

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****50 CFR Part 17**

[Docket No. FWS–R6–ES–2021–0134; FF09E21000 FXES1111090FEDR 245]

RIN 1018–BE98

Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for the Silverspot Butterfly**AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine threatened species status under the Endangered Species Act of 1973 (Act), as amended, for a subspecies of butterfly (*Speyeria nokomis nokomis*), a silverspot butterfly from Colorado, New Mexico, and Utah. We also finalize a rule issued under the authority of section 4(d) of the Act that provides measures that are necessary and advisable to provide for the conservation of this subspecies. We have determined that the designation of critical habitat is not prudent.

DATES: This rule is effective March 18, 2024.

ADDRESSES: This final rule is available on the internet at <https://www.regulations.gov> at Docket No. FWS–R6–ES–2021–0134. Comments and materials we received, as well as supporting documentation we used in preparing this rule, are available for public inspection at <https://www.regulations.gov> at Docket No. FWS–R6–ES–2021–0134.

FOR FURTHER INFORMATION CONTACT: Nathan Darnall, Western Colorado Supervisor, U.S. Fish and Wildlife Service, Colorado Ecological Services Field Office, 445 West Gunnison Avenue, Grand Junction, CO 81501; telephone 970–628–7181. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:**Executive Summary**

Why we need to publish a rule. Under the Act, a species warrants listing if it meets the definition of an endangered

species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become endangered within the foreseeable future throughout all or a significant portion of its range). If we determine that a species warrants listing, we must list the species promptly and designate the species' critical habitat to the maximum extent prudent and determinable. We have determined that the silverspot butterfly meets the Act's definition of a threatened species; therefore, we are listing it as such. Listing a species as an endangered or threatened species can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process (5 U.S.C. 551 *et seq.*). We have determined that the designation of critical habitat is not prudent due to the threat of collection.

What this document does. This rule finalizes the listing of the silverspot butterfly as a threatened species with a rule issued under the authority of section 4(d) of the Act (a "4(d) rule").

The basis for our action. Under the Act, we may determine that a species is an endangered 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 have determined that the silverspot butterfly is threatened due to the individual and cumulative effects of habitat loss and fragmentation (Factor A), incompatible livestock grazing (Factor A), human-caused hydrologic alteration (Factor A), genetic isolation (Factor E), and climate change (Factor E).

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary), to the maximum extent prudent and determinable, to designate critical habitat concurrent with listing. We have determined that designating critical habitat is not prudent for the silverspot butterfly at this time, for the reasons discussed below in section III. Critical Habitat.

Previous Federal Actions

Please refer to the May 4, 2022, proposed rule (87 FR 26319) to list the silverspot butterfly for a detailed description of previous Federal actions concerning this subspecies.

Peer Review

A species status assessment (SSA) team prepared an SSA report for the silverspot butterfly (hereafter, silverspot). The SSA team was composed of Service biologists, in consultation with other species experts. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of the subspecies, including the impacts of past, present, and future factors (both negative and beneficial) affecting the subspecies.

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we solicited independent scientific review of the information contained in the silverspot SSA report. We sent the SSA report to four appropriate and independent peer reviewers and received four responses. Results of this structured peer review process can be found at <https://www.regulations.gov> at Docket No. FWS–R6–ES–2021–0134. We incorporated the results of these reviews, as appropriate, into the SSA report, which is the foundation for the May 4, 2022, proposed rule and this final rule. A summary of the peer review comments and our responses can be found in the "Summary of Public Comments and Recommendations" below.

Summary of Changes From the Proposed Rule

After consideration of the comments we received during the public comment period on the May 4, 2022, proposed rule (87 FR 26319), we made changes to this final rule. In addition to minor editorial changes, we updated information in this final rule and the SSA report (Service 2023, entire) based on comments and additional information provided, as follows:

First, we incorporated new survey information from 2021 and 2022 for six populations (Garfield, Mesa/Grand, Montrose/San Juan, Ouray, San Miguel/Mora, and Taos) into the SSA report and our evaluation of current and future condition in this final rule. Recent surveys for these populations provided updated information on the number of colonies and habitat acreage. There are now 21 known silverspot colonies grouped into 10 populations, an increase from the 19 colonies reported in the May 4, 2022, proposed rule (the number of silverspot populations has not changed). There are now known to be approximately 714 habitat acres (289

hectares (ha)) within the 10 populations, a slight increase from the 710.5 acres (287.5 ha) reported in the May 4, 2022, proposed rule. This information resulted in changes to resiliency scores identified in tables 1 and 2 of the May 4, 2022, proposed rule, and the current and future resiliency condition categories for three (Garfield, Mesa/Grand, and San Miguel/Mora) of the six populations with new survey information (see Service 2023, pp. 8, 39–48). These changes include both increases and decreases in current and future resiliency scores, depending on the population (see tables 1 and 2, below). This information improves our understanding of the silverspot's status.

Second, we incorporated into the SSA report a change to the categories that we used to evaluate the current status of silverspot populations (extant, likely extant, intermittent, unknown, likely extirpated, extirpated) as shown in the resiliency tables (see Service 2023, pp. 8, 40–47). We no longer consider there to be a relevant distinction between the “intermittent” and “unknown” status categories given the similar levels of uncertainty ascribed to their status. Therefore, we merged the two categories into the “unknown” category, and, as a result, we changed the status of the Garfield and LaPlata populations from intermittent to unknown. This change simplifies and better delineates the status categories for the subspecies and does not affect the scoring of current and future condition.

Third, we updated the range map in the SSA report and removed higher elevation areas. Now, the range map only identifies areas within the elevation range of the silverspot (Service 2023, pp. 16, 18).

Finally, we made the following changes to the preamble discussion and/or regulatory text of the 4(d) rule:

(1) We added an exception for maintenance and operation of existing utility infrastructure within existing rights-of-way (for more information, see “Provisions of the 4(d) Rule” below); and

(2) We made editorial corrections to the wording of certain exceptions in the regulatory text of the 4(d) rule to increase clarity and to better align the language with existing regulations and law. These corrections include revisions such as specifying that a machine blade's height be measured from “above the ground” and that certain excepted activities can occur “year-round.” These editorial corrections do not alter the original meaning of these exceptions.

Summary of Public Comments and Recommendations

In the proposed rule published on May 4, 2022 (87 FR 26319), we requested that all interested parties submit written comments on the proposal by July 5, 2022. We also contacted appropriate Federal and State agencies, Tribes, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. On May 3, 2022, we published a press release on our website inviting the public to comment. On May 4, 2022, a newspaper notice inviting general public comment was also published in the Grand Junction Daily Sentinel. We did not receive any requests for a public hearing. All substantive information we received during the comment period has either been incorporated directly into this final determination, has been used to clarify the information in the SSA report, or is addressed below.

Peer Reviewer Comments

As discussed in “Peer Review” above, we received comments from four peer reviewers on the draft SSA report. We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding the contents of the SSA report. Peer reviewer comments are addressed in the following summary. As discussed above, because we conducted this peer review prior to the publication of our proposed rule, we had already incorporated all applicable peer review comments into version 1.0 of the SSA report, which was the foundation for the proposed rule and this final rule. The four peer reviewers provided additional information, clarifications, and recommendations that we have either incorporated into the SSA report or address below. We received a few comments on recovery efforts for the silverspot. We note these for future reference in recovery planning but do not respond here because they are outside the scope of this rulemaking.

(1) *Comment:* One reviewer recommended including more discussion in the SSA report about the results of a recent genetic study (Cong et al. 2019, entire) regarding the timing of introgression (also known as introgressive hybridization, the transfer of genetic material between species following hybridization by repeated backcrossing of an interspecific hybrid with one of its parent species) between the silverspot and other species or subspecies, and how populations became introgressed. The reviewer also recommended that we evaluate

introgression as a future threat to the silverspot if this would result in the loss of the subspecies' conservation value.

Our response: We did not add more discussion on this topic to the SSA report because the document already has a summary of the genetic variation and introgression results from the recent genetic study referenced by the reviewer (Cong et al. 2019, entire). In the SSA report, we refer to introgression as hybridization that resulted in hybrid segregates or intermediate hybrids with various levels of genetic mixing between *Speyeria nokomis nokomis*, *S. n. apacheana*, and *S. n. nitocris* (Service 2023, pp. 13–14). We also stated that various levels of hybridization occurred historically between the silverspot and other subspecies, but that hybridization declined under warmer, drier climate conditions since the last ice age as the subspecies became isolated from each other. There is evidence of isolation between the silverspot and the other subspecies or hybrids that has persisted for centuries (over the last few hundred years or longer). We also identify genetic isolation as a threat to the silverspot based on the distances between known populations (see *Factors Influencing Subspecies Viability*, below). Given the low likelihood of current or future hybridization, we do not consider hybridization to be a threat to the silverspot.

(2) *Comment:* One reviewer stated their concern with the current distribution description in the SSA report and the treatment of known sites as somewhat fixed in both space and time. The reviewer felt that the presence of undiscovered colonies within each population could have important consequences for colony persistence by augmenting known populations both demographically and genetically, thereby increasing resilience. The reviewer noted there is documentation of this in one Great Basin *Speyeria n. apacheana* colony (Britten et al. 2003, entire). The reviewer suggested that some discussion of this possibility and a description of systematic efforts that have been made to find additional colonies within the subspecies' range (as shown on the SSA report's range map) should be included.

Our response: We acknowledge that species can shift their ranges over space and time. The range map in the SSA report (Service 2023, p. 18) is based on the best available information at the time it was created, and we will update the SSA report and range map as new information becomes available for the subspecies. We also characterize the importance of colonies for population

persistence, demographics, and genetics in the SSA report (Service 2023, pp. 17, 23–26, 35–36). The demographic and genetic benefits of connectivity between known colonies would apply to undiscovered colonies, and we added this statement to the SSA report (Service 2023, p. 35). We are not able to disclose details or results of systematic survey efforts and colony locations due to the threat of collection; however, we have surveyed, and will continue to survey, historical locations and potential habitat to determine the presence or absence of the silverspot.

(3) *Comment:* One reviewer agreed with the definition of the silverspot's occupied habitat, the individual site descriptions presented in the SSA report, and how current and past habitat patches have changed through time. However, the reviewer noted that the SSA report does not include implications of the long-term dynamics of habitat quality and dispersion. The reviewer thought a more in-depth analysis of the dynamic nature of the butterfly's habitat and population fluctuations would be helpful to the long-term persistence of the subspecies even if it is based on educated opinion. The reviewer stated that there is enough information to at least speculate on the potential for the silverspot to follow its habitat, or find newly formed habitat, as climate change and other perturbations alter the current distribution of its habitat. The reviewer wondered if there are places within the current distribution where butterfly colonies could move upslope as the current habitat becomes unsuitable due to warming. A second reviewer stated that climate change could cause small elevation shifts in silverspot colonies.

Our response: Currently, we do not have sufficient information to make a reliable or well-informed projection of the silverspot's ability to find newly formed habitat or occupy higher elevation habitat if climate change or habitat loss and fragmentation alter its current distribution. We lack detailed information on the locations of bog violet populations across the range and in higher elevations. One species expert stated that the silverspot was not likely to move upslope in a warmer/drier climate unless habitat is continuous and the bog violet already occurs there (Ellis 2020b, pers. comm.; Service 2023, p. 50). We will develop a recovery plan and recovery actions for the silverspot to improve our understanding of the silverspot and perhaps its ability to occupy higher elevation habitats.

(4) *Comment:* One reviewer recommended referring to a silverspot population as a metapopulation because

colonies connected by demographic and genetic exchange are better described as metapopulations.

Our response: We use the term metapopulation when discussing silverspot populations with more than one colony. However, in the SSA report, we continue to use the term population in general, because there are also many single colony silverspot populations, and it is a standard term we use to describe the groupings of silverspots we used in our analysis of resiliency and viability.

(5) *Comment:* One reviewer supported the subspecies delineation presented in the recent genetic study (Cong et al. 2019, entire) and the SSA report. However, the reviewer noted that while the genetic study uses strong methods, it has not been peer-reviewed and lacks some details about methods and analyses. The reviewer recommended a discussion in the SSA report about the level of confidence in the results and why we identify 10 major populations for the genus, *Speyeria*. Their interpretation of the results was that a delineation of 13 populations was better supported than the 10 populations we state in the SSA report.

Our response: We report the results and conclusions of the draft genetic study (Cong et al. 2019, entire) in the SSA report because the draft genetic study provides the best available information on the genetics of the silverspot and the other *Speyeria nokomis* subspecies. We are confident in the results of the draft study because of the researchers' genetic expertise despite the fact that the study has not been peer-reviewed. We will update the SSA report as needed to reflect major changes, if any, once the genetic study is published.

(6) *Comment:* One reviewer stated that the SSA report does not include published reports of *Speyeria nokomis apacheana* to their full potential. The reviewer noted that the ecology and life history of *S. n. nokomis* and *S. n. apacheana* are similar and suggested that *S. n. apacheana* should serve as a good surrogate for *S. n. nokomis* where data are lacking. The reviewer noted that two reports document gene flow among *S. n. apacheana* colonies that may mitigate the effects of genetic drift (the loss of alleles (version of a gene) or change in their frequency in a population) on colony genetic diversity (Britten et al. 1994, entire; Britten 2003, entire). The reviewer noted that *S. n. apacheana* also experiences high levels of colony turnover and routinely disperses about 4 kilometers (about 2.5 miles) from natal (birth) sites based on years of mark/recapture studies at

several locations in Nevada (Fleishman et al. 2002, entire). The reviewer noted that the SSA report concluded that about 10 miles is a good estimate of *S. n. nokomis* dispersal distance but questioned whether estimates of the silverspot's viability would differ if shorter dispersal distances, closer to those of *S. n. apacheana*, were applied in the SSA report.

Our response: In the SSA report, we evaluate connectivity between silverspot populations based on their estimated long-distance dispersal ability of 5 to 10 miles (Ellis 2020c, 2020d, 2020e, pers. comm.) and the potential for longer term gene flow between colonies within a 20-mile distance based on the recent genetic study (Cong et al. 2019, entire). Taken together, these distances characterize the potential for gene flow and population connectivity over short-term and long-term timeframes and provide a more appropriate evaluation of gene flow than the annual dispersal distances for the silverspot and *Speyeria nokomis apacheana*. Therefore, we did not change the metrics we used to evaluate resiliency, although we note that the shorter, annual dispersal distances the reviewer mentions would receive the highest score for genetic connectivity in our analysis because those distances allow for a high level of genetic interchange and maintenance of a metapopulation structure.

