



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FWS–R5–ES–2023–0014; FXES11130900000–267–FF09E22000]

RIN 1018–BD66

Endangered and Threatened Wildlife and Plants; Removal of Northeastern Bulrush

From the List of Endangered and Threatened Plants

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), are removing the northeastern bulrush (*Scirpus ancistrochaetus*) from the Federal List of Endangered and Threatened Plants. Our review of the best scientific and commercial data available indicates that the threats to the northeastern bulrush have been eliminated or reduced to the point that the species no longer meets the definition of an endangered or threatened species under the Endangered Species Act of 1973, as amended (Act). Accordingly, the prohibitions and conservation measures provided by the Act, particularly through sections 7 and 9, will no longer apply to the northeastern bulrush.

DATES: This rule is effective [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*].

ADDRESSES: This final rule is available on the internet at <https://www.regulations.gov>. Comments and materials we received are available for public inspection at <https://www.regulations.gov> at Docket No. FWS–R5–ES–2023–0014.

Availability of supporting materials: This rule and supporting documents, including the 5-year reviews, Recovery Plan, and the species status assessment (SSA)

report, are available at <https://www.regulations.gov> under Docket No. FWS–R5–ES–2023–0014.

FOR FURTHER INFORMATION CONTACT: Audrey Mayer, Field Supervisor, New England Ecological Services Field Office; telephone 603–223–2541; email audrey_mayer@fws.gov. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:

Previous Federal Actions

Please refer to the proposed rule to delist the northeastern bulrush published on July 31, 2024 (89 FR 61387) for a detailed description of previous Federal actions concerning this species.

Peer Review

A species status assessment (SSA) team prepared an SSA report for the northeastern bulrush (Service 2019a). 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 of 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 northeastern bulrush SSA report. As discussed in the proposed rule, we sent the SSA report to three independent peer reviewers and received two responses. The peer reviews can be found at <https://www.regulations.gov> at Docket No. FWS–R5–ES–2023–0014. In preparing the proposed rule, we incorporated the results of these reviews, as appropriate, into the SSA report, which was the foundation for the proposed rule and this final rule. A summary of the peer review comments and our responses can be found in the proposed rule (89 FR 61387 at 61388, July 31, 2024).

Summary of Changes From the Proposed Rule

In preparing this final rule, we reviewed and fully considered all public comments received during the comment period. We have made no substantive changes from the July 31, 2024, proposed rule (89 FR 61387).

Summary of Comments and Recommendations

In the proposed rule published on July 31, 2024 (89 FR 61387), we requested that all interested parties submit written comments on the proposal by September 30, 2024. We also contacted appropriate Federal and State agencies, Tribal entities, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. We published a newspaper notice in USA Today on August 5, 2024, inviting the public to comment. We did not receive any requests for a public hearing. All substantive information received during comment period has either been incorporated directly into this final determination or is addressed below.

Public Comments

Comment 1: Several commenters stated that the biggest concern for the northeastern bulrush is climate change, which may lead to increasingly extreme and unpredictable weather patterns, such as hotter, drier summers and heavier rainfall with more flooding. They mention that while populations may seem stable now, the

sustainability of northeastern bulrush populations is in question due to the increased risk of unsuitable habitat conditions resulting from climate change impacts.

Our response: We evaluated the effects of climate change on the northeastern bulrush, including higher water levels early in the growing season followed by hotter summers and a faster drying cycle, in the discussion of future scenarios in the SSA report (Service 2019a, pp. 32–39). The Service evaluated the impacts from climate change, along with impacts to the species from other threats, in determining that the species is recovered. It is not necessary for all threats to a species to be removed for a species to be considered as recovered under the Act. In considering what factors might constitute a threat, we also look beyond the mere exposure (or potential exposure) of a species to the factor to determine whether it causes actual impacts to the species. The mere identification of factors that could impact a species negatively is not sufficient to compel a finding that maintaining a currently listed species on the Federal List of Endangered and Threatened Plants is appropriate; we require evidence that these factors are operative threats that may act on the species to the point that the species meets the definition of endangered or threatened under the Act. We anticipate climate change impacts on bulrush populations to include fluctuating water levels and light availability; however, in beaver wetlands we expect beavers to mitigate those impacts by thinning canopy cover and regulating water levels by damming. In seasonal wetlands we anticipate some negative effects from climate change on resiliency of populations, and a slight decline in species representation and redundancy (including the projected extirpation of 13 populations looking out to 2050). However, in 2050 approximately 135 populations would remain distributed across a large geographical range in at least three physiographic provinces, two habitat types, and all currently occupied States. The species therefore does not meet the definition of an endangered or a threatened species.

