required for § 721.63(a)(1), engineering control measures (*e.g.,* enclosure or confinement of the operation, general and local ventilation) or administrative control measures (*e.g.,* workplace policies and procedures) shall be considered and implemented to prevent exposure, where feasible.

(ii) *Hazard communication.* Requirements as specified in § 721.72(a) through (d), (f), (g)(1), (2)(i) through (iii), (v), (3)(i) and (ii), and (5). For purposes of § 721.72(g)(1), this substance may cause: acute toxicity, skin irritation, serious eye damage, skin sensitization, genetic toxicity, reproductive toxicity, and specific target organ toxicity. Alternative hazard and warning statements that meet the criteria of the Globally Harmonized System and OSHA Hazard Communication Standard may be used.

(iii) *Industrial, commercial, and consumer activities.* Requirements as specified in § 721.80(f), (k), and (t). It is a significant new use to import the substance other than in solution, or in sealed containers weighing 5 kilograms or less. It is a significant new use to modify the processing of the substance in any way that generates dust, mist, or aerosol in a non-enclosed process. It is a significant new use to manufacture the substance longer than 18 months.

(b) *Specific requirements.* The provisions of Subpart A of this part apply to this section except as modified by this paragraph (b).

(1) *Recordkeeping.* Recordkeeping requirements as specified in § 721.125(a) through (i) are applicable to manufacturers, importers, and processors of this substance.

(2) *Limitation or revocation of certain notification requirements.* The provisions of § 721.185 apply to this section.

[FR Doc. 2024–29275 Filed 12–16–24; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R7–ES–2024–0117; FXES1111090FEDR–256–FF09E21000]

RIN 1018–BI15

Endangered and Threatened Wildlife and Plants; Endangered Species Status for Suckley's Cuckoo Bumble Bee

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to list the Suckley's cuckoo bumble bee (*Bombus suckleyi*), an invertebrate species from North America, as an endangered species under the Endangered Species Act of 1973, as amended (Act). This determination also serves as our 12-month finding on a petition to list the Suckley's cuckoo bumble bee. After a review of the best available scientific and commercial information, we find that listing the species is warranted. Accordingly, we propose to list the species as an endangered species under the Act. If we finalize this rule as proposed, it would add this species to the List of Endangered and Threatened Wildlife and extend the Act's protections to the species. Due to the current lack of data sufficient to perform required analyses, we conclude that the designation of critical habitat for the species is not determinable at this time.

DATES: We will accept comments received or postmarked on or before February 18, 2025. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. eastern time on the closing date. We must receive requests for a public hearing, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by January 31, 2025.

ADDRESSES: You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal:

https://www.regulations.gov. In the Search box, enter FWS–R7–ES–2024–0117, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on ''Comment.''

(2) *By hard copy:* Submit by U.S. mail to: Public Comments Processing, Attn: FWS–R7–ES–2024–0117, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on *https://www.regulations.gov.* This generally means that we will post any personal information you provide us (see Information Requested, below, for more information).

Availability of supporting materials: Supporting materials, such as the species status assessment report, are available at *https://www.regulations.gov* at Docket No. FWS–R7–ES–2024–0117.

FOR FURTHER INFORMATION CONTACT: Mike Daigneault, Acting Field Supervisor, Southern Alaska Fish and Wildlife Field Office, 4700 BLM Road, Anchorage, AK 99507; telephone 907–271–1467. 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. Please see Docket No. FWS–R7–ES–2024–0117 on *https://www.regulations.gov* for a document that summarizes this proposed rule.

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 an endangered species 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 Suckley's cuckoo bumble bee meets the Act's definition of an endangered species; therefore, we are proposing to list 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.*).

What this document does. We propose to list Suckley's cuckoo bumble bee as an endangered species under the Act.

The basis for our action. Under the Act, we may determine that a species is an endangered or a 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 Suckley's cuckoo bumble bee meets the Act's definition of an endangered species due to threats

from host species decline, pathogens, pesticides, habitat fragmentation and conversion, and climate change.

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary), to the maximum extent prudent and determinable, concurrently with listing designate critical habitat for the species. We have not yet obtained the necessary economic information needed to develop a proposed critical habitat designation for the Suckley's cuckoo bumble bee, although we are in the process of obtaining this information. At this time, we find that designation of critical habitat for the Suckley's cuckoo bumble bee is not determinable. When critical habitat is not determinable, the Act allows the Service an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)).

Information Requested

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from other governmental agencies, Native American Tribes, the scientific community, industry, or any other interested parties concerning this proposed rule. We particularly seek comments concerning:

(1) The species' biology, range, and population trends, including:

(a) Biological or ecological requirements of the species, including habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns and the locations of any additional populations of this species;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat, or both.

(2) Threats and conservation actions affecting the species, including:

(a) Factors that may be affecting the continued existence of the species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors;

(b) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species; and

(c) Existing regulations or conservation actions that may be addressing threats to this species.

(3) Additional information concerning the historical and current status of this species.

(4) The reasons why we should or should not designate habitat as ''critical habitat'' under section 4 of the Act (16 U.S.C. 1531 *et seq.*), including information to inform the following factors that the regulations identify as reasons why designation of critical habitat may be not prudent:

(a) 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;

(b) 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;

(c) 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; or

(d) No areas meet the definition of critical habitat.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for, or opposition to, the action under consideration without providing supporting information, although noted, do not provide substantial information necessary to support a determination. Section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or a threatened species must be made solely on the basis of the best scientific and commercial data available.

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES.**

If you submit information via *https://www.regulations.gov,* your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *https://www.regulations.gov.*

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *https://www.regulations.gov.*

Our final determination may differ from this proposal because we will consider all comments we receive during the comment period as well as any information that may become available after this proposal. Based on the new information we receive (and, if relevant, any comments on that new information), we may conclude that the species is threatened instead of endangered, or we may conclude that the species does not warrant listing as either an endangered species or a threatened species. In our final rule, we will clearly explain our rationale and the basis for our final decision, including why we made changes, if any, that differ from this proposal.

Public Hearing

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. Requests must be received by the date specified in DATES. Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule a public hearing on this proposal, if requested, and announce the date, time, and place of the hearing, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing. We may hold the public hearing in person or virtually via webinar. We will announce any public hearing on our website, in addition to the **Federal Register**. The use of virtual public hearings is consistent with our regulations at 50 CFR 424.16(c)(3).

Previous Federal Actions

We were petitioned on April 23, 2020, by the Center for Biological Diversity to list Suckley's cuckoo bumble bee as an endangered species and to designate critical habitat for this species under the Act. On May 11, 2021, we announced in the **Federal Register** (86 FR 25833) that the petition presented substantial information indicating that this species may be warranted for listing; that document also announced the initiation of a status review for the species. On April 22, 2022, the Center for Biological Diversity filed a complaint that the Service failed to meet our statutory deadline to complete a 12-month finding on the petition. On September 27, 2022, the Service agreed to submit a finding to the **Federal Register** by December 10, 2024. This action constitutes our 12-month finding on the

2020 petition to list Suckley's cuckoo bumble bee.

Peer Review

A species status assessment (SSA) team prepared an SSA report for Suckley's cuckoo bumble bee. 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 species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species.

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 in listing and recovery actions under the Act (*https://www.fws.gov/sites/default/files/documents/peer-review-policy-directors-memo-2016-08-22.pdf*), we solicited independent scientific review of the information contained in the Suckley's cuckoo bumble bee SSA report. We sent the SSA report to nine independent peer reviewers and received seven responses. Results of this structured peer review process can be found at *https://www.regulations.gov.* In preparing this proposed rule, we incorporated the results of these reviews, as appropriate, into the SSA report, which is the foundation for this proposed rule.

Summary of Peer Reviewer Comments

As discussed in Peer Review above, we received comments from seven 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. The peer reviewers generally concurred with our methods and conclusions, and provided additional information, clarifications, and suggestions. These suggestions included providing more detailed explanations of assumptions and uncertainties, more discussion of model strengths and limitations, and clarifications in terminology and discussions of genetic diversity; they also made other minor editorial suggestions. Otherwise, no substantive changes to our analysis and conclusions within the SSA report were deemed necessary, and peer reviewer comments are addressed in version 1.0 of the SSA report (Service 2024, entire).

I. Proposed Listing Determination

Background

A thorough review of the taxonomy, life history, and ecology of Suckley's cuckoo bumble bee is presented in the SSA report (version 1.0; Service 2024, pp. 11–28). Suckley's cuckoo bumble bee is an obligate social parasite (it depends on social hosts for survival and raising young) in the subgenus *Psithyrus.* Bumble bees in this subgenus lack a mechanism to carry pollen and are unable to produce worker bees, so they are entirely dependent on social bumble bee hosts to collect pollen to rear their young (Lhomme and Hines 2019, p. 126). Since Suckley's cuckoo bumble bees are entirely dependent on host bumble bee colonies, host colony availability is critical for the species' survival and overall viability. Cuckoo bumble bees are generally observed in low abundance at the margins of a host species' range, and cuckoo bumble bee distributions are less than that of the host species (Antonovics and Edwards 2011, p. 1003).

Cuckoo bumble bee females emerge from hibernation in the spring and usurp the nest of a suitable host colony, where host workers care for their young. Suckley's cuckoo bumble bee is described as a semi-specialist parasite (Lhomme and Hines 2019, p. 129) and is confirmed to usurp nests of western bumble bees (*Bombus occidentalis*) and Nevada bumble bees (*B. nevadensis*), with other potential hosts in subgenus *Bombus* throughout the extent of its range (see Host Species Decline, below).

The species has a broad historical distribution across North America and it has been found in various habitat types including prairies, grasslands, meadows, urban and agricultural areas, and woodlands from 2 to 3,200 meters (6 to 10,500 feet) in elevation (Williams et al. 2014, pp. 164–165; Committee on the Status of Endangered Wildlife in Canada (COSEWIC) 2019, p. 26; Martin et al. 2023, p. 22; Montana Natural Heritage Program 2023, entire; Service 2024, pp. 17–19). The analytical units and occurrences of Suckley's cuckoo bumble bee are shown below in figure 1.