(7) *Comment:* One reviewer stated that collecting has never been shown to cause the extirpation of an insect population or species because it is a density-independent factor.

Our response: The reviewer did not provide information to support their comment. Many of the silverspot populations are small and currently in low resiliency condition, and therefore could be easily extirpated if collection pressure increased. The best available information indicates that poaching of rare and imperiled taxa for profit does occur, even to the point of driving a species to extinction to increase the value of individual specimens (Kleiner 1995, entire; Hoekwater 1997, entire; Courchamp et al. 2006, entire; O'Neill 2007, entire; Stratton 2012, entire).

(8) *Comment:* One reviewer stated that changes in water management are the most likely immediate threat to silverspot populations based on the decline of other *S. nokomis* subspecies' colonies from the capping of springs and water diversions.

Our response: We consider hydrologic alteration to be a major factor affecting the subspecies (see *Factors Influencing Subspecies Viability*, below). We recognize that water management can

result in the loss or alteration of silverspot habitat, and that extensive hydrologic alteration has occurred within the range of the silverspot for agricultural, commercial, and municipal purposes. The reviewer did not recommend any changes to our analysis, and we accounted for water management practices and hydrologic alteration of silverspot habitat in the habitat factor score for current and future condition (see Summary of Biological Status and Threats, below).

(9) *Comment:* One reviewer stated that some colonies may require management, such as light grazing or mowing, to maintain habitat suitability. For example, the *Speyeria nokomis apacheana* population in Round Valley (Inyo County, California) has persisted at least over the past 70 years under a regime of light grazing. Conversely, the reviewer noted that heavy park-like mowing of the Mono County Park near Mono Lake, California, caused the extirpation of a small colony.

Our response: We agree that light grazing or mowing in addition to other occasional disturbances, such as burning or non-catastrophic flooding, are needed to maintain suitable habitat conditions for the silverspot. We identify some of these practices as exceptions to the take prohibitions under the 4(d) rule (see “Provisions of the 4(d) rule” below). We intend to work with landowners or managers to provide occasional disturbance or even light annual disturbance that is compatible with conserving the silverspot and the bog violet.

(10) *Comment:* A reviewer stated that the current common name for the species is *Nokomis Fritillary* according to the North American Butterfly Association (NABA) Common Names List, which is the recognized source for North American butterfly species. However, the reviewer noted that there is no recognized source for subspecies’ common names.

Our response: We state that *Nokomis Fritillary* is the accepted common name for the species, *Speyeria nokomis*, in the SSA report (Service 2023, appendix C, p. 80). We refer to the subspecies that is the subject of this document, *S. n. nokomis*, as the silverspot to distinguish it from the other *Nokomis Fritillary* subspecies and to minimize public confusion once it is listed under the Act. Prior to the recent genetic study (Cong et al. 2019, entire), which clarified the range of the subspecies, we referred to the silverspot butterfly as the Great Basin silverspot butterfly, a common name that is no longer applicable (see 87 FR 26319, May 4, 2022, p. 26322). We will report updates

to its common name and taxonomy, if needed, in the SSA report and future 5-year status reviews to be consistent with the accepted taxonomic nomenclature. We note in the SSA report that the silverspot and other members of the *Nokomis* genus may be assigned to a different genus (*Argynnis*) soon (Service 2023, p. 13). This change in genus would likely not affect the silverspot’s listing status under the Act.

Comments From States

(11) *Comment:* The Utah Public Lands Policy Coordination Office (PLPCO) of the Utah Governor’s Office stated that they advocate for silverspot conservation and are available to assist in the development of a conservation strategy for the subspecies. They expressed that the most effective conservation strategy is to coordinate with State agencies, local governments, and landowners because the silverspot is mostly on private lands. The PLPCO also supported our determination that the designation of critical habitat is not prudent for the silverspot.

Our response: We welcome participation by the PLPCO and any stakeholder or landowner to provide conservation for the silverspot through the development of a conservation strategy or other means. We agree that State and local support will be critical to the recovery and successful management of the silverspot.

(12) *Comment:* The PLPCO expressed that managed grazing, burning, mowing, and non-catastrophic flooding are necessary to remove harmful and invasive vegetation to benefit the silverspot and its host plants. They suggested that lack of grazing could lead to population extinction of the silverspot based on a published study from another endangered butterfly, the Quino checkerspot (Preston et al. 2012, entire).

Our response: The SSA report (Service 2023, entire), proposed rule (87 FR 26319; May 4, 2022), and this final rule state that managed grazing, burning, mowing, and non-catastrophic flooding can benefit the silverspot. Livestock grazing that is done in a manner consistent with local ecological conditions, including soil types, precipitation zones, vegetation composition, and drought conditions, to provide early seral or more open conditions for the bog violet can be compatible with the needs and conservation of the silverspot. For more information, see the discussions under “Summary of Biological Status and Threats” and “Beneficial Factors” below. We also recognize that maintenance of sustainable grazing

practices on private lands can aid in recovery of the silverspot by discouraging further conversion of the species’ habitat into habitat unsuitable to the species (*i.e.*, due to development).

We reviewed the Preston et al. 2012 paper, and it does not state that lack of grazing resulted in the extinction or extirpation of the Quino checkerspot (*Euphydryas editha quino*), which is currently listed as endangered under the Act. However, the paper did reference another article (Weiss 1999, entire) related to beneficial grazing practices to suppress nonnative plants in butterfly populations. We have incorporated this article into the SSA report (Service 2023, p. 38).

(13) *Comment:* The New Mexico Department of Agriculture (NMDA) and others expressed concern that the range map of the silverspot in the SSA report (Service 2021, p. 12) is overly broad relative to the small amount of known, occupied habitat, and includes elevations much higher than the upper elevation for the butterfly. The NMDA recommended the use of range delineation methods from a published article (Burgman and Fox 2003, entire) to refine the subspecies’ range. Another commenter suggested the range map in the 2021 SSA report is an example of a flawed habitat model that could be corrected with a more detailed discussion of why the area is thought to be suitable, and the commenter provided a definition of wildlife habitat to improve how we define habitat in the proposed rule. Both commenters expressed the need for comprehensive surveys and improvements to the habitat model to better define suitable, occupied habitat, and the silverspot’s range, to reduce unnecessary regulatory burden.

Our response: We have updated the range map in the SSA report and removed higher elevation areas to address the comment. Now, the range map in the SSA report identifies only areas within the known elevation range of the silverspot (Service 2023, p. 18). The range map provides an intentionally broad delineation of the current extent of the silverspot’s range to protect the exact locations of colonies and should not be used or considered as a habitat model for the subspecies. We acknowledge that most of the lands identified in the range map are not suitable habitat for the silverspot; the subspecies is a habitat specialist with very specific habitat needs.

We do not have a habitat model for the silverspot; however, when this rule is effective (see **DATES**, above), we intend to develop one using the best available habitat information and

methods used by the Service, which are consistent with those recommended in the published paper recommended by the commenter (Burgman and Fox 2003, entire) (see Service 2019, entire). Once developed, the suitable habitat model will inform the need for surveys, and additional surveys would better delineate occupied habitat, suitable habitat, and the current range of the subspecies.

(14) Comment: The NMDA and others requested time to implement proactive conservation and education in cooperation with private landowners, Federal land managers, and lessees prior to a final listing determination for the silverspot. They state that there are beneficial management practices for the silverspot that have yet to be implemented.

Our response: The commenters are correct that beneficial management practices have not been implemented for the silverspot, and we welcome participation by States, counties, landowners, or other stakeholders to implement conservation and recovery efforts for the subspecies. Under the Act, we must list a species or subspecies if it meets the definition of an endangered species or a threatened species. Moreover, our policy for the evaluation of conservation efforts when making listing decisions (PECE policy; 68 FR 15100, March 28, 2003) identifies criteria we use in determining whether formalized conservation efforts that have yet to be implemented or to show effectiveness contribute to making listing a species as endangered or threatened unnecessary. The PECE policy applies to conservation efforts identified in conservation agreements, conservation plans, management plans, or similar documents developed by Federal agencies, State and local governments, Tribal governments, businesses, organizations, and individuals. For the silverspot, there were no formalized conservation efforts that had yet to be implemented prior to this final rule for us to consider under the PECE policy.

(15) Comment: The NMDA expressed that the 4(d) rule should ensure that private landowners and public land managers will not be exposed to risk of take of the silverspot for their normal agricultural activities in wet meadows that do not contain the silverspot within its range. They recommend the 4(d) rule clarify that take of the silverspot from habitat modification only applies to areas where the silverspot is found (known colonies) and requested that we modify the specific take prohibition in the 4(d) rule to reflect that.

Our response: Under 50 CFR 17.31(c), for a species listed as a threatened species, the species-specific 4(d) rule will contain all the applicable prohibitions and exceptions. On the effective date of this rule (see **DATES** above), the protections of the Act provided for in the 4(d) rule for the silverspot will apply to the subspecies wherever it is found. We acknowledge that there is uncertainty about the extent of suitable habitat within the silverspot's range, and thus it would be premature to except take prohibitions for actions in suitable habitats where occupancy is unknown until adequate surveys for the butterfly are conducted. In the 4(d) rule, we provide exceptions for take for common agricultural practices in wet meadow habitats (see "Provisions of the 4(d) Rule" below). Additionally, if anyone has concerns about specific agricultural practices in wet meadow habitats that are not identified as exceptions in the 4(d) rule, we welcome those discussions and will provide information (see **FOR FURTHER INFORMATION CONTACT** above). Therefore, we have not made any changes to the 4(d) rule in response to this comment.

(16) Comment: The NMDA and others recommended developing an outreach strategy and materials for private landowners and local entities to provide them information on the listing of the silverspot, the subspecies' 4(d) rule, and beneficial conservation actions for the subspecies (such as protecting bog violets and planting beneficial nectar plants).

Our response: As part of our outreach efforts, we intend to contact landowners of known occupied habitat and discuss the silverspot's listing and 4(d) rule, as well as beneficial conservation actions for the subspecies. We welcome the assistance of the commenters, State and Federal agencies, Tribes, nongovernmental organizations, and other interested parties with outreach and implementation of conservation and recovery actions.

Public Comments

(17) Comment: One commenter expressed opposition to listing the silverspot under the Act because the reasons for population declines are lacking and several of the factors influencing viability in the SSA report are either not detectable or are unknown. Without an understanding of what is causing the presumed population decline, the commenter thought it will be nearly impossible to develop a viable recovery plan.

Our response: We summarize the threats to the silverspot in this final rule (see "Summary of Biological Status and

Threats" below). While we acknowledge that there are gaps in our understanding of the subspecies, listing under the Act will confer protections to the silverspot from several of the identified threats to help arrest and reverse its decline. When this rule is effective (see **DATES** above), actions authorized, funded, or carried out by Federal agencies that may affect the subspecies will require consultations under section 7 of the Act in all occupied areas. Prohibitions against take under section 9 of the Act will further protect the silverspot from human-caused mortality such as continued habitat loss.

The Act requires us to develop recovery plans for all listed species, unless such a plan will not promote the conservation of the species. Recovery plans must, to the maximum extent practicable, contain objective, measurable criteria that, when met, would lead to "delisting," that is, removal of the species from the Lists of Endangered and Threatened Wildlife and Plants. These recovery plans are created following a final determination to list a species as endangered or threatened. Recovery plans are non-binding documents intended to provide a roadmap for us and our partners on methods of enhancing conservation and minimizing threats to listed species, as well as measurable criteria against which to evaluate progress towards recovery. Recovery criteria and objectives are developed based on the information known at that time, and much is learned about a species between the time the recovery plan is developed and the time it is determined to no longer meet the Act's definition of endangered or threatened.

(18) Comment: One commenter stated that utility corridors maintain or create open, early successional areas that support the silverspot's needs, and requested that the proposed exception for maintenance of other existing structures in the 4(d) rule apply to many common electric company operation, maintenance, and modernization (OMM) activities that are essentially maintenance of other existing structures. The commenter felt that the additional requirement in the 4(d) rule for those activities to be kept within the confines of already disturbed ground was unclear and, depending on how it is interpreted and applied in practice, could significantly limit many OMM activities. For example, transmission lines often span long distances of relatively undisturbed vegetation between the support towers or poles. However, electric companies regularly need to conduct OMM activities along transmission line rights-of-way (ROWS)

in the space between towers or poles. The commenter requested the scope of this exception be clarified to include OMM activities along entire transmission line ROWs rather than limited to previously disturbed areas centered on support towers or poles.

Our response: Maintenance and operation activities and vegetation removal along existing transmission line and utility corridors are not major factors influencing the silverspot and are not known to negatively affect the subspecies (Service 2023, pp. 28–38). Therefore, in this final rule, we add to the silverspot's 4(d) rule an exception to the take prohibitions for these activities if the activities are kept within the confines of existing ROWs. This does not remove the requirement for section 7 consultation and appropriate permitting processes. Importantly, construction of new transmission lines and utility corridors is not an excepted activity under the 4(d) rule.

(19) *Comment:* One commenter requested that we revise one aspect of the definition of “reasonable care” in the silverspot's 4(d) rule. The commenter asked that instead of “ensuring no introduction of” invasive plant species, we revise the 4(d) rule to read, “minimizing the potential to introduce” invasive plant species.

Our response: We agree with the commenter that reasonable care to control for invasive plant species should be to minimize their potential introduction rather than ensure no introduction. We used language in the proposed 4(d) rule that was stricter than we intended, and because it is not feasible to ensure no introduction of invasive plant species, in this final rule, we clarify that statement in the 4(d) rule in accordance with the commenter's suggestion.

(20) *Comment:* One commenter requested listing the silverspot as endangered or alternatively strengthening the 4(d) rule. They also recommended designating critical habitat. Their reasons are explained in greater detail below:

a. List as endangered: The commenter stated that the silverspot faces immediate extinction and climate change should be considered a major factor, rather than a minor factor, as it has significant impacts to the subspecies' viability as defined in the SSA report. Most silverspot populations face very low or low resiliency conditions and possess little to no ability to respond to and recover from disturbances and the negative effects of climate change, such as earlier springs, rising temperatures, less snowpack, and soil-moisture drought. The commenter

felt that the proposed rule provided no analysis or evidence that these very low resiliency populations are currently not at risk of extirpation. The commenter suggested that the imminent threat of losing half of the silverspot's populations should make the subspecies in danger of extinction throughout a significant portion of its range, thus warranting an endangered listing. The commenter stated that the loss of these populations may occur in 5 years, not the 30 years identified as the foreseeable future.

b. Strengthen the 4(d) rule: Alternatively, the commenter requested that we develop a more protective 4(d) rule that does not permit year-round grazing, because it is not scientifically supported and not enforceable. The commenter felt that the proposed 4(d) rule gave disproportionate weight to inconclusive possible benefits of grazing in need of further study over the more conclusive studies establishing grazing's detrimental effects to the silverspot's habitat. They recommend that the final 4(d) rule should not allow summer grazing, to provide for adequate protection and enforcement.

c. Designate critical habitat: The commenter requested that we designate critical habitat for the silverspot because the benefit of designation outweighs the threat of collection. As stated in the SSA report, collection is not thought to be a current stressor, and designation can be done without disclosing silverspot locations. The commenter stated that without credible information regarding actual collection risk, designating critical habitat is prudent and necessary to conserve the silverspot.

