureka Valley evening-primrose individuals, currently and into the future. See additional discussion above under Factors A and D.

#### Competition With Russian Thistle

Invasive, nonnative plants can potentially affect the long-term persistence of endemic species. *Salsola*

(Russian thistle) is the only invasive, nonnative species that has spread onto the dunes in the Eureka Valley. Previous information (available at the time of our 2007 5-year reviews) was generally limited to personal observations and collections with no specific information regarding the density or distribution of Russian thistle. However, due to continuing concerns expressed by the Park Service and other parties since 2007, we conducted a more thorough review of the life-history characteristics of Russian thistle and the potential impacts it could have on Eureka Valley evening-primrose, particularly the potential for Russian thistle to compete with Eureka Valley evening-primrose for resources such as water and nutrients, which would potentially result in fewer or smaller individuals of Eureka Valley evening-primrose. We also reviewed information provided by the Park Service concerning the distribution of Russian thistle on and around the dunes in Eureka Valley and preliminary results of an *ex situ* competition study (Chow and Klinger 2013b). For a detailed discussion regarding the potential for competition between Eureka Valley evening-primrose and Russian thistle, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS–R8–ES–2013–0131 at <http://www.regulations.gov>.

New Information comprises the following: A preliminary study regarding interspecific competition (competition between individuals of different species) and intraspecific competition (competition between individuals of the same species) initiated in 2012 was updated by Chow and Klinger (2016) and Chow (2016). They found that competition (interspecific and intraspecific) reduced the relativized biomass of target individuals for both Eureka Valley evening-primrose and Russian thistle (Chow and Klinger 2014, p. 16). They were unable to determine if competition (inter- and intraspecific) affected the reproductive potential of either taxa, although they did observe that Eureka Valley evening-primrose produced more vegetative material, whereas Russian thistle produced more reproductive material (Chow and Klinger 2014, p. 20). This is likely the result of the different reproductive strategies (annual versus perennial) employed by these two taxa (Chow and Klinger 2014, p. 20). As in their preliminary study, Chow and Klinger (2013b, p. 16) found that Eureka

Valley evening-primrose tolerated interspecific competition better than Russian thistle. However, the effect of intraspecific competition between Eureka Valley evening-primrose individuals was less clear. For example, the highest number of neighbors (*i.e.*, six individuals) in one of the treatments did not result in the greatest impact to the target individual (Chow and Klinger 2014, p. 16). This may be because of competition occurring below ground.

Rooting depth of Eureka Valley evening-primrose was observed during the course of two different studies. Most of the Eureka Valley evening-primrose roots examined from a laboratory experiment were located at the bottom of pots as opposed to Russian thistle roots, which were more concentrated in the mid-section of the pot (Chow and Klinger 2014, pp. 17–18). This finding suggests the possibility that the spatial separation of the roots of Eureka Valley evening-primrose and Russian thistle is why the effects of intraspecific competition examined on the dunes was greater for Eureka Valley evening-primrose than interspecific competition. Rooting depth relative to soil moisture was also observed by USGS (Scoles-Sciulla and DeFalco 2015, p. 10); they concluded that Eureka Valley evening-primrose likely uses soil moisture within the top 11.8 in (30 cm) of soil because soil moisture at greater depths varied little over the spring and early summer, when primrose individuals were actively growing.

The growing phenologies (timing) of Eureka Valley evening-primrose and Russian thistle are likely sufficiently different that competition for water resources is minimal. The Park Service (Park Service 2014) observed the “phenological asynchrony” between these two species and noted that, although they share habitat in semi-stabilized sand, they do not appear to be stimulated by the same precipitation events and so do not reproduce at the same time or compete for the same resources. Overall at the present time, the best available information presented by Chow and Klinger (2013b) and Chow (2016) suggest that Russian thistle does not outcompete the Eureka Valley evening-primrose. Additionally, recent reports from the Park Service (2013, 2014) indicate that Eureka Valley evening-primrose continues to occupy areas where it was known to occur around the time of listing. Therefore, we do not consider impacts from Russian thistle to be a threat to the continued existence of the Eureka Valley evening-primrose both now and in the future.

#### Climate Change

For a detailed discussion regarding the potential effects of climate change on Eureka Valley evening-primrose, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS–R8–ES–2013–0131 at <http://www.regulations.gov>.

Potential effects of climate change may include a variety of potential changes, such as the following:

(1) A decrease in the level of soil moisture that could increase evaporation and transpiration rates and thus impact the growth or performance of individual plants (Weltzin *et al.* 2003, p. 943).

(2) Altered timing and amount of rainfall could influence germination and possibly establishment of Eureka dune grass (Pavlik and Barbour 1986, p. 47).

(3) The timing of phenological phases, such as flowering, leafing out, and seed release in both Eureka Valley evening-primrose and Eureka dune grass, could change, which has been noted in many other plant species (Bertin 2008, pp. 130–131). Additionally, pollinator availability could become limited (Hegland *et al.* 2009) during the time Eureka Valley evening-primrose is flowering, which in turn could affect pollination effectiveness, and consequently the amount of seed it produces.

(4) Lower rainfall could affect survival of individual plants (*e.g.*, reproductive adults, seedlings) and result in less frequent germination events, both of which could affect recruitment.

Alternatively, increased rainfall could increase germination and survival, but could also increase competition with invasive, nonnative plants or increase the population size of herbivores. With respect to herbivores, a subsequent decrease in rainfall could result in increased herbivory of certain plants due to a decreased availability in the variety of vegetation.

New information comprises the following: The most recent global climate models from the Intergovernmental Panel on Climate Change (IPCC) fifth assessment (IPCC 2013) do not resolve how two important weather patterns (*i.e.*, the El Niño Southern Oscillation (ENSO) phenomenon and North American monsoon) will change over the next century (Cook and Seager 2013). These two weather patterns may be important drivers of the Eureka Valley evening-primrose population dynamics (Evans *in litt.* 2014); climate envelope forecasts

indicate that suitable climate for Eureka Valley evening-primrose will shift to the northwest of Eureka Valley dunes by 2050 (Evans *in litt.* 2014).

In 2016, USGS completed 3 years of field study at all three dune systems to evaluate the influence of rainfall and temperature patterns on germination and growth of Eureka Valley evening-primrose and Eureka dune grass (Scoles-Sciulla and DeFalco 2017); final analysis will not be complete until 2018. Preliminary results indicate that: (1) Temperature regime, wind speeds, and precipitation patterns at the three dunes show some differences that likely are due to their relative position within Eureka Valley (for instance, the Main Dunes has lower daily temperatures than the other two dunes, while other patterns, such as rainfall, vary among the three dunes on both a temporal and spatial scale); (2) soil moisture probes installed near Eureka Valley evening-primrose individuals suggest that moisture at depths greater than 11.8 in (30 cm) varied little over the spring and early summer when the species was actively growing; and (3) rooting depth for Eureka Valley evening-primrose was within the top 11.8 in (30 cm) of substrate (Scoles-Sciulla and DeFalco 2017). Although the study is incomplete, this information indicates that the extent of the annual expression of Eureka Valley evening-primrose may vary between dunes in part due to the variation in precipitation between the dunes and that the species is accessing soil moisture at a deeper level than Russian thistle, which may reduce potential competition.

In summary, effects of climate change on Eureka Valley evening-primrose may occur in the future, although we cannot predict what the effects will be. Regardless, climate change will be affecting the climatic norms with which this species has previously persisted, and it is probable that this shift could cause stress to the species. We note that, as a short-lived perennial, the ability of this species to shift geographically over time in accordance with shifting climatic norms is greater than would be for a long-lived perennial plant species. However, because of the uncertainty regarding the magnitude and the imminence of such a shift, we are unable to determine the extent that this may become a stressor in the future. Additionally, while uncertainty exists, we expect the Park Service will continue to manage and monitor the species so that corrective actions may occur in the future.

## Stochastic Events

For a detailed discussion regarding the potential effects of stochastic events on Eureka Valley evening-primrose, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>. In those documents, we discussed that environmental stochasticity (variation in recruitment and mortality rates in response to weather, disease, competition, predation, or other factors external to the population) could result from such events as drought, windstorms, and timing and amount of rainfall. There is no new information regarding the potential effects of stochastic events on Eureka Valley evening-primrose.

Overall, it is possible that environmental stochasticity (in the form of extreme weather events) could cause stress to Eureka Valley evening-primrose. However, the best available information at this time does not indicate the impacts associated with the observed and predicted range of stochastic events would affect the long-term persistence of Eureka Valley evening-primrose.

In our proposed rule and supporting documents, we also discussed that low genetic diversity theoretically could affect the ability of plant species to adjust to novel or fluctuating environments, survive stochastic events, or maintain high levels of reproductive performance (Huenneke 1991, p. 40). The species-rich genus *Oenothera* has been used as a model for the study of plant evolution, particularly regarding reproductive systems (Theiss *et al.* 2010). DNA analysis has been used to clarify phylogenetic relationships; evidence indicates that the genus *Oenothera* is polyphyletic (relating to a taxonomic group that does not include the common ancestor of the members of the group, and whose members have two or more separate origins) (Levin *et al.* 2003, 2004). Despite the number of studies, however, we have no specific information for *O. californica* ssp. *eurekaensis* indicating the level of genetic diversity within or among the populations. However, given the resiliency exhibited by the species, at this time, the best available information does not indicate the species is experiencing any potential negative effects of low genetic diversity within and among the Eureka Valley evening-primrose populations.

## Combination of Factors

For a detailed discussion regarding the potential effects of a combination of factors on Eureka Valley evening-primrose, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>. In those documents, we discussed that a combination of favorable climatic conditions could lead to an increase in food sources for small mammal populations, which could then cause additional stress on Eureka Valley evening-primrose through seed predation and herbivory. During the comment period, one peer reviewer commented that, although boom and bust population cycles of small mammals and their impacts on native vegetation are well known, in the case of Eureka Valley, there may be another confounding factor: Prior to the introduction of Russian thistle to the Valley in the last century, lagomorph populations were likely smaller. The spread of Russian thistle around the dunes may have increased the size of lagomorph populations above historical levels, and thus could potentially result in increased herbivory on Eureka Valley evening-primrose (Thomas *in litt.* 2014).

During field studies since the proposed delisting rule was published, researchers (Chow and Klinger 2014, pp. 19–20, 46) observed evidence of small mammal predation and lagomorph predation on Eureka Valley evening-primrose during their field studies. However, no quantitative data are available regarding the extent of herbivory on Eureka Valley evening-primrose throughout its range, the size of the lagomorph population (or other small mammal populations), nor how their numbers fluctuate with the presence of Russian thistle. In addition, the “superbloom” year of 2014 provided a qualitative confirmation that, despite the large expression of Russian thistle that occurred in 2010 and the observations of small mammal herbivory in the intervening years, Eureka Valley evening-primrose was sufficiently resilient to have an aboveground expression of more than 1 million individuals.

While the combination of factors could potentially affect Eureka Valley evening-primrose, the best available information does not indicate that cumulative or synergistic effects are of sufficient magnitude or extent that they

are affecting the viability of the species at this time or into the future.

*Summary of Factors Affecting the Species—Eureka Dune Grass*A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range  
OHV Activity

OHV activity may impact Eureka dune grass and its habitat in the same fashion and magnitude as that described above for Eureka Valley evening-primrose (see the OHV Activity section under Factor A for Eureka Valley evening-primrose, above). This includes 4-wheel drive vehicular use of roads and trails, predominantly on public lands, for the purpose of touring, hunting, fishing, or other public land use. Existing regulatory mechanisms (such as through the Park Service’s Organic Act and other laws guiding management of Park Service lands) in place since listing have resulted in beneficial effects to the species, including management measures to control OHV and recreational activities) (see additional discussion under Factor D, below). As a result, OHV-related impacts to Eureka dune grass have essentially been ameliorated, in large part due to the designation of Federal wilderness areas throughout the species’ range, with the exception of some minor unauthorized OHV activity that the Park Service acknowledges, also noting that the remote location of the dunes and limited resources make enforcing restrictions difficult (Park Service 2011b, p. 17).