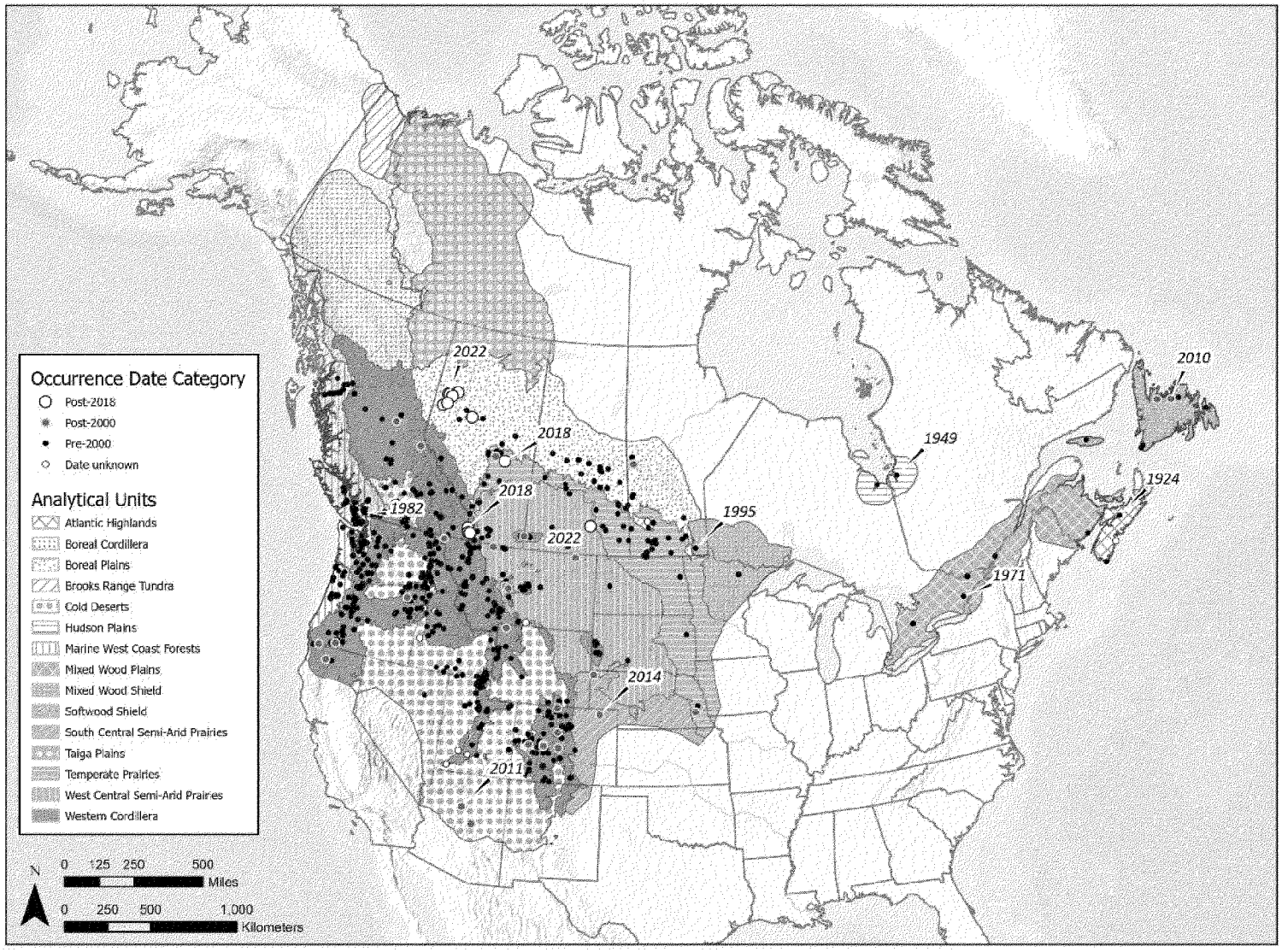

Figure 1. Analytical units and all occurrence records of Suckley's cuckoo bumble bee. The date of the most recent occurrence point per analytical unit is labelled.

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.

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:

(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.

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 of the 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.

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, which is further described in the 2009 Memorandum Opinion on the foreseeable future from the Department of the Interior, Office of the Solicitor (M–37021, January 16, 2009; ''M-Opinion,'' available online at *https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/M-37021.pdf*). The foreseeable future extends as far into the future as the U.S. Fish and Wildlife Service and National Marine Fisheries Service (hereafter, the Services) can make reasonably reliable predictions about the threats to the species and the species' responses to those threats. We need not identify the foreseeable future in terms of a specific period of time. We will describe the foreseeable future on a case-by-case basis, using the best available data and taking into account considerations such as the species' life-history characteristics, threat projection timeframes, and environmental variability. In other words, the foreseeable future is the period of time over which we can make reasonably reliable predictions. ''Reliable'' does not mean ''certain''; it means sufficient to provide a reasonable degree of confidence in the prediction, in light of the conservation purposes of the Act.

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 species, including an assessment of the potential threats to the species. The SSA report does not represent our decision on whether the species should be proposed for listing 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 viability of Suckley's cuckoo bumble bee, 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 the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); redundancy is the ability of the species to withstand catastrophic events (for example, droughts, large pollution events); and representation is the ability of the 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 species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species' viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the individual species' life-history needs. The next stage involved an assessment of the historical and current condition of the species' demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA involved making predictions about the species' 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 to sustain populations in the wild over time, which we then used 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–R7–ES–2024–0117 on *https://www.regulations.gov*.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the species and its resources, and the threats that influence the species' current and future

condition, in order to assess the species' overall viability and the risks to that viability.

Species Needs

There have been few studies focused specifically on understanding Suckley's cuckoo bumble bee biology and needs. Thus, we relied on information available for cuckoo bumble bees (subgenus *Psithyrus*) or bumble bees (genus *Bombus*) where appropriate.

Host Species

Suckley's cuckoo bumble bees cannot successfully reproduce without the availability of suitable host bumble bee colonies. Female cuckoo bumble bees invade host bumble bee nests where they will often eliminate the host queen, destroy host eggs, and eject host larvae from the nest. This may be driven by the need to create space for parasitic eggs and/or to increase the incubation effort of host workers towards parasitic eggs. Cuckoo bumble bees lack a mechanism to carry pollen and are unable to produce worker bees, and thus depend on social bee hosts to collect the pollen on which they rear their young (Lhomme and Hines 2019, p. 126). Thus, survival of Suckley's cuckoo bumble bees is dependent upon the survival and health of the host colony.

Food Resources

Cuckoo bumble bees require diverse native floral resources (pollen and nectar) for nutrition. Limited information exists regarding key forage plants for cuckoo bumble bees (Dozier et al. 2023, p. 643), but abundant spring floral resources are important to cuckoo bumble bee females for ovary development (Lhomme and Hines 2019, p. 132) and abundant fall floral resources are important to the fitness of the colony (Hatfield and LeBuhn 2007, pp. 156–157), since this is when new gynes (the primary reproductive females) and drones (male bees that are solely responsible for reproduction) are produced (Goulson 2010a, pp. 6–8). In addition, fall floral resources are important for females who must survive an overwintering diapause (a period of suspended development) without foraging (Beekman et al. 1998, p. 207; Ogilvie and CaraDonna 2022, p. 2419). Because cuckoo bumble bees are dependent on host workers to raise their offspring, females tend to emerge from hibernation later than their hosts to feed on nectar and pollen in preparation for laying eggs (Lhomme and Hines 2019, p. 132). While specific requirements for overwintering sites are unknown, Suckley's cuckoo bumble bee females likely overwinter in and under mulch or other decomposing vegetation that is separated from nesting habitat (COSEWIC 2019, p. 27; Liczner and Colla 2019, p. 793; Martin et al. 2023, p. 25).

Habitat and Population Connectivity

Dispersal of bees is necessary to find unrelated mates and is aided by the proximity of other usurped colonies and the presence of suitable dispersal corridors. Bumble bee reproductive individuals (drones and gynes) can disperse up to 10.0 kilometer (km) (6.2 mile (mi)) (Darvill et al. 2006, p. 606; Jha and Kremen 2013, p. 2490; Lepais et al. 2010, p. 287). Dispersal distance can vary widely across species, and it has not yet been described for Suckley's cuckoo bumble bees. The indiscriminate cuckoo bumble bee (*B. insularis*) was found to disperse up to 7.0 km (4.3 mi) which is comparable to research on other Bombus species (Koch et al. 2021, p. 5). Connectivity is a constraint for cuckoo bumble bees because they live in small, fragmented populations as a result of their dependence on host bumble bee colonies (Suhonen et al. 2016, p. 529). Population connectivity is important for Suckley's cuckoo bumble bee's viability as it increases the likelihood of genetic diversity, which promotes successful reproduction. Bumble bees are prone to producing unviable sterile males when genetic diversity between mating pairs is low (Zayed 2009, p. 239). Sterile males are unable to contribute to the following year's cohort, which can have negative impacts to the population and overall species viability.

Dispersal of bees to find unrelated mates is aided by the proximity of other usurped colonies. Consequently, the sharp historical decrease in the prevalence of both Suckley's cuckoo bumble bee, and many of its confirmed and potential host species (see *Historical, Current, and Near-term Condition of Suckley's Cuckoo Bumble Bee,* below), has likely reduced population connectivity relative to historical conditions. Reduced gene flow may have consequences on the genetic diversity of Suckley's cuckoo bumble bee, because small populations can experience stronger genetic drift (Zayed 2009, p. 246). This is important because high genetic diversity reduces prevalence of some pathogens (Parsche and Lattorff 2018, p. 900), and the risk of matched mating, which produces sterile males that do not contribute to population growth (Zayed 2009, p. 239).