Our response: Climate change is occurring, and there is strong scientific support for projections that warming will continue through the 21st century (see “Climate Change” under *Factors Influencing Subspecies Viability*, below). However, to date, there is only one small silverspot population (Archuleta) of the 10 total populations where prolonged drought combined with overgrazing is identified as a potential contributor to the population's very low resiliency rank based on the best available information (Whiteman 2022, pers. comm.; Service 2023, pp. 30, 40–41, 57–60). The other nine populations currently appear to have an adequate water supply despite existing hydrologic alterations, recent droughts, and drier, current climate conditions (Bainbridge and Ireland 2022, pers. comm.; Service 2023, p. 30). While current water availability is not a concern, we are concerned about future climate effects to the silverspot in combination with other threats, and we

determined that the subspecies meets the Act's definition of a threatened species. For additional explanation as to why the species does not meet the Act's definition of an endangered species throughout all or a significant portion of its range, see “Summary of Biological Status and Threats and Determination of Silverspot's Status” below.

We find that the 4(d) rule exception for grazing is scientifically supported and enforceable. The exception for grazing is based on the best available scientific information that light summer grazing (30 percent or less utilization of forage) and moderate fall and spring grazing (40 to 50 percent utilization) appears to be compatible with the subspecies' needs and habitat requirements (Arnold 1989, entire; Service 2023, pp. 33–34). In practice, little summer grazing occurs in silverspot habitat because many landowners move their cattle to higher elevations with more seasonal forage (Service 2023, p. 33). While livestock grazing under this exception may result in low levels of take, these grazing practices do not pose a threat to the silverspot's continued existence and should help maintain suitable habitat conditions for the subspecies. Additionally, we consider the utilization rates for seasonal grazing to provide enforceable and objective grazing measurements. We find that the 4(d) rule provides flexibility to our partners and satisfies the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the silverspot. When this rule is effective (see **DATES** above), we will work with private landowners, public land managers, Tribes, and grazing experts to maintain or improve silverspot habitat using seasonal grazing practices.

Finally, the demand for butterflies is high by collectors in the illegal animal trade, and the best available information indicates that collection may have resulted in the extirpation of one silverspot colony (Scott 2023, pers. comm.; Service 2023, p. 31). We believe that the public has been largely unaware of the subspecies and that listing under the Act will raise public awareness and result in a greater demand from collectors. We determine in this final rule that the designation of critical habitat is not prudent in accordance with 50 CFR 424.12(a)(1), because the silverspot faces a threat of unauthorized collection and trade, and designation can reasonably be expected to increase the degree of this threat to the subspecies. We have determined that the publication of maps and

descriptions outlining the locations of the silverspot would further facilitate unauthorized collection and trade, as collectors would know the exact locations where silverspots occur (see section III. Critical Habitat below).

For the reasons explained above, we are not making any changes to this final rule in response to this comment.

(21) *Comment:* Some commenters opposed listing the silverspot and stated that the Act does not work for insects and other species that cannot accurately be identified. Commenters felt that the silverspot's definition and description in the proposed rule was highly ambiguous and the SSA report identified almost every color as a characteristic of the subspecies. They are concerned about the ability to accurately count and distinguish the silverspot from other subspecies with ranges that overlap and from potential hybrids that may result from reproduction between the silverspot and other subspecies; they are also concerned about the environmental factors that may impact the silverspot's characteristics. The commenters felt that the Service's inability to clearly identify the silverspot will lead to public confusion, an erosion of public support, and the assumption that any butterfly or moth in the silverspot's range would be treated as a listed species. The inability to accurately describe the species falls into the category of intrinsic uncertainty as defined by a published paper they provided and may not be resolvable (Freckleton 2020, entire). The commenters requested to know what has changed since our previous determinations that suggested the silverspot was not a listable entity.

Our response: We understand the commenters' questions and uncertainty regarding identification and taxonomy. We disagree with the comment that the subspecies is not well defined or described, or that there is intrinsic uncertainty regarding the taxonomy that cannot be resolved. A recent genetic study identified the silverspot as a distinct taxon, and we have delineated the subspecies' range based on that report (Cong et al. 2019, entire) (see "Background" under section I. Final Listing Determination below). The silverspot and its habitat can be identified accurately by experts or with training, in the field or with close-up photographs. There is always the potential for hybridization to occur at the margins of a species' range or areas of overlapping ranges with other species or subspecies. However, there is a low likelihood of interbreeding to produce hybrid butterflies within the silverspot's range (Service 2023, pp. 1–14). Any

potential hybrids can be confirmed through additional genetic analysis, and we will address methods to count and estimate butterfly numbers during the recovery planning process.

Our determination in 1996 that removed the designation of the silverspot as a category 2 candidate was not related to taxonomy; rather, we discontinued the practice of maintaining a list of species regarded as category 2 candidates (see 61 FR 7596, February 28, 1996; see also "Previous Federal Actions" in the May 4, 2022, proposed rule (87 FR 26319)). Category 2 candidate species were taxa for which we lacked conclusive data on biological vulnerability and threats. By 2013, we had more information on the silverspot to evaluate its status and threats in response to a petition submitted to us by Wild Earth Guardians.

(22) *Comment:* Commenters asked about the status of potential silverspot hybrids under the Act.

Our response: We address hybrids on a case-by-case basis under the Act, and in this case, we did not propose to list hybrids of the silverspot because as we describe above in our response to *Comment (1)*, there is a low likelihood of finding hybrid butterflies in the silverspot's range in the future because the various subspecies of *S. nokomis* are isolated from one another.

(23) *Comment:* Some commenters felt that the Service made an arbitrary decision when we determined that habitat fragmentation is a threat to the silverspot, while pesticide usage is not. The best available science for other insect species such as the monarch butterfly (*Danaus plexippus*) identifies pesticide use as a significant component of activities that cause habitat fragmentation (e.g., agriculture and haying). Commenters also stated that it was not clear whether we evaluated habitat fragmentation across the entire range or only in known, occupied habitat.

Our response: The hypothesis that pesticides are a major threat to the silverspot presented in this comment appears to be based solely on the commenters' evaluation of threats identified for other species. No methods or data are given or cited for pesticide use and effects on the silverspot or similar species in the arid western United States. Evidence in support of such a hypothesis would need to be provided for further consideration. We do not discuss pesticides in the May 4, 2022, proposed rule or this final rule because our evaluation in the SSA report identified it as a minor factor influencing the current and future condition of the silverspot (Service

2023, pp. 27–28, 32). The primary agricultural practices in the silverspot's range are haying and grazing that generally use fewer pesticides than are used on croplands. However, we state in the SSA report that further research is needed on pesticide use and its effects on the subspecies.

Based on the best available information, habitat loss and fragmentation are primary threats to the silverspot in occupied habitat and across the range (see *Factors Influencing Subspecies Viability*, below). Nearly all populations have been or are expected to be negatively affected by this threat, which has resulted in lower current and future population resiliency and connectivity.

(24) *Comment:* Commenters expressed concern that there would be significant restrictions placed on recreation as a result of listing the silverspot, even though the proposed rule identifies recreation as a minimal threat to the silverspot. The commenters were familiar with listing decisions for other species (wolverine (*Gulo gulo luscus*) and Mexican spotted owl (*Strix occidentalis lucida*)) where the Service explicitly and clearly states that recreation is not a threat, but other agencies placed significant restrictions on recreation because of the potential for habitat fragmentation.

Our response: The silverspot primarily occurs on private lands (18 of the 21 colonies), where recreation does not occur. Occupied habitat on public lands also currently appears to have minimal recreational use, and we are not aware of plans that may increase the level of future recreational use in these areas. However, recreation could pose a threat to the silverspot if trails or other recreational facilities are planned in the future within the butterfly's habitat that may result in habitat loss or degradation, invasive plant establishment, changes to the water regime, or erosion.

Section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of any endangered or threatened species or destroy or adversely modify its critical habitat. When this rule is effective (see **DATES** above), Federal agencies will be required to consult with us on the potential effects to the silverspot for all proposed projects, including recreation projects, that are subject to the requirements of section 7(a)(2) of the Act. For proposed projects without a Federal nexus, the proponent must ensure that the project will not result in take of the silverspot as set forth in the

4(d) rule. We will cooperate with Federal agencies, landowners, and project proponents to identify conservation measures that avoid or minimize effects and take of the silverspot during project planning.

I. Final Listing Determination

Background

A thorough review of the taxonomy, life history, and ecology of the silverspot is presented in the SSA report (Service 2023, pp. 9–27), and is briefly summarized here.

The silverspot is a relatively large butterfly with up to a 3-inch wingspan. Males typically have bright orange on the upper side of the wing, while females typically have cream or light yellow with brown or black. The underside of the wing of both sexes has silvery-white spots, giving the subspecies' the common name of silverspot butterfly.

Based on recent genetic analysis, there are 10 major populations of *Speyeria nokomis* comprised of five subspecies throughout the United States and Mexico (Cong et al. 2019, entire). We established a new, more precise range boundary for the subspecies that is the subject of this document, the silverspot (*S. n. nokomis*), in the SSA report based on the genetic analysis, which limits the distribution to east-central Utah through western and south-central Colorado and into north-central New Mexico (Service 2023, p. 18). The new range delineation shows that the subspecies does not occur in the Great Basin and thus the former common name, Great Basin silverspot butterfly, is no longer valid. Consequently, we refer to the *S. n. nokomis* subspecies as "silverspot" in this final rule.

In the SSA report, we identified 10 populations of silverspot in our analysis, consisting of the following: Archuleta, Conejos, Costilla, Garfield, La Plata, Mesa/Grand, Montrose/San Juan, and Ouray populations in Colorado and Utah; and the San Miguel/Mora and Taos populations in New Mexico (Service 2023, figure 14 and table 4, pp. 39–47). Populations of silverspot occur between 5,200 feet (ft) (1,585 meters (m)) and 8,300 ft (2,530 m). The butterfly requires moist habitats in mostly open meadows with a variety of herbaceous and woody vegetation. Eggs are laid on or near the bog violet (*Viola nephrophylla/V. sororia* var. *affinis*), which the larvae feed on exclusively. A variety of flowering plants provide adult nectar sources. The butterfly completes its entire life cycle in one year.

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations in title 50 of the Code of Federal Regulations set forth the procedures for determining whether a species is an endangered species or a threatened species, issuing protective regulations for threatened species, and designating critical habitat for endangered and threatened species. In 2019, jointly with the National Marine Fisheries Service, the Service issued a final rule that revised the regulations in 50 CFR part 424 regarding how we add, remove, and reclassify endangered and threatened species and the criteria for designating listed species' critical habitat (84 FR 45020; August 27, 2019). On the same day, we issued a final rule that revised 50 CFR 17.31 and 17.71 (84 FR 44753; hereinafter, "the 2019(d) rule") and ended the "blanket rule" option for application of section 9 prohibitions to species newly listed as threatened after the effective date of those regulatory revisions (September 26, 2019). Blanket rules had extended the majority of the protections (all of the prohibitions that apply to endangered species under section 9 and additional exceptions to the prohibitions) to threatened species, unless we issued an alternative rule under section 4(d) of the Act for a particular species (*i.e.*, a species-specific 4(d) rule). The blanket rule protections continued to apply to threatened species that were listed prior to September 26, 2019, without an associated species-specific rule. Under the 2019 4(d) rule, the only way to apply protections to species newly listed as threatened is for us to issue a species-specific rule setting out the protective regulations that are appropriate for that species.

Our analysis for this decision applied our current regulations, portions of which were last revised in 2019. Given that we proposed further revisions to these regulations on June 22, 2023 (88 FR 40742; 88 FR 40764), we have also undertaken an analysis of whether the decision would be different if we were to apply those proposed revisions. We concluded that the decision would have been the same if we had applied the proposed 2023 regulations. The analyses under both the regulations currently in effect and the regulations after incorporating the June 22, 2023, proposed revisions are included in our decision file.

The Act defines an "endangered species" as a species that is in danger of extinction throughout all or a significant portion of its range, and a

"threatened species" as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an endangered species or a threatened species because of any of the following factors:

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

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term "threat" to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term "threat" includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term "threat" may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an "endangered species" or a "threatened species." In determining whether a species meets either definition, we must evaluate all identified threats by considering the species' expected response and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition

of an “endangered species” or a “threatened species” only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term “foreseeable future,” which appears in the statutory definition of “threatened species.” Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term “foreseeable future” extends only so far into the future as the Service can reasonably determine that both the future threats and the species’ responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. “Reliable” does not mean “certain”; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define the foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species’ likely responses to those threats in view of its life-history characteristics. Data that are typically relevant to assessing the species’ biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

Analytical Framework

The SSA report documents the results of our comprehensive biological review of the best scientific and commercial data regarding the status of the subspecies, including an assessment of the potential threats to the subspecies. The SSA report does not represent our decision on whether the subspecies should be listed as an endangered or threatened species under the Act. However, it does provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies.

To assess the silverspot’s viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency is the ability of a species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); redundancy is the

ability of a species to withstand catastrophic events (for example, droughts, large pollution events); and representation is the ability of a species to adapt to both near-term and long-term changes in its physical and biological environment (for example, climate conditions, pathogens). In general, species viability will increase with increases in resiliency, redundancy, and representation (Smith et al. 2018, p. 306). Using these principles, we identified the silverspot’s ecological requirements for survival and reproduction at the individual, population, and subspecies levels, and described the beneficial and risk factors influencing the subspecies’ viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the individual subspecies’ life-history needs. The next stage involved an assessment of the historical and current condition of the subspecies’ demographics and habitat characteristics, including an explanation of how the subspecies arrived at its current condition. The final stage of the SSA report involved making predictions about the subspecies’ responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of a species (or in this case, subspecies, which is a listable entity under the Act) to sustain populations in the wild over time. We use this information to inform our regulatory decision. The following is a summary of the key results and conclusions from the SSA report; the full SSA report can be found at Docket No. FWS–R6–ES–2021–0134 on <https://www.regulations.gov>.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the silverspot and its resources, and the threats that influence the subspecies’ current and future condition, to assess the subspecies’ overall viability and the risks to that viability.