Additional discussion regarding potential impacts and the Park Service’s management of OHV activity, land use designations, and the potential for future adaptive management strategies regarding OHV activities that are established to benefit Eureka dune grass and other Eureka Dunes ecosystem species are described in detail under the OHV Activity section under Factor A for the Eureka Valley evening-primrose, above, and in the proposed delisting rule (79 FR 11053, February 27, 2014).

Overall, the current level of unauthorized OHV use is sporadic and does not occur across the range of the species, and there does not appear to be any correlation between OHV recreation and the status of the species. Given the management of OHV activity through land use designations has resulted in the near elimination of OHV activity on Eureka Dunes at the current time, and given the likelihood that these protections and adaptive management strategies will continue into the future at the remote locations where Eureka

dune grass occurs, we conclude that OHV activity no longer impacts the species or its habitat at the population or rangewide levels currently and into the future.

#### Other Recreational Activities

In addition to unauthorized OHV activity that may occur currently (as described above), other recreational activities have historically and currently occur (occasionally) within the Eureka Dunes, including horseback riding, sandboarding, camping outside of designated areas, and creation of access routes. Potential impacts from these recreational activities are described in detail either above in the Other Recreational Activities section under Factor A for Eureka Valley evening-primrose, or in the associated Other Recreational Activities section of the proposed delisting rule. Existing regulatory mechanisms (such as through the Park Service's Organic Act and other laws guiding management of Park Service lands) in place since listing have resulted in beneficial effects to the species (including management measures to control recreational activities) (see additional discussion above for Eureka Valley evening-primrose, as well as under Factor D, below).

New information is the same as that presented above for Eureka Valley evening-primrose: In response to publication of the proposed delisting rule, the Park Service referred back to a study conducted by Pavlik (1979a), which found that seedlings of Eureka dune grass are extremely fragile and cannot tolerate even the lightest disturbance by foot traffic. Although the Park Service has not been able to measure the amount of foot traffic, the potential impacts from such traffic can be qualitatively observed on stabilized sand following rain events (Park Service 2014, p. 5). In addition, one peer reviewer observed evidence (*i.e.*, tracks) of unauthorized OHV activity at the base of the Main Dunes, as well as increased visitor use, specifically camping, at the dunes since the 1980s (McLaughlin *in litt.* 2014).

Our current assessment is that, while the Park Service has documented some unauthorized activity (*e.g.*, sandboarding, OHV activity in closed areas) that may result in minor or occasional impact to individual plants, these are infrequent occurrences and affect very small areas and are not spread throughout the range of the species. The Park Service is aware of the potential for impacts to Eureka dune grass from hikers accessing the north end of the Main Dunes and considers

this a priority area for rangers to patrol and to have visitor contact.

Given the existing conservation measures in place across the Eureka Dunes (*i.e.*, reduction or elimination of impacts associated with horseback riding, sandboarding, camping, and establishment of access points via implementation of patrols, illegal road closures, interpretative signs, barriers, etc.), the best available information at this time indicates that unauthorized OHV and other recreational activities, if they occur, are not causing population-level effects (as compared to pre-listing levels) for Eureka dune grass habitat currently, nor are they expected to do so in the future.

#### B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Given the same scenario and discussion applies, please see the Factor B section for Eureka Valley evening-primrose, above, regarding collection of seeds or leaves for laboratory experiments or collection of voucher specimens for herbaria as a potential stressor to Eureka dune grass. Of the three section 10(a)(1)(A) permits issued for studies involving the removal of plants, seeds, or plant parts, only two of these were for Eureka dune grass. We do not consider this level of research and collection to pose any potential threat of overutilization for the species. We also do not have any new information regarding this factor, and we conclude that collection of seeds or leaves is not a short-term or long-term threat to the continued existence of Eureka dune grass.

#### C. Disease or Predation

At the time of listing, disease and predation were not identified as potential threats to Eureka dune grass. Since then, studies imply that herbivory and seed predation are a potential stressor to the species. For a detailed discussion regarding disease and predation, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>.

New information comprises the following: Updated results from one study on plant growth and reproduction (Scoles-Sciulla and DeFalco 2015) that was ongoing at the time of the proposed delisting rule. Results indicate that in 2014, out of 90 Eureka dune grass individuals tagged in 2013, 16 did not grow due to severe herbivore damage in

2013; and an additional 4 plants grew but did not reproduce (Scoles-Sciulla and DeFalco 2015, p. 8). In 2015, the same 16 individuals still did not grow, and 3 of the additional 4 plants grew but did not reproduce (Scoles-Sciulla and DeFalco 2016, p. 8). No herbivory effects were discussed with the findings for the year 2016 (Scoles-Sciulla and DeFalco 2017).

In their 2015 monitoring report, the Park Service made note of rodent herbivory on leaves and stems of Eureka dune grass, most likely from kangaroo rats (*Dipodomys* sp.) that underwent a population surge in the previous year (Park Service 2015, pp. 18–19). Additionally, abundant rodent tracks were found in the central and southern portions of the Main Dunes (Park Service 2015, pp. 18–19). No studies have been done to quantify the extent of herbivore damage to the species. However, because Eureka dune grass produces seed in low abundance, the loss of any of this seed to herbivores could affect the ability of the species to bank seed and germinate in abundance when suitable conditions arise in the future.

New information is also noted with regards to potential herbivory from lagomorphs. Thomas (*in litt.* 2014) cited two references that were inadvertently excluded in the proposed rule or Background Information document (Service 2014, entire). This information indicates that Russian thistle is consumed by black-tailed jackrabbits and cottontail rabbits (Daniel *et al.* 1993, p. 5; Fagerstone *et al.* 1980, pp. 230–231) and may be a preferred food source (Fagerstone *et al.* 1980, p. 230). Thomas (*in litt.* 2014) suggests that it is possible that Russian thistle may have increased lagomorph populations above historical levels, and thus, increased herbivory on Eureka dune grass. Although anecdotal in nature, we also note that the Park Service staff has made observations of herbivory by small mammals on Eureka dune grass (Park Service 2015, pp. 18–20).

Seed predation and herbivory are naturally occurring processes. We expect that Eureka dune grass can adapt to withstand some level of herbivory and seed predation. Given that the species continues to occupy the same range as identified at the time of listing, it does not appear that herbivory and seed predation by themselves are occurring at such a level to cause population-level declines or other adverse effects to the species as a whole. Based on the best available information at this time (*i.e.*, observations by USGS and the Park Service between 2013 and 2015, the expectation that this species

has evolved with some level of herbivory/seed predation, that herbivory/seed predation is naturally occurring, and some level of herbivory/seed predation is expected for the species), we conclude that the observed impacts in and of themselves are not likely causing population-level effects for Eureka dune grass currently. However, given that Eureka dune grass is already experiencing low to no reproduction, any additional loss of biomass due to herbivory will likely place additional stress on individual plants and limit their ability to expend resources on reproduction. Therefore, we acknowledge that herbivory or seed predation could be a concern for this species into the future, and recommend that observations of this stressor should continue.

#### D. The Inadequacy of Existing Regulatory Mechanisms

Under this factor, we evaluate whether the stressors identified within the other factors may be ameliorated or exacerbated by any existing regulatory mechanisms or conservation efforts. Section 4(b)(1)(A) of the Act requires that the Service take into account “those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species. . . .” In relation to Factor D under the Act, we interpret this language to require the Service to consider relevant Federal, State, and Tribal laws, regulations, and other such binding legal mechanisms that may ameliorate or exacerbate any of the threats we describe in threat analyses under the other four factors or otherwise enhance the species’ conservation. Our consideration of these mechanisms is described in detail within each of the threats or stressors to the species (see discussion under each of the other factors).

As similarly described above under the Factor D section for Eureka Valley evening-primrose, the following existing regulatory mechanisms and conservation actions were specifically considered and discussed as they relate to the stressors, under the applicable factors, affecting Eureka dune grass: The Wilderness Act, the Park Service Organic Act, and the other laws guiding management of Park Service lands. We concluded they are adequate to minimize and control threats to populations of Eureka dune grass from OHV activity, sandboarding, and horseback riding. Eureka dune grass and its habitat benefit from existing regulatory mechanisms and conservation actions, including: (1) Management measures to control illegal

OHV activity (see Factor A discussion, above), including the Park Service’s management policies (Park Service 2006); (2) the Organic Act; (3) the legal and stewardship mandates outlined in the Park Service’s General Management Plan (Park Service 2002, entire); and (4) the Wilderness and Backcountry Stewardship Plan (Park Service 2013b, pp. 4, 5, 10, 16), given all areas containing populations of the species are within congressionally designated wilderness. The best available information indicates that these existing regulatory mechanisms have reduced the previously identified significant adverse effects to individual plants and populations, especially impacts associated with OHV activity (Factors A and E) and other recreational activities (*i.e.*, sandboarding, camping, and associated access routes) (Factors A and E). We also expect the Park Service to continue using these mechanisms to assist in reducing impacts into the future. At this time, there are no existing regulatory mechanisms to address herbivory, seed predation, effects of climate change, and stochastic events under Factor E (see below).

Downlisting Eureka dune grass from an endangered species to a threatened species on the Federal List of Endangered or Threatened Plants would not significantly change the protections afforded this species under the Act. Additionally, while most of the other laws, regulations, and policies considered are not specifically directed toward protection of Eureka dune grass, they mandate consideration, management, and protection of resources that benefit the species. We expect these laws, regulatory mechanisms, and management plans to remain in place into the future.

For a more detailed discussion of the various existing regulatory mechanisms, both at the time of listing and since then, see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS–R8–ES–2013–0131 at <http://www.regulations.gov>. There is no new information concerning these regulatory mechanisms.

#### E. Other Natural or Manmade Factors Affecting Its Continued Existence

##### OHV Activity and Other Recreational Activities

See the OHV Activity and Other Recreational Activities sections, above, under Factor A for Eureka dune grass and Eureka Valley evening-primrose for a complete discussion of realized and potential impacts since the time of

listing. As stated there, we conclude, based on the best available information, that the Wilderness Area designation, coupled with Park Service management of OHV activity and other recreational activity, has significantly reduced potential impacts to Eureka dune grass individuals currently and into the future. Even so, there is one portion of the range of this species (and not affecting Eureka Valley evening-primrose)—the Main Dunes adjacent to the campground area—that is subject to the most impact from recreational hiking. The National Park Service has anecdotally documented foot traffic in this area when it is most observable, *i.e.*, after a rain event (Park Service 2014, p. 5). If the area being trampled overlaps with an area where there has been a localized germination event of Eureka dune grass, it could result in the loss of those individuals as well as potentially prevent the species from recovering (*e.g.*, limiting the species’ ability to expend resources on growth and establishment that would increase abundance of individuals) in the area. We expect the Park Service to continue to manage OHV and other recreational activities to assist in reducing impacts to Eureka dune grass into the future.

##### Competition With Russian Thistle

Invasive, nonnative plants can potentially impact the long-term persistence of endemic species. Russian thistle is the only invasive, nonnative species that has spread onto the dunes in the Eureka Valley. Potential impacts associated with Russian thistle are described under the Competition with Russian Thistle section under Factor E for Eureka Valley evening-primrose, above, and in the associated section of the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS–R8–ES–2013–0131 at <http://www.regulations.gov>.

The potential for Russian thistle to impact Eureka dune grass is unlikely because: (1) Eureka dune grass typically occurs on the steeper, unstable slopes of the dunes, which appears to limit the establishment of Russian thistle; and (2) Russian thistle roots are shallower than those of Eureka dune grass, which reduces the likelihood of potential competition between the two species.