Comment 2: Several commenters voiced support for delisting the northeastern bulrush but indicated that the Service should continue to monitor populations of the species for several years after delisting to ensure that they do not decline.

Our response: Section 4(g)(1) of the Act requires us, in cooperation with the States, to implement a monitoring program for not less than 5 years for all species that have been recovered. This monitoring program includes post-delisting monitoring (PDM), which refers to activities undertaken to verify that a species delisted due to recovery remains secure from the risk of extinction after the protections of the Act no longer apply (see **Post-Delisting Monitoring**, below). The primary goal of PDM is to monitor the species to ensure that its status does not deteriorate, and if a decline is detected, to take measures to halt the decline so that proposing it as endangered or threatened again is not needed.

Comment 3: One commenter disagreed with our determination to delist the northeastern bulrush, suggesting that historical populations of northeastern bulrush in Pennsylvania (PA) are not prolific or healthy, and are still subjected to threats. They provided unpublished accounts of the species only being found at a few historical sites visited in 2022 and stated that remaining populations in eastern PA are smaller and more fragmented than historical surveys predict.

Our response: We appreciate the additional information presented on the research involving historical sites of northeastern bulrush. According to the 2008 northeastern bulrush 5-year review (Service 2009, p. 6), historical occurrences are not counted as extant occurrences and, thus, we did not consider them in the current or future condition scenarios in the SSA report (Service 2019a, entire), which helped to inform the delisting decision. In the SSA report, we assumed that historical sites were extirpated (i.e., locally extinct) (Service 2019a, p. 26); therefore, the fact that a few plants are still being found at

these sites is encouraging. A summary of the current and future condition of this species can be found in appendix 2 of the SSA report.

Comment 4: One commenter stated that delisting the species would make it more difficult to protect its habitat.

Our response: Threats to the northeastern bulrush have been eliminated or reduced to the point that the species no longer meets the definition of an endangered or threatened species under the Act; therefore, specific habitat protections provided to the species under the Act are no longer necessary for the species to achieve recovery. Further, there are several examples of ongoing habitat protection that are not dependent upon the species' status under the Act. For example, in PA, where 59.5 percent of populations of northeastern bulrush are found, the PA Department of Conservation and Natural Resources places a minimum 200-foot forest management buffer around vernal pools (i.e., seasonal wetlands) (Bowen 2025, pers. comm.). Vernal pools are one of the primary wetland habitat types where northeastern bulrush are found.

Comment 5: One commenter stated that northeastern bulrush should remain on the endangered species list due to its restricted geographic range and ongoing vulnerability. They point out that the species historically had a much broader range and that this range contraction suggests that the species has faced significant environmental pressures, likely due to habitat loss, climate change, and other anthropogenic factors.

Our response: Rarity or range restriction alone is not a basis for determining that a species meets the definitions of either a threatened or endangered species under the Act. Our analysis of the best commercial and scientific data available indicates that the populations of northeastern bulrush are secure. We also determined that despite the historical decrease in the range of this species, stressors have not occurred to the extent projected at the time of listing and many more populations have been discovered, contributing to our evaluation that the species no longer warrants listing under the Act.

Comment 6: One commenter stated that northern populations of northeastern bulrush show little genetic diversity, which may hinder the species' potential for viability and continued growth.

Our response: As mentioned in the SSA, genetic diversity of northeastern bulrush is limited, especially in the New England region, which potentially makes it more difficult for the species to adapt to changing environmental conditions (i.e., reduced representation). However, the projected loss of a few populations in the New England and Appalachian regions will have a negligible effect on each region's adaptive capacity via genetic diversity due to the large numbers of populations remaining. This lower genetic representation will continue to be mitigated by large numbers of populations, diversity of habitat type, and presence in different physiographic regions (Service 2019a, p. 37).

Background

Species description

A thorough review of the life history, taxonomy, and ecology of the northeastern bulrush is presented in the SSA report (Service 2019a, entire).

The northeastern bulrush is a member of the Cyperaceae (sedge) family. It is a tall (80 to 120 centimeters), leafy, perennial herb that produces stems and leaves from short, thick, underground rhizomes. It is distinguished from other *Scirpus* species by its drooping, clustered, fruiting heads; dark, chocolate-brown florets; achene (i.e., small, dry, one-seeded fruit) bristles that are barbed to the base; and broad bracts (Schuyler 1962, pp. 44–46).