Individual Needs

Individual silverspot needs include wet meadows supported by springs, seeps, streams, or irrigated areas that contain the bog violet host plant for eggs and larvae, and other herbaceous vegetation for cover and food resources. The butterflies may benefit from a light interspersion of willow or other shrubs for shade and for larval shelter. More dense willow and shrubs often surround open meadows where the silverspot

occurs and, if the woody vegetation does not take over the meadows, the margins of denser stands can be beneficial for shade and shelter as well.

Population Needs

Populations need abundant individuals within habitat patches of adequate size and quality to maintain survival and reproduction. In general, the greater the suitable habitat acreage, and the greater the number of individuals within a population, the greater the resilience. Furthermore, colonies and populations need to be close enough to each other for individuals to breed with each other to maintain genetic diversity. The silverspot likely does not fly more than 5–10 miles (mi) (8–16 kilometers (km)) and would likely have difficulty finding another colony beyond this distance (Ellis 2020c, 2020d, 2020e, pers. comms.). Additionally, the silverspot needs the bog violet to be of sufficient extent and density to support colonies and populations. We define colonies to mean areas of abundant violets that produce butterflies, as well as surrounding habitat with nectar plants. If there is narrow but contiguous nectar habitat up or down a drainage but without violets (or with only sparse violets), we consider those areas transitional corridors that are likely valuable for dispersal and genetic connectivity.

The silverspot and other *S. nokomis* subspecies can move between colonies within a continuous or nearly continuous riparian zone (Arnold 1989, pp. 10, 14; Fleishman et al. 2002, p. 708). For example, six colonies occurred along a 5-mile stretch in Unaweep Canyon that had likely genetic interchange (Ellis 1989, p. 3). However, these are considered separate colonies due to the natural or human-caused patchiness of bog violets up and down the canyon. In a mark-recapture study (Arnold 1989, pp. 10, 14, 21) in Unaweep Canyon, about 50 percent of the recaptured butterflies moved between two colonies separated by about 0.75 mi (1.2 km). Based on this work, the researcher inferred that the silverspot could easily move at least 1 mile, and based on this, Ellis (1989, p. 19) further inferred that there was exchange of individuals among all the Unaweep Canyon colonies every 1 to 5 years. This information provided the basis for Ellis’ professional judgement that colonies or populations farther than 5 to 10 mi (8 to 16 km) from each other are likely isolated (Ellis 2020c, 2020d, 2020e, pers. comm.).

Some silverspot populations are comprised of a single colony, while

others are comprised of multiple colonies that function as a metapopulation. Within a metapopulation, butterflies are close enough to move between colonies and to interbreed and can recolonize temporarily extirpated areas that may result from local, naturally occurring (stochastic) events. For instance, a flood may extirpate a colony, but if there are nearby colonies, the temporarily flooded area may return to suitable habitat conditions and be recolonized by the silverspot.

Unfortunately, there is very little information on what an adequate-sized habitat patch is, especially if there is only a single colony in a population. A professional estimate for minimum patch size of colonies is 2 acres (ac) (0.8 hectares (ha)) if the habitat has a reliable groundwater source and has high violet density and is 5 ac (2 ha) if violets are less dense due to natural or human-caused variability within a patch (Ellis 2020e, pers. comm.). Although it is possible a single 2-ac or 5-ac patch of habitat could support the butterfly for a period of time, a more resilient metapopulation will likely contain at least three colonies of those patch sizes or greater. A three-colony metapopulation will have a better chance of survival by spreading the risk of extirpation if a natural event occurs at one or two of the colonies. Thus, the remaining one or two colonies can recolonize the extirpated sites assuming suitable habitat remains or reestablishes. Due to natural variability in soil and topographic conditions, we assume that most areas within the silverspot's range are likely to have a lower density of violets, rather than dense violets (Service 2023, pp. 23–25). Consequently, under this assumption, a minimum amount of habitat for a sufficiently resilient population may be 12 ac (5 ha), and this can be made up of multiple colonies if they are at least 2 ac (0.8 ha) in size (Service 2023, p. 25). The specific minimum threshold for single colonies to maintain viability is unknown, but the larger the acreage the greater the resiliency and higher likelihood of viability.

There is also little information on the minimum number of silverspot individuals needed to sustain a colony. There have only been two demographic studies for the silverspot that occurred at the same locations 10 years apart: 1979 and 1989 (Arnold 1989, entire). The 1989 study found a daily estimate of between 48 and 260 butterflies with two different models at the Unaweep Seep colony (Arnold 1989, pp. 6, 14). A combined population estimate at the Unaweep Seep colony and another

upstream colony in Unaweep Canyon (which is considered two colonies due to intervening transitional habitat) resulted in a range of daily abundance from 594 to 2,689 butterflies.

Quality of habitat may have as much weight in determining resiliency of a colony or population as does overall size of a habitat patch or number of individuals. Habitat quality could potentially be measured by density of violets. The Unaweep Seep study (Arnold 1989, p. 20) revealed that the larger colony with many individuals became extirpated, likely due to vegetative encroachment, while the upstream colony with more violets remained extant. Consequently, populations appear to have greater chance for survival when containing more violets.

Based on observations of grazed and burned properties in Unaweep Canyon, occasional or well-managed grazing and burning likely benefit the violet by reducing willows, as well as reducing thatch buildup from grasses and sedges (Arnold 1989, p. 14; Ellis 1989, pp. 18, 19). Consequently, natural factors or management activities that lead to early seral stages or at least more open conditions, where willow, grass, sedge, or other vegetation does not outcompete violets, is important to colonies and populations.

Based on the scant evidence, the minimum number of individuals that are needed to sustain a silverspot colony or population is unknown, and even apparent natural but detrimental habitat factors, such as excessive growth of other plants, can cause extirpation of seemingly large colonies. Without additional study, it is not known what the minimum habitat size is to maintain viability, nor what density or abundance of bog violets or nectar plants is needed to sustain a colony or population, nor the maximum distance between colonies or populations that can be reached for genetic interchange to continue to occur on a regular basis. Furthermore, it is unknown if large single-colony populations can be sufficiently resilient without occasional genetic interchange from other populations.

In summary, to be adequately resilient, silverspot populations need water to sustain violets for the larvae, as well as occasional or seasonal disturbance by grazing from native ungulates or domestic livestock, or burning, mowing, or non-catastrophic flooding, to occasionally remove vegetation that might otherwise crowd out the violets and other nectar plants for the adults. Furthermore, based on expert opinion and evidence, the most

resilient populations need to be at least 2 ac (0.8 ha) in size with dense violets or at least 5 ac (2 ha) in size with less dense violets (Ellis 2020e, pers. comm.), and need to have a few to several colonies within 0.75 to 5 mi (1.2 to 8 km) of each other and likely be not more than 10 mi (16 km) from each other (Arnold 1989, pp. 10, 14; Ellis 1989, p. 19; Ellis 2020c, 2020d, 2020e pers. comm.).

Subspecies Needs

To maintain viability, the silverspot needs to have a sufficient quality and quantity of habitat for adequately resilient populations, numerous populations to create redundancy in the event of catastrophic events, and broad enough genetic and ecological diversity to adapt to changing environmental conditions (representation). The subspecies will have a better chance of long-term viability if single-colony populations and even the metapopulations occasionally receive individuals from other populations such that genetic interchange occurs, better enabling them to adapt to environmental changes.

Factors Influencing Subspecies Viability

We reviewed the potential risk factors (*i.e.*, threats, stressors) that could be affecting the silverspot now and in the future. In this final rule, we will discuss only those factors in detail that could meaningfully impact the status of the subspecies. Habitat loss and fragmentation, human-caused hydrologic alteration, livestock grazing, genetic isolation, exotic plant invasion, climate change, climate events, larval desiccation, and collecting are all factors that influence or could influence the subspecies' viability. Those risks that are not known to have effects on silverspot populations, such as disease, predation, prescribed burning or wildfire, and pesticides, are not discussed here but are evaluated in the SSA report.

Habitat Loss and Fragmentation

Habitat loss from golf course and housing development caused the extirpation of two historical colonies north of Durango, Colorado (Selby 2007, entire; Ellis and Fisher 2020, pers. comm.). The remaining colony in the La Plata population has residential and commercial development across the street from it, and one of two drainages supplying water to it has relatively new housing and golf courses within 1.5 air miles (2.4 km), potentially degrading downstream silverspot habitat through hydrologic alteration. Housing development also appears to have been

a contributing factor in extirpation of the Beulah, New Mexico, colony (Scott and Fisher 2014, p. 3). In Colorado, it is possible that Rifle Gap Reservoir and Dam degraded and fragmented habitat, as one butterfly was sighted at a small wetland downstream of the dam and the reservoir flooded and fragmented habitat upstream. Additional habitat alteration upstream and downstream from a variety of factors (residential and commercial development, roads, and agricultural conversion of habitat) also has likely fragmented habitat. Many other colonies and populations have development around them that also either directly encroaches on the habitat or likely has caused degradation and fragmentation from homes, roads, hydrologic alteration, and habitat conversion.

Agricultural habitat conversion can cause loss or fragmentation of habitat and typically involves mowing native meadows or growing exotic grasses for hay. Aerial imagery reveals that agricultural conversion has been extensive within the silverspot's range. It has likely caused loss of unknown colonies over the last 150 years and has fragmented native habitat, reducing connectivity between colonies and populations. Annual haying may be less detrimental than haying two or three times a summer. One major population of *Speyeria nokomis* (Chuska Mountains) in Arizona and New Mexico has persisted for many years even though haying occurs there once a year typically in late August or September (Cong et al. 2019, entire; Smith 2019, pers. comm.).

Despite the silverspot's potential compatibility with annually mowing native hay fields, agricultural conversion to unsuitable crops or fragmentation of habitat in the silverspot's range has been extensive. Furthermore, the impact of residential and commercial development, and other development like roads, continues to limit and/or degrade habitat in or adjacent to existing colonies and populations. Habitat loss and fragmentation, therefore, has meaningfully reduced the viability of the subspecies.

Hydrologic Alteration

Hydrologic alteration is also a factor influencing the subspecies' viability. Hydrologic alteration can result from a variety of sources, including, but not limited to, diversions for agricultural and domestic use; erosion and stream channel incision caused by livestock grazing, mining, roads, or dredging and filling of wetlands; removal of beaver dams; manipulation of waterways that

minimizes flooding and reduces natural meander features; and creation and operation of large human-made dams. For example, the only colony in the Costilla population has a diversion ditch running through it that likely reduced the size of colony. The ditch and other diversions have allowed for extensive agricultural development in the drainage that has altered native habitat and likely dropped the water table in much of the area. The Montrose County colony in the Montrose/San Juan population also has had livestock grazing and water diversions occur over the last 30 years, which have degraded the quality of the wet meadow areas and lowered the water table (Ireland 2018, pers. comm.).

Many drainages in the Sacramento Mountains, where one historical silverspot colony may have occurred, succumbed to incision of streams around 1900, in turn lowering water tables and eliminating wet meadow habitat (Service 2023, p. 35). Incision of stream channels occurred due to erosion from deforestation, conversion to agricultural and grazing lands, mining, and so forth. Beavers were also eliminated around 1900 in the Sacramento Mountains (and other parts of the West), which also undoubtedly caused reduction of water tables and elimination of wet meadow habitat suitable for the silverspot and other wetland-dependent species. Hydrologic alteration that degrades riparian areas and lowers water tables from natural systems has occurred not only in the Costilla population, Montrose/San Juan population, and Sacramento Mountains, but extensively in the western United States, including much of the silverspot's range. Hydrologic alteration continues to limit suitable habitat and is a major factor influencing the viability of the subspecies.

Livestock Grazing

Grazing is ongoing in suitable habitat for the subspecies and is a major factor influencing the subspecies' viability. Livestock grazing may cause habitat loss and degradation if excessive, especially in the naturally scarce habitats of the silverspot (Hammond and McCorkle 1983, p. 219) and depending on the timing and intensity. Year-round grazing or heavy summer grazing is typically incompatible with the silverspot because livestock graze on the violet leaves, nectar sources, and other vegetation necessary for the butterfly when the larvae and adults need them (Ellis 1999, p. 5). For example, an area adjacent to a colony in the Ouray population has underlying hydrology and soils beneficial for the silverspot,

but the habitat is unsuitable due primarily to grazing and perhaps to a lesser extent occasional mowing for hay (Service 2023, figure 13, p. 34).

Livestock grazing benefits and is compatible with silverspot conservation if managed appropriately. Winter grazing is beneficial to maintain the bog violet and suitable habitat conditions. Light or moderate summer grazing (up to 20 or 30 percent vegetative utilization) appears to be acceptable (Arnold 1989, p. 14), but total rest from grazing in the summer is preferred (Ellis 2020g, pers. comm.). If one or more kinds of vegetation are too dense, they can prevent the bog violet from persisting and thus cause extirpation of the silverspot. This occurred in the Unaweep Seep colony in the Mesa/Grand population, perhaps primarily because of spike rush (*Eleocharis* spp.) invasion of meadows but also seemingly because of grass, sedge, and willow invasion (Arnold 1989, pp. 9, 14; Ellis 1999, pp. 3, 5, 6). It is unknown if this invasion would have occurred without grazing or if long-term grazing was the factor that shifted vegetation. Without occasional reduction or removal, herbaceous or woody vegetation could crowd out violets. Seasonal grazing or mowing and other occasional disturbances, such as burning or non-catastrophic flooding, are needed to maintain suitable habitat conditions for the silverspot. We identify some of these practices as exceptions to the take prohibitions under the 4(d) rule (see "Provisions of the 4(d) rule" below).