New information comprises the following: The Park Service continued to note the presence/absence of Russian thistle during the hectare grid monitoring in 2014 and 2015; at the Main Dunes, the number of hectares in the monitoring grid where Russian thistle and Eureka dune grass both occur

was 19 percent in 2013 (Park Service 2014, pp. 4, 12, 15; 2015, p. 3), and 4 percent in 2015 (Hoines *in litt.* 2017). Due to the steeper terrain occupied by Eureka dune grass on the Main Dunes, the percentage of hectares of Russian thistle that overlap with dune grass is less than that for overlap between Russian thistle and Eureka Valley evening-primrose. At the two smaller dunes, there is a greater percentage of hectares of Russian thistle that overlap with Eureka dune grass than at the Main Dunes (in 2013, 91 percent at Saline Spur Dunes, and 76 percent at Marble Canyon Dunes). However, on a finer spatial scale, the cover of each of these species (Eureka dune grass and Russian thistle) is so low that the opportunity for competition is limited. In addition, in their ecological study of Eureka dune grass, USGS measured the rooting depth, and found it to be approximately 35 in (90 cm) (Scoles-Sciulla and DeFalco 2016, p. 9). The rooting depth for annual species of Russian thistle is shallower (in one study, the average was 24 in (60 cm) (Padilla and Pugnare 2007)). There are also phenological differences in the growing season between Eureka dune grass and Russian thistle: During the growing season for Russian thistle (summer), adult dune grass individuals are extracting water from lower depths (Scoles-Sciulla and DeFalco 2016). Therefore, based on the best available information, although competition between individuals of Russian thistle and individuals of Eureka dune grass may occasionally occur, because of their separation in space and time, we conclude that competition with Russian thistle does not pose a population-level impact to Eureka dune grass at this time.

#### Climate Change

For a detailed discussion of climate change in the Eureka Valley and its potential effects to Eureka dune grass and its habitat, please see the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014), which are available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>. At the time we published the proposed rule, we concluded that there is considerable uncertainty in local climate projections, and we expected Eureka dune grass is adapted to withstand drier climate conditions. We also stated that impacts from climate change on Eureka dune grass may occur in the future, although we cannot predict what the effects will be.

New information comprises the following: In 2016, USGS completed a

field study at all three dune systems to evaluate the influence of rainfall and temperature patterns on germination and growth of Eureka dune grass and Eureka Valley evening-primrose; the results of this study are not yet available (Scoles-Sciulla and DeFalco 2017, p. 9). To date, they note the following:

(1) Temperature regime, wind speeds, and precipitation patterns at the three dunes show some differences that likely are due to their relative position with Eureka Valley. For instance, the Main Dunes has lower daily temperatures than the other two sites, while other patterns, such as rainfall, vary among the three dunes on both a temporal and spatial scale.

(2) Soil moisture probes installed near dune grass individuals suggest that moisture from a summer storm event (11 in (29 cm)) may infiltrate the soil near plants more deeply than away from plants. Also, soil moisture down to 35 in (90 cm) declined more rapidly near the dune grass than in the interspaces during this time when Eureka dune grass is actively growing.

(3) Rooting depth for Eureka dune grass was 35 in (90 cm) during the 2014 and 2015 growth seasons, as compared to a “within top [11 in] 30 cm” rooting depth for Eureka Valley evening-primrose (Scoles-Sciulla and DeFalco 2017, pp. 5–8).

There are two primary ways in which a shift in local climatic conditions could affect the long-term persistence of Eureka dune grass. First, because the species taps into water at deeper soil levels in the dune sands, a reduction in the availability of this water could affect the persistence of mature, established individuals; a loss of these mature individuals from the population is significant, because most of the seed production for the future of the population is contributed by these older individuals. Second, a shift in precipitation patterns during the summer and fall season could affect the ability of Eureka dune grass to have successful germination events. Water year precipitation (*i.e.*, the total annual rainfall between October 1 of one year until September 30 of the following year) has been on a declining trend between 1896 and 2013 (Willoughby *in litt.* 2014); summer precipitation (April through September) has also been on a declining trend between 1896 and 2013 (Willoughby *in litt.* 2014). It is reasonable to assume the lack of summer precipitation is one of the parameters affecting the ability of Eureka dune grass to experience germination events. Park Service staff had documented a germination event in 2014, but none had been observed prior

to that since 1984 (Park Service 2014; Pavlik and Barbour 1986, p. 50). At this time, we have no further information regarding the extent to which the 2014 germinants may have survived or become established within the population.

In summary, impacts from climate change on Eureka dune grass may occur in the future. Although we cannot predict what the effects will be, they could impact various aspects of the life history of the species, including altering germination and establishment success, as well as growth, reproduction, and longevity. Regardless, climate change will be affecting the climatic norms with which this species has previously persisted, and it is probable that this shift could cause stress to the species. We note that, as a long-lived perennial, the ability of this species to shift geographically over time in accordance with shifting climatic norms is less than would be for a short-lived perennial (for example, Eureka Valley evening-primrose) or annual plant species. The conditions for germination (specifically, late summer/early fall precipitation) occur less frequently than the typical winter precipitation to which most annual and perennial Mojave desert species respond. Although several patches of germination were observed by the Park Service in 2014, that was the only year since rangewide monitoring began in 2008 that they observed such germination. Because of the uncertainty regarding the magnitude and the imminence of such a shift in climatic norms, we are unable to determine the extent to which this will become a stressor in the foreseeable future, and particularly how it will affect the interval between successful germination and establishment events that the species needs to replace the loss of senescent individuals.

#### Stochastic Events

For a detailed discussion of the potential impacts of stochastic events on Eureka dune grass and its habitat, see the “Stochastic Events” section of the proposed delisting rule (79 FR 11053, February 27, 2014) and the Background Information document (Service 2014, pp. 62–64). At the time we published the proposed rule, we concluded that neither windstorms nor a variation in rainfall represent a substantial threat to Eureka dune grass. We have no new information regarding the potential threat posed by stochastic events.

With regard to genetic stochasticity, we stated in the proposed delisting rule that low genetic diversity may affect the ability of plant species to adjust to novel or fluctuating environments, survive



stochastic events, or maintain high levels of reproductive performance (Huenneke 1991, p. 40). Although Bell (2003, p. 6) concluded that there was low genetic diversity within and among the three populations of Eureka dune grass, there is no past information available regarding the level of genetic diversity within and among the three populations of Eureka dune grass that would allow us to determine if genetic diversity has changed over time or the extent to which low genetic diversity may affect the species' fitness or its ability to adapt to changing conditions over time. Overall, we concluded in the proposed delisting rule that genetic stochasticity does not pose a threat to Eureka dune grass currently or in the future.

Currently, we have no additional information on whether genetic diversity has changed over time, or whether genetic stochasticity poses a threat to Eureka dune grass in the future.

#### Combination of Factors

For a detailed discussion of the combination of various factors and potential impacts on Eureka dune grass and its habitat, see the "Combination of Factors" section of the proposed delisting rule (79 FR 11053, February 27, 2014), and the Background Information document (Service 2014), which are available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>. We concluded that while the combination of factors could potentially impact Eureka dune grass, the best available information did not indicate that the magnitude or extent of cumulative or synergistic effects was impacting the species to the point that they are affecting the viability of the species at this time or into the future (although the available information indicates some uncertainty about how synergistic effects could impact the species in the future).

The best available information for Eureka dune grass indicates that the rangewide distribution (as represented by presence in the grid monitoring), as well as the number of large individuals of the dune grass, is in decline at two (the Main Dunes and Marble Canyon Dunes) out of three of the dune systems. In addition, since most of Eureka dune grass occurs at the Main Dunes, the decline in abundance and distribution at the Main Dunes represents a larger proportion of the decline rangewide for the species. Although we do not know specifically what the combination of factors may be contributing to the decline of Eureka dune grass, the combination of rangewide distribution

monitoring, 30 years of photopoints, and trends analysis by three different parties (Kendall *in litt.* 2014; Park Service 2014; and Willoughby *in litt.* 2014) indicate that the status of this species is not yet stable or improving. This species exhibits life-history characteristics (intrinsic factors) that include low seed production, low frequency of germination, and low frequency of establishment of new individuals that reach reproductive age. These characteristics contribute to the difficulty of maintaining robust populations of individuals over time. Any additional external (extrinsic) factors, such as trampling, herbivory, or drought, that impact these critical life-history stages in Eureka dune grass will reduce its reproductive potential, and its ability to persist, in the future.

Please see the Climate Change section under Factor E, above, for a discussion of its potential effect as a stressor to Eureka dune grass. At this time, our evaluation of the best available information indicates that the combination of stress caused by changing climatic norms with other stressors, such as herbivory, are likely exacerbating the species' ability to exhibit a stable or increasing population size across its range into the future. We also note that the best available information suggests this species is physiologically adapted to the specific hydrologic and soil conditions on the dunes. However, both water year precipitation and summer precipitation have declined in the region between 1896 and 2013; these declines could affect the species by reducing successful germination events and recruitment in the summer-fall months and also by reducing the health and longevity of established adults due to lower annual rainfall.

With respect to herbivory (please see the Factor C section above), it is possible that the abundance of lagomorphs (due to presence of Russian thistle that it feeds on) has increased greater than historical levels, and thus may contribute to elevated levels of herbivory on Eureka dune grass (Thomas *in litt.* 2014). Although anecdotal in nature, we also note that the Park Service staff has made observations of herbivory by small mammals on Eureka dune grass (Park Service 2015, pp. 18–20).

#### Determinations

##### Introduction

Under section 4(a)(1) of the Act, we determine whether a species is an endangered species or threatened species because of any of the following:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial, recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence.

The fundamental question before the Service is whether the species meets the definition of "endangered species" or "threatened species" under the Act. To make this determination, we evaluated the projections of extinction risk, described in terms of the condition of current and future populations and their distribution (taking into account the risk factors and their effects on those populations). For any species, as population condition declines and distribution shrinks, the species' extinction risk increases and overall viability declines.

The Act defines an endangered species as any species that is "in danger of extinction throughout all or a significant portion of its range" and a threatened species as any species "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." On July 1, 2014, we published a final policy interpreting the phrase "significant portion of its range" (SPR) (79 FR 37578). In our policy, we interpret the phrase "significant portion of its range" in the Act's definitions of "endangered species" and "threatened species" to provide an independent basis for listing a species in its entirety; thus there are two situations (or factual bases) under which a species would qualify for listing: A species may be in danger of extinction or likely to become so in the foreseeable future throughout all of its range; or a species may be in danger of extinction or likely to become so throughout a significant portion of its range. If a species is in danger of extinction throughout an SPR, it, the species, is an "endangered species." The same analysis applies to "threatened species."

Our final policy addresses the consequences of finding a species in danger of extinction in an SPR, and what would constitute an SPR. The final policy states that (1) if a species is found to be endangered or threatened throughout a significant portion of its range, the entire species is listed as an endangered species or a threatened species, respectively, and the Act's protections apply to all individuals of the species wherever found; (2) a portion of the range of a species is

“significant” if the species is not currently endangered or threatened throughout all of its range, but the portion’s contribution to the viability of the species is so important that, without the members in that portion, the species would be in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range; (3) the range of a species is considered to be the general geographical area within which that species can be found at the time the Service or the National Marine Fisheries Service makes any particular status determination; and (4) if a vertebrate species is endangered or threatened throughout an SPR, and the population in that significant portion is a valid DPS, we will list the DPS rather than the entire taxonomic species or subspecies.

The SPR policy is applied to all status determinations, including analyses for the purposes of making listing, delisting, and reclassification determinations. The procedure for analyzing whether any portion is an SPR is similar, regardless of the type of status determination we are making. The first step in our assessment of the status of a species is to determine its status throughout all of its range. Depending on the status throughout all of its range, we will subsequently examine whether it is necessary to determine its status throughout a significant portion of its range. If we determine that the species is in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range, we list the species as an endangered (or threatened) species and no SPR analysis will be required. The same factors apply whether we are analyzing the species’ status throughout all of its range or throughout a significant portion of its range.

As described in our policy, once the Service determines that a “species”—which can include a species, subspecies, or distinct population segment (DPS)—meets the definition of “endangered species” or “threatened species,” the species must be listed in its entirety and the Act’s protections applied consistently to all individuals of the species wherever found (subject to modification of protections through special rules under sections 4(d) and 10(j) of the Act).