Population size may vary from year to year. In some cases, plants are absent above ground for several years before re-emerging (Service 2019a, p. 10). This is likely due to changes in environmental conditions, although the exact causal mechanisms are not well understood. When water levels and/or light availability are not favorable, the

population becomes stressed, dwindles in size, and sometimes becomes completely absent above ground. When favorable habitat conditions return, the population may re-emerge.

The northeastern bulrush is a wetland obligate plant occurring in acidic to almost neutral wetlands including sinkhole ponds, wet depressions, and vernal pools—collectively, seasonal or ephemeral wetlands; American beaver (*Castor canadensis*) flowages; and other riparian areas found in hilly country (Schuyler 1962, p. 47). Optimal habitat includes abundant sunlight, high organic matter (Lentz and Dunson 1999, p. 165), and seasonally and/or annually fluctuating water levels. Prolonged periods with too much or too little water may be detrimental.

At the time of listing in 1991, only 13 populations of the northeastern bulrush scattered across 6 States were known to exist (Service 1991, entire); however, the species is now known from 148 extant populations in 8 States (Service 2019a, p. 2). The populations can be loosely organized into a northern region and a southern or Appalachian region, with a large gap in the distribution in southeastern New York. The northern region includes extreme eastern New York and the New England States of Vermont, New Hampshire, and Massachusetts; and the southern or Appalachian region includes southwestern New York, Pennsylvania, Maryland, Virginia, and West Virginia. The vast majority of populations are in Pennsylvania (59.5 percent), Vermont (20.9 percent), and New Hampshire (9.5 percent).

Recovery Criteria

Section 4(f) of the Act directs us to develop and implement recovery plans for the conservation and survival of endangered and threatened species unless we determine that such a plan will not promote the conservation of the species. Under section 4(f)(1)(B)(ii), recovery plans must, to the maximum extent practicable, include objective, measurable criteria which, when met, would result in a determination, in accordance with the

provisions of section 4 of the Act, that the species be removed from the Lists of Endangered and Threatened Wildlife and Plants.

Recovery plans provide a roadmap for us and our partners on methods of enhancing conservation and minimizing threats to listed species, as well as measurable criteria against which to evaluate progress towards recovery and assess the species' likely future condition. However, they are not regulatory documents and do not substitute for the determinations and promulgation of regulations required under section 4(a)(1) of the Act. A decision to revise the status of a species or to delist a species is ultimately based on an analysis of the best scientific and commercial data available to determine whether a species is no longer an endangered species or a threatened species, regardless of whether that information differs from the recovery plan.

There are many paths to accomplishing recovery of a species, and recovery may be achieved without all of the criteria in a recovery plan being fully met. For example, one or more criteria may be exceeded while other criteria may not yet be accomplished. In that instance, we may determine that the threats are sufficiently minimized and that the species is robust enough that it no longer meets the definition of an endangered species or a threatened species. In other cases, we may discover new recovery opportunities after having finalized the recovery plan. Parties seeking to conserve the species may use these opportunities instead of methods identified in the recovery plan. Likewise, we may learn new information about the species after we finalize the recovery plan. The new information may change the extent to which existing criteria are appropriate for identifying recovery of the species. The recovery of a species is a dynamic process requiring adaptive management that may, or may not, follow all of the guidance provided in a recovery plan.

In the 2019 5-year review (Service 2019b, entire), the Service recommended delisting the northeastern bulrush, because it no longer meets the Act's definition of an

endangered or a threatened species. While the recovery plan does not include delisting criteria, our analysis presented in the SSA report (Service 2019a, entire) shows that the intent of the recovery plan's downlisting criteria (Service 1993, p. 37) has been exceeded substantially, supporting our conclusion that the species is neither endangered nor threatened.