Thermal Suitability

Bumble bees require temperatures to be within a suitable range throughout their lifecycle; however, this temperature range appears to be highly variable both across and within bumble bee species (Service 2024, pp. 20–22). Based on occupancy modeling results for Suckely's cuckoo bumble bee, occupancy is greatest when the average maximum temperature is near 20 Celsius (°C) (68 Fahrenheit (°F)) and declines when temperatures are lower and higher than the average maximum temperature (Service 2024, p. 64). In general, as bumble bees approach the lower end of their thermal limits, they become lethargic (Oyen et al. 2016, p. 53). Additionally, extreme cold can affect foraging behavior; exposure to cold (approximately 4°C (39°F) for 5 minutes) reduced bumble bee foraging for days after exposure (Wilson et al. 2006, p. 171). The upper end of some bumble bee thermal limits, where loss of muscle control occurs, ranged from approximately 38 to 53°C (100–129°F) (Hamblin et al. 2017, p. supplemental dataset; Oyen et al. 2016, p. 54; Oyen and Dillon 2018, p. 4). Compared to other bee species, bumble bees may be particularly sensitive to increases in temperature (Hamblin et al. 2017, p. 3). Further, bumble bee abundance was observed to decrease following heat waves in Europe (Rasmont and Iserbyt, 2012, p. 276).

Nest temperatures are important to the maintenance and growth of the colony (Heinrich 1979, p. 68; Vogt 1986, p. 64). Temperatures in underground bumble bee nests fluctuate less than in the surrounding environment, maintaining around 30°C (86°F) (Vogt, 1986, p. 61; Goulson, 2010a, p. 20; Heinrich 1979, p. 66), due to insulating qualities and colony behavior. Nest temperatures outside of ideal thermal ranges can slow larvae development and colony growth (Heinrich 1979, p. 68; Vanderplanck et al. 2019, p. 3; Vogt 1986, p. 64). The brood is most susceptible to cold temperatures earlier in the season when ambient temperatures are low, and the colony is small.

In summary, Suckley's cuckoo bumble bee must have availability of suitable host colonies, sufficient food resources, connectivity, and thermal suitability to support viability. Highly resilient populations consist of many genetically diverse individuals that have all their basic resource needs met (host colony availability, floral resource abundance and diversity, overwintering site availability, population connectivity, and thermal suitability). This translates into a diverse collection of individuals on the landscape with high survival and reproduction success, which ultimately results in population

growth and larger populations. Survival and reproduction of Suckley's cuckoo bumble bees depend on the survival and health of the host colony. Host colony workers are paramount to the growth and survival of new generations of Suckley's cuckoo bumble bees because they forage and care for the brood of parasite larva.

Redundancy for Suckley's cuckoo bumble bee is described as having multiple, healthy populations widely distributed across the breadth of adaptive diversity relative to the spatial occurrence of catastrophic events (*e.g.,* pathogen outbreak, wildfire, or drought events). In addition to guarding against a single or series of catastrophic event(s) extirpating all populations of Suckley's cuckoo bumble bee, redundancy is important to protect against losing irreplaceable sources of adaptive diversity. Having multiple populations distributed across the range of the species will help preserve the breadth of adaptive diversity and, hence, the evolutionary flexibility of the species.

The adaptive capacity, as it relates to representation, of Suckley's cuckoo bumble bee is a function of the amount and spatial distribution of genetic and phenotypic diversity. Based on genetic studies of other bumble bee species with similar ecologies, and given the potential dispersal capability, Suckley's cuckoo bumble bee may not exhibit much genetic differentiation across its broad range. Genetic variation can be negatively affected by genetic drift; small populations experience stronger drift (Zayed 2009, p. 246). Thus, preserving the genetic diversity of Suckley's cuckoo bumble bee may require maintaining relatively large populations and connectivity among them.

Threats

Host Species Decline

Cuckoo bumble bees have higher threat indices (higher extinction vulnerability) than host species because they are entirely dependent on host colonies for reproduction (Suhonen et al. 2015, pp. 238–239). The presence of parasitic bees depends on the presence of their hosts; any stressor effects on the host will be reflected in the status of the parasite (Sheffield et al. 2013, p. 508). Because cuckoo bumble bees depend on host species, there is a co-extinction risk for host and parasite species (Suhonen et al. 2015, p. 238). Thus, signs that host species are declining are of major concern to the viability of Suckley's cuckoo bumble bee. The effect of all the stressors impacting Suckley's cuckoo bumble bee are compounded through the additional effects of these stressors on host species availability (Service 2024, p. 33).

Suckley's cuckoo bumble bee is part of a group in the subgenus *Psithyrus* which primarily parasitizes bumble bees in the subgenus *Bombus* (Lhomme and Hines 2019, p. 129). Bumble bee nests are rare to encounter at a baseline, and usurped nests are even rarer to encounter, making observations supporting host choice limited (Lhomme and Hines 2019, pp. 132–133). Additionally, cuckoo bumble bee females may shelter in nests they do not usurp, leading to inconclusive observations.

Given these challenges, our current understanding is that Suckley's cuckoo bumble bee has two confirmed hosts and numerous potential hosts. The western bumble bee is the most widely known host of Suckley's cuckoo bumble bee (Hobbs 1968, p. 164; Williams et al. 2014, p. 165; Lhomme and Hines 2019, p. 128). The western bumble bee occurs throughout the core of Suckley's cuckoo bumble bee's range in western North America. There are also three records of Suckley's cuckoo bumble bee nesting successfully (*i.e.,* rearing young) in Nevada bumble bee nests (Hobbs 1965, p. 127).

Aside from these two confirmed hosts, there are numerous potential hosts (Service 2024, pp. 35–37) including yellow-banded bumble bee (*B. terricola*), red-belted bumble bee (*B. rufocinctus*), yellow bumble bee (*B. fervidus*), and white-shouldered bumble bee (*B. appositus*) (Hobbs 1968, pp. 157, 164; Williams et al. 2014, p. 165). Suckley's cuckoo bumble bees are also observed in locations beyond the range of these confirmed and potential hosts (based on nest observations). Because of this, it is reasonable to assume there are additional hosts not yet confirmed through observations. The following additional potential hosts have been identified for Suckley's cuckoo bumble bee: rusty patched bumble bee (*B. affinis*), McKay's bumble bee (*B. mckayi*), and cryptic bumble bee (*B. cryptarum*) (COSEWIC 2019, p. 17; Service 2024, pp. 5–6).

Over the past century, many species parasitized by Suckley's cuckoo bumble bee have documented declines (Hatfield et al. 2014, p. 46; Hatfield et al. 2015, p. 4; COSEWIC 2019, p. vi). Trends observed across North America suggest subgenus *Bombus* species are experiencing widespread declines (Giles and Ascher 2006, pp. 217–218; Colla and Packer 2008, p. 1387; Schweitzer et al. 2012, p. 7; Janousek et al. 2023, p. 2). For the SSA report, we updated a multi-species occupancy model (Jackson et al. 2022, entire) to evaluate host species declines for two confirmed hosts (western bumble bee and Nevada bumble bee), and four potential hosts in the subgenus *Bombus* (rusty patched bumble bee, McKay's bumble bee, yellow-banded bumble bee, and cryptic bumble bee). The western bumble bee, McKay's bumble bee, rusty patched bumble bee, and yellow-banded bumble bee all exhibited statistically significant temporal declines in occupancy rangewide (Service 2024, pp. 69–70). Since Suckley's cuckoo bumble bee is dependent on host species for survival, declines in host species abundance is having significant impacts to Suckley's cuckoo bumble bee viability.

Managed Bees

Generally, the term ''managed bees'' describes hives or colonies of bees that are used commercially to provide pollination services for a wide variety of crops over the growing season. Some hives or colonies are moved within and between States multiple times throughout a single growing season. Within the range of Suckley's cuckoo bumble bee, managed bees are used for a wide variety of crops including, but not limited to, alfalfa, almonds, apples, avocado, canola, cherries, sunflowers, squash, melon, berries, cucumbers, and clover (Bond et al. 2014, entire). The use of managed bees is expanding in some portions of the range of Suckley's cuckoo bumble bee, including western Canada (COSEWIC 2019, p. 49). Managed bees also include hobby or backyard bee keeping, as well as small-scale greenhouse operations. Managed bees include many different species of bees, such as the introduced European honey bee (*Apis mellifera*) and several species of native North American bumble bees, including common eastern bumble bee (*B. impatiens*), an eastern species that has recently been moved into the range of Suckley's cuckoo bumble bee for commercial pollination services (Palmier and Sheffield 2019, p. 9).

Managed bees are a threat to Suckley's cuckoo bumble bee in two primary contexts—as a pathway for pathogen introduction and spread, and competition for resources (Thomson 2004, p. 467; Winter et al. 2006, entire; Goulson et al. 2008, p. 193; Goulson 2010b, p. 10; Fürst et al. 2014, p. 365; Goulson et al. 2015, p. 11). For example, wild bumble bees located more closely to managed honey bee colonies had significantly higher disease rates than wild bumble bees located farther away (Alger et al. 2019, p. 5). Similarly, infection rates for several bumble bee pathogens were higher in multiple

Bombus species near commercial greenhouses where managed bees were used than in areas located far away from commercial greenhouses (Colla et al. 2006, pp. 462–464).

While individual Suckley's cuckoo bumble bees need floral resources for nectar and pollen, competition for resources likely more directly affects the hosts for Suckley's cuckoo bumble bees, such as western bumble bees, whose colonies may have hundreds of foraging workers. As a result of competition, populations of wild *Bombus* species have been shown to decrease with an increase in honey bee density (Thomson 2016, p. 1251). In particular, western bumble bee colonies that were found near higher densities of managed honey bees had reduced reproductive success (Thomson 2004, p. 464).

Pathogens

Bumble bees are susceptible to a variety of pathogens including fungal pathogens, parasites, tracheal mites, viruses, and nematodes. Many of these pathogens are widespread and cause lethal and sublethal effects for *Bombus* species. We provide a brief summary below of some pathogens that are known to affect Suckley's cuckoo bumble bee, its hosts, or both. Please see the SSA report for a detailed review of all pathogens affecting Suckley's cuckoo bumble bees (Service 2024, pp. 38–34).