For the purpose of these determinations, we note that the implementation timeline of Death Valley National Park’s Wilderness and Backcountry Stewardship Plan (Park Service 2013b) is 20 years. We think this is an appropriate timeframe over which events or effects reasonably can or should be anticipated, or trends

extrapolated, because it is the length of time that the Park has planned for managing the habitat of Eureka Valley evening-primrose and Eureka dune grass, and during which time the Park will be monitoring the status of the populations. Although we expect this beneficial management to occur for at least the length of this timeframe, we expect management of the Eureka Dunes to continue well into the future beyond 20 years. Based on the Park Service’s track record for natural resource management and revisions to management plans, we can reasonably expect such revisions to incorporate protective management consistent with the needs of the species well into the future and beyond the existing 20-year stewardship plan timeframe described above. We expect future revisions to be consistent with laws, regulations, and policies governing Federal land management planning; however, we cannot predict the exact contents of future plans. For additional information used to determine foreseeable future for these species, see the discussion of the Park Service’s responsibilities and a description of Death Valley National Park’s Wilderness and Backcountry Stewardship Plan in the “Recovery” and “Factor D” sections of the Background Information document (Service 2014, pp. 32–38, 48–51).

In considering what factors might constitute threats to the species, we must look beyond the mere exposure of the species to the factor to determine whether the exposure causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant the threat is. If the threat is significant, it may drive, or contribute to, the risk of extinction of the species such that the species warrants listing as an endangered species or a threatened species as those terms are defined by the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these factors individually or cumulatively are operative threats that act on the species to the point that the species meets the definition of an endangered species or threatened species under the Act.

#### *Eureka Valley Evening-Primrose—Determination of Status Throughout All of Its Range*

As required by section 4(a)(1) of the Act, we conducted a review of the status of this plant and assessed the five factors to evaluate whether Eureka Valley evening-primrose is in danger of extinction currently or likely to become so in the foreseeable future throughout all of its range. We examined the best scientific and commercial information available regarding the past, present, and future threats faced by the species. We reviewed information presented in the 2010 petition, information available in our files and gathered through the status review initiated with our 90-day finding in response to this petition, additional information that became available since the time our 2007 5-year status reviews were completed, and other available published and unpublished information, including public comments and information available after publication of the proposed rule. We also consulted with species experts and land management staff with Death Valley National Park who are actively managing for the conservation of Eureka Valley evening-primrose.

We examined the following stressors that may be affecting Eureka Valley evening-primrose: Unauthorized OHV activity, and other unauthorized recreational activities (specifically, horseback riding, sandboarding, camping, and access routes) (Factor A); collection for scientific research (Factor B); herbivory and seed predation (Factor C); the inadequacy of existing regulatory mechanisms (Factor D); and other unauthorized recreational activities (*i.e.*, horseback riding, sandboarding, camping, and access routes), competition with Russian thistle, effects of climate change, and stochastic events (Factor E). Our analysis indicates that measures have been put in place since the time of listing that have resulted in management and the elimination or reduction of the significant impacts to Eureka Valley evening-primrose populations identified at the time of listing (*i.e.*, OHV activity, and to a lesser extent camping and unauthorized OHV activity) that could have resulted in the extirpation of all or parts of populations. These impacts have been eliminated or reduced to the extent that they are considered negligible currently, and are expected to continue to be negligible into the future.

It is important to acknowledge the significant commitment made initially by BLM and subsequently by the Park Service in their efforts to provide

permanent protection to Eureka Valley evening-primrose and its habitat, as well as ongoing management, research, and public outreach opportunities. Since the publication of the proposed delisting rule in 2014, the Park Service continued to monitor the species for presence/absence throughout its range in 2014 and 2015 and developed a new subsampling method that was initiated in 2017. In addition, the Park Service coordinated with researchers to promote additional studies on monitoring methodologies (Chow and Klinger 2016), examine competition with Russian thistle (Chow and Klinger 2016), and investigate how growth and reproduction are influenced by changes in local climate (Scoles-Sciulla and DeFalco 2017). The Park Service worked with us to develop a post-delisting monitoring plan for Eureka Valley evening-primrose, which commits the Park Service to continued monitoring of this species for a period of 10 years.

The recovery criteria in the recovery plan have been achieved and the recovery objectives identified in the recovery plan have been met for Eureka Valley evening-primrose, based on the information presented in this final rule, the proposed rule (79 FR 11053, February 27, 2014), and the Background Information document (Service 2014), which are available under Docket No. FWS-R8-ES-2013-0131 at <http://www.regulations.gov>.

In conclusion, as discussed in the *Summary of Factors Affecting the Species—Eureka Valley Evening-primrose* section above, herbivory, seed predation, stochastic events, climate change, and competition with Russian thistle during years the thistle is abundant have the potential to impact Eureka Valley evening-primrose currently or into the foreseeable future. However, the best available information at this time indicates a negligible impact or lack of impact to the species across its range, although localized impacts may be affecting individual Eureka Valley evening-primrose plants in portions of populations within the range (e.g., documented herbivory and seed predation at the north end of the Main Dunes).

Therefore, after review and analysis of the information regarding stressors as related to the five statutory factors, we find that the ongoing stressors are not of sufficient imminence, scope, or magnitude, either individually or in combination, to indicate that Eureka Valley evening primrose is presently in danger of extinction throughout all of its range, nor are any potential stressors described herein expected to rise to the level that would likely cause the species

to become in danger of extinction in the foreseeable future throughout all of its range. Thus, we conclude that Eureka Valley evening-primrose is not in danger of extinction throughout all of its range nor is it likely to become so in the foreseeable future.

#### *Eureka Dune Grass—Determination of Status Throughout All of Its Range*

As required by section 4(a)(1) of the Act, we conducted a review of the status of Eureka dune grass and assessed the five factors to evaluate whether it is endangered or threatened throughout all of its range. We examined the best scientific and commercial information available regarding the past, present, and future threats faced by the species. We reviewed information presented in the 2010 petition, information available in our files and gathered through the status review initiated with our 90-day finding in response to this petition, additional information that became available since the time our 2007 5-year status reviews were completed, and other available published and unpublished information, including public comments and information available after publication of the 2014 proposed delisting rule. We also consulted with species experts and land management staff with Death Valley National Park who are actively managing for the conservation of Eureka dune grass.

We examined the following stressors that may be affecting Eureka dune grass: Unauthorized OHV activity, other unauthorized recreational activities (specifically, horseback riding, sandboarding, camping, and access routes) (Factor A); collection for scientific research (Factor B); herbivory and seed predation (Factor C); the inadequacy of existing regulatory mechanisms (Factor D); and other unauthorized recreational activities (i.e., horseback riding, sandboarding, camping, hiking, and access routes), competition with Russian thistle, climate change, and stochastic events (Factor E). The most significant impacts to Eureka dune grass populations at the time of listing (i.e., OHV activity, and to a lesser extent camping and unauthorized OHV activity) that placed the species in danger of extinction at that time have been eliminated or reduced (as a result of the significant commitment made initially by BLM and subsequently by the Park Service to implement management measures) to the extent that they are considered negligible currently, and are expected to continue to be negligible into the future.

Of the factors identified above, herbivory, seed predation, recreational

hiking on the Main Dunes, climate change, or potentially a combination of these stressors may have the potential to impact Eureka dune grass currently or into the foreseeable future. We found that the best available information does not indicate that these stressors are affecting individual populations or the species as a whole across its range to the extent that they currently are of sufficient imminence, scope, or magnitude to rise to the level that Eureka dune grass is an endangered species (i.e., presently in danger of extinction throughout all of its range). However, our review of new information and comments received indicate that, while the overall range of the species is generally the same as it has been since the time of listing, the abundance and density of the species is being reduced across much of its range. Specifically, the best available information indicates there is a continued decline in abundance and density, low seed production, and low recruitment, despite the Park Service's management. Thus, one or more stressors are likely still acting on the species at the population level, likely contributing to the observed decline in abundance and density, and likely contributing to the lack of sufficient recruitment necessary for stable or ideally increasing populations.

Although some factors may be causing stress to portions of populations within the range of the species (e.g., documented herbivory and seed predation at the north end of the Main Dunes), we do not know the cause of the reduction in abundance and density rangewide. The observed decline does not appear to be an imminent issue for the species. Rather, the decline appears to be occurring slowly over time. It is likely that, as a long-lived species in which adults have well-established root systems and are able to persist through short periods of stress, it may be difficult to detect the effects of that stress until sometime into the future. Furthermore, the existing regulatory mechanisms are sufficient to manage the habitat of the species, with respect to potential impacts from OHV and other recreation.

In conclusion, we have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by Eureka dune grass. After review and analysis of the best available information regarding stressors as related to the five statutory factors, we find that Eureka dune grass is not currently in danger of extinction throughout its range; however, the ongoing threats are of sufficient

imminence, scope, or magnitude to indicate that this species is likely to become an endangered species within the foreseeable future throughout all of its range.

### Significant Portion of the Range

#### Introduction

Consistent with our interpretation that there are two independent bases for listing species as described above, after examining the status of Eureka Valley evening-primrose and Eureka dune grass throughout all of their ranges, we now examine whether it is necessary to determine their status throughout a significant portion of their ranges. Per our final SPR policy, we must give operational effect to both the “throughout all” of its range language and the SPR phrase in the definitions of “endangered species” and “threatened species.” We have concluded that to give operational effect to both the “throughout all” language and the SPR phrase, the Service should conduct an SPR analysis if (and only if) a species does not warrant listing according to the “throughout all” language.

If the species is neither endangered nor threatened throughout all of its range, we determine whether the species is endangered or threatened throughout a significant portion of its range. To undertake this analysis, we first identify any portions of the species’ range that warrant further consideration. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose in analyzing portions of the range that have no reasonable potential to be significant or in analyzing portions of the range in which there is no reasonable potential for the species to be endangered or threatened. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that there are any portions of the species’ range: (1) That may be “significant” and (2) where the species may be in danger of extinction or likely to become so within the foreseeable future. We emphasize that answering these questions in the affirmative is not a determination that the species is in danger of extinction or likely to become so in the foreseeable future throughout a significant portion of its range—rather, it is a step in determining whether a more-detailed analysis of the issue is required.

In practice, one key part of identifying portions for further analysis may be whether the threats or effects of threats are geographically concentrated in some way. If a species is not in danger of

extinction or likely to become so in the foreseeable future throughout all of its range and the threats to the species are essentially uniform throughout its range, then the species is not likely to be in danger of extinction or likely to become so in the foreseeable future in any portion of its range and no portion is likely to warrant further consideration. Moreover, if any concentration of threats applies only to portions of the species’ range that are not “significant,” such portions will not warrant further consideration.

We evaluate the significance of the portion of the range based on its biological contribution to the conservation of the species. For this reason, we describe the threshold for “significant” in terms of an increase in the risk of extinction for the species. We conclude in our policy that such a biologically based definition of “significant” best conforms to the purposes of the Act, is consistent with judicial interpretations, and best ensures species’ conservation. We determine if a portion’s biological contribution is so important that the portion qualifies as “significant” by asking whether, *without that portion*, the status of the species would be so impaired that the species would be in danger of extinction or likely to become so in the foreseeable future (*i.e.*, would be an “endangered species” or a “threatened species”). Conversely, we would not consider the portion of the range at issue to be “significant” if there is sufficient viability elsewhere in the species’ range that the species would not be in danger of extinction or likely to become so throughout its range even if the population in that portion of the range in question became extirpated (extinct locally).

If we identify any portions (1) that may be significant and (2) where the species may be in danger of extinction or likely to become so in the foreseeable future, we engage in a more-detailed analysis to determine whether these standards are indeed met. The identification of an SPR does not create a presumption, prejudice, or other determination as to whether the species is in danger of extinction or likely to become so in the foreseeable future in that identified SPR. We must go through a separate analysis to determine whether the species is in danger of extinction or likely to become so in the SPR. To make that determination, we will use the same standards and methodology that we use to determine if a species is in danger of extinction or likely to become so in the foreseeable future throughout all of its range.

If we have identified portions of the species’ range for further analysis, we conduct a detailed analysis of the significance of the portion and the status of the species in that portion. Depending on the biology of the species, its range, and the threats it faces, it might be more efficient for us to address the significance question first or the status question first. If we address significance first and determine that a portion of the range is not “significant,” we do not need to determine whether the species is in danger of extinction or likely to become so in the foreseeable future there; if we address the status of the species in portions of its range first and determine that the species is not in danger of extinction or likely to become so in a portion of its range, we do not need to determine if that portion is “significant.”