The purpose and intent of the first downlisting criterion calling for permanent protection of 20 populations was to provide evidence that a reasonable number of populations were reliably protected from development, which was identified as a threat to the species' viability. Currently, 88 (approximately 60 percent) of the 148 known extant populations occur on public lands, which affords consistent and reliable protection through a management structure conducive to conservation. In addition, although development was identified as an important threat at the time of listing, that threat appears to have diminished. Currently, oil and gas development in Pennsylvania is perhaps the most likely development threat; however, no available information indicates any populations are under known threat from oil and gas development. Although other types of activities such as road construction, forestry, recreation, and plant competition are factors that may affect the species, data indicate they are not primary factors influencing the viability of the northeastern bulrush. Also, because the species occurs in wetland habitats, which are provided some protections under State and Federal laws, the species is protected from many sources of impacts from human activities. As a result, the need for further affirmative protection from these threats on both public and private lands is less than previously determined at the time the recovery plan was issued in 1993. Together these factors lead to our conclusion that the purpose and intent of the first downlisting criterion of permanent protection for 20 populations has been substantially exceeded.

The intent of the second downlisting criterion calling for 20 stable or increasing populations was to demonstrate and ensure the species was not in active decline. This element of the recovery plan has also been exceeded by a wide margin. There are 148 known extant populations of the northeastern bulrush in 8 States, an increase of 31 percent from the 113 known extant populations in 7 States at the time of the 2009 5-year review. Our analysis of these populations in the SSA report (Service 2019a, p. 27) indicates that 132 (89 percent) of the 148 known extant populations demonstrate excellent, good, and fair resiliency (indicative of stable or increasing populations), and only 16 (11 percent) of the populations demonstrate poor resiliency or have been extirpated. We determined that the intent of this criterion has been substantially exceeded.

The third downlisting criterion calling for increased understanding of the life-history and ecological requirements of the northeastern bulrush has been achieved in that we have sufficient information to support long-term management of populations. Research by State, Federal, and university partners on the effects of hydrology, shading, herbivory, genetics, propagation, transplantation, and nutrients on germination and plant growth has provided better understanding of how to more effectively protect, monitor, and manage the species. Therefore, lack of knowledge to support long-term management of populations no longer contributes a substantial risk to the species.

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 (CFR) 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. The determination to delist a species must be based on an analysis of the same five factors.

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 (i.e., direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (i.e., 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 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 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 available 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 delisted. 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 northeastern bulrush viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency is the ability of the species to withstand environmental and demographic stochasticity (e.g., wet or dry, warm or cold years); redundancy is the ability of the species to withstand catastrophic events (e.g., 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 (e.g., climate conditions, pathogen). 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 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' future condition, including responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best scientific and commercial data available 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–R5–ES–2023–0014 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. In addition, the SSA report (Service 2019a, entire) documents our comprehensive biological status review for the species, including an assessment of the potential threats to the species. The following is a summary of this status review and the best scientific and commercial data available gathered since that time that have informed this decision.

Species Needs

The northeastern bulrush is a wetland obligate plant occurring in acidic to almost neutral wetlands including sinkhole ponds, wet depressions, vernal pools—collectively, seasonal or ephemeral wetlands; beaver flowages; and other riparian areas found in hilly country (Schuyler 1962, p. 47). Optimal habitat includes abundant sunlight, higher organic matter (Lentz and Dunson 1999, p. 165), and seasonally and/or annually fluctuating water levels. Prolonged periods with too much or too little water may be detrimental. The northeastern bulrush may be found in a wide range of water depths from just a few centimeters up to a meter in depth, depending on seasonal fluctuations in water

levels (Thompson 1991, p. 5). Plants typically grow in open areas surrounded by forest. Light availability is known to influence plant growth, reproduction, and distribution (Boardman 1977, p. 372; Lentz and Cipollini 1998, p. 126). Shaded plants are often taller, but at the expense of the roots and other organs (Lentz and Cipollini 1998, pp. 127, 129), and the species usually is absent from the highly shaded perimeter of wetlands.

Threats

At the time of listing (see 56 FR 21091; May 7, 1991), the Service identified habitat disturbance and destruction from development and other anthropogenic impacts, especially on private land, as important threats to the northeastern bulrush. Currently, oil and gas development in Pennsylvania is perhaps the most likely development threat; however, we are not aware of any information indicating that any northeastern bulrush populations may be affected by any existing or planned oil and gas development. Although other types of activities such as road construction, forestry, and recreation are factors that may affect the species, to date they have not proven to be significant factors contributing to the risk of extinction of the northeastern bulrush. Accordingly, we conclude that the threats of disturbance and destruction of northeastern bulrush habitat from development are less than previously thought, and not significant factors impacting the continued viability of the species.