The fungal pathogens *Vairimorpha bombi* (formerly *Nosema bombi;* Tokarev et al. 2020, p. 11) and *V. ceranae* (formerly *Nosema ceranae;* Tokarev et al. 2020, p. 11) which are caused by microsporidian parasites, can have lethal and sublethal effects on bumble bees, including disabled wings and impacts to reproduction (Otti and Schmid-Hempel 2007, p. 122), suppressed immune response, and increased mortality (Graystock et al. 2013, pp. 116–117; Graystock et al. 2014, p. 9; Rotheray et al. 2017, p. 294; Service 2018, p. 52). *Vairimopha bombi* has been documented in Suckley's cuckoo bumble bee, one confirmed host species (western bumble bee), and four suspected host species (rusty patched bumble bee, yellow bumble bee, red-belted bumble bee, yellow-banded bumble bee) (Kissinger et al. 2011, p. 222; Cordes et al. 2012, p. 212), and it is classified as an emerging infectious disease (Sachman-Ruiz et al. 2015, p. 2044; Wilfert et al. 2016, pp. 595–596).

Many protozoan parasites have been documented in bumble bees in North America and can negatively affect populations by reducing colony founding success, lowering colony fitness and growth, causing delayed reproduction and inadequate fat reserves in hibernating queens, and causing adult mortality (Shykoff and Schmid-Hempel 1991, p. 242; Schmid-Hempel 2001, pp. 148, 150–154; Brown et al. 2003, pp. 995–1000). In particular, *Apicystis bombi* is a protozoan parasite classified as an emerging infectious disease (Sachman-Ruiz et al. 2015, p. 2044; Wilfert et al. 2016, pp. 595–596). This disease has not been documented in Suckley's cuckoo bumble bee, but it has been documented in Nevada bumble bee, one of two confirmed host species (Maxfield-Taylor et al. 2011, p. 4).

Several honey bee viruses (*e.g.,* deformed wing virus, black queen cell virus, sacbrood virus, Kashmire bee virus, Israeli acute paralysis virus, and acute bee paralysis virus) are also known to infect bumble bees (Singh et al. 2010, p. 8; Robson-Hyska 2017, pp. 124–125; Tehel et al. 2022, p. 4). These viruses have not been documented in Suckley's cuckoo bumble bee, but they have been documented in several of its potential hosts, including red-belted bumble bee, yellow bumble bee, and yellow-banded bumble bee (Robson-Hyska 2017, pp. 63–65, 124–125).

Parasitic nematodes, such as *Sphaerularia bombi,* can result in multiple negative effects to bumble bee queens, including changes in gene expression affecting energy usage, translation, and circadian rhythm (Colgan et al. 2020, p. 170), and in endocrine gland function involved in growth and development in the larva and pupa (Maxfield-Taylor et al. 2011, p. 134). *Sphaerularia bombi* has not been documented in Suckley's cuckoo bumble bee, but it has been documented in western bumble bee (Poinar 1974, p. 305).

In summary, bumble bees are susceptible to a variety of pathogens and parasites, many of which are widespread and cause lethal and sublethal effects for *Bombus* species. Although we lack information on pathogen studies specific to Suckley's cuckoo bumble bee (Dozier et al. 2023, p. 642), we know many of these pathogens and parasites have negative impacts to host species.

Pesticides

A variety of pesticides are widely used in agricultural, urban, and natural environments, including herbicides, insecticides, fungicides, miticides, rodenticides, and adjuvants. The pesticides with greatest effects on bumble bees are herbicides and insecticides (particularly, neonicotinoids, see below for more detail). Herbicide use can cause changes in vegetation and the loss or reduction of flowers needed to provide consistent sources of pollen, nectar, and nesting material (Johansen 1977, p. 188; Kearns et al. 1998, pp. 91–92; Kearns and Inouye 1997, p. 302; Plowright et al. 1978, p. 1145; Smallidge and Leopold 1997, p. 264). Insecticides are specifically designed to directly kill insects, which includes bumble bees, and herbicides reduce available floral resources, thus indirectly affecting bumble bees. For a full review of pesticides and the effects on bumble bees, please see the SSA report (Service 2024, pp. 42–44).

Neonicotinoids are a class of insecticides that are used in a wide variety of agricultural applications, including common use as seed coatings in corn, wheat, soybeans, and cotton (Alford and Krupke, 2017, p. 1) and have been strongly implicated in the decline of several *Bombus* species (Colla and Packer 2008, p. 10; Goulson 2013, pp. 7–8; Pisa et al. 2015, p. 69). Neonicotinoids are currently used throughout the range of Suckley's cuckoo bumble bee in North America. Neonicotinoids kill insects by interfering with the receptors of their nervous systems, causing overstimulation, paralysis, and death (Buszewski et al. 2019, p. 34728). Sublethal effects of neonicotinoids to bumble bees can include impairments to reproduction (Whitehorn et al. 2012, pp. 351–352; Baron et al. 2017, p. 4; Raine 2018, p. 40; Wu-Smart and Spivak 2018, pp. 4–5). Suckley's cuckoo bumble bee have been observed in and around regions of agricultural production, including those involved in the production of crops commonly treated with neonicotinoids.

Habitat Conversion and Fragmentation

The conversion of natural habitat to agricultural and urban areas is the primary cause of bumble bee habitat loss (Goulson et al. 2015, p. 2). Suckley's cuckoo bumble bee is associated with a wide variety of habitats including prairies, grasslands, meadows, and woodlands as well as urban and agricultural areas (COSEWIC 2019, p. 26; Martin et al. 2023, p. 22; Montana Natural Heritage Program 2023, entire). Habitat conversion and fragmentation reduce the amount and/or accessibility of suitable host nests and foraging and overwintering habitat. Habitat conversion and fragmentation also reduce the connectivity required for healthy populations to expand in response to environmental or demographic changes and to maintain genetic diversity. High populations of bumble bee species are associated with diverse floral resources, particularly when surrounded by a complexity of

natural habitats across the landscape (Hines and Hendrix 2005, pp. 1481–1483; Hatfield and LeBuhn 2007, pp. 154–157). Due to their foraging, nesting and overwintering requirements, bumble bees are sensitive to the negative effects of habitat fragmentation (Kearns and Inouye 1997, p. 298).

Habitat loss is commonly cited as a long-term contributor to bee declines through the 20th century, and it may continue to contribute to current declines, at least for some species (Goulson et al. 2008, pp. 191–198; Brown and Paxton 2009, pp. 411–412; Goulson et al. 2015, p. 2). As generalist foragers, Suckley's cuckoo bumble bee and its confirmed host species may not be as severely affected by historical and ongoing habitat loss compared to habitat specialists. However, habitat loss or degradation reduces bee diversity and abundance (Potts et al. 2010, pp. 348–349), and small, isolated patches of habitat may not be sufficient to support healthy bee populations (Öckinger and Smith 2006, pp. 55–56; Hatfield and LeBuhn 2007, pp. 154–156).

Habitat conversion leads to the reduction of abundant and diverse floral resources, which can lead to a lack of sufficient nutritional resources; can reduce colony growth, health, and reproduction; and can negatively influence long-term bee populations (Vaudo et al. 2015, p. 4040). Food shortfalls because of habitat loss can induce longer larval development, can produce smaller and fewer individuals, and can cause an early shift to male production (Beekman and van Stratum 1998, entire; Sutcliffe and Plowright 1990, pp. 1056–1057). Larval and colony growth can be significantly affected by pollen type (plant species), pollen diversity, and the varying nutritional quality and quantity. Nutritional stress caused by habitat loss can affect learning and memory that can lead to reduced foraging efficiency, increased competition, and overall decline in colony fitness (Townsend-Mehler and Dyer 2011, pp. 275–286; Colla 2016, p. 413).

Monoculture farming is another factor that impacts plant community changes and thus reduces nesting opportunities for host colonies (Kearns and Inouye 1997, p. 298). Agricultural manipulation and changes across various landscape types likely impacted the availability of host nest sites in North America in the 20th century due to habitat degradation, modification, conversion, and loss (Goulson 2003, p. 142). These are important changes because diet breadth and coexistence in bumble bees can become limited due to habitat loss (Goulson et al. 2008, pp. 193–200) and coexistence is important for parasitic species such as the Suckley's cuckoo bumble bee that rely on host colonies to raise their young. Decreases in foraging habitat increases competition among bumble bee species, because there is overlap in resources that these species use (Goulson et al. 2008, p. 196).

While habitat conversion and fragmentation are well documented throughout the range of Suckley's cuckoo bumble bee, limited recent observations show Suckley's cuckoo bumble bee, western bumble bee, and rusty patched bumble bee populations do occur in urban and agricultural settings. However, these areas may not represent high-quality habitat with diverse native floral resources, and records of species in these habitats may represent refugia from the primary threats in these areas (*i.e.,* application of pesticides in agricultural settings) (Everett 2023, pers. comm.).

Climate Change

Changes in ambient temperatures and heatwaves—Global annual surface temperatures have risen an average of 0.09 °C (0.17 (°F)) each decade from 1901 to 2020 (U.S. Environmental Protection Agency (EPA) 2021, n.p.). Temperature increases in the contiguous United States since the late 1970s have surpassed the global rates for that period, increasing from 0.17 °C to 0.30 °C (0.31 °F to 0.54 °F) each decade. The northern and western parts of the United States have experienced the greatest temperature increases (EPA 2021, n.p.), representing much of the range of Suckley's cuckoo bumble bee. Suckley's cuckoo bumble bee has been observed at latitudes up to 68.9 degrees North, within the Arctic Circle. Based on the most recent climate models, temperatures in the Arctic have increased at three times the global rate, and are expected to continue to increase at a higher rate than the global average, with surface temperatures exceeding 6 °C (42.9 °F) above preindustrial times by the end of the 21st century (Ma et al. 2022, pp. 1, 7; Hayhoe et al. 2018, pp. 91–92). Climate change is contracting temperate, arctic, and alpine zones (Staten et al. 2018, p. 770) in which bumble bees are distributed and to which they are adapted (Goulson 2010a, p. 2).

In addition to increasing average temperatures, heatwaves in the United States have become more frequent, more intense, and longer in duration (EPA 2021, n.p.). Rising ambient temperatures and heatwaves can negatively affect bumble bee individuals and colonies by reducing survival, increasing energy expenditures, reducing flight and foraging, reducing reproduction, and impacting when bees enter diapause (Bartomeus et al. 2011, p. 20645; Maebe et al. 2021, p. 4229; Service 2024, pp. 20–22).