#### Eureka Valley Evening-Primrose—Significant Portion of Its Range Analyses

Because we determined that Eureka Valley evening-primrose is not in danger of extinction or likely to become so in the foreseeable future throughout all of its range, we will consider whether there are any significant portions of its range in which Eureka Valley evening-primrose is in danger of extinction or likely to become so in the foreseeable future.

Applying the process described above to identify whether any portions of a species’ range warrant further consideration, we determine whether there is substantial information indicating that: (1) Particular portions may be significant, and (2) the species may be in danger of extinction in those portions or likely to become so within the foreseeable future. To identify portions where a species may be in danger of extinction or likely to become so in the foreseeable future, we consider whether there is substantial information to indicate that any threats or effects of threats are geographically concentrated in any portion of the species’ range.

We consider the “range” of Eureka Valley evening-primrose to include three populations, all encompassed within the three dune systems (Marble Canyon Dunes, Saline Spur Dunes, and the Main Dunes (the latter also sometimes referred to as the Eureka Dunes)) that span a distance of 9 mi (14.4 km) from west to east within Eureka Valley in Death Valley National Park, Inyo County, California. The three populations have likely been present since the beginning of the Holocene era when pluvial lakes retreated during a warming phase, leaving behind the dune systems in Eureka Valley.

Historical distribution of Eureka Valley evening-primrose beyond the three currently recognized populations is unknown. In other words, the current distribution of the species is the only known distribution, which has remained generally the same since it was first recorded in 1976.

We considered whether the factors that could cause stress to Eureka Valley evening-primrose individuals or to the

populations as a whole might be different at any one of the populations relative to each other. The factors we identified that could still cause stress to the species include: Herbivory, seed predation, stochastic events, climate change, and competition with Russian thistle during years the thistle is abundant. There are two characteristics of the habitat for the species that could influence the extent to which these

factors cause stress to the species: (1) The *type* of dune system that supports each of the populations, and (2) the *extent* of the sandy dune habitat that supports each of the populations (please see the “Environmental Setting” section of the Background Information document (Service 2014, pp. 4–7) for more information). We compare the three dunes to each other as follows.

TABLE 1—COMPARISON OF DUNE HABITAT CHARACTERISTICS AT THREE DUNE SYSTEMS IN EUREKA VALLEY

Dune system	Type of dune system	Extent of dune habitat (acres (ac)) (hectares (ha))
1. Marble Canyon Dunes .....	Obstacle dune .....	610 ac (247 ha).
2. Saline Spur Dunes .....	Obstacle dune .....	238 ac (96 ha).
3. Main Dunes (a.k.a. Eureka Dunes) .....	Sand mountain/Transverse .....	2,003 ac (811 ha).

The *type* of dune system is important because of the way each of them intercepts, stores, and delivers moisture (from precipitation) to a plant at critical times in its life cycle, specifically during seed germination (needs moisture closer to the surface where the seeds are), and during growth (needs moisture deeper below the surface where the roots are). As Park Service monitoring over the last 9 years indicates, a “good” year for Eureka Valley evening-primrose at one dune system is not necessarily a “good” year for the species at another dune system. Although the mechanisms are complex and not entirely understood, it is likely that obstacle dunes have little capacity to store water, and thus intercept and deliver moisture over a shorter period of time. In comparison, the sand mountain type of dune system has a greater capacity to store water, and to deliver moisture to plants over a longer period of time. Therefore, if rainfall were abundant and equal at all three dune systems, the Main Dunes would provide an inherent advantage relative to Marble Canyon Dunes and Saline Spur Dunes, with respect to the ability of the dune system to provide sustained moisture for germination and growth of Eureka Valley evening-primrose.

The *extent* of dune habitat is important because, if rainfall were abundant and equal at all three dune systems, the greater extent of dune habitat at the Main Dunes would provide more space for Eureka Valley evening-primrose to germinate and grow than at Marble Canyon Dunes and Saline Spur Dunes. While not every hectare of each dune provides suitable conditions for germination and growth of Eureka Valley evening-primrose, a comparison of the extent of dune habitat

is still a useful relative measure of potentially suitable habitat: The Main Dunes is over three times as large as Marble Canyon Dunes, and eight times as large as Saline Spur Dunes. Thus, if rainfall were abundant and equal at all three dune systems, the Main Dunes provides an inherent advantage to Eureka Valley evening-primrose relative to Marble Canyon Dunes and Saline Spur Dunes, both with respect to type of dune system and extent of dune habitat, and would theoretically support the largest population of the species.

The factors we identified that could cause stress to Eureka Valley evening-primrose currently or in the future are herbivory, seed predation, stochastic events, climate change, and competition with Russian thistle during years the thistle is abundant. All of these factors are known to cause stress in plant species; the extent to which they cause stress to Eureka Valley evening-primrose has not been studied in detail. Stress in plant populations can manifest in many forms, ranging from death of individuals to reduced vigor and growth of individuals to reduced reproductive success. In general, small plant populations are more vulnerable than large plant populations to factors that cause stress because there are fewer numbers of individuals to act as a “reserve” from which the species can recover. Moreover, once populations become small because of stress caused by one factor, they are more vulnerable to stress caused by other factors, hence the “Combination of Factors” phenomenon as discussed under the Summary of Factors Affecting the Species section. The best available information indicates that the factors that cause stress could be equally present at all three dunes.

Because Marble Canyon Dunes and Saline Spur Dunes are obstacle dunes with less water-holding capacity than the Main Dunes and comprise a smaller extent of dune habitat than the Main Dunes, they likely will, over time (under conditions of abundant and equal rainfall), support smaller populations of Eureka Valley evening-primrose than the Main Dunes. Furthermore, these smaller populations could be more vulnerable to factors that cause stress than the population at the Main Dunes; therefore, the level of stress to which populations at Marble Canyon Dunes and Saline Spur Dunes are subjected could be higher than the level of stress to which the populations at the Main Dunes are subjected. However, the best available data at this time do not indicate a higher level of stress at any of the populations/dunes as compared to other populations/dunes (although 2014 had the largest abundance for all three dunes, over the monitoring period since 2008, each of the dunes has shown increases and decreases over time, with no discernible pattern). In addition, we think that the three dune systems are close enough in proximity to each other that given Eureka Valley evening-primrose’s abundant seed production in favorable years, migration of propagules from areas of higher concentration to areas of lower concentration likely mitigates for the increased vulnerability of the populations at Marble Canyon Dunes and Saline Spur Dunes as compared to the Main Dunes (Pavlik and Barbour 1985, pp. 24–53; and see discussion on seed dispersal and metapopulations in Cain *et al.* 2000, p. 1,220).

Based on our evaluation of the factors that cause stress to Eureka Valley evening-primrose at the three

populations where it occurs, the factors that may cause stress are neither sufficiently concentrated nor of sufficient magnitude to indicate that the species is in danger of extinction, or likely to become so within the foreseeable future, at any of the areas that support populations of the species. Therefore, no portion of Eureka Valley evening-primrose's range warrants a detailed SPR analysis.

#### Eureka Dune Grass—Significant Portion of Its Range Analyses

Because we found that Eureka dune grass is likely to become in danger of extinction in the foreseeable future throughout all of its range, per our Service's Significant Portion of its Range (SPR) Policy (79 FR 37578, July 1, 2014), no portion of its range can be significant for purposes of the definitions of endangered species and threatened species. We therefore do not need to conduct an analysis of whether there is any significant portion of its range where the species is in danger of extinction or likely to become so in the foreseeable future.

While we conclude an SPR analysis is not necessary, we note that, similar to Eureka Valley evening primrose, the type of dune system and extent of sandy dune habitat could influence the extent to which factors continuing to affect the species could cause stress to Eureka dune grass. However, as noted above, all three populations of dune grass benefit from management by the National Park Service that has eliminated or substantially reduced the impacts associated with OHV and other recreational activities, removing the imminent threat of habitat destruction or modification. Similar to Eureka Valley evening-primrose, the available data do not indicate a higher level of stress at any of the populations/dunes as compared to the others and the remaining stressors are likely affecting all three populations similarly such that none are likely to have a different status or be at greater risk.

Therefore, we conclude the species is a threatened species because of its status throughout all of its range.

#### *Summary of the Determination for Eureka Valley Evening-Primrose*

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by Eureka Valley evening-primrose. After review and analysis of the information regarding stressors as related to the five statutory factors, we find that the ongoing stressors are not of sufficient imminence, intensity, or magnitude to

indicate that this species is presently in danger of extinction throughout all or a significant portion of its range. Additionally, no threats exist currently nor are any potential stressors expected to rise to the level that would likely cause the species to become in danger of extinction in the foreseeable future throughout all or a significant portion of its range. Because the species is neither in danger of extinction now nor likely to become so in the foreseeable future throughout all or any significant portion of its range, the species does not meet the definition of an endangered species or threatened species. As a consequence of this determination, we find that the Eureka Valley evening-primrose no longer requires the protection of the Act, and we are removing Eureka Valley evening-primrose from the Federal List of Endangered and Threatened Plants.

#### *Summary of the Determination for Eureka Dune Grass*

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by Eureka dune grass. After review and analysis of the information regarding stressors as related to the five statutory factors, we find that the ongoing stressors are no longer of sufficient imminence, intensity, or magnitude to indicate that this species is presently in danger of extinction throughout all or a significant portion of its range. However, we find that the stressors acting upon Eureka dune grass are of sufficient imminence, scope, or magnitude to indicate that they are continuing to result in impacts at either the population or rangewide scales, albeit to a lesser degree than at the time of listing, and we find that Eureka dune grass meets the statutory definition of a threatened species (*i.e.*, likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range). As a consequence of this determination, we are reclassifying the species from an endangered species to a threatened species on the Federal List of Endangered and Threatened Plants.

#### **Effects of the Rule**

This final rule revises 50 CFR 17.11(h) by removing Eureka Valley evening-primrose from the List of Endangered and Threatened Plants. The prohibitions and conservation measures provided by the Act, particularly through sections 7 and 9, no longer apply to this species. Federal agencies are no longer required to consult with the Service under section 7 of the Act to ensure that any action they authorize, fund, or carry out

is not likely to jeopardize the continued existence of this species.

This rule also revises 50 CFR 17.11(h) to reclassify Eureka dune grass from an endangered species to a threatened species on the Federal List of Endangered and Threatened Plants. However, this reclassification does not significantly change the protection afforded to this species under the Act. Anyone removing and reducing to possession the species from areas under Federal jurisdiction, or otherwise engaging in activities prohibited under 50 CFR 17.71, is subject to a penalty under section 11 of the Act. Pursuant to section 7 of the Act, Federal agencies must ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of Eureka dune grass. Whenever a species is listed as a threatened species, the Act allows promulgation of special rules under section 4(d) to prohibit any act prohibited by section 9(a)(1) (for wildlife) or section 9(a)(2) (for plants) when it is deemed necessary and advisable to provide for the conservation of the species. The Service has promulgated a general rule providing standard protections for threatened species found under section 9 of the Act and Service regulations at 50 CFR 17.31 (for wildlife) and 17.71 (for plants). No species-specific special section 4(d) rule is proposed, or anticipated to be proposed, for Eureka dune grass, and the general prohibitions provided under 50 CFR 17.71 will apply. Recovery actions directed toward Eureka dune grass will continue to be implemented, as funding allows, and in coordination with the Park Service.

#### **Future Conservation Measures**

Section 4(g)(1) of the Act requires us, in cooperation with the States, to implement a system to monitor effectively for not less than 5 years the status of all species that have been recovered and delisted. The purpose of this requirement is to develop a program that detects the failure of any delisted species to sustain itself without the protective measures provided by the Act. If at any time during the monitoring period, data indicate that protective status under the Act should be reinstated, we can initiate listing procedures, including, if appropriate, emergency listing under section 4(b)(7) of the Act. The management practices of, and commitments by, the Park Service under existing laws, regulations, and policies should afford adequate protection to Eureka Valley evening-primrose into the foreseeable future upon delisting, as the entire known

range of this species occurs within Death Valley National Park.