Genetic Isolation

Population isolation can cause detrimental genetic and demographic effects and is a concern for the silverspot's population resiliency as well as its redundancy and representation. Lower levels of genetic diversity can reduce the capacity of a population to respond to environmental change (representation) and may lead to reduced population fitness through reductions in individual longevity and fecundity (*i.e.*, fewer offspring) and smaller population sizes (Darvill et al. 2006, p. 608). Another silverspot subspecies, *S. n. apacheana*, has low genetic diversity, likely from genetic drift (loss of alleles (versions of a gene) or change in their frequency in a population) due to genetic isolation and small population size (Britten et al. 1994, entire). Genetic exchange between and within populations can alleviate problems with genetic drift and augment populations demographically. In *S. n. apacheana*, routine dispersal distances up to 2.5 mi (3.9 km) were documented, and 26 percent of the

recaptured butterflies had emigrated from the initial patch of capture (Fleishman et al. 2002, p. 708). This migration appears to play an important role for *S. n. apacheana* populations both demographically and genetically (Britten et al. 2003, p. 232). Consequently, the ability or inability of individuals to migrate between colonies and populations is expected to also be of benefit or detriment, respectively, for the silverspot.

Genetic isolation among silverspot populations indicates reduced population fitness and could be of concern in the future (Cong et al. 2019, p. 22). Based on the latest scientific evidence, genetic exchange does not appear to occur between colonies or populations that are at least 20 miles apart (Cong et al. 2019, entire). Currently, the distance between the two closest populations, which we know are genetically different and represent separate populations, is 24.5 air miles (39 km) (between the Taos and San Miguel/Mora populations in New Mexico). Consequently, and more specifically, the distance where silverspot populations may not interbreed and thus may not support each other genetically or demographically appears to be somewhere between 20 and 24.5 air miles (32 and 39 km). We used the minimum distance of 20 mi (32 km), based on findings of Cong et al. (2019, entire), in our analysis of genetic connectivity (see *Current Condition*, below).

Reasons for isolation, specifically whether from natural fragmentation or human habitat alteration, are not currently known for all populations. It is also not known how long single colonies may have been isolated from each other. If an isolated colony has enough area of habitat to support large numbers of the butterfly, it may be resilient enough to survive without nearby colonies and thus maintain viability for a long time. However, many silverspot populations, whether single-colony or multi-colony, have limited amounts of habitat. It is unknown specifically how long it will take for low genetic diversity to become a threat to the silverspot, but isolation of populations indicates that loss of genetic diversity could be a threat at some point, if loss of populations through lack of demographic support does not occur first, and both are cause for concern for the subspecies' viability.

Exotic Plant Invasion

The Taos population has experienced some invasion by the exotic Siberian elm (*Ulmus pumila*). Because Siberian

elm is widespread in the silverspot's range, we expect its occurrence to increase if changes in climate reduce snowpack and water levels in the wet meadows of the Taos population or other populations. Similarly, the extirpated Unawep Seep colony location was invaded by other exotic species, including Himalayan blackberry (*Rubus armeniacus*) and tree-of-heaven (*Ailanthus altissima*). Although not known to occupy other colonies at present, these plant species could invade other colonies (Plank 2020, pers. comm.). Other exotic woody or herbaceous species (such as Russian olive (*Elaeagnus angustifolia*), tamarisk (*Tamarix* spp.), or leafy spurge (*Euphorbia esula*)) can rapidly take over habitat and could eliminate bog violets and other native plants. However, there is currently little to no data on plants at the colonies (Ellis 1989, pp. 14–15).

Some nonnative thistles, such as Canada thistle (*Cirsium arvense*), occur in or around colonies and can create monocultures that create poor overall habitat conditions for the silverspot and bog violet by replacing native species (Ellis 1989, p. 14; Selby 2007, p. 30). Land managers in the West sometimes control the spread of exotic thistles, but Canada thistle (as well as native thistles) provides a nectar source for the silverspot. Additionally, the adventive (exotic but not well-established) bull thistle (*C. vulgare*) and burdock (*Arctium minus*) can provide nectar sources (Ellis 1989, p. 14). Because the silverspot uses exotic thistles, aggressive control of them has been advised against (Fisher 2020e, pers. comm.). It does not appear that monocultures of Canada thistle or other exotic vegetation have replaced native vegetation beneficial for the silverspot at observed colonies (Ireland 2018, pers. comm.), but study of plant composition at all colonies is needed to determine levels of exotic plant presence. Exotic plant invasion is currently considered a minor factor because exotic species are not currently known to be significantly influencing the subspecies' viability.

Climate Events

Climate events are defined in the SSA report as events that would happen within the range of normal variability (*i.e.*, stochastic events). However, they may reduce the amount and quality of habitat and the number of butterflies. A record of other *Speyeria* in Utah indicates that too much rain can reduce the number of butterflies but may be beneficial to violets, which can support greater numbers of butterflies in following years (Myrup 2020b, pers. comm.). Similarly, floods may at least

temporarily reduce the amount and quality of habitat and vegetation as well as butterfly numbers by inundating the area with water for long periods or by erosion. For instance, the Lake Fork River in northeast Utah flooded in the spring of 2019 and caused the reduction or extirpation of a related silverspot subspecies colony in the Uinta Mountains documented the year before (Ellis 2019, pers. comm.). However, the flood event was not outside the norm for past observed flood events in that drainage. This stochastic event provides an example of normal climate events that can cause reduction in numbers of individual butterflies or temporary extirpation of a colony but are not expected to cause permanent reduction or extirpation. Thus, climate events are not expected to reduce the subspecies' viability in the long term and are considered a minor factor influencing the subspecies' viability.

Climate Change

The climate within the silverspot's range already appears to be changing because of increased greenhouse gas emissions, with earlier springs and warmer temperatures. Average temperatures in Colorado have increased by 2.5 °F (1.4 °C) in the last 50 years (Lukas et al. 2014, p. 2). Snowpack, as measured by snow water equivalent, has mostly been below average in Colorado since 2000. The timing of snowmelt and peak runoff has also shifted 1 to 4 weeks earlier in the last 30 years in Colorado. Furthermore, the Palmer Drought Severity Index has shown an increasing trend in soil-moisture drought conditions due to below average precipitation since 2000 and the warming trend (Lukas et al. 2014, p. 2). More recent analysis using National Oceanic and Atmospheric Administration (NOAA) temperature data shows that, since 1895, the average temperature in much of the northern half of the silverspot's range has increased by 3.6 °F (2 °C) or more, and it is reported that average annual flows in the Colorado River Basin have declined by 20 percent over the past century (Eilperin 2020, entire). However, tree ring and other paleoclimate data indicate that there were more severe and sustained droughts prior to recent climate data (since 1900) (Lukas et al. 2014, pp. 2, 3). The silverspot has survived through the more severe past droughts, and, despite noted changes in climate over the last 36 years, climate has thus far not been a detectable factor in reduction of the subspecies' viability. Consequently, at the present and for the current condition analysis in the SSA report,

climate change is considered a minor factor. However, climate may become a major factor; see additional discussion of climate change under *Future Condition*, below.

Desiccation of Larvae

Desiccation of overwintering larvae may be a stressor if soil moisture and air humidity are too low or if larvae cannot remain hydrated. Soil moisture and dead vegetation, along with some air flow, may provide suitable conditions that prevent desiccation (Fisher 2020b, 2020f, pers. comm.). Hydration also appears to be needed prior to first instar larvae overwintering and is achievable if water for drinking is freely available and if soil or air moisture is sufficient for absorption (Myrup 2020a, pers. comm.; Stout 2020, entire). Snow cover may also provide some desiccation prevention and thermal cover, although it may not be a significant factor (Ellis 2020a, 2020b, pers. comm.). Snow cover may be of benefit during extreme cold (Fisher 2020b, pers. comm.). In general, however, extreme cold in the silverspot’s range is preceded by snow; thus, extreme cold may kill some larvae but is likely not a major factor that reduces the subspecies’ viability.

Collecting

Collecting has occurred in silverspot colonies, and it is possible collecting in small colonies could negatively affect population resiliency (Ellis 1989, p. 15; Selby 2007, p. 31; Scott 2023, pers. comm.). We know of one colony that was extirpated, in part, from collection by multiple people (Scott 2023, pers. comm.). However, collecting is not currently thought to be a significant stressor for the silverspot because most colonies occur on private land, colony locations are largely unknown to the public, and current collecting pressure is not thought to be extensive (Ellis 2020f, pers. comm.). In terms of the effect on the current condition of the subspecies, collecting is currently considered a minor factor and does not appear to be significantly reducing the subspecies’ viability. Efforts should be

taken to keep it a minor factor, as losing even one of the remaining populations to collection could have a substantial impact on the subspecies’ redundancy and representation. We are concerned about the potentially detrimental effects to the subspecies’ viability from future collection if silverspot locations, especially the locations of smaller populations, are made public (see section III. Critical Habitat below).

Current Condition

We assessed current conditions of silverspot populations in relation to the ecological requirements of this subspecies. Measurements available that are consistent across populations are habitat patch size, number of colonies, and approximate distance between colonies within a population from which genetic connectivity can be estimated. Additionally, the presence and potential influence of the three major habitat factors affecting the subspecies (habitat loss and fragmentation, livestock grazing, and hydrologic alteration) were derived from aerial imagery and/or on-the-ground knowledge. Therefore, we used these metrics to characterize the current resiliency condition of populations (see the SSA report’s section 3.5 “Current Condition by Population” on how metric scores were derived; Service 2023, pp. 39–40).

Resiliency scores and categories were established based on the best available information and professional opinion of species experts. Habitat patch sizes are estimates based on expert opinion of individual colony bog violet areas and primary nectar plant areas using aerial imagery or field observations. Determination of the number and status of colonies within a population was primarily based on expert input and survey information.

There are 10 silverspot populations comprised of 21 known colonies. Two populations, Archuleta and Garfield, were not included in the genetic analysis by Cong et al. (2019, entire) due to a lack of samples, but we consider them to be part of the silverspot

subspecies due to their geographic proximity to confirmed populations. We designated the Archuleta and Garfield populations as separate populations because they are more than 20 air miles (32 km) away from other populations (41 and 80 mi (66 and 129 km), respectively) and it is likely populations more than 20 mi (32 km) apart are not genetically connected (Ellis 2020c, 2020d, 2020e, pers. comm.; Grishin 2020b, pers. comm.)

Within the range of and among all 10 populations, five previously known colonies have been extirpated; one was confirmed as extirpated from the Ouray population as recently as 2022 (Fisher 2022b, pers. comm.). The other four extirpations occurred over the last 40 years (since the late 1970s) (Scott and Fisher 2014, p. 3; Service 2023, pp. 18–19). Not including the extirpated colonies or stray sightings, and based on recent surveys or expert input, we evaluated the 21 known colonies that make up the 10 populations. There is some uncertainty whether all 21 colonies are extant based on the lack of consistent and consecutive surveys over the last 5 years. We characterize their current status in the SSA report as extant, likely extant, unknown, likely extirpated, or extirpated (Service 2023, pp. 40, 47).

Resiliency for each population was scored using metrics for population size (in acres), number of colonies within populations, connectivity within populations, and habitat condition. Resiliency scores are categorized as follows: 0 = predicted extirpation (future scenarios only); 1 = very low resiliency; 2 and 3 = low resiliency; 4 to 6 = moderate resiliency; and 7 and above = high resiliency (see table 1, below). According to our current condition analysis in the SSA report, three populations have very low resiliency, three populations have low resiliency, two populations have moderate resiliency, and two populations have high resiliency (see table 1, below; Service 2023, pp. 46–49).

TABLE 1—CURRENT CONDITION RESILIENCY RANKINGS FOR SILVERSPOT POPULATIONS

Population	Size in ac (ha)	Number of colonies	Population resiliency score
Archuleta	11.9 (4.8)	1	1
Conejos	39.2 (15.9)	1	3
Costilla	4.3 (1.7)	1	1
Garfield	25.8 (10.4)	1	2
La Plata	5.2 (2.1)	1	1
Mesa/Grand	45.6 (18.5)	6	9
Montrose/San Juan	19.9 (8.1)	2	5
Ouray	38.6 (15.6)	2	5

TABLE 1—CURRENT CONDITION RESILIENCY RANKINGS FOR SILVERSPOT POPULATIONS—Continued

Population	Size in ac (ha)	Number of colonies	Population resiliency score
San Miguel/Mora	1.5 (0.6)	2	3
Taos	522.2 (211.3)	4	11

With 10 populations spread across 284 air miles (457 km) north to south and 237 air miles (381 km) east to west, there appears to be adequate redundancy should catastrophic events occur that cause extirpation of one or a few populations. However, if catastrophic events cause extirpation of the populations with the highest resiliency (Mesa/Grand, Montrose/San Juan, Ouray, and Taos), it could be quite detrimental to the viability of the subspecies because the six remaining populations have very low or low resiliency. Due to the low resiliency of many populations, more populations with sufficient resiliency would contribute to the subspecies' viability. Based on our evaluation of the 10 populations, we consider the current condition of the subspecies' redundancy to be moderate.

The 10 silverspot populations represent the genetic and ecological variation (representation) currently known for this subspecies. Eight silverspot populations were identified based on genetic variation, which supports the ability of the subspecies to adapt over time to long-term changes in the environment (for example, climate change) (Cong et al. 2019, entire). However, 5 populations are comprised of a single colony, and all 10 populations appear isolated from one another. Genetic drift, the change in allele frequency in a population, is a particular concern for the small, isolated populations, and could impact the subspecies' adaptive capacity. In general, the bog violet and the silverspot occur in the same habitat across the range, but ecological representation adds to adaptive capacity because the silverspot occurs at different elevations and latitudes, such that overall, the silverspot has low to moderate representation. Future analysis of ecological settings at all colonies and populations is needed to improve our understanding of representation across the subspecies' range.

In summary, there are currently 21 colonies representing the 10 populations. In terms of resiliency, three populations are in very low condition, three in low condition, two in moderate condition, and two in high condition. Current redundancy is determined to be

moderate, and representation is thought to be low to moderate.

Future Condition

In the SSA report, we forecast the resiliency of silverspot populations and the redundancy and representation of the subspecies over the next approximately 30 years (to the year 2050) using a range of plausible future scenarios. This timeframe encompasses approximately 30 generations of the subspecies, and we can reasonably rely on the climate model projections and our projections of the subspecies' response up to this point. Climate change impacts and human habitat impacts are likely to be the biggest drivers of changes to resiliency, redundancy, and representation for the silverspot. We evaluated four future scenarios that capture the range of plausible futures based on four climate models and future climate projections developed for southern Colorado and northern New Mexico (Rangwala 2020a, entire; 2020b, entire). Three of the four models use representative concentration pathway (RCP; a greenhouse gas concentration trajectory) 4.5, and the fourth uses RCP8.5. The RCP4.5 is considered a medium emissions trajectory, and the RCP8.5 is considered a high emissions trajectory. The higher the emissions, the greater chance the climate will change further from the 1971–2000 baseline. Current policies are projected to take us slightly above the RCP4.5 emission trends by mid-century (Hausfather and Peters 2020, p. 260). The climate models are presented in the SSA report (Service 2023, tables 5–8, pp. 51–54).