Bumble bees have low variation in heat stress resistance and, therefore, may have low capacity to adapt physiologically to warming temperatures (Martinet et al. 2021, p. 7). Bumble bee species that occur across a relatively broad climatic range, such as Suckley's cuckoo bumble bee, likely have a greater capacity to adapt to warming temperatures than species with narrow ranges. While we do not know how well Suckley's cuckoo bumble bee will adapt to rising temperatures, their main host species, the western bumble bee, appears to be sensitive to temperature (Janousek et al. 2023, p. 2). Heat waves are projected to increase, particularly in the western portions of North America (Hicke et al. 2022, p. 1937), which represents the bulk of the Suckley's cuckoo bumble bee's range.

Temperature changes could make the southern portions of the Suckley's cuckoo bumble bee's range less suitable for the species, while additional habitat may become more suitable in the northern portions of the range and at higher elevations. Colonizing new areas may be dependent on dispersal ability and may require adapting to novel communities where Suckley's cuckoo bumble bees could be exposed to new environmental conditions (*e.g.,* extreme heat or extreme cold) and potential hosts (Cameron et al. 2011, pp. 39–40; Pradervand et al. 2014, p. 5). Additionally, warming ambient temperatures and heatwaves commonly co-occur with drought, another influence that could compound the effects of any one of the other threats to this species (see *Drought frequency and intensity,* below) (Cameron et al. 2011, pp. 39–40; Pradervand et al. 2014, p. 5).

While northern areas may become suitable in the future, an analysis of long-term observations of 67 bumble bee species from Europe and North America showed southern range contractions as a result of climate change, with no change in northern limits (Kerr et al. 2015, p. 178). Future projections of the distribution of bumble bee species under different climate scenarios and dispersal assumptions also predict widespread declines, and possible extirpations, in the southern portions of species ranges. (Sirois-Delisle and Kerr 2018, pp. 4–5; Soroye et al. 2020, pp. 685, 687).

Warming temperatures could additionally affect Suckley's cuckoo bumble bee and its hosts by affecting floral resources. Shifts in flowering

times (in response to warming temperatures) could result in phenological mismatch between pollinators and their foraging resources (Service 2024, pp. 47–48). Heatwave conditions directly reduce bumble bee foraging, as well as have indirect effects on bumble bee foraging from heat-stressed flowering resources (Williams and Hemberger 2023, p. 597). Decreased pollination due to phenological mismatch could reduce plant reproduction and further affect floral resource availability (Forrest et al. 2010, p. 438; Thomson 2010, p. 3197).

Drought frequency and intensity—Drought negatively impacts floral resources and the pollinators that depend on them. A large portion of Suckley's cuckoo bumble bee's range is within water-limited areas of western North America where drought is frequent and has major implications for floral resources. The frequency of biologically significant drought events is projected to increase within the range of Suckley's cuckoo bumble bee and its host species due to changes in climate and resource impacts (Swain and Hayhoe 2015, pp. 2737–2750).

Drought indirectly impacts bumble bees by altering or reducing floral resources, including reductions to the quality, quantity, and availability of pollen and nectar (Carroll et al. 2001, p. 443; Waser and Price 2016, p. 1405; Phillips et al. 2018, pp. 3226–3235) Shifts in the spatial and temporal patterns of flowering, which result in mid-summer floral gaps (Aldridge et al. 2011, entire), highlight that drought-stress impacts on a plant community could reduce pollen and nectar resources needed for successful pollinator reproduction. Since droughts have a direct effect on floral resources, this in turn has an effect on pollinators at the population level (Roulston and Goodell 2011, p. 305). Drought may also lead to increased competition with honey bees in areas where their resources overlap. When drought conditions impact preferred floral resources, bumble bees will forage on less preferred, drought-resistant species sought after by the more populous honey bees (Thomson 2016, pp. 1247–1255).

A model of cumulative effects of climate changes, landcover, and pesticide use on western bumble bee occupancy found that consecutive years of severe drought was the second most influential cause of occupancy declines (Janousek et al. 2023, pp. 2–3). In addition, suitable habitats may be restricted with rising temperatures, reducing the range of some bumble bee species, especially at range edges where abundance may decline when floral resources decline in response to drought (Thomson 2016, pp. 1247–1255). Although drought may be locally and temporarily alleviated by precipitation, the impacts to the growing season may persist and reduced floral resources could impact Suckley's cuckoo bumble bees that require pollen and nectar to overwinter with adequate body mass (Service 2024, pp. 22–23).

Droughts, especially in consecutive years (Janousek et al. 2023, p. 2), will likely amplify biologically significant negative effects on Suckley's cuckoo bumble bee resources and host species, though the direct drought impacts on Suckley's cuckoo bumble bee individuals and populations are unstudied. Droughts are expected to negatively affect floral resources, alter floral communities to less preferred flowering conditions or timing, increase competition between pollinators, and negatively impact Suckley's cuckoo bumble bee and its hosts throughout much of the species' range.

Wildfire—Wildfires pose complex effects to bumble bees, from decreasing resource availability (Mola and Williams 2018, p. 7; Galbraith et al. 2019, p. 15; Mola et al. 2020, p. 1807) to increasing floral and bee abundance and diversity (Mola and Williams 2018, pp. 4–8; Carbone et al. 2019, entire; Galbraith et al. 2019, entire; Mola et al. 2020, pp. 1804–1808). Fire disturbance can temporarily increase floral resources, thereby enhancing bee body size, reproductive output, genetic diversity, and population size (Carbone et al. 2019, entire; Mola et al. 2020, pp. 1804–1808), although these effects may vary by habitat type (*i.e.,* forested vs. grassland habitats). The relative effect of high-intensity fires varies based on the ecological conditions in which they occur. Since Suckley's cuckoo bumble bee is a broad-ranging species with multiple hosts, fire is likely to have variable and diverse effects throughout its range.

Early spring frosts—Early spring frosts pose a risk to bumble bees, specifically to new queens and newly established colonies, by damaging floral resources (CaraDonna and Bain 2015, pp. 61–62). Flowers, compared to vegetative parts, are generally more sensitive to damage from frost events (CaraDonna and Bain 2015, pp. 61–62), and spring frosts reduce the overall availability of floral resource abundance across the subsequent summer (CaraDonna et al. 2014, p. 4919).

Despite some plants with early phenology exhibiting some tolerance to freezing temperatures (CaraDonna and Bain 2015, pp. 61–63), an advancing bloom date for plants triggered by climate change (CaraDonna et al. 2014, p. 4919) exposes early floral growth to an additional risk of frost damage (Willmer 2012, p. R131). The increased frost damage to flowering plants could also contribute to an observed change in flowering dates across small geographic and altitudinal distributions (Inouye 2008, pp. 357, 361).

Floral resources are important throughout the lifecycles of both Suckley's cuckoo bumble bee and its hosts, but they are particularly important for host colony establishment in early spring. Negative effects of early spring frost on host colony queens, workers, and overall colony size may reduce their ability to persist within season, and to successfully support Suckley's cuckoo bumble bee. Spring frost damage to floral resources has been linked to within-season declines in wild bee populations (Graham et al. 2021, p. 6). Spring frosts could have a negative impact on the success of local bumble bee colonies (Inouye 2008, p. 361) by reducing existing and future within-season availability of pollen and nectar resources on which pollinators, including host colonies for Suckley's cuckoo bumble bee, rely. Inadequate floral resources could especially affect colony establishment and growth if they occur during critical times, such as early spring when new queens emerge from diapause and are establishing their colonies. Delays in emergence or colony initiation after emergence may hinder the ability of bees to complete their life cycle before the end of the relatively short subarctic season (Vogt et al. 1994, p. 1554).

Livestock Grazing

Livestock grazing occurs throughout much of the historical range of Suckley's cuckoo bumble bee, primarily by cattle, sheep and wild horses, and it can have complex effects on bumble bees. In general, grazed sites have reduced floral resources and lower bumble bee diversity and abundance (Hatfield and LeBuhn 2007, p. 150; Sjödin 2007, pp. 2110–2113; Sjödin et al. 2008, p. 763). Although grazing can be a useful management tool for maintaining early successional habitat, benefits are dictated by frequency, intensity, species (*i.e.* sheep, cattle, horses, etc.) and timing (Carvell 2002, p. 44; Kimoto et al. 2012, pp. 9–13). Low-intensity grazing preserves floral resources benefiting bumble bees (Scohier et al. 2012, pp. 287–292), while increased intensity of grazing can reduce bee species richness as a result of altered floral composition, including invasive species establishment and soil

compaction (Hatfield and LeBuhn 2007, p. 156; Vázquez and Simberloff 2003, p. 1080). Bumble bees are sensitive to grazing intensity early in the season, potentially because of altered foraging behavior (Kimoto et al. 2012, pp. 9–13). Intense summer grazing, compared to areas only grazed in winter, reduces vegetation height and floral resources, leading to fewer bee visits to preferred food plants and decreased bumble bee diversity (Xie et al. 2008, pp. 699–700). The reduction of vegetation height and structure from high-intensity grazing in the Pacific Northwest bunchgrass prairies has been linked to declines in bumble bee richness and abundance (Kimoto et al. 2012, pp. 12–13).

Grazing may compact soil and change plant communities (Connors 2016, pers. comm.), thus impacting nesting habitat for Suckley's cuckoo bumble bee hosts (Defenders of Wildlife 2015, p. 14). Livestock may also trample nesting sites (Kearns et al. 1998, p. 90) and negatively impact ground-nesting rodents (Johnson and Horn 2008, p. 444), which in turn may reduce the number of nest sites available for bumble bees (The Xerces Society and Thorp 2010, p. 13). Livestock grazing also impacts hydrology through compaction of soils and degraded riparian areas and may lead to increased fire cycles through the introduction of exotic species (Dwire et al. 1999, pp. 319–321).

In summary, grazing can assist in maintaining open habitat, and low-intensity grazing can preserve floral resources. However, high-intensity grazing can have a negative impact on floral resources and can negatively impact nest site availability. Thus, grazing has varied and complex effects on bumble bees, which makes the impacts difficult to analyze.