#### Post-Delisting Monitoring Plan—Eureka Valley Evening-Primrose

We have worked cooperatively with the National Park Service, California Department of Fish and Wildlife, and other interested parties to develop a strategy to implement appropriate monitoring activities for Eureka Valley evening-primrose for a term of 10 years. The results of such monitoring, if not consistent with a recovered status for the species, could trigger additional management actions, trigger additional or extended monitoring, or trigger status reviews or listing actions. We anticipate coordinating with the Park Service, USGS, universities, and other interested entities that may be able to contribute funding or resources to assist the Park Service in their efforts to monitor this species, thereby providing the information necessary to determine whether protections under the Act should be reinstated. The post-delisting monitoring plan includes measures to: Monitor recreation traffic in Eureka Valley; maintain a Remote Automated Weather Station in Eureka Valley; and continue annual population monitoring. The annual population monitoring will be based on a subsampling methodology, first implemented in the spring of 2017, and will also include observations of any damage to Eureka Valley evening-primrose resulting from recreation or herbivory.

Given the mission of the Park Service and its past and current stewardship efforts, it is important to note that management for Eureka Valley evening-primrose has been effective to date, and it is reasonable to expect that management will continue to be effective for Eureka Valley evening-primrose and its habitat beyond a post-delisting monitoring period, the 20-year timeframe associated with the Wilderness and Backcountry Stewardship Plan (Park Service 2013b), and well into the future. In addition to post-delisting monitoring, the Park Service anticipates continuing to manage the Eureka Valley dunes, including such tasks as conducting ranger patrols, maintaining educational signs, and making contact with visitors within the range of the species (Cipra *in litt.* 2013). Additional monitoring or research (beyond post-delisting monitoring requirements) may occur in the future for Eureka Valley evening-primrose and other rare endemics within the Park based on congressional funding and resource levels (Cipra *in litt.* 2013). We will work closely with the Park Service to ensure post-delisting

monitoring is conducted and to ensure future management strategies are implemented (as warranted) to benefit Eureka Valley evening-primrose.

#### Summary of Comments and Recommendations

In the proposed rule published on February 27, 2014, in the **Federal Register** (79 FR 11053), we requested that all interested parties submit written comments on the proposal by April 28, 2014. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. We did not receive any requests for a public hearing. All substantive information provided during the comment period has either been incorporated directly into this final determination or is addressed below.

#### Peer Reviewer Comments

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinion from five knowledgeable individuals with scientific expertise that included familiarity with Eureka Valley evening-primrose, Eureka dune grass, their habitat, biological needs and potential threats, or principles of conservation biology. We received responses from all five of the peer reviewers.

We reviewed all comments received from the peer reviewers for substantive issues and new information regarding the proposed delisting of Eureka Valley evening-primrose and Eureka dune grass. The peer reviewers provided additional information, clarifications, and suggestions to improve the final rule. Peer reviewer comments are addressed in the following summary, and new information was incorporated into the final rule as appropriate.

For Eureka Valley evening-primrose, one peer reviewer cautioned that our proposed delisting was based on current and reasonably predicted conditions. A second peer reviewer expressed concern related to the potential of future rainfall decline and possible competition with Russian thistle. A third peer reviewer expressed concerns regarding potential climate change effects into the future. And a fourth peer reviewer suggested that we need additional information to support our conclusions on herbivory, competition with Russian thistle, and effects of climate change.

For Eureka dune grass, three peer reviewers expressed concerns based on potential effects related to climate change (changes in rainfall), infrequent germination and establishment, declining numbers of plants at two of

three populations, herbivory, and low genetic diversity. Another peer reviewer suggested that herbivory and competition with Russian thistle are potential threats to Eureka dune grass and that we needed to continue to monitor impacts of these stressors as well as the effects of climate change.

Overall, peer reviewers suggested that stressors to Eureka dune grass were more severe than our analysis indicated.

We have addressed specific peer review comments below in the following order: Comments of a general nature or applicable to both species, comments specific to Eureka Valley evening-primrose, and comments specific to Eureka dune grass.

#### Peer Reviewer Comments of a General Nature or Applicable to Both Species

(1) *Comment:* Three peer reviewers commented on competition with Russian thistle as a potential threat to Eureka Valley evening-primrose, Eureka dune grass, or both. Of these three, one expressed concern that Russian thistle was a potential threat to Eureka Valley evening-primrose. Additionally, one peer reviewer stated there was insufficient information to reach a conclusion regarding Eureka Valley evening-primrose and Russian thistle, and another suggested we further evaluate competition with Russian thistle as a potential stressor for both species. The latter peer reviewer provided information concerning the spread of Russian thistle over time on another desert dune system (in Petrified Forest National Park (PFPN), Arizona (Thomas *et al.* 2009)).

*Our Response:* Our analysis used the best available information in analyzing the potential threat posed to Eureka Valley evening-primrose and Eureka dune grass by competition with Russian thistle. In this final rule, we provided additional information regarding potential competition between the plants and Russian thistle (see “Competition With Russian Thistle” sections above for both Eureka Valley evening-primrose and Eureka dune grass for additional discussion). The results of one study (Chow and Klinger 2014, 2016) elucidated that, in a nursery setting, Eureka Valley evening-primrose was more competitive with itself than it was with Russian thistle, and Park staff observed differences in growing season phenology that would minimize competition in the field between the two species (Park Service 2015). In addition, we concluded that Russian thistle is not likely having a population-level impact on the Eureka Valley evening-primrose, which is a longer lived perennial species with a seedbank



and a means of going into dormancy and lasting through unfavorable years. By contrast, Russian thistle is an annual species with a short-lived seedbank. See the "Competition with Russian Thistle" section under Eureka Valley evening-primrose, above, for further discussion.

We are aware of no studies that have focused on potential competition between Russian thistle and Eureka dune grass, and there are only a few studies that have looked at competition between Russian thistle and other grass species. The USGS study (Scoles-Sciulla and DeFalco 2016) found that rooting depths for established Eureka dune grass individuals were deeper than those typical of Russian thistle, which would also serve to minimize competition. In addition, the dune grass also occupies a higher elevation compared to where Russian thistle occurs. Thus, at this time, we have determined that Russian thistle is not a threat to either species (see "Competition With Russian Thistle" sections, above, for both Eureka Valley evening-primrose and Eureka dune grass for additional discussion).

(2) *Comment:* One peer reviewer asserted we made a premature conclusion that Russian thistle was not a threat to Eureka Valley evening-primrose and Eureka dune grass, suggesting there may be an interaction between Russian thistle and lagomorph abundance. The peer reviewer provided additional information regarding lagomorph populations and Russian thistle that was not considered in the proposed rule (see, for instance, Daniel *et al.* 1993, and Fagerstone *et al.* 1980). The peer reviewer indicated that Russian thistle may have increased lagomorph abundance and thus an increased level of herbivory on both species. The peer reviewer recommended that we collect information on the demography of the black-tailed jackrabbits in relationship to Russian thistle infestations and levels of herbivory and the reproductive success of Eureka Valley evening-primrose and Eureka dune grass.

*Our Response:* In both the proposed rule and in response to the information provided by the peer reviewer, we considered the interaction between Russian thistle and lagomorph populations. Although we have no information regarding lagomorph populations on the dunes in Eureka Valley and how their abundance may be influenced by Russian thistle, we incorporated the new information provided by the peer reviewer into the final rule and discussed the combination of Russian thistle and lagomorphs as a potential threat to

Eureka Valley evening-primrose and Eureka dune grass (see "Competition With Russian Thistle" sections, above, for both Eureka Valley evening-primrose and Eureka dune grass for additional discussion). We have forwarded the recommendation to investigate demography of black-tailed jackrabbits in relationship to Russian thistle infestations and levels of herbivory on the two plants species to the Park Service.

(3) *Comment:* Two peer reviewers suggested we conduct additional analyses on the potential effects of climate change on Eureka Valley evening-primrose and Eureka dune grass and continue to monitor their populations to assess the effects of herbivory and competition with Russian thistle. A third peer reviewer suggested that we defer our determination until USGS completes its study of these two species.

*Our Response:* We appreciate the peer reviewers' recommendations regarding additional analyses and monitoring; however, we are unable at this time to defer our determination until a later date. Our analysis of the various stressors and our final agency action has been guided by the Act and its implementing regulations, considering the five listing factors and using the best available information, as per our policy on Information Standards under the ESA (59 FR 34271, July 1, 1994). Although we are not proceeding with a final delisting rule for Eureka dune grass at this time, we have shared the peer reviewer's recommendations for future monitoring with staff from Death Valley National Park for their consideration.

(4) *Comment:* One peer reviewer provided recommendations regarding future monitoring of both species. The peer reviewer recommended monitoring OHV activity, discussed how to improve upon the current monitoring strategy, and suggested an appropriate model to analyze data.

*Our Response:* We appreciate the peer reviewer's recommendations regarding future monitoring of Eureka Valley evening-primrose and Eureka dune grass, and the suggested model to use for analyzing the data. We agree that selecting the appropriate model for data analysis is important because even with data gathered over the last 5 years, it has been difficult to detect population trends. We shared the peer reviewer's recommendations for future monitoring with staff from Death Valley National Park for their consideration. The monitoring outlined in the post-delisting monitoring plan for the Eureka Valley evening-primrose will include notation of any observed impacts,

including OHV activity, to the species if they occur.

Peer Reviewer Comments Specific to Eureka Valley Evening-Primrose

(5) *Comment:* One peer reviewer expressed concerns about seed predation and herbivory impacts to Eureka Valley evening-primrose, stating that if herbivory impacts are high on an individual, the individual would not produce seed before succumbing to predation impacts, potentially resulting in a net loss of seed bank. Alternatively, another peer reviewer asserted that seed predation and herbivory were not significant threats to Eureka Valley evening-primrose, although no information was provided to support this view.

*Our Response:* Based on observations made by USGS researchers (Scoles-Sciulla and DeFalco 2013) and University of California-Davis (Chow and Klinger 2013a), there is information to indicate that herbivory, particularly by lagomorphs, is a stressor for Eureka Valley evening-primrose, at least in those portions of the dunes where such herbivory has been observed. In contrast to Eureka dune grass, Eureka Valley evening-primrose has two reproductive strategies that provide resilience in the face of herbivory: First, it produces large amounts of seed, so that even if the population sustains some impact from seed herbivory, it has a mechanism for replacing itself over time through the seedbank; second, individuals are able to regenerate vegetatively through the development of clonal rosettes. Although we acknowledge that any stress caused by loss of biomass due to herbivory could place additional stress on individual plants and limit their ability to expend resources on reproduction, the best available information indicates that the life-history strategies of this species serve to counteract the effects of herbivory such that herbivory does not significantly affect the viability of the species, or its ability to respond to favorable conditions for germination, growth, and reproduction when they occur.

(6) *Comment:* One peer reviewer stated that the effects of climate change would lead to increased drought stress, and that we did not provide evidence to support our conclusion that Eureka Valley evening-primrose possesses adaptations that would allow it to persist into the future. The peer reviewer also provided climate envelope forecasts for Eureka Valley evening-primrose, using species locality data, climate layers from the IPCC fifth

assessment report's Coupled Model Intercomparison Project Phase 5 (CMIP5), and Maxent. The peer reviewer claimed that the results of this information and modeling exercise indicate that the species is projected to disappear from the Main Dunes by approximately 2050. The peer reviewer also stated that Eureka Valley evening-primrose is a microendemic, which, by definition, is found only at one or a very small number of locations. Furthermore, the peer reviewer declared that when the climate changes at that one or few locations, species are at risk of falling outside of their climatic envelope, or are at risk of extinction.

*Our Response:* We appreciate the work the peer reviewer did to develop a climate envelope forecast for this species. With respect to adaptations, we discussed in the proposed delisting rule that the phenology of Eureka Valley evening-primrose makes it likely to have high germination, recruitment, and reproduction in El Niño years when winter rainfall is above average (see the sections on Species Description, Taxonomy, and Life History in the proposed rule). In the proposed rule to delist, we concluded that a shift in climatic norms will likely cause stress to Eureka Valley evening-primrose. Furthermore, we stated that the best available information indicated that the species is physiologically adapted to the specific hydrologic and soil conditions on the dunes, and the stress imposed by projected climate change effects currently and in the future is not likely to rise to the level that the long-term persistence of Eureka Valley evening-primrose would be impacted.