Native species are known to modify habitat for the northeastern bulrush and can have meaningful, although mostly temporary, impacts on populations. American beavers can create flood conditions through increasing water depth by constructing or adding to a dam and raising the water level in a wetland occupied by the northeastern bulrush. Persistent flood conditions can negatively impact the species; however, beavers also have a long-term positive effect on habitat quality by harvesting trees and other woody vegetation for food and shelter, thereby creating open canopy and increasing light availability.

Trampling by white-tailed deer (*Odocoileus virginianus*) and trampling and wallowing by American black bears (*Ursus americanus*) have been noted in some northeastern bulrush populations, and these activities can have mixed, sometimes substantial, impacts, especially where bulrush populations are very small. Trampling and soil compaction occur as deer and bears move through northeastern bulrush sites. Bears excavate wallows near the edge of wetlands, and some northeastern bulrush populations have been impacted by this activity. Wallows can be big enough to affect entire populations if the populations are very small; however, wallows also can be beneficial as they help create areas of open water, which are important during dry periods. These factors affect a small number of populations, and it appears that the timing, location, and scale of the trampling and wallows that would need to align to extirpate a population occur with such infrequency as to be discountable.

Climate change, especially in the southern portion of its range, is the primary factor influencing the viability of the northeastern bulrush. Although the species exists in wetlands that regularly experience fluctuating water levels, the northeastern bulrush and its habitat are susceptible to floods and droughts. Based on global, regional, and local climate models (Service 2019a, chapter 5), we expect that changes in climate will impact the northeastern bulrush's habitat by changing the amount, timing, and severity of precipitation and drought, and the number of extreme precipitation events. Higher temperatures, without increasing summer precipitation, may cause wetlands to desiccate (i.e., dry out) earlier, and an extended growing season may allow other vegetation to encroach upon, compete with, and increase shading of northeastern bulrush plants. We expect these impacts to be more noticeable in populations that occur in seasonal wetlands. We expect beaver activity may at least partially mitigate effects of changing climate by regulating water levels through damming, maintaining larger wetlands and

open area, removing trees, and reducing shading at the wetland perimeter. For further discussion of the threats analysis, please see the SSA report (Service 2019a, chapter 3).

Conservation Efforts and Regulatory Mechanisms

A major increase in survey effort of known occupied and potentially suitable habitat in every state in the species' range has resulted in a large increase in the number of known populations and the species' known occupied range. These surveys were conducted as part of the broader recovery efforts for the species following its initial listing. Other conservation efforts include long-term monitoring of known populations following targeted habitat management activities, pilot programs involving propagation and transplantation of northeastern bulrush, and active management to address shrub encroachment and canopy shading in occupied areas (Service 2019a, p. 24).

The wetland habitats in which the northeastern bulrush occurs are protected by State statutes and regulations, although these mechanisms typically include a permitting process that may allow direct impacts to wetlands contingent upon implementation of mitigation measures. Some States have additional statutes or regulations or both that protect the northeastern bulrush or its habitat. For example, Vermont, New York, and Massachusetts require protection of upland buffers and permits to work within wetlands. However, State protection of upland areas around the wetlands is inconsistent, and disturbances such as roads or other development near wetlands can cause indirect effects such as sedimentation, altered hydrology, and introduction of invasive species.

The species is designated as State endangered throughout its range, except in West Virginia, and these State designations are independent of the species' Federal status. West Virginia does not have a State law to protect endangered species, and only three northeastern bulrush populations occur in West Virginia. The States that currently protect the northeastern bulrush under State law require, at a minimum, project proponents to coordinate with State resource agencies to develop minimization measures

for projects that may affect the northeastern bulrush or its habitat. The regulatory protection discussion in the SSA report (Service 2019a, pp. 17–21) includes a summary of our current understanding of the laws and regulations regarding wetlands and buffers in States where the northeastern bulrush occurs.

The 88 northeastern bulrush populations that occur on publicly owned land—approximately 60 percent of known populations—are provided long-term protection from risk of development. Publicly owned lands include State Game Lands, National Wildlife Refuges, National Park Service units, and lands protected by non-governmental organizations such as The Nature Conservancy (see Service 2019a, pp. 21–24).

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.