Conservation Efforts and Regulatory Mechanisms

Suckley's cuckoo bumble bee is assessed as threatened in Canada (COSEWIC, 2019, p. iii) and is listed as critically endangered by the International Union for Conservation of Nature (Hatfield et al., 2015, p. 1). In the United States, Suckley's cuckoo bumble bee is on the sensitive species list for the U.S. Forest Service and Bureau of Land Management Interagency Special Status/Sensitive Species Program (ISSSSP) in the Pacific Northwest (ISSSSP 2021, entire). It is also listed as a species of greatest conservation need in Idaho, Washington, Colorado, and California, where it is also a candidate for listing under the California Endangered Species Act (Colorado Parks and Wildlife 2015, p. B–1; Washington Department of Fish and Wildlife 2015, pp. 3–39; Idaho Department of Fish and Game 2017, p. xvii; California Natural Diversity Database (CNDDB) 2023, p. 6). These States generally outline research and conservation needs for species of greatest conservation need in State Wildlife Action Plans, but these plans do not offer regulatory protection.

Some States regulate the import of nonnative bee species, which can help protect native bee species, including Suckley's cuckoo bumble bee. The Oregon Department of Agriculture restricts some potential sources of the pathogen *Vairimorpha bombi* from entering the State; only *Bombus* species native to Oregon are permitted for commercial pollination purposes (Oregon Department of Agriculture 2017, p. 5). California requires permits to import some bee species for pollination services (California Department of Food and Agriculture 2023, entire).

The U.S. Forest Service has taken steps to reduce impacts of nonnative bee species. The Pacific Northwest Region of the U.S. Forest Service is working on finalizing apiary guidelines, which include recommendations for management practices and considerations to protect native pollinators and minimize negative effects from managed bees and apiaries on lands managed by the U.S. Forest Service (Everett 2023, pers. comm.). Additionally, at least one U.S. Forest Service National Forest in the Pacific Northwest already restricts commercial and privately owned bees on their managed lands (Everett 2023, pers. comm.). For example, the Colville National Forest plan directs that apiaries should not be placed where they would pose a risk to native pollinators, butterflies, or rare bee species (U.S. Forest Service 2019, p. 67). These measures highlight that the U.S. Forest Service takes the threat of managed bees seriously and is actively working in some regions to protect native bees.

States have also begun implementing strategies to limit pesticide effects on bees. The Oregon Bee Project was initiated in 2017, as a collaboration between the Oregon Department of Agriculture, the Oregon State University Extension Service, and the Oregon Department of Forestry. One project goal is to mitigate bee exposure to pesticides through increased pesticide label comprehension, adoption of new application practices, and increasing coordination between beekeepers and pesticide applicators (Oregon Department of Agriculture et al. 2022, pp. 2–3). Washington State has established similar goals, as stated in their Managed Pollinator Protection Plan, which offers best management practices for beekeepers, growers, and pesticide applicators to help protect pollinators from pesticides (Washington State Department of Agriculture 2018, p. 5). Washington State also adopted additional recommendations and funding for pollinator health (Washington State Bill 5253, effective July 25, 2021).

In Washington, neither the Managed Pollinator Protection Plan nor State Bill 5253 restrict the use of pesticides, but several other States have begun passing regulations on pesticides that are harmful to bees and other pollinators. For example, California recently developed regulations that will implement mitigation measures to protect pollinators by limiting the agricultural uses of certain neonicotinoid pesticides, which went into effect January 1, 2024 (California Department of Pesticide Regulation 2024, entire). Other States that have enacted various regulations on neonicotinoid pesticides to reduce impacts to bees and other pollinators include Colorado, Connecticut, Maine, Minnesota, Massachusetts, Maryland, Nevada, New York, New Jersey, Rhode Island, and Vermont (Malfi 2023, entire).

Other recent efforts aim to better understand bees at risk and implement broader protections. The Pacific Northwest Bumble Bee Atlas (a collaborative effort between the Washington Department of Fish and Wildlife, the Idaho Department of Fish and Game, the Oregon Department of Fish and Wildlife, and the Xerces Society for Invertebrate Conservation) seeks to increase understanding of bumble bee distributions and their habitats (Washington Department of Fish and Wildlife et al. 2023, entire). This effort has contributed to the creation of a statewide strategy to protect bumble bee species of conservation concern in Washington, with one of the focal species being Suckley's cuckoo bumble bee (Martin et al. 2023, p. 12). In Alaska, the Alaska Center for Conservation Science at the University of Alaska Anchorage and the Bureau of Land Management have developed the Alaska Bee Atlas. The program aims to collect data on bee biodiversity within Alaska; these data can eventually be used to inform sensitive species lists and management (Fulkerson et al. 2023, p. 18). The number of bumble bee atlases is increasing across the United States and increasingly covering the range of Suckley's cuckoo bumble bee. The expanding coverage of these atlases will

increase understanding of bumble bee status and distribution in North America.

On a broader scale, the Colla Laboratory at York University in Toronto has released a national pollinator strategy for Canada. This national strategy identifies specific goals and actions to protect pollinators and needed research to fill knowledge gaps (Colla and Nalepa 2023, p. 5). The Service is also working on a nationwide plan through a bumble bee conservation benefit agreement, known as The Nationwide Conservation Benefit Agreement for Bumble Bees on Energy and Transportation Lands. This conservation benefit agreement is modeled after the nationwide monarch butterfly candidate conservation agreement with assurances, which is a voluntary agreement with transportation and utility landowners that provides incentives for monarch conservation measures on their lands. The bumble bee conservation benefit agreement will likely include many of the same acres enrolled for the protection of several bumble bee species, including Suckley's cuckoo bumble bee and some of its host species (*i.e.,* western bumble bee, rusty patched bumble bee, and yellow-banded bumble bee). The Nationwide Conservation Benefit Agreement for Bumble Bees on Energy and Transportation Lands is expected to be completed in 2024 (Everett 2023, pers. comm.).

Together, these voluntary and regulatory measures highlight an increase in effort to protect native bumble bee species across North America. Some of these measures specifically target Suckley's cuckoo bumble bee, its host species, or both for conservation. Broad efforts to protect and conserve native pollinators and bees will also likely benefit Suckley's cuckoo bumble bee.

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 species. To assess the current and future condition of the species, we evaluate the effects of all the relevant factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative-effects analysis.

Historical, Current, and Near-Term Condition of Suckley's Cuckoo Bumble Bee

We assessed Suckley's cuckoo bumble bee viability by evaluating the historical and current condition and identifying the primary influences leading to the species' current and near-term condition. We delineated 15 analytical units for Suckley's cuckoo bumble bee: 4 in eastern North America and 11 in western North America (figure 1). Analytical units are based on ecoregions and further detailed in the SSA report (Service 2024, pp. 55–56).

We used a published multi-species occupancy model (Jackson et al. 2022, entire) with updated Suckley's cuckoo bumble bee occurrence records (Service 2024, pp. 56–57) to understand trends in both Suckley's cuckoo bumble bee and host species occupancy. Our dataset included 2,317 occurrence records of Suckley's cuckoo bumble bee. The occupancy model also incorporated floral resources and climate variables. For a detailed review of the methods, please refer to the SSA report (Service 2024, pp. 56–57, 120–123). We provide a summary below of the methods and key findings.

We used the output of the multi-species occupancy model to assess historical trends, and to support our assessment of current and near-term condition. We used decadal projections of rangewide probability of occupancy to visualize and characterize overall, rangewide trends in occupancy from 1900–2020 (Service 2024, pp. 63–64). We used spatially explicit estimates of probability of occupancy from 1900–1960 to characterize the historical probability of occupancy in each analytical unit; we specifically used 1900–1960 to represent the historical baseline, as this is the period before declines were apparent (Service 2024, pp. 63–64). We used spatially explicit occupancy estimates in each analytical unit for the 2000–2020 period to provide a current snapshot or baseline of species condition relative to historical. We used spatially explicit projections of near-term (2020–2040) occupancy in each analytical unit to assess near-term risk of extinction.

The near-term occupancy projections were made under two scenarios. Scenario 1 assumes moderate climate warming under representative concentration pathway (RCP) 4.5. Scenario 2 assumes a high warming scenario (RCP 8.5), and also projects the observed, historical rates of decline due to other, non-climatic (*i.e.,* trend momentum) forward. Both scenarios hold floral resources constant at their 2020 levels, as data are not available to project this variable forward. Thus, under scenario 1, any changes in occupancy are based solely on changes in climate (RCP 4.5), while under scenario 2, any changes in occupancy are based on both climate change (RCP 8.5), as well as historical rates of change due to non-climatic factors. Projections for all host species followed the same procedures.

Suckley's cuckoo bumble bee has exhibited a statistically significant decline, resulting in lower occupancy from historical condition. Historically, the median probability of occupancy of Suckley's cuckoo bumble bee rangewide was 0.65. By the 2000–2020 period all analytical units are estimated to have lower probability of occupancy, with median probability of occupancy less than 0.16 for all analytical units and 0.13 rangewide (table 1).

TABLE 1—MEDIAN ESTIMATED PROBABILITY OF OCCUPANCY FOR SUCKLEY'S CUCKOO BUMBLE BEE IN EACH ANALYTICAL UNIT DURING THE HISTORICAL PERIOD (AVERAGE FROM 1900–1960) AND THE CURRENT (2000–2020) PERIOD

[The percent change in median occupancy from historical to current period is also noted for each analytical unit, as is the total land area of each analytical unit (square kilometers (km^2)) and the percent of the range the unit represents, in terms of land area.]

Analytical unit	Area (km^2)	Percent of range	Last detection	Median historical occupancy	Median current occupancy	Percent change
Atlantic Highlands (East)	44,482	0.6	1924	0.712	0.149	−79
Boreal Cordillera	532,782	7.4	2019	0.706	0.147	−79
Boreal Plains	772,369	10.8	2022	0.661	0.145	−78
Brooks Range Tundra	99,755	1.4	2019	0.705	0.147	−79
Cold Deserts	1,047,895	14.7	2011	0.485	0.061	−87
Hudson Plains (East)	55,863	0.8	1949	0.682	0.133	−80
Marine West Coast Forests	250,206	3.5	1982	0.580	0.095	−84

TABLE 1—MEDIAN ESTIMATED PROBABILITY OF OCCUPANCY FOR SUCKLEY'S CUCKOO BUMBLE BEE IN EACH ANALYTICAL UNIT DURING THE HISTORICAL PERIOD (AVERAGE FROM 1900–1960) AND THE CURRENT (2000–2020) PERIOD—Continued

[The percent change in median occupancy from historical to current period is also noted for each analytical unit, as is the total land area of each analytical unit (square kilometers (km^2)) and the percent of the range the unit represents, in terms of land area.]