Based on the new and clarifying information we received, we conclude that of all the potential future stressors on Eureka Valley evening-primrose, a shift in climatic norms may be important in affecting its long-term persistence. We note that, as a short-lived perennial, the ability of this species to shift geographically over time with shifting climatic norms is greater than would be for a long-lived perennial plant species. However, because of the uncertainty regarding the magnitude and the imminence of such a shift, we are unable to determine the extent that this may become a stressor in the foreseeable future. Because climate change science is a rapidly evolving field, we updated our climate change discussion in this final rule to include information from more recent modeling efforts for the southwest region. As one of the measures in the post-delisting monitoring plan, the Park Service will continue to track seasonal rainfall from local weather stations and observe

annual patterns of correlation between amount of rainfall and expression of Eureka Valley evening-primrose.

(7) *Comment:* One peer reviewer stated that stochastic events were not a significant threat, although no information was provided or discussed to support this position. Two other peer reviewers discussed how the life history of Eureka Valley evening-primrose affects population persistence in response to stochastic events. Both of these peer reviewers agreed that the long-lived seed bank of Eureka Valley evening-primrose and its ability to form clones help to ensure the long-term viability of this species. However, one of these peer reviewers thought population persistence could be impacted by mass germination events and herbivores through a reduction of the seed bank.

*Our Response:* We agree that the ability of Eureka Valley evening-primrose to persist in the face of stochastic events (in addition to other potential stressors) is in part dependent on the life-history characteristics of the species (see the "Life History" sections on Eureka Valley evening-primrose above and in the proposed delisting rule). The copious seed production of individuals (and formation of seed bank), once they are established, works in favor of long-term persistence even in the face of stochastic events, as does the species' ability to establish many new individuals (mass establishment) when conditions are favorable. The best available information indicates that current and projected future impacts associated with stochastic events (with the exception of extreme weather events) are not likely to rise to the level that the long-term persistence of Eureka Valley evening-primrose would be impacted. The National Park Service will continue to monitor the status of Eureka Valley evening-primrose populations into the future (for 10 years) as a means of determining whether any potential stressors, including stochastic events, are impacting the species (see "Post-Delisting Monitoring Plan—*Oenothera californica* ssp. *eurekensis*," above).

#### Peer Reviewer Comments Specific to Eureka Dune Grass

(8) *Comment:* Two peer reviewers commented on seed predation and herbivory as potential threats to Eureka dune grass. One of these peer reviewers provided information on how herbivory could impact sensitive plant species by reducing their seed production. The other peer reviewer asserted that seed predation and herbivory were not significant threats to Eureka dune grass.

*Our Response:* Based on observations made by USGS researchers (Scoles-Sciulla and DeFalco 2013) and a researcher from the University of California-Davis (Chow 2012b), there is information to indicate that herbivory, particularly by lagomorphs, is affecting Eureka dune grass, at least in those portions of the dunes where such herbivory has been observed. Given that Eureka dune grass is already experiencing low to no reproduction, any additional loss of biomass due to herbivory will likely place additional stress on individual plants and limit their ability to expend resources on reproduction. However, based on the best available information at this time, we concluded that the observed impacts from herbivory, by themselves, are not causing population- or rangewide-level effects for the Eureka dune grass. We acknowledge that herbivory could be a concern for a species that has low recruitment and apparent declines, and recommend that observations on the extent of herbivory should continue to be made in the future.

(9) *Comment:* Two peer reviewers asserted that climate change is a threat to Eureka dune grass. One of these peer reviewers indicated that climate change would lead to increased drought stress and stated that we did not provide evidence to support our conclusion that Eureka dune grass possesses adaptations that allow this species to persist into the future. Both peer reviewers also stated that climate change may cause reductions in rainfall or changes in rainfall patterns, which could affect germination and establishment of Eureka dune grass. For instance, one peer reviewer provided summer precipitation data showing that over the last 15 years, there were fewer years of above-average summer rainfall (required for the germination of Eureka dune grass) as compared to the previous 15-year period, and thus indicating that current climatic weather patterns are not conducive to the germination events needed for long-term persistence of the species.

*Our Response:* We appreciate the analysis of summer precipitation rainfall data provided by one of the peer reviewers. Previous research also indicates that summer precipitation is likely critical for the germination of Eureka dune grass (Pavlik and Barbour 1986, pp. 11, 47–59). Although the correlation shown by the new precipitation data provided by the peer reviewer does not prove causation, given what we know about the life-history characteristics of this species, we agree it is reasonable to assume the lack of summer precipitation is one of

the parameters affecting the ability of Eureka dune grass to experience germination events. Since February 2014 when our proposed rule published, Park staff were able to observe several patches of germination of Eureka dune grass, particularly on the west side of Saline Spur Dunes and the northwest end of Main Dunes in the fall of 2015. Park staff were unable to monitor these germinants over time, and thus, we have no information on whether these germinants may have successfully recruited into the population.

In the proposed rule to delist, we concluded that a shift in climatic norms will likely cause stress to Eureka dune grass (79 FR 11067–11069, February 27, 2014). Furthermore, we stated that the best available information currently indicated that this species was physiologically adapted to the specific hydrologic and soil conditions on the dunes, and the stress imposed by projected climate change effects currently and in the future is not likely to rise to the level that the long-term persistence of Eureka dune grass would be impacted.

Based on the new and clarifying information we received, it is possible that of all the potential future stressors on Eureka dune grass, a shift in climatic norms may be important in affecting its long-term persistence. We note that, as a long-lived perennial, the ability of this species to shift geographically over time with shifting climatic norms is less than would be for a short-lived perennial or annual plant species. However, because of the uncertainty regarding the magnitude and the imminence of such a shift, we are unable to determine the extent that this may become a stressor in the foreseeable future. Given the modeled predictions of a continued changing climate in this region, this potential stressor should continue to be monitored and evaluated in the future. However, we did conclude that climate-related impacts may be acting in concert with other stressors to contribute to the decrease in population numbers and distribution for Eureka dune grass. We also note that continuing to track seasonal and annual rainfall from local weather stations will be a part of the ongoing population monitoring for this species.

(10) *Comment:* Two peer reviewers suggested that the monitoring data collected by the Park Service, specifically distribution data and repeat photopoints, indicated that Eureka dune grass has experienced a decline throughout its range. One peer reviewer thought we should extrapolate the results from repeat transects and

photopoints rather than assume Eureka dune grass has experienced declines only in these specific areas. This peer reviewer also noted that Eureka dune grass has a small range despite our assertion that it continues to occupy almost the same geographic area it did at the time of listing. Additionally, the peer reviewer stated that Eureka dune grass has very low population numbers, and few, if any, plants have been recruited into the population since 1999.

*Our Response:* Recent survey information from the Park Service indicates that, although the rangewide distribution of Eureka dune grass continues to be similar over the years when observed at a large scale (e.g., it continues to occur scattered across the entirety of all three dunes), the large-scale monitoring (1-ha grid system) has not been as effective in detecting changes in abundance in smaller, localized areas. Such changes are more readily observed with smaller-scale monitoring techniques, such as the photopoint monitoring and the mapping of individual clumps over time. The declines in the number of Eureka dune grass clumps are shown in repeat photopoints at both Eureka and Marble Canyon Dunes.

As of 2017, there are two additional years of Park Service data from the rangewide distribution monitoring grid that show continuing declines at the Main Dunes and Marble Canyon Dunes. This distribution data, combined with recent photopoint survey information from the Park corroborates that the declines documented at both Eureka and Marble Canyon Dunes are likely representative of rangewide impacts. Because the Main Dunes support over half the Eureka dune grass, the decline in abundance and density on that dune is relatively more important for the species.

(11) *Comment:* One peer reviewer stated that there was a low degree of evolutionary potential within and between populations of Eureka dune grass based on the available genetic information (low levels of allelic variation relative to other grass taxa).

*Our Response:* We acknowledge the low levels of allelic variation found, as per Bell (2013). However, Eureka dune grass has persisted for a long evolutionary time. While it is possible that low allelic variation may contribute to the demographic characteristics, we do not know to what extent that may affect the species' fitness.

(12) *Comment:* One peer reviewer stated that stochastic events (for instance, a spring wind storm that would desiccate new germinants) are a

potential threat to Eureka dune grass. The peer reviewer indicated that the ability of the Eureka dune grass population to persist was dependent upon mass establishment events from seed and the longevity of adult plants. Furthermore, based on recent climate analyses, the peer reviewer asserted that the frequency of conditions thought to be suitable for mass establishment events is apparently decreasing, noting that there have not been any mass establishment events since 1984–1985.

*Our Response:* We agree with the peer reviewer that the ability of Eureka dune grass to persist in the face of stochastic events (in addition to other stressors) is in part dependent on the life-history characteristics of the species. The longevity of individuals, once they are established, works in favor of long-term persistence even in the face of stochastic events, as does its ability to establish many new individuals (mass establishment) when conditions are favorable. Future monitoring of the patches of germination observed by Park staff in fall 2015 will be useful to add to our knowledge of recruitment potential that follows from a germination event.

#### *Comments From the State*

Section 4(b)(5)(A)(ii) of the Act states that the Secretary must give actual notice of a proposed regulation under section 4(a) to the State agency in each State in which the species is believed to occur, and invite the comments of such agency. Section 4(i) of the Act states, “the Secretary shall submit to the State agency a written justification for his failure to adopt regulations consistent with the agency’s comments or petition.” The Service submitted the proposed regulation to the State of California but received no formal comments from the State regarding the proposal.

#### *Public Comments*

We received five letters from the public that provided comments on the proposed rule. All five commenters stated that Eureka dune grass did not warrant delisting. Four of these commenters maintained that Eureka Valley evening-primrose did not warrant delisting, and cited continuing concerns with unauthorized OHV use and competition with nonnative species. The fifth suggested the species may warrant either downlisting or delisting, stating that the most recent data indicated a general increasing trend, albeit episodic, despite significant herbivory.

*Public Comments of a General Nature or Applicable to Both Species*

(13) *Comment:* One commenter indicated that the Park Service's monitoring program has demonstrated that threats still exist for Eureka Valley evening-primrose and Eureka dune grass. The commenter asserted that we were ignoring threats information and proposing to delist the Eureka Valley evening-primrose and Eureka dune grass because they were, at one time, considered "Spotlight Species."

*Our Response:* In 2008, as part of a nationwide initiative, we identified Eureka Valley evening-primrose and Eureka dune grass as "Spotlight Species"; this initiative was intended to set performance targets and identify actions to achieve those targets for the spotlighted species. We developed 5-year Spotlight Species Action Plans for each species and identified specific goals, measures, and actions; the goal was to delist or downlist the species. The 2010 Spotlight Species Action Plans themselves did not influence our decision when evaluating the status of the species. As with all listed species, we conduct a thorough review of the best available scientific and commercial information and determine whether the threats to the species have been eliminated or reduced to the point that the species no longer meets the definition of an endangered species or a threatened species under the Act.

(14) *Comment:* Three commenters suggested that there is inadequate information to conclude that Russian thistle is not competing with Eureka Valley evening-primrose and Eureka dune grass given the limited water and nutrients available; they suggested further study is warranted to determine the potential impact. One of these commenters cited a study (Cannon *et al.* 1995) that found Russian thistle impacted grassland succession.

*Our Response:* Please refer to *Comment and Response (1)* above.

(15) *Comment:* There were numerous comments regarding the potential impacts of OHV use on the two plants. For instance, three commenters asserted that impacts from unauthorized recreational activities, specifically OHV use, continue to represent a threat to Eureka Valley evening-primrose and Eureka dune grass. One of these commenters and a fourth commenter suggested there is a need for additional interpretive and directional signage, as well as ongoing monitoring and enforcement. Further, one of these commenters stated that unauthorized OHV activity may increase on and around the Eureka Dunes due to

decreasing resources for Park Service law enforcement. One commenter asserted that we should not delist Eureka Valley evening-primrose or Eureka dune grass because there remains a low level of unauthorized OHV use in these species' habitat, and the Eureka Valley evening-primrose and Eureka dune grass populations have failed to respond positively to current management.