Current Condition

When the northeastern bulrush was listed in 1991, only 13 populations were known to exist. The species is now known to exist within 148 extant populations in 8 States (Service 2019a, p. 2). The populations can be loosely organized into a northern region and a southern or Appalachian region, with a large gap in the distribution in southeastern New York. As described in chapter 4 of the SSA report (Service 2019a, pp. 25–31), we used element occurrence (EO) rank to assess and describe the current resiliency of northeastern bulrush populations. EO rankings document the status and

quality of plant population occurrences and assess the probability of an occurrence persisting. We consider the EO rank to be the most meaningful way to describe a population's status, as it requires an in-person observation and combines multiple components of a population's condition into a single metric. EO ranks are assigned by a surveyor based on observations beyond just population size, but also habitat conditions at the site at the time of the survey, conditions over time since its last observation, and probability of persistence. Our analysis of these populations (Service 2019a, p. 27) indicates that 132 (89.2 percent) of the 148 known extant populations demonstrate excellent, good, and fair resiliency; 13 populations (8.8 percent) demonstrate poor resiliency; and 3 populations (2 percent) have been extirpated.

Northeastern bulrush populations with excellent and good resiliency in both seasonal and beaver wetlands tend to have stable populations in high-quality habitat (i.e., suitable water levels, suitable soil pH, adequate light), more individuals per population, and lower risk of disturbance. In the context of resiliency, these populations are more likely to recover from stochastic disturbance because the habitat is superior and a stable population can reproduce more often than an inconsistent population (Service 2019a, p. 28). The 13 populations (8.8 percent of known extant populations) in seasonal wetlands that currently have poor resiliency are the most vulnerable to the effects of changing climate and have a high risk of extirpation. Populations in beaver wetlands are much less vulnerable to the effects of changing climate and have a low risk of extirpation due to factors such as a larger average size and water fluctuations being tempered by damming. Rangewide, most populations (78 percent) occur in seasonal wetlands, but the distribution is geographically disparate. In the New England region, 60.4 percent of populations (29 of 48) occur in beaver wetlands, while in the Appalachian region, 97 percent of populations (97 of 100) occur in seasonal wetlands (Service 2019a, p. 29).

Future Condition

We modeled a single scenario to assess the potential future viability of the northeastern bulrush in the context of the factors influencing species viability and resiliency, representation, and redundancy. Due to uncertainties with factors such as fluctuating water levels, climatic stochasticity, light availability, and regulatory protection, we used EO rank to assess future resiliency condition, consistent with our current condition analysis.

We explored plausible changes in the factors considered in an EO ranking, such as population size, biotic factors, abiotic factors, and landscape context (Hammerson et al. 2008, entire) to anticipate future changes in EO rank at each population. We were unable to explicitly predict changes in population size; however, we were able to use existing climate models to qualitatively anticipate effects of changing climate on biotic and abiotic factors (i.e., habitat type and quality). We used the same population resiliency scoring model for future condition that we used for current condition. Accordingly, to describe plausible future viability, we modeled future resiliency at the population level and reasonably reliable trends in redundancy and representation at the rangewide scale (see Service 2019a, pp. 32-39).

We considered the potential consequences of climate change and carried the scenario into 2050. We consider this time step to be the foreseeable future because we have information to reasonably and reliably predict changes in climate within this timeframe. We first modeled the response of northeastern bulrush habitat to changes in climate consistent with representative concentration pathway (RCP) 8.5. The best available information, as summarized in the SSA report, generally presents this scenario as a plausible, high-emissions scenario anticipating greater changes in climate than moderate climate scenarios, such as RCP4.5. Available information also suggests the probability of scenarios worse than RCP8.5 is low. Therefore, RCP8.5

presents a worst case, but still plausible, scenario for northeastern bulrush habitat. As our analysis using RCP8.5 resulted in the northeastern bulrush not meeting the Act's definition of an endangered or a threatened species, it follows that additional analyses using RCP4.5 or another moderate-emissions climate model would result in lower magnitude effects on the species' habitat and, ultimately, the same listing determination. Therefore, we did not bracket our analysis with lower emissions climate models.

We generally anticipate, and modeling reflects, that climate change is likely to impact the species' habitat through higher water levels early in the growing season followed by hotter summers and a faster drying cycle. For the northeastern bulrush, this will affect fluctuating water levels, climatic stochasticity (i.e., random fluctuations in climate patterns), and light availability, resulting in neutral effects on beaver wetlands and negative effects on seasonal wetlands. We expect beavers to mitigate anticipated climate changes at beaver wetlands by thinning canopy cover and regulating water levels by damming. In addition, while we are not aware of climate studies examining specific effects on beavers, beavers occur within and outside the range of the northeastern bulrush in diverse landscapes, some of which are hotter and have different precipitation regimes. Accordingly, we anticipate beavers will remain within the range of the northeastern bulrush through 2050. Therefore, we expect no reduction in northeastern bulrush population representation in beaver wetlands before 2050 beyond that which could occur through normal beaver use and disuse of wetlands.