Using the four climate scenarios, we developed four future condition scenarios to evaluate the future viability of the silverspot. In simple terms, the four scenarios include:

- Scenario 1: Warm Climate with Conservation Efforts;
- Scenario 2: Hot and Dry Summers/ Very Wet Winters with Conservation Efforts;
- Scenario 3: Very Hot and Very Dry Summers/Wet Winters with No Conservation Efforts; and
- Scenario 4: Hot and Very Dry Summers/Dry Winters with No Conservation Efforts.

Because Scenarios 1 and 2 included potential future conservation efforts, which are not certain to occur and are not formalized in any conservation agreements, we did not consider these scenarios when determining if the silverspot meets the Act's definition of an endangered species or of a threatened species. However, Scenarios 1 and 2 will inform our strategies for recovery of the subspecies. Therefore, our analysis in this final rule focuses on the future condition of the silverspot under Scenarios 3 and 4, as summarized below. Refer to the SSA report for full descriptions of the future scenarios (Service 2023, chapter 4, pp. 49–67).

Scenario 3

Scenario 3 is characterized by the following assumptions:

- An increase in direct habitat loss due to development occurs, particularly in colonies close to existing housing development.
- Habitat fragmentation due to agricultural conversion remains unchanged from the current condition.
- Greater negative effects from summer grazing occur because of dry or drought conditions (an increase from current condition) that reduce nectar sources.
- No efforts are made to maintain current hydrology, and, in combination with dry or drought conditions, the habitat areas of small colonies will dry up and become extirpated and larger colonies are reduced in size (a decrease in suitable habitat from the current condition).
- All populations receive a negative habitat factor score due to climate-related hydrologic alteration whether there is surrounding development or not.
- No translocations of butterflies are implemented, and genetic diversity is low.
- Climate emissions follow RCP8.5 (a high emissions scenario) with very hot and dry summers and wet winters.

Scenario 4

Scenario 4 is characterized by the following assumptions:

- We include the same assumptions as Scenario 3 for habitat loss and fragmentation, summer grazing,

hydrology and climate-related hydrologic factors, and translocation (the first six bullets, above).

- Climate emissions follow RCP4.5 (a medium emissions scenario) with hot and very dry summers and dry winters.

Results of Scenarios 3 and 4

Resiliency rankings for each population under Scenario 3 can be found in table 2, below, and in the SSA report (Service 2023, table 11, p. 64). Four of the previously ranked low or very low resiliency populations under current conditions are expected to become extirpated, three populations have a very low resiliency, two have low resiliency, and the Ouray population retains a moderate resiliency, surpassing the Mesa/Grand and Taos populations as the highest-ranking population. Extirpation of colonies will reduce resiliency and redundancy of populations and will also undoubtedly decrease representation relative to the current condition, causing a decline in subspecies' viability.

Resiliency rankings for each population under Scenario 4 can be found in table 2, below, and in the SSA report (Service 2023, table 12, p. 66). As in Scenario 3, we expect climate change will cause the extirpation of four populations, which have habitat areas smaller than 12 ac (5 ha). The size of habitat in the remaining populations is projected to decrease compared to the current condition. Compared to Scenario 3, habitat size is projected to

be larger in the Colorado populations and smaller in the Taos population, but not enough to change the size scoring. With slightly less evaporative stress and slightly lower frequency of severe drought under Scenario 4 compared to Scenario 3, remaining populations may, in turn, be slightly more resilient in this scenario than in Scenario 3. However, using the resiliency scoring metrics in the SSA report, the minor differences in resiliency between the two scenarios are too small to result in different scores. Consequently, resiliency scorings are the same in both Scenarios 3 and 4, with four extirpated populations, three very low and two low resiliency populations, and only one moderately resilient population. Redundancy and representation are projected to be low, the same as in Scenario 3, and a decrease from the current condition.

Summary of Current and Future Conditions

A comparison of the resiliency of each population for the current condition and future scenarios is presented below in table 2, and table 3 presents a summary of redundancy and representation (see also Service 2023, table 13, p. 67). Currently, we have determined that 3 of the 10 silverspot populations are in a very low resiliency condition, 3 are in a low resiliency condition, 2 are in a moderate resiliency condition, and 2 of the largest populations are in a high resiliency condition. With 10 populations spread across the

subspecies' range, there appears to be adequate redundancy should catastrophic events occur that cause the extirpation of one or a few populations, and we consider current redundancy to be moderate for the silverspot. It is likely there is sufficient representation and adaptability due to the genetic differences observed among populations. However, many of the populations are composed of a single colony, and all populations appear isolated genetically. In general, the bog violet and the silverspot occur in the same habitat across the subspecies' range, but ecological representation adds to adaptive capacity through occurrences at different elevations and latitudes and provides a low-to-moderate subspecies representation currently.

The effects of future climate changes coupled with the continuation of other stressors that alter hydrology and cause habitat loss and fragmentation are projected to increase over the next 30 years in Scenarios 3 and 4, resulting in future conditions that cause resiliency, redundancy, and representation to decrease, and thus the subspecies' viability is expected to decrease from the current condition. Resiliency rankings are the same for Scenarios 3 and 4 with four extirpated populations, three very low and two low resiliency populations, and only one moderately resilient population. Redundancy and representation are both projected to be reduced from the current condition.

TABLE 2—SUMMARY OF SILVERSPOT RESILIENCY FOR CURRENT CONDITION AND TWO FUTURE SCENARIOS

Population	Resiliency		
	Current condition	Future scenario 3	Future scenario 4
Archuleta	1	0	0
Conejos	3	2	2
Costilla	1	0	0
Garfield	2	1	1
La Plata	1	0	0
Mesa/Grand	9	1	1
Montrose/San Juan	5	1	1
Ouray	5	5	5
San Miguel/Mora	3	0	0
Taos	11	3	3

TABLE 3—SUMMARY OF SILVERSPOT REDUNDANCY AND REPRESENTATION FOR CURRENT CONDITION AND TWO FUTURE SCENARIOS

	Current condition	Future scenario 3	Future scenario 4
Redundancy	Moderate	Very Low	Very Low.
Representation	Low-Moderate	Low	Low.

Cumulative Effects

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have analyzed the cumulative effects of identified threats and conservation actions on the subspecies. To assess the current and future condition of the subspecies, we evaluate the effects of all the relevant factors that may be influencing the subspecies, including threats and conservation efforts.

Habitat loss and fragmentation, human-caused hydrologic alteration, livestock grazing, genetic isolation, exotic plant invasion, climate change, climate events, larval desiccation, and collecting are all factors that influence or could influence the subspecies' viability. These factors also have the potential to act cumulatively to impact silverspot viability and their cumulative impacts were considered in our characterization of the subspecies' current and future condition in the SSA report. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to the entire subspecies, our assessment integrates the cumulative effects of factors and replaces a standalone cumulative effects analysis.

Beneficial Factors

Mowing or haying: Periodic mowing or haying, occasionally or once a year, appears to be beneficial to open the canopy for violets, to reduce a buildup of thatch from dead vegetation, and to keep woody vegetation from encroaching beyond what is suitable for the silverspot. Mowing or haying may approximate disturbance that would have occurred historically from native ungulate grazing or wildfire or both. Mowing in the early summer would allow for regrowth of vegetation and nectar plants suitable for the silverspot (Ellis 2020g, pers. comm.). Mowing once in the late summer or early fall could also potentially be compatible (Smith 2019, pers. comm.), but has a higher risk of reducing vegetation and nectar plants for that year's pupae and adults and possibly crushing pupae, eggs, and larvae. Occasional or annual mowing can, nonetheless, be beneficial to reduce competition from other plants if adequate nectar plants remain in the field or if there are enough within a short distance around the field to supply nectar to adult silverspots.

Grazing: Winter and spring grazing (October to mid-April) can be beneficial to the silverspot (Arnold 1989, pp. 14–15). This is because removal of thatch

from the dead vegetation limits competition in the spring for the violets. It also may approximate historical grazing patterns by native ungulates (deer and elk), which, in the winter, come down to lower valleys where there is less snow. Horses grazed an apparently healthy colony in the spring and summer (Arnold 1989, p. 14), so some light to moderate grazing in the spring or summer appears to be acceptable. In contrast, grazing when violets have emerged and are actively growing (spring and summer) may be detrimental if livestock readily consume or trample the violets and possibly eggs, larvae, and pupae.

Burning: Burning of meadows to reduce dead vegetation and reduce woody vegetation to suitable levels for the silverspot can also be beneficial and can possibly increase violet density (Arnold 1989, p. 14; Ellis 1989, p. 14).

Exotic plant invasion: Some exotic plants considered invasive or adventive may provide nectar sources that benefit the silverspot (Ellis 1989, p. 14; Fisher 2020e, pers. comm.). However, especially with invasive plants, this may only be the case where native nectar plants have been substantially reduced or eliminated.

Conservation efforts: The historical Unaweep Seep colony in the Mesa/Grand population was designated as a State Natural Area in 1983 (Ellis 1999, p. 2). The Bureau of Land Management (BLM) also established a Research Natural Area around it in 1983 and designated it as an Area of Critical Environmental Concern (ACEC) through their 2015 Resource Management Plan (Ellis 1989, p. 1; BLM 2015, pp. 207–208). Some monitoring, at least for the bog violet, occurred through 1999, but sometime after 1989 or possibly 1999, the colony became extirpated (Ellis 1999, entire). Habitat monitoring actions were recommended, but it is unclear whether any of them were ever implemented (Ellis 1999, pp. 8–9). Although the State of Colorado and the BLM implemented land conservation designations around the Unaweep Seep colony in the Mesa/Grand population, this colony has been extirpated for at least 20 years. Therefore, unless the bog violet and silverspot are translocated back to Unaweep Seep, the land designations do not benefit the silverspot. There are no other State regulatory mechanisms that benefit the silverspot in Colorado, New Mexico, or Utah. The Colorado State Wildlife Action Plan (SWAP) includes the silverspot, but there are no State statutes for management of the subspecies, so management would occur through

cooperative efforts with other agencies or organizations.

The BLM (Colorado), U.S. Forest Service (USFS) Region 2 (Colorado), and USFS Region 3 (New Mexico) have the silverspot on their sensitive species lists. The USFS Region 4 (Utah) does not, but no silverspots are currently known on USFS land in Utah. No silverspot colonies are currently known on USFS land in Colorado or New Mexico either, but the elevational range of the subspecies includes some lower elevation USFS land. The BLM does not have the silverspot on its sensitive species lists in either Utah or New Mexico. If species are on BLM sensitive species lists, the BLM works cooperatively with other Federal and State agencies and nongovernmental organizations to conserve these species and ensure that activities on BLM lands do not contribute to the need for their listing under the Act. Specific conservation objectives for BLM sensitive species are established in BLM land use plans. BLM's Grand Junction Field Office manages the Unaweep Seep property and, in addition to ACEC designation, includes management of the area for the butterfly in their 2015 Resource Management Plan (BLM 2015, pp. 207–208, appendix B, appendix H). The butterfly is not included in other BLM land use plans in any of the other BLM resource areas in Colorado, New Mexico, or Utah, because the butterfly was not known to occur on BLM land in areas other than Unaweep Seep until very recently (only one new colony has been identified on BLM lands).

Only three silverspot colonies are known to occur on public land (Federal and State lands), but there is potentially part of a fourth colony (unconfirmed) on public land in the Ouray population. Additionally, there are unsurveyed bog violet patches on State and Federal lands in the Garfield, Mesa/Grand, and Montrose/San Juan populations. Consequently, at present, any regulatory mechanisms or conservation efforts on State, BLM, and USFS lands, although contributing to conservation of the silverspot, would have a low impact on the silverspot's overall viability because most colonies and populations occur on private land.

Determination of Silverspot's Status

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 224) set forth the procedures for determining whether a species meets the Act's definition of an endangered species or a threatened species. The Act defines an "endangered species" as a species in danger of extinction throughout all or a significant portion of

its range, and a “threatened species” as a species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of endangered species or threatened species because of any of the following 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.

Status Throughout All of Its Range

After evaluating threats to the species and assessing the cumulative effect of the threats under the Act’s section 4(a)(1) factors, we found habitat loss and fragmentation (Factor A), incompatible livestock grazing (Factor A), human-caused hydrologic alteration (Factor A), and genetic isolation (Factor E) to be the main drivers of the silverspot’s current condition, with the addition of the effects of climate change (Factor E) influencing future condition. These stressors all contribute to loss of habitat quantity and quality for the silverspot and for the bog violet, the plant on which silverspot larvae exclusively feed. These threats can currently occur anywhere in the range of the silverspot, and the future effects of climate change are expected to be ubiquitous throughout the subspecies’ range. The existing regulatory mechanisms (Factor D) do not significantly affect the subspecies or ameliorate these stressors; thus, these stressors continue and are predicted to increase in prevalence in the future.

Under the two future scenarios considered in this evaluation, we expect some populations to become extirpated and resiliency of the remaining populations to decrease. This would result in decreased redundancy and representation in the future compared to the current condition.

We find that the silverspot is not currently in danger of extinction because the subspecies is still widespread with multiple populations of various sizes and levels of resiliency spread across its range, capturing known genetic and ecological variation. Therefore, the subspecies currently has sufficient redundancy and representation to withstand catastrophic events and maintain adaptability to changes. However, we expect that the stressors, individually and

cumulatively, will reduce resiliency, redundancy, and representation within all parts of the range within the foreseeable future, in light of future climate change effects. Thus, after assessing the best available information, we conclude that the silverspot is not currently in danger of extinction but is likely to become in danger of extinction within the foreseeable future throughout all of its range. This finding is based on anticipated reductions in resiliency, redundancy, and representation in the future as a result of predicted loss and degradation of wet meadow habitat from the synergistic and cumulative interactions between climate change and other stressors. Climate change is predicted to increase temperatures and decrease water availability and snowpack necessary to maintain the wet meadows that the silverspot and bog violet need. This, coupled with the continuation of other stressors that alter hydrology and cause habitat loss and fragmentation, is expected to impact the future viability of this subspecies. We can reasonably determine that both the future threats and the subspecies’ responses to those threats are likely within a 30-year timeframe (*i.e.*, the foreseeable future). Thus, after assessing the best available information, we determine that the silverspot is not currently in danger of extinction but is likely to become in danger of extinction within the foreseeable future throughout all of its range.

Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. The court in *Center for Biological Diversity v. Everson*, 435 F. Supp. 3d 69 (D.D.C. 2020) (*Everson*), vacated the provision of the Final Policy on Interpretation of the Phrase “Significant Portion of Its Range” in the Endangered Species Act’s Definitions of “Endangered Species” and “Threatened Species” (Final Policy; 79 FR 37578, July 1, 2014) that provided if the Services determine that a species is threatened throughout all of its range, the Services will not analyze whether the species is endangered in a significant portion of its range.

Therefore, we proceed to evaluating whether the species is endangered in a significant portion of its range—that is, whether there is any portion of the species’ range for which both (1) the portion is significant; and (2) the species is in danger of extinction in that portion. Depending on the case, it might

be more efficient for us to address the “significance” question or the “status” question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species’ range.

Following the court’s holding in *Everson*, we now consider whether there are any significant portions of the species’ range where the species is in danger of extinction now (*i.e.*, endangered). In undertaking this analysis for the silverspot, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the subspecies and the threats that the subspecies faces to identify portions of the range where the subspecies may be endangered.

We evaluated the range of the silverspot to determine if the species is in danger of extinction now in any portion of its range. The range of a species can theoretically be divided into portions in an infinite number of ways. We focused our analysis on portions of the subspecies’ range that may meet the definition of an endangered species.

For the silverspot, we considered whether the threats or their effects on the subspecies are greater in any biologically meaningful portion of the subspecies’ range than in other portions such that the subspecies is in danger of extinction now in that portion. We examined the following threats: Habitat loss and fragmentation; livestock grazing; human-caused hydrologic alteration; genetic isolation; climate change; climate events; invasion by nonnative plants; larval desiccation; and collecting. These are all factors that influence or could influence the subspecies’ viability, including cumulative effects. All of these threats are similar in scope, scale, and distribution across the range of the subspecies. The spatial distribution of these threats is evenly distributed throughout the range and not concentrated in any particular area. However, there are several smaller populations distributed throughout the range that are currently in low resiliency condition and therefore could experience an elevated risk of extinction in the future (see tables 1 and 2, above). These smaller populations are not concentrated in their location, instead they are distributed across the range with more highly resilient populations interspersed between them. These smaller populations are not at risk of extinction currently due to the lack of imminent threats, as described in our

analysis above. Climate events are currently a minor factor and when considered with the other stressors are not expected to reduce the subspecies' viability in the near term. The risk of extinction of the smaller populations increases in the foreseeable future when climate change becomes a major factor and when other major factors such as habitat loss and degradation are predicted to increase. Therefore, the smaller populations risk of extinction is influenced by the predicted increase in threats from habitat loss and degradation, climate change, and (to a lesser extent) the other stressors analyzed in this rule, and their future effects to the silverspot.

We found no portion of the silverspot's range where threats are impacting individuals differently from how they are affecting the subspecies elsewhere in its range, or where the biological condition of the subspecies differs from its condition elsewhere in its range such that the status of the subspecies in that portion differs from any other portion of the subspecies' range. Therefore, no portion of the subspecies' range provides a basis for determining that the subspecies is in danger of extinction in a significant portion of its range, and we determine that the subspecies is likely to become in danger of extinction within the foreseeable future throughout all of its range. This does not conflict with the courts' holdings in *Desert Survivors v. U.S. Department of the Interior*, 321 F. Supp. 3d 1011, 1070–74 (N.D. Cal. 2018), and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d 946, 959 (D. Ariz. 2017), because, in reaching this conclusion, we did not apply the aspects of the Final Policy, including the definition of "significant" that those court decisions held to be invalid.

Determination of Status

Our review of the best scientific and commercial data available indicates that the silverspot meets the Act's definition of a threatened species. Therefore, we are listing the silverspot as a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition as a listed species, planning and implementation of recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and conservation by Federal, State, Tribal, and local agencies, private

organizations, and individuals. The Act encourages cooperation with the States and other countries and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies, including the Service, and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Section 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning consists of preparing draft and final recovery plans, beginning with the development of a recovery outline and making it available to the public soon after a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. The recovery planning process involves the identification of actions that are necessary to halt and reverse the species' decline by addressing the threats to its survival and recovery. The recovery plan also identifies recovery criteria for review of when a species may be ready for reclassification from endangered to threatened ("downlisting") or removal from protected status ("delisting"), and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) may be established to develop recovery plans. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our website (<https://www.fws.gov/program/endangered-species>), or from our Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other

Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. For many listed species, achieving recovery requires cooperative conservation efforts on private, State, and Tribal lands.

Once this subspecies is listed (see **DATES** above), funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the States of Colorado, New Mexico, and Utah will be eligible for Federal funds to implement management actions that promote the protection or recovery of the silverspot. Information on our grant programs that are available to aid the subspecies recovery can be found at: <https://www.fws.gov/service/financial-assistance>.

Please let us know if you are interested in participating in recovery efforts for the silverspot. Additionally, we invite you to submit any new information on this subspecies whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7 of the Act is titled Interagency Cooperation and mandates all Federal action agencies to use their existing authorities to further the conservation purposes of the Act and to ensure that their actions are not likely to jeopardize the continued existence of listed species or adversely modify critical habitat. Regulations implementing section 7 are codified at 50 CFR part 402.

Section 7(a)(2) states that each Federal action agency shall, in consultation with the Secretary, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Each Federal agency shall review its action at the earliest possible time to determine whether it may affect listed species or critical habitat. If a determination is made that the action may affect listed species or critical habitat, formal consultation is required (50 CFR 402.14(a)), unless the Service concurs in

writing that the action is not likely to adversely affect listed species or critical habitat. At the end of a formal consultation, the Service issues a biological opinion, containing its determination of whether the federal action is likely to result in jeopardy or adverse modification.

Examples of discretionary actions for the silverspot that may be subject to consultation procedures under section 7 are land management or other landscape-altering activities on Federal lands administered by the U.S. Fish and Wildlife Service, Bureau of Land Management, Bureau of Indian Affairs, Bureau of Reclamation, National Park Service, and U.S. Forest Service as well as actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat—and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or carried out by a Federal agency—do not require section 7 consultation. Federal agencies should coordinate with the local Service Field Office (see **FOR FURTHER INFORMATION CONTACT**) with any specific questions on Section 7 consultation and conference requirements.

It is the policy of the Services, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the extent known at the time a species is listed, specific activities that will not be considered likely to result in violation of section 9 of the Act. To the extent possible, activities that will be considered likely to result in violation will also be identified in as specific a manner as possible. The intent of this policy is to increase public awareness of the effect of a listing on proposed and ongoing activities within the range of the species. Although most of the prohibitions in section 9 of the Act apply to endangered species, sections 9(a)(1)(G) and 9(a)(2)(E) of the Act prohibit the violation of any regulation under section 4(d) pertaining to any threatened species of fish or wildlife, or threatened species of plant, respectively. Section 4(d) of the Act directs the Secretary to promulgate protective regulations that are necessary and advisable for the conservation of threatened species. As a result, we

interpret our policy to mean that, when we list a species as a threatened species, to the extent possible, we identify activities that will or will not be considered likely to result in violation of the protective regulations under section 4(d) for that species.

At this time, we are unable to identify specific activities that will or will not be considered likely to result in violation of section 9 of the Act beyond what is already clear from the descriptions of prohibitions and exceptions established by protective regulation under section 4(d) of the Act.

Questions regarding whether specific activities would constitute violation of section 9 of the Act should be directed to the Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

II. Final Rule Issued Under Section 4(d) of the Act

Background

Section 4(d) of the Act contains two sentences. The first sentence states that the Secretary shall issue such regulations as she deems necessary and advisable to provide for the conservation of species listed as threatened. The U.S. Supreme Court has noted that statutory language similar to the language in section 4(d) of the Act authorizing the Secretary to take action that she “deems necessary and advisable” affords a large degree of deference to the agency (see *Webster v. Doe*, 486 U.S. 592, 600 (1988)). Conservation is defined in the Act to mean the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Additionally, the second sentence of section 4(d) of the Act states that the Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or section 9(a)(2), in the case of plants. Thus, the combination of the two sentences of section 4(d) provides the Secretary with wide latitude of discretion to select and promulgate appropriate regulations tailored to the specific conservation needs of the threatened species. The second sentence grants particularly broad discretion to the Service when adopting the prohibitions under section 9.

The courts have recognized the extent of the Secretary’s discretion under this standard to develop rules that are appropriate for the conservation of a species. For example, courts have upheld rules developed under section

4(d) as a valid exercise of agency authority where they prohibited take of threatened wildlife or include a limited taking prohibition (see *Alsea Valley Alliance v. Lautenbacher*, 2007 U.S. Dist. Lexis 60203 (D. Or. 2007); *Washington Environmental Council v. National Marine Fisheries Service*, 2002 U.S. Dist. Lexis 5432 (W.D. Wash. 2002)). Courts have also upheld 4(d) rules that do not address all of the threats a species faces (see *State of Louisiana v. Verity*, 853 F.2d 322 (5th Cir. 1988)). As noted in the legislative history when the Act was initially enacted, “once an animal is on the threatened list, the Secretary has an almost infinite number of options available to [her] with regard to the permitted activities for those species. [She] may, for example, permit taking, but not importation of such species, or [she] may choose to forbid both taking and importation but allow the transportation of such species” (H.R. Rep. No. 412, 93rd Cong., 1st Sess. 1973).

The provisions of this 4(d) rule will promote conservation of the silverspot by encouraging management of the landscape in ways that meet both land management considerations and the conservation needs of the silverspot. The provisions of this rule are one of many tools that we will use to promote the conservation of the silverspot.

As mentioned previously in “Available Conservation Measures,” section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species.

These requirements are the same for a threatened species with a species-specific 4(d) rule. For example, as with an endangered species, if a Federal agency determines that an action is “not likely to adversely affect” a threatened species will require the Service’s written concurrence (50 CFR 402.13(c)). Similarly, if a Federal agency determines that an action is “likely to adversely affect” a threatened species, the action will require formal consultation and the formulation of a biological opinion (50 CFR 402.14(a)).

Provisions of the 4(d) Rule

Exercising the Secretary’s authority under section 4(d), we have developed a rule that is designed to address the silverspot’s specific threats and conservation needs. As discussed above under “Summary of Biological Status

and Threats,” we have concluded that the silverspot is likely to become in danger of extinction within the foreseeable future primarily due to the individual and cumulative effects of habitat loss and fragmentation, incompatible livestock grazing, human-caused hydrologic alteration, genetic isolation, and climate change. Section 4(d) requires the Secretary to issue such regulations as she deems necessary and advisable to provide for the conservation of each threatened species and authorizes the Secretary to include among those protective regulations any of the prohibitions that section 9(a)(1) of the Act prescribes for endangered species. We find that the protections, prohibitions, and exceptions in this rule as a whole satisfy the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the silverspot.

The protective regulations for the silverspot incorporate prohibitions from section 9(a)(1) to address the threats to the species. Section 9(a)(1) prohibits the following activities for endangered wildlife: importing or exporting; take; possession and other acts with unlawfully taken specimens; delivering, receiving, carrying, transporting, or shipping in interstate or foreign commerce in the course of commercial activity; or selling or offering for sale in interstate or foreign commerce. This protective regulation includes all of these prohibitions because the silverspot is at risk of extinction in the foreseeable future and putting these prohibitions in place will help to preserve the subspecies' remaining populations, slow their rate of decline, and decrease synergistic, negative effects from other threats.

This 4(d) rule will provide for the conservation of the silverspot by prohibiting the following activities, except as otherwise authorized or permitted (*e.g.*, allowed for in an exception or authorized by a permit issued under section 10(a)(1)(A) of the Act): importing or exporting; possession and other acts with unlawfully taken specimens; delivering, receiving, carrying, transporting, or shipping in interstate or foreign commerce in the course of commercial activity; or selling or offering for sale in interstate or foreign commerce. In addition, anyone taking, attempting to take, or otherwise possessing a silverspot, or parts thereof, in violation of section 9 of the Act will be subject to a penalty under section 11 of the Act, with certain exceptions (discussed below).

Under the Act, “take” means to harass, harm, pursue, hunt, shoot,

wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Some of these provisions have been further defined in regulation at 50 CFR 17.3. Take can result knowingly or otherwise, by direct and indirect impacts, intentionally or incidentally. Regulating incidental and intentional take will help preserve the subspecies' remaining populations, slow their rate of decline, and decrease synergistic, negative effects from other threats.

Exceptions to the prohibition on take include all of the general exceptions to the prohibition on take of endangered wildlife, as set forth in 50 CFR 17.21 and additional exceptions, as described below.

The 4(d) rule will also provide for the conservation of the species by allowing exceptions that incentivize conservation actions or that, while they may have some minimal level of take of the silverspot, are not expected to rise to the level that would have a negative impact (*i.e.*, would have only de minimis impacts) on the subspecies' conservation.

As discussed above under “Summary of Biological Status and Threats”, livestock grazing, exotic plant invasion, prescribed burning, and use of pesticides affect the status of the silverspot both negatively and positively depending on how, when, and where they are done. Accordingly, this final 4(d) rule addresses activities to facilitate conservation and management of the silverspot where the subspecies currently occurs and may occur in the future by excepting the activities from the Act's take prohibition under certain specific conditions. These activities are intended to increase management flexibility and encourage support for the conservation and habitat improvement of the silverspot. Under this 4(d) rule, take will be prohibited, except for take incidental to an otherwise lawful activity described in the exceptions to prohibitions in the 4(d) rule for the purpose of silverspot conservation or recovery.

The specific exceptions to the prohibitions for specific types of incidental take under this 4(d) rule are explained in more detail below. For all of these, reasonable care must be practiced to minimize the impacts from the actions. Reasonable care means limiting the impacts to the silverspot and its host plant (bog violet) by complying with any and all applicable Federal, State, and Tribal regulations for the activity in question; using methods and techniques that result in the least harm, injury, or death, as feasible; undertaking activities at the least impactful times (*e.g.*, conducting

activities that might impact habitat during the flight season) and locations, as feasible; ensuring the number of individuals affected does not impact the existing populations; minimizing the potential to introduce invasive plant species; and preserving the genetic diversity of populations.

Under this 4(d) rule, incidental take of a silverspot will not be a violation of section 9 of the Act if it occurs as a result of the following activities. All activities and statements below only apply in habitat areas of silverspot that include wet meadow areas where bog violets are growing and immediately adjacent areas with nectar plants.