Analytical unit	Area (km^2)	Percent of range	Last detection	Median historical occupancy	Median current occupancy	Percent change
Mixed Wood Plains (East)	360,958	5.0	1971	0.640	0.106	−83
Mixed Wood Shield	205,107	2.9	1995	0.590	0.098	−83
Softwood Shield (East)	119,152	1.7	2010	0.685	0.142	−79
South Central Semi-Arid Prairies	208,917	2.9	2014	0.118	0.013	−89
Taiga Plains	905,619	12.7	1969	0.708	0.161	−77
Temperate Prairies	501,088	7.0	2018	0.263	0.028	−89
West Central Semi-Arid Prairies	832,871	11.6	2022	0.577	0.100	−83
Western Cordillera	1,214,900	17.0	2018	0.692	0.140	−80
Rangewide	7,151,965	100	[1] 2022	0.653	0.128	[2] −85

[1] The last detection of Suckley's cuckoo bumble bee in our dataset was 2022. However, field data from across the country from the 2023 field season or beyond had not been fully curated in time to include in the SSA.

[2] Rangewide decline from 1900 to present, based on an analysis of all Suckley's cuckoo bumble bee occurrence records (Service 2024, pp. 63–68).

Suckley's cuckoo bumble bee has not been observed in the United States since 2016, despite widespread historical occurrence records and increased sampling effort for bumble bees. Additionally, the species has only been detected since 2000 (detections after 2000 are considered modern detections) in 9 of the 15 analytical units (60 percent of the total analytical units; see table 1, above). We considered analytical units to be quasi-extirpated (when the density of reproductive individuals in a population becomes so small that extirpation is likely inevitable without intervention) if there were no detections since 2000. In the species' eastern range, three of the four analytical units of Suckley's cuckoo bumble bee were considered quasi-extirpated, including the Atlantic Highlands (last detection in 1924), Hudson Plains (last detection in 1949), Mixed Wood Plains (last detection in 1971).

In the west of the species' range, 3 of the 11 analytical units lack modern detections (*i.e.,* since 2000) of Suckley's cuckoo bumble bee. Notably, the Marine West Coast Forest analytical unit has 515 historical occurrence records (23 percent of total occurrences), but no occurrence records after 1982. The Mixed Wood Shield analytical unit has two historical records of the species, with the most recent occurrence in 1995. Thus, we consider the Marine West Coast Forest and the Mixed Wood Shield analytical units to be quasi-extirpated. Although the species has not been observed in the Taiga Plains since 1962, this area has not been extensively sampled for bees, and, therefore, we did not consider it to be quasi-extirpated.

Additionally, four (western bumble bee, McKay's bumble bee, rusty patched bumble bee, and yellow-banded bumble bee) of six host species exhibited statistically significant temporal declines in occupancy rangewide (Service 2024, pp. 69–70). These results are similar to other studies that found rangewide population declines for bumble bees in the subgenus *Bombus* (Giles and Ascher 2006, pp. 217–218; Colla and Packer 2008, p. 1387; Schweitzer et al. 2012, p. 7; Janousek et al. 2023, p. 2;).

In the near-term (by 2040), probability of occupancy is expected to continue to decline. Under scenario 1, median probability of occupancy is estimated to be less than 0.11 across all analytical units. This represents a 26 to 77 percent decline relative to 2000–2020 estimates. Under scenario 2, median probability of occupancy is estimated to be less than 0.05 across all analytical units. This represents a 73 to 92 percent decline relative to 2000–2020 estimates.

Resiliency

Suckley's cuckoo bumble bee has experienced a statistically significant, rangewide, 85 percent decline in occupancy. Additionally, the species has not been observed in the contiguous United States since 2016, despite widespread historical occurrence records and increased sampling effort for bumble bees. These results suggest that the species is currently found in fewer locations across its range than historically. High abundance and survival are demographic needs of healthy Suckley's cuckoo bumble bee populations. While there are some areas in Canada where the species is still regularly observed, these results suggest resiliency is low across all analytical units. In the near-term, resiliency is projected to continue to decline, further reducing the species ability to sustain populations over time.

Redundancy

Redundancy buffers the species against catastrophic events and can be summarized based on the spatial distribution of sufficiently resilient populations relative to catastrophic events. Currently, three eastern analytical units and two western analytical units are considered quasi-extirpated. This apparent contraction of the range results in a loss of redundancy for the species. In the near-term, the continued decline in occupancy projected will likely further reduce redundancy. Given that one confirmed host species (western bumble bee) and three potential host species (rusty patched bumble bee, McKay's bumble bee, and yellow-banded bumble bee) are in decline, redundancy in terms of host species is considered low. For instance, if a catastrophic event wipes out one host species in an area, then there is less likely to be an alternative host species available for the Suckley's cuckoo bumble bee.

Representation

Due to estimated and observed declines in occupancy, Suckley's cuckoo bumble bee has substantially lower connectivity, and representation than historically. Population connectivity is important for Suckley's cuckoo bumble bee's viability as it increases the likelihood of genetic diversity and promotes successful haplodiploid reproduction (genetic sex-determination system in which females develop from fertilized (diploid) eggs and males from unfertilized (haploid) eggs). Loss of connectivity, genetic drift, and inbreeding may be particularly consequential for bumble bees due to their low effective population size and their haplodiploid sex determination (Goulson et al. 2008, p. 205). However,

population connectivity is naturally a constraint for cuckoo bumble bees because they live in small, fragmented populations due to their dependence on host bumble bee colonies (Suhonen et al. 2016, p. 529). Dispersal of bees to find unrelated mates is aided by the proximity of other usurped host colonies. Consequently, the sharp decrease in the prevalence of both Suckley's cuckoo bumble bee and many of its confirmed and potential host species has likely reduced population connectivity relative to historical conditions. Reduced gene flow may have consequences on the genetic diversity of Suckley's cuckoo bumble bee, because small populations can experience stronger genetic drift (Zayed 2009, p. 246). This is important because high genetic diversity reduces prevalence of some pathogens (Parsche and Lattorff 2018, p. 900), and the risk of matched mating, which produces diploid males that do not contribute to population growth (Zayed 2009, p. 239).

Given the observed 85 percent decrease in the species' occupancy relative to historical conditions, the low current and projected near-term occupancy across all analytical units, and the potential that the species is extirpated or quasi-extirpated in portions of its range, the species has likely lost representation across longitudinal and ecological gradients.

The adaptive capacity of Suckley's cuckoo bumble bee is also dependent on host species, as the distribution of the parasitic bee is restricted by the geographic distribution and population health of host bees, and parasite abundance is low where host abundance is low (Antonovics and Edwards 2011, p. 1003). Therefore, availability of host species may also indirectly restrict the adaptive capacity of Suckley's cuckoo bumble bee, given that four of the six host species are also in decline.

Future Condition

As part of the SSA, the same methods to model near-term condition were also used to mode the two future condition scenarios out to the year 2100. Our scenarios assumed a moderate to major increase in climate change (warming conditions) and either a continuation of factors that resulted in the historical decline of the species, or no continuation of these factors (just the impacts of climate change) to the species. Because we determined that the current and near-term condition of Suckley's cuckoo bumble bee is consistent with the Act's definition of an endangered species (see Determination of Suckley's Cuckoo Bumble Bee's Status, below), we are not presenting the results of the future scenarios beyond 2040 in this proposed rule. Please refer to the SSA report (Service 2024, pp. 73–83) for the full analysis of future conditions.

Determination of Suckley's Cuckoo Bumble Bee's Status

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the 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 an endangered species or a 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.

We presented summary evaluations of the main drivers of the species' current and near-term condition analyzed in the SSA report including habitat conversion and fragmentation (Factor A), livestock grazing (Factor A), pathogens (Factor C), host species decline (Factor E), climate change (Factor E), and pesticides (Factor E). We also evaluated existing regulatory mechanisms (Factor D) and ongoing conservation measures.

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 have determined that Suckley's cuckoo bumble bee has limited resiliency, redundancy, and representation to maintain viability over time. Suckley's cuckoo bumble bee has exhibited a statistically significant decline (85 percent) in probability of occupancy rangewide. Historically, the median probability of occupancy of Suckley's cuckoo bumble bee rangewide was 0.65. By the current time period (2000–2020), all analytical units are estimated to have lower probability of occupancy, with median probability of occupancy less than 0.16 for all analytical units and 0.13 rangewide. In the near-term (by 2040), the probability of occupancy is projected to continue to decline, with probability of occupancy for all analytical units projected to be below 0.05 (scenario 1) and 0.11 (scenario 2). Additional analyses of host species occupancy indicate that four of six known or potential host species exhibited statistically significant temporal declines in probability of occupancy rangewide. Thus, resiliency for all analytical units is considered low.

Suckley's cuckoo bumble bee has lost redundancy because 5 of the 15 analytical units are currently considered to be in a quasi-extirpated state, the species has not been observed in the contiguous United States since 2016, and the remaining analytical units are all considered to have low resiliency. Near-term projections indicate continued declines in occupancy, further reducing redundancy.

Representation has also declined as a result of range contraction and occupancy decline, as phenotypic, genetic, and ecological diversity have declined. As host colonies become less common across the landscape, Suckley's cuckoo bumble bees will likely have lower likelihood of finding unrelated mates. Population fragmentation, genetic drift, and inbreeding are likely to be exacerbated in the near-term as the species becomes even less prevalent. Finally, it is important to note that the viability of Suckley's cuckoo bumble bee is also highly dependent on its host species, many of which have declined historically, and are expected to continue to do so in the near-term.