*Our Response:* In the proposed rule and in this final rule, we acknowledge that unauthorized OHV use continues; however, we conclude that, based on the best available information, this unauthorized activity occurs sporadically, and does not appear to be having a population-level impact on either species. We disagree that Eureka Valley evening-primrose has not responded positively to BLM's and the Park Service's management of the area. Most notably, both agencies have taken steps to protect Eureka Valley from unauthorized recreational activities, especially OHV use. Prior to these efforts, unrestricted OHV use occurred throughout Eureka Valley, concentrated on and around the Main Dunes. Additionally, the monitoring program developed by the Park Service has demonstrated that, though the Eureka Valley evening-primrose population fluctuates in above-ground expression, it continues to be distributed throughout its known range. For example, in 2014, the Park Service documented the largest expression of Eureka Valley evening-primrose ever observed.

Although monitoring the status of Eureka dune grass has been more challenging over time, the Park Service has, since 2007, documented a larger geographic distribution for the species than was known previously. Monitoring also indicates that, while the density of Eureka dune grass has declined across much of its range (including the Main Dunes that harbor the majority of the species' range), there are certain small areas where density has increased. Overall, the current level of unauthorized OHV use is sporadic and does not occur across the range of the species, and there does not appear to be any correlation between OHV recreation and the status of the species. In addition, we consider the Park Service's current efforts adequate to monitor and enforce closures in the Eureka Valley, and we anticipate that these efforts will continue into the future. Therefore, we conclude it is likely that there are other factors that are affecting the status of Eureka dune grass, rather than management efforts on behalf of the Park Service.

(16) *Comment:* One commenter stated that the recovery of Eureka Valley evening-primrose and Eureka dune grass depends on the long-term commitment of the Park Service to conduct monitoring and management, including enforcement of closures to OHV use and other recreational impacts, management of Russian thistle, continued population monitoring, and additional research. Another commenter suggested that it was premature to delist Eureka dune grass until USGS completed their study. The second commenter noted that despite Eureka dune grass occurring within a federally designated wilderness, the population continues to decline, and additional research is necessary to determine the reasons for this decline.

*Our Response:* The Park Service has demonstrated its commitment to continue monitoring and protecting the populations of Eureka Valley evening-primrose and Eureka dune grass, and has worked with us to develop a post-delisting monitoring plan for Eureka Valley evening-primrose. Additionally, under the Act, we are tasked with using the best available information, and at this time, while the information generated by the USGS study may be useful, we cannot delay our determination until this or additional studies are completed.

(17) *Comment:* One commenter stated that we should discuss how the removal of either or both species from the Act may impact the availability and allocation of funding for enforcement of the Park Service regulations and patrols of Eureka Valley under Factor D. The commenter stated that the designation under the Act provides a level of protection by mandating that the Park Service maintain monitoring, patrols, and enforce existing regulations, and also protect the ecosystem.

*Our Response:* Under the Act, we determine whether a species is an endangered species or threatened species because of any of five listing factors. We evaluate the impacts of current and future stressors acting on the species and habitat where it occurs and any conservation measures or regulatory mechanisms that may offset those impacts. The Eureka Valley evening-primrose and Eureka dune grass occur entirely within Eureka Valley, which is managed by the Park Service. We concluded in the proposed rule and reaffirm here that the Park Service's laws, policies, and plans will continue to protect the habitat of Eureka Valley evening-primrose and Eureka dune grass, and effectively minimize those stressors described under Factors A, B, and E (specifically in relation to OHV

activities). Additionally, the Park Service plans to continue monitoring both species.

(18) *Comment:* One commenter indicated that coyote poaching, specifically at the Ash Meadows National Wildlife Refuge, was a potential factor affecting lagomorph (*Lepus* and *Sylvilagus*) populations and leading to increased herbivory of rare plants. However, the commenter noted that because Eureka Valley is remote, poaching may not be a factor that affects levels of herbivory experienced by Eureka Valley evening-primrose or Eureka dune grass.

*Our Response:* We acknowledge that a reduction in the number of predators such as coyotes could lead to an increase in lagomorph numbers, and we appreciate the commenter submitting this information. However, our evaluation of the best available information at this time does not indicate that coyote poaching has occurred or is occurring in Eureka Valley.

#### Public Comments Specific to Eureka Valley Evening-Primrose

(19) *Comment:* One commenter asserted that the evidence provided in the proposed delisting rule supported downlisting of Eureka Valley evening-primrose. However, the commenter expressed concern that herbivory and unauthorized recreational activities still pose a threat to important population sites, such as the occurrence located to the east of the Main Dunes.

*Our Response:* In the proposed rule, we concluded that herbivory and unauthorized recreational activities, specifically OHV use, were not threats to the Eureka Valley evening-primrose. While we acknowledge that unauthorized recreational activities do occur on a sporadic basis, we concluded that these activities were limited in extent. We also received new information from the Park Service in 2014 indicating there was another mass germination of Eureka Valley evening-primrose in the sand flats to the east of the Main Dunes, including observations of the species in locations that it previously had not been documented (Park Service 2014). This new information indicates that Eureka Valley evening-primrose maintains a large seedbank, and when conditions are favorable, it can result in mass germination events. While we do not know how many of these seedlings will be recruited into the population, if even a portion of the seedlings survive to become adults, this will help to maintain the viability of this population. Finally, we acknowledge

that herbivory could have significant impacts on individuals in certain years when the Eureka Valley evening-primrose population is small. However, we anticipate that the life-history characteristics of this species (*e.g.*, abundant and precocious seed production, production of clones to spread risk, a portion of the population remains dormant) help to maintain its viability despite years when herbivory is high.

#### Public Comments Specific to Eureka Dune Grass

(20) *Comment:* Four commenters questioned why we proposed to delist Eureka dune grass given the Park Service's information indicating portions of the populations at Main and Marble Canyon Dunes have declined. Some of these commenters acknowledged that recent surveys (2008 to 2013) indicated populations at Marble Canyon and Saline Spur Dunes were stable. However, all four commenters also noted that none of the populations showed a statistically significant net increase in population size over the same time period, and that long-term data (*i.e.*, repeat photopoints) demonstrated local extirpations have occurred at Main and Marble Canyon Dunes. Two commenters argued that monitoring by the Park Service indicates that Eureka dune grass continues to decline at the Main Dunes, which contains the largest segment of the population. Finally, one commenter indicated that we did not provide an explanation why the declines we described were not significant. This commenter also stated that we did not explain why large reproductive plants had died or why they have not been replaced by seedlings and young plants.

*Our Response:* Please refer to *Comment and Response (10)* above.

(21) *Comment:* One commenter asserted that the low density of Eureka dune grass plants is due to several factors, such as water and nutrient availability, and inability of individuals to become established on the steepest slopes. The commenter also highlighted specifics about the Main Dunes that we should take into consideration, *i.e.*, that the Main Dunes are much larger than Marble Canyon and Saline Spur Dunes, and that the majority of Eureka dune grass individuals occur on the Main Dunes.

*Our Response:* We added language into this final rule to indicate several factors that may limit the distribution of Eureka dune grass across its range. We provided population estimates for all three dunes in the *Abundance Surveys and Population Estimates* section,

above, for Eureka dune grass. The size of the three dunes is also described in "Environmental Setting" section of the Background Information document (Service 2014, pp. 4–5), and we noted that the Main Dunes was the largest with the largest population of Eureka dune grass. Overall, following our evaluation of comments and new information received since the time of the proposal, we conclude that a combination of factors are likely contributing to Eureka dune grass lowered abundance and density. Thus, we have determined that although the species is not currently in danger of extinction (endangered), it may become so in the foreseeable future (threatened). See the *Summary of the Determination for Eureka Dune Grass* section, above.

(22) *Comment:* Two commenters questioned our determination that the effects of climate change were not a threat now or in the future to Eureka dune grass. The first commenter indicated that prolonged drought could impact the Eureka dune grass population due to the loss of adult plants, and the failure of seeds to become established. The second commenter argued that, while the exact impacts to Eureka dune grass are unclear, scientific models indicate that the Mojave Desert will become hotter and drier. Additionally, this commenter argued that these changing conditions may exceed the physiological tolerance of the species, and lead to decreases in plant density and a range contraction.

*Our Response:* Please refer to *Comment and Response (9)*, above.

(23) *Comment:* One commenter argued that the best available information indicates Eureka dune grass has low genetic diversity, which increases its vulnerability to changes in the environment and increases its risk of extinction. The commenter also stated that low genetic diversity may be a factor in the low seed production and infrequent establishment of Eureka dune grass.

*Our Response:* Please refer to *Comment and Response (11)*, above.

(24) *Comment:* One commenter referenced recent information collected by USGS on the amount of herbivory occurring on Eureka dune grass. The commenter acknowledged that the amount of herbivory experienced by plants varies with the number of herbivores; however, the commenter indicated that a combination of high levels of herbivory (as documented by USGS) and Eureka dune grass' life-history characteristics (*e.g.*, low annual seed production, no vegetative reproduction, and infrequent germination and establishment of

seedlings) could affect the long-term persistence and recovery of the population.

*Our Response:* Please refer to *Comment and Response (8)* above.

(25) *Comment:* Three commenters claimed that Recovery Plan objectives 1 and 2 (Service 1982, pp. 26–31) have not been met for Eureka dune grass, and thus, the species should not be delisted. These commenters argued that we failed to consider evidence that indicates the population of Eureka dune grass continues to decline at several locations throughout its range, especially at the most dense occurrence at the northern end of the Main Dunes. One of these commenters indicated that despite the reduction in unauthorized OHV activity, the Eureka dune grass population continues to decline. This commenter suggested the continued population decline may be the result of impacts from past OHV activity, or due to other factors. Finally, two additional commenters suggested that we postpone making a decision until USGS completes its study.

*Our Response:* For our discussion of the Recovery Plan Objectives, please refer to the Recovery and Recovery Plan Implementation section, above. While we agree the information generated by the USGS study may be useful, we cannot delay our determination until this study is completed. We note that any additional information forthcoming

from current studies can be incorporated into monitoring efforts that will be continued by the Park Service.

**Required Determinations**

*National Environmental Policy Act (42 U.S.C. 4321 et seq.)*

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act, need not be prepared in connection with listing, delisting, or reclassification of a species as an endangered or threatened species under the Endangered Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

**References Cited**

A complete list of all references cited in this rulemaking is available on the internet at <http://www.regulations.gov> under Docket No. FWS–R8–ES–2013–0131 or upon request from the Deputy Field Supervisor, Carlsbad Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

**Authors**

The primary authors of this final rule are staff members of the Pacific Southwest Regional Office in Sacramento, California, in coordination

with the Ventura Fish and Wildlife Office in Ventura, California, and the Carlsbad Fish and Wildlife Office in Carlsbad, California.

**List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

**Regulation Promulgation**

Accordingly, we hereby amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

**PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS**

■ 1. The authority citation for part 17 continues to read as follows:

**Authority:** 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

■ 2. Amend § 17.12(h), the List of Endangered and Threatened Plants, under FLOWERING PLANTS, by:

- a. Removing the entry for “*Oenothera avita* ssp. *eurekensis*”; and
- b. Revising the entry for “*Swallenia alexandrae*” to read as set forth below.

**§ 17.12 Endangered and threatened plants.**

\* \* \* \* \*  
(h) \* \* \*

Scientific name	Common name	Where listed	Status	Listing citations and applicable rules
FLOWERING PLANTS				
* * * * *	* * * * *	* * * * *	* * * * *	* * * * *
<i>Swallenia alexandrae</i> .....	Eureka dune grass, Eureka Valley dune grass, or Eureka dunegrass.	Wherever found .....	T	82 FR [ <b>Federal Register</b> page where the document begins], February 27, 2018.
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Dated: December 3, 2017.  
**James W. Kurth**  
 Deputy Director for U.S. Fish and Wildlife Service Exercising the Authority of the Director for U.S. Fish and Wildlife Service.  
 [FR Doc. 2018–03769 Filed 2–26–18; 8:45 am]  
**BILLING CODE 4333–15–P**