Livestock Grazing

By excepting take of the silverspot caused by grazing, we acknowledge the positive role that some ranchers have already played in conserving the silverspot and the importance of preventing any additional loss and fragmentation of native grasslands and riparian habitat. Grazing (and browsing) by livestock may improve silverspot habitat by opening up tree or shrub canopy cover in the habitat and removing herbaceous vegetation that shades and competes with the bog violet, thereby reducing its abundance. Grazing may be an effective tool to improve silverspot habitat when carefully applied in cooperation and consultation with private landowners, public land managers, and grazing experts. Moderate vegetative utilization (40–55 percent) in late fall to early spring (October 15 to May 31) is excepted under this 4(d) rule. Resting pastures that include silverspot habitat is preferred in summer through fall (June 1 to October 14), but light grazing (less than 30 percent utilization) during this timeframe is also excepted from take because it may reduce competition for the bog violet. Recovery of the silverspot will depend on the protection and restoration of high-quality habitats supporting the bog violet on private lands and on public lands that are grazed by private individuals under lease or other agreements.

Annual Haying or Mowing

Annual haying or mowing in early summer can be beneficial, or at least not detrimental, to the silverspot by removing vegetation that competes with the bog violet for light, nutrients, and water and reduces the violet's abundance. Therefore, we except take from annual haying or mowing in silverspot habitat under the following conditions: activities must occur in the early summer (June 30 or earlier), and blade height must be a minimum of 6

inches above the ground, with 8 inches or higher preferred in areas with bog violet to avoid cutting the violet leaves. The timing of cutting also applies to adjacent drier habitat areas that contain nectar plants, an important food source for adult butterflies, but blade height may be lower than 6 inches where the bog violet is not present. However, haying or mowing from July 1 through October would be detrimental due to removal of nectar plants and cover for all silverspot life stages, and therefore is not excepted from the prohibitions in this 4(d) rule in and adjacent to bog violet habitat.

Prescribed Burning

Spring burning can be beneficial to remove thatch that may reduce or prevent growth of the bog violet. Prescribed burning in the spring (March 1 to April 30) has limited impact to silverspots and is excepted from take. Fall burning (October 15 to December 15) is also excepted if adequate monitoring (*i.e.*, at least two surveys at times when butterflies are active) is performed on the property during the adult flight period of that year and does not detect the silverspot.

Brush Control

Some woody vegetation interspersed in silverspot habitat or at the margins of habitat can be beneficial for bog violet survival and growth by providing some protection from livestock grazing and trampling and a future substrate for violet establishment on old decaying logs (Ireland 2021a, pers. comm.). However, if allowed to become too dense, woody vegetation can crowd out bog violets and nectar plants. Consequently, brush removal every 4 to 5 years is excepted from take and may occur at any time during the year. Removal can be by mechanical means, burning, grazing, or herbicide application if in compliance with other excepted activities in the 4(d) rule. If mechanical means such as a brush hog is used, the blade must be set to 8 inches or higher above the ground. If herbicides are used, an appropriate systemic herbicide to prevent regrowth must be directly applied to cut stems. Broadcast spraying in silverspot habitat is prohibited because it may remove all nectar plants for the butterfly.

Noxious Weed Control

Although some noxious weeds like Canada thistle provide nectar sources for silverspot, spot spraying, hand pulling, or mechanical treatment of noxious weeds is excepted from take and may occur at any time during the year. High densities of noxious weeds

can be detrimental to the bog violet and their control can benefit the silverspot. However, broadcast spraying in silverspot habitat is prohibited because it may remove all nectar plants for the butterfly.

Fence Maintenance

Excepted activities related to fence maintenance include replacement of poles and wire, and aboveground removal of woody vegetation along fence lines. These activities may occur at any time during the year. Fences help manage where cattle and other livestock can graze and reduce unwanted impacts to bog violet habitat. Removal of woody vegetation can prevent encroachment of vegetation into bog violet habitat and reduces competition with bog violet. If removal of woody vegetation is done by machine, such as a brush hog, the machine blade must be set 8 inches or higher above ground to avoid or minimize damage to the bog violet. If permanent removal of woody vegetation is desired, we recommend a systemic herbicide be directly applied to the cut stems of woody vegetation. However, as stated earlier, broadcast spraying in silverspot habitat is prohibited because it may remove all nectar plants for the butterfly.

Maintenance and Operation of Existing Utility Corridors

Maintenance and operation of existing utility infrastructure within and immediately adjacent to silverspot habitat are excepted from take within existing rights-of-way for standard activities to repair and maintain existing transmission towers, lines, access roads, and to perform brush control. These activities are excepted from take year-round and as needed with no restriction on frequency. Replacement of existing structures and the installation of new structures and infrastructure such as access roads are not excepted. Noxious weed control and fence maintenance must abide by the exceptions for these activities identified in the 4(d) rule.

Maintenance of Other Structures

Maintenance of other existing structures within and immediately adjacent to silverspot habitat is excepted if activities are kept within the confines of already disturbed ground so as to not disturb the subspecies or its habitat.

Despite these prohibitions regarding threatened species, we may under certain circumstances issue permits to carry out one or more otherwise prohibited activities, including those described above. The regulations that govern permits for threatened wildlife state that the Director may issue a

permit authorizing any activity otherwise prohibited with regard to threatened species. These include permits issued for the following purposes: for scientific purposes, to enhance propagation or survival, for economic hardship, for zoological exhibition, for educational purposes, for incidental taking, or for special purposes consistent with the purposes of the Act (50 CFR 17.32). The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

We recognize the special and unique relationship with our State natural resource agency partners in contributing to conservation of listed species. State agencies often possess scientific data and valuable expertise on the status and distribution of endangered, threatened, and candidate species of wildlife and plants. State agencies, because of their authorities and their close working relationships with local governments and landowners, are in a unique position to assist us in implementing all aspects of the Act. In this regard, section 6 of the Act provides that we must cooperate to the maximum extent practicable with the States in carrying out programs authorized by the Act. Therefore, any qualified employee or agent of a State conservation agency that is a party to a cooperative agreement with us in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, will be able to conduct activities designed to conserve the silverspot that may result in otherwise prohibited take without additional authorization.

Nothing in this 4(d) rule will change in any way the recovery planning provisions of section 4(f) of the Act, the consultation requirements under section 7 of the Act, or the ability of the Service to enter into partnerships for the management and protection of the silverspot. However, interagency cooperation may be further streamlined through planned programmatic consultations for the subspecies between Federal agencies and the Service.

III. Critical Habitat

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary shall designate critical habitat at the time the species is determined to be an endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the Secretary may, but is not required to, determine that a

designation would not be prudent in the following circumstances:

- The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;

- The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;

- Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States;

- No areas meet the definition of critical habitat; or

- The Secretary otherwise determines that designation of critical habitat would not be prudent based on the best scientific data available.

In this final rule, we affirm the prudency determination we made in our May 4, 2022, proposed rule (87 FR 26319 at pp. 26335–26336) concerning the designation of critical habitat for the silverspot. We find that the designation of critical habitat is not prudent for the silverspot, in accordance with 50 CFR 424.12(a)(1), because the silverspot faces a threat of unauthorized collection and trade, and designation can reasonably be expected to increase the degree of these threats to the subspecies. Designation of critical habitat requires the publication of maps and a narrative description of specific critical habitat areas in the **Federal Register**. The degree of detail in those maps and boundary descriptions is greater than the general location descriptions provided in this final rule. We find that the publication of maps and descriptions outlining the locations of the silverspot would likely facilitate unauthorized collection and trade, as collectors would know the exact locations where silverspots occur. The silverspot has been collected in the past, and there is potential for collection pressure to increase if specific locations of populations were to become widely known (Ellis 2020f, pers. comm.). Butterflies in general are highly sought after by collectors in the illegal animal trade (Courchamp et al. 2006, entire). We are concerned that the publicity from listing the silverspot may result in

greater interest from collectors and make the subspecies more desirable for collection because of its rarity as has been documented for other rare butterflies (Hoekwater 1997, entire; Courchamp et al. 2006, entire; O'Neill 2007, entire; Stratton 2012, entire; Lewis 2018, entire). Therefore, a designation of critical habitat would be detrimental for the subspecies. For more information on the rationale for our determination that designation of critical habitat is not prudent, see the May 4, 2022, proposed rule (87 FR 26319 at pp. 26335–26336).

Required Determinations

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

Regulations adopted pursuant to section 4(a) of the Act are exempt from the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) and do not require an environmental analysis under NEPA. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This includes listing, delisting, and reclassification rules, as well as critical habitat designations and species-specific protective regulations promulgated concurrently with a decision to list or reclassify a species as threatened. The courts have upheld this position (*e.g.*, *Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995) (critical habitat); *Center for Biological Diversity v. U.S. Fish and Wildlife Service.*, 2005 WL 2000928 (N.D. Cal. Aug. 19, 2005) (concurrent 4(d) rule)).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with federally recognized Tribes on a government-to-government basis. In accordance with Secretary's Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for

healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. Thirty-eight Tribes with cultural claims or affiliation to land or with lands currently in the range of the silverspot were contacted via letter to solicit input on the SSA report. One Tribe responded and stated that they do not have scientific data but would like to be kept informed of the SSA findings. We notified Tribes of the May 4, 2022, proposed listing determination and this final determination.

References Cited

A complete list of references cited in this rulemaking is available on the internet at <https://www.regulations.gov> and upon request from the Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this final rule are the staff members of the Fish and Wildlife Service's Species Assessment Team and the Colorado Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

Accordingly, we 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. In § 17.11, in paragraph (h), amend the List of Endangered and Threatened Wildlife by adding an entry for “Butterfly, silverspot” in alphabetical order under INSECTS to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	*
INSECTS				
*	*	*	*	*
Butterfly, silverspot	<i>Speyeria nokomis nokomis</i>	Wherever found	T	89 FR [INSERT FEDERAL REGISTER PAGE WHERE THE DOCUMENT BEGINS], February 15, 2024; 50 CFR 17.47(h). ^{4d}
*	*	*	*	*

■ 3. Amend § 17.47 by adding paragraph (h) to read as follows:

§ 17.47 Special rules—insects.

(h) Silverspot butterfly (*Speyeria nokomis nokomis*). (1) *Prohibitions*. The following prohibitions that apply to endangered wildlife also apply to the silverspot butterfly. Except as provided under paragraphs (h)(2) and (3) of this section and §§ 17.4 and 17.5, it is unlawful for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit, or cause to be committed, any of the following acts in regard to this species:

- (i) Import or export, as set forth at § 17.21(b) for endangered wildlife.
 - (ii) Take, as set forth at § 17.21(c)(1) for endangered wildlife.
 - (iii) Possession and other acts with unlawfully taken specimens, as set forth at § 17.21(d)(1) for endangered wildlife.
 - (iv) Interstate or foreign commerce in the course of commercial activity, as set forth at § 17.21(e) for endangered wildlife.
 - (v) Sale or offer for sale, as set forth at § 17.21(f) for endangered wildlife.
- (2) *General exceptions from prohibitions*. In regard to this species, you may:
- (i) Conduct activities as authorized by a permit under § 17.32.
 - (ii) Take, as set forth at § 17.21(c)(2) through (c)(4) for endangered wildlife.
 - (iii) Take as set forth at § 17.31(b).
 - (iv) Possess and engage in other acts with unlawfully taken wildlife, as set forth at § 17.21(d)(2) for endangered wildlife.

(3) *Exceptions from prohibitions for specific types of incidental take*. You may take silverspot butterfly without a permit in wet meadow areas where bog violets (*Viola nephrophylla/V. sororia* var. *affinis*) are growing and immediately adjacent areas with nectar sources while carrying out the legally conducted activities set forth in this paragraph (h)(3), as long as the activities:

(i) Are conducted with reasonable care. For the purposes of this paragraph, “reasonable care” means limiting the impacts to the silverspot and bog violet by complying with any and all applicable Federal, State, and Tribal regulations for the activity in question; using methods and techniques that result in the least harm, injury, or death, as feasible; undertaking activities at the least impactful times (e.g., conducting activities that might impact habitat during the flight season) and locations, as feasible; ensuring the number of individuals affected does not impact the existing populations; minimizing the potential to introduce invasive plant species; and preserving the genetic diversity of populations; and

- (ii) Consist of one or more of the following:
 - (A) Grazing:
 - (1) Moderate grazing (40 to 55 percent vegetative utilization) in late fall to early spring (October 15 to May 31); or
 - (2) Light grazing (less than 30 percent vegetative utilization) in summer through fall (June 1 to October 14).
 - (B) Annual haying or mowing in silverspot habitat in the early summer (June 30 or earlier). Blade height must be a minimum of 6 inches above the ground, with 8 inches or higher preferred in areas with bog violet. In surrounding drier areas, blade height may be lower than 6 inches where the violet is not present.
 - (C) Prescribed burning:
 - (1) In the spring (March 1 to April 30); or
 - (2) In the fall (October 15 to December 15), if the silverspot butterfly has been shown to not be present in a given year through adequate monitoring (i.e., at least two surveys at times when butterflies are active).
 - (D) Brush removal every 4 to 5 years. Brush removal may be conducted at any time during the year. Removal can be by mechanical means, burning, grazing, or herbicide application if in compliance with other excepted activities in this paragraph (h)(3). If mechanical means such as a brush hog is used, the blade

must be set to 8 inches or higher above the ground. If herbicides are used, an appropriate systemic herbicide to prevent regrowth must be directly applied to cut stems; broadcast spraying is prohibited.

(E) Spot spraying, hand pulling, or mechanical treatment of noxious weeds, which may be conducted at any time during the year. Broadcast spraying of noxious weeds is prohibited.

(F) Replacement of fence poles and wire, and aboveground removal of woody vegetation along fence lines, which may be conducted at any time during the year. If removal of woody vegetation is done by machine, such as a brush hog, the machine blade must be set 8 inches or higher above the ground. For permanent removal of woody vegetation, a systemic herbicide may be applied directly to the cut stems of woody vegetation; broadcast spraying is prohibited.

(G) Maintenance and operation of existing utility infrastructure within and immediately adjacent to silverspot habitat if activities are kept within the confines of existing rights-of-way. This exception applies to standard activities to repair and maintain existing transmission towers, lines, and access roads, and to perform brush control, that are conducted as needed at any time during the year. Replacement of existing structures and the installation of new structures and infrastructure such as access roads are not excepted. Noxious weed control and fence maintenance must abide by the exceptions for these activities identified in paragraphs (h)(3)(ii)(E) and (F) of this section.

(H) Maintenance of other existing structures within and immediately adjacent to silverspot habitat if activities are kept within the confines of already disturbed ground.

Martha Williams,

Director, U.S. Fish and Wildlife Service.

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