We do not find Suckley's cuckoo bumble bee meets the Act's definition of a threatened species because the species currently has low resiliency, redundancy, and representation and near-term projections are estimated to further reduce overall species viability. Because Suckley's cuckoo bumble bee has low redundancy and representation, the species is vulnerable to even a single catastrophic event such as a pathogen outbreak, wildfire, or drought event. Thus, after assessing the best scientific and commercial data available, we determine that Suckley's cuckoo bumble bee is in danger of extinction 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 within the foreseeable future throughout all or a significant portion of its range. We have determined that Suckley's cuckoo bumble bee is in danger of extinction throughout all of its range and

accordingly did not undertake an analysis of any significant portion of its range. Because Suckley's cuckoo bumble bee warrants listing as endangered throughout all of its range, our determination does not conflict with the decision in *Center for Biological Diversity* v. *Everson,* 435 F. Supp. 3d 69 (D.D.C. 2020), because that decision related to significant portion of the range analyses for species that warrant listing as threatened, not endangered, throughout all of their range.

Determination of Status

Based on the best scientific and commercial data available, we determine that Suckley's cuckoo bumble bee meets the Act's definition of an endangered species. Therefore, we propose to list Suckley's cuckoo bumble bee as an endangered species in accordance with sections 3(6) 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, foreign governments, 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.

The recovery planning process begins with development of a recovery outline made available to the public soon after a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions while a recovery plan is being developed. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) may be established to develop and implement recovery plans. 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 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. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery outline, draft recovery plan, final recovery plan, and any revisions will be available on our website as they are completed (*https://www.fws.gov/program/endangered-species*) or from our Southern Alaska Fish and Wildlife 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. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

If this species is listed, 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 Washington, Oregon, Idaho, California, Colorado, Nevada, Utah, Arizona, Wyoming, Montana, North Dakota, South Dakota, Nebraska, and Minnesota would be eligible for Federal funds to implement management actions that promote the protection or recovery of the Suckley's cuckoo bumble bee. Information on our grant programs that are available to aid species recovery can be found at: *https://www.fws.gov/service/financial-assistance.*

Although Suckley's cuckoo bumble bee is only proposed for listing under the Act at this time, please let us know if you are interested in participating in recovery efforts for this species. Additionally, we invite you to submit any new information on this species 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 it 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.

In contrast, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of critical habitat proposed to be designated for such species. Although the conference procedures are required only when an action is likely to result in jeopardy or adverse modification, action agencies may voluntarily confer with the Service on actions that may affect species proposed for listing or critical habitat proposed to be designated. In the event that the subject species is listed or the relevant critical habitat is designated, a conference opinion may be adopted as a biological

opinion and serve as compliance with section 7(a)(2) of the Act.

Examples of discretionary actions for Suckley's cuckoo bumble bee that may be subject to conference and consultation procedures under section 7 are management of Federal lands administered by the National Park Service, U.S. Fish and Wildlife Service, and U.S. Forest Service, as well as actions 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 actions funded by Federal agencies such as 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 Southern Alaska Fish and Wildlife Field Office (see **FOR FURTHER INFORMATION CONTACT**) with any specific questions on section 7 consultation and conference requirements.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered wildlife. The prohibitions of section 9(a)(1) of the Act, and the Service's implementing regulations codified at 50 CFR 17.21, make it illegal for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit or to cause to be committed any of the following acts with regard to any endangered wildlife: (1) import into, or export from, the United States; (2) take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) within the United States, within the territorial sea of the United States, or on the high seas; (3) possess, sell, deliver, carry, transport, or ship, by any means whatsoever, any such wildlife that has been taken illegally; (4) deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever and in the course of commercial activity; or (5) sell or offer for sale in interstate or foreign commerce. Certain exceptions to these prohibitions apply to employees or agents of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits for endangered wildlife are codified at 50 CFR 17.22, and general Service permitting regulations are codified at 50 CFR part 13. With regard to endangered wildlife, a permit may be issued: for scientific purposes, for enhancing the propagation or survival of the species, or for take incidental to otherwise lawful activities. The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

II. Critical Habitat

Background

Section 4(a)(3) of the Act requires that, to the maximum extent prudent and determinable, we designate a species' critical habitat concurrently with listing the species. Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Our regulations at 50 CFR 424.02 define the geographical area occupied by the species as an area that may generally be delineated around species' occurrences, as determined by the Secretary (*i.e.,* range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (*e.g.,* migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals).

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that each Federal action agency ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of designated critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation also does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Rather, designation requires that, where a landowner requests Federal agency funding or authorization for an action that may affect an area designated as critical habitat, the Federal agency consult with the Service under section 7(a)(2) of the Act. If the action may affect the listed species itself (such as for occupied critical habitat), the Federal agency would have already been required to consult with the Service even absent the designation because of the requirement to ensure that the action is not likely to jeopardize the continued existence of the species. Even if the Service were to conclude after consultation that the proposed activity is likely to result in destruction or adverse modification of the critical habitat, the Federal action agency and the landowner are not required to abandon the proposed activity, or to restore or recover the species; instead, they must implement ''reasonable and prudent alternatives'' to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat).

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas

outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Section 4(b)(2) of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658)), and our associated Information Quality Guidelines provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information compiled in the SSA report and information developed during the listing process for the species. Additional information sources may include any generalized conservation strategy, criteria, or outline that may have been developed for the species; the recovery plan for the species; articles in peer-reviewed journals; conservation plans developed by States and counties; scientific status surveys and studies; biological assessments; other unpublished materials; or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act; (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species; and (3) the prohibitions found in section 9 of the Act. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools continue to contribute to recovery of the species. Similarly, critical habitat designations made on the basis of the best scientific data available at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of those planning efforts calls for a different outcome.

Critical Habitat Determinability

Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

(i) Data sufficient to perform required analyses are lacking, or

(ii) The biological needs of the species are not sufficiently well known to identify any area that meets the definition of ''critical habitat.''

We reviewed the available information pertaining to the biological needs of the species and habitat characteristics where this species is located. A careful assessment of the economic impacts that may occur due to a critical habitat designation is still ongoing, and we are in the process of acquiring the complex information needed to perform that assessment. Therefore, due to the current lack of data sufficient to perform required analyses, we conclude that the designation of critical habitat for Suckley's cuckoo bumble bee is not determinable at this time. The Act allows the Service an additional year to publish a critical habitat designation that is not determinable at the time of listing (16 U.S.C. 1533(b)(6)(C)(ii)).

Required Determinations

Clarity of the Rule

We are required by E.O.s 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

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, May 4, 1994), E.O. 13175 (Consultation and Coordination with Indian Tribal Governments), the President's memorandum of November 30, 2022 (Uniform Standards for Tribal Consultation; 87 FR 74479, December 5, 2022), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with federally recognized Tribes and Alaska Native Corporations (ANCs) 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. We sent letters to all Tribes within the range of the species. We received responses back from the Tsleil-Waututh Nation and the Nottawaseppi Huron Band of the Potawatomi; both Tribes provided support for our SSA efforts, but no new data or information. We will continue to work with Tribal entities during the development of any subsequent rules for Suckley's cuckoo bumble bee.

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 Southern Alaska Fish and Wildlife Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are the staff members of the Fish and Wildlife Service's Species

Assessment Team and the Southern Alaska Fish and Wildlife Field Office.

List of Subjects in 50 CFR Part 17

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

Proposed Regulation Promulgation

Accordingly, we propose to 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 ''Bee, cuckoo bumble, Suckley's'' 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				
*	*	*	*	*
Bee, cuckoo bumble, Suckley's.	*Bombus suckleyi*	Wherever found	E	[**Federal Register** citation when published as a final rule].
*	*	*	*	*

* * * * *

Martha Williams,

Director, U.S. Fish and Wildlife Service.

[FR Doc. 2024–28729 Filed 12–16–24; 8:45 am]

BILLING CODE 4333–15–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 216, 300, and 635

[Docket No. 241010–0269]

RIN 0648–BK86

Seafood Import Procedures and Certification of Admissibility

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of proposed rulemaking; request for comments.

SUMMARY: NMFS proposes to revise regulations to provide for electronic entry filing of data from the Certification of Admissibility (COA) form, which allows entry of certain fish or fish products otherwise subject to trade restrictions pursuant to the Marine Mammal Protection Act (MMPA), High Seas Driftnet Fishing Moratorium Protection Act (Moratorium Protection Act), or Atlantic Tunas Convention Act (ATCA). This proposed rule would standardize and consolidate existing permit, reporting, recordkeeping, and entry filing requirements and allow nations to use their own aggregate catch documentation. The intent of these actions are to enable the continued flow of trade while adhering to existing statutory requirements.

DATES: Written comments must be received on or before February 18, 2025.

ADDRESSES: Written comments on this action, identified by NOAA–NMFS–2022–0057, may be submitted by either of the following methods:

Electronic Submission: Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to *https://www.regulations.gov* and enter NOAA–NMFS–2022–0057 in the Search box. Click on the ''Comment'' icon, complete the required fields, and enter or attach your comments.

Mail: Submit written comments to Bryan Keller, Office of International Affairs, Trade, and Commerce, National Marine Fisheries Service, 1315 East-West Highway (F/IS5), Silver Spring, MD 20910.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on *https://www.regulations.gov* without change. All personal identifying information (*e.g.,* name, address, *etc.*), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter ''N/A'' in the required fields if you wish to remain anonymous).

Written comments regarding the burden-hour estimates or other aspects of the collection-of-information requirements addressed in the proposed rule may be submitted to the Office of International Affairs, Trade, and Commerce, and/or to NMFS.

FOR FURTHER INFORMATION CONTACT: Bryan Keller, Office of International Affairs, Trade, and Commerce, National Marine Fisheries Service (phone: 301–427–7725; or email: *bryan.keller@noaa.gov*).

SUPPLEMENTARY INFORMATION:

Background

Several statutes, including the MMPA (16 U.S.C 1361 *et seq.*), Moratorium Protection Act (16 U.S.C. 1826d–k), and ATCA (16 U.S.C. 971 *et seq.*), authorize the U.S. Government to impose trade restrictions on certain fish or fish products (both wild-caught and aquaculture) of a foreign nation, or other entities that have competency to enter into international fishery management agreements as per the Moratorium Protection Act, where the nation has failed to meet the standards or requirements of the United States. In order to allow for entry of similar fish and fish products that are not subject to trade restrictions, NMFS developed the COA fish harvest record form, which is designed to accompany a non-prohibited shipment of fish or fish product to attest to its method and location of harvest. NMFS currently uses paper-format COAs that require