Our future scenario anticipated moderate negative effects on resiliency, a slight decline in representation and redundancy, and extirpation of 13 populations (2 in the northern region and 11 in the Appalachian region) from seasonal wetlands. In 2050, approximately 135 populations would remain distributed across a large geographical

range in at least three physiographic provinces, two habitat types, and all currently occupied States. The species likely would retain low genetic diversity, especially in the northern region. The species' apparent limited dispersal capacity will reduce its ability to shift its range in response to changing climate. However, the species would retain its redundancy driven by a wide geographic distribution and retain representation via the use of a variety of environmental settings (i.e., habitat and physiographic provinces).

Determination of Northeastern Bulrush 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.

Status Throughout All of Its Range

When we listed the northeastern bulrush in 1991 (56 FR 21091, May 7, 1991), there were only 13 known populations, and the species faced threats from habitat loss primarily due to land conversion for development. Since then, the northeastern bulrush has been the subject of many recovery efforts, including: the discovery of previously unknown populations (i.e., there are currently 148 known populations across 8 states); research leading to the understanding of the species' needs; and identification of

management actions that support those needs. Those efforts, in addition to unmaterialized projected threats of habitat loss from development, have led to a revised assessment of the overall risk and status of the species. After evaluating threats to the species and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we conclude that the northeastern bulrush has substantially exceeded all criteria detailed in the recovery plan (Service 1993, entire) and no longer meets the definition of either an endangered or a threatened species under the Act.

As stated previously, we identified habitat disturbance and destruction from development, especially on private lands, as important threats to the northeastern bulrush at the time of listing. However, we are not aware of any information indicating that any northeastern bulrush populations are under threat from oil and gas development, road construction, forestry, or recreation; therefore, we do not consider these anthropogenic impacts as a significant threat. Deer browsing and trampling, as well as trampling and wallowing by black bears, have been noted in some populations, and these activities may have localized detrimental effects on a population. However, these factors affect only a small number of populations, and the likelihood is low that browsing, trampling, or wallowing would occur in a particular population with poor resiliency and with sufficient magnitude to affect the entire population. Accordingly, we conclude that browsing, trampling, and wallowing either individually or cumulatively are not likely to cause the extirpation of a population and, therefore, are not significant factors contributing to the risk of extinction of the northeastern bulrush.

Regulatory protections afforded to the northeastern bulrush include State wetland protections and State endangered species regulations. These protections apply independently of the species' Federal status under the Act and, at a minimum, require project proponents to coordinate with State resource agencies to develop minimization measures for projects that may affect the northeastern bulrush or its habitat. A description

of the States' regulatory protections can be found in the SSA report (Service 2019a, pp. 17–21).

To summarize, our greater knowledge regarding the prevalence of northeastern bulrush populations and the impacts of natural and artificial systems and disturbances on the species results in the conclusion that the overall extinction risk for the northeastern bulrush is much lower than we had previously determined it to be at the time the species was listed. Considering our modeled worst case future scenario, it is apparent that the risk of threats manifesting in such a way as to cause the species to likely become in danger of extinction within the foreseeable future is very low. Known impacts at the time of listing, such as habitat loss due to development and inadequate regulatory protections, that could have resulted in the extirpation of populations have either been reduced or have not materialized since listing. Through our assessment of future condition, including the status of known stressors and probable impacts of climate change, we anticipate that 88 percent of populations across the range of the species would maintain high, moderate, or fair resiliency within the foreseeable future. Thus, after assessing the best available data, we conclude that the northeastern bulrush is not in danger of extinction or likely to become so within the foreseeable future throughout all of its range.

Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so within the foreseeable future throughout all or a significant portion of its range. Having determined that the northeastern bulrush is not in danger of extinction or likely to become so in the foreseeable future throughout all of its range, we now consider whether it may be in danger of extinction (i.e., endangered) or likely to become so within the foreseeable future (i.e., threatened) in a significant portion of its range—whether there is any portion of the species' range for which both (1) the portion is significant; and, (2) the species is in

danger of extinction or likely to become so in the foreseeable future in that portion.

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

In undertaking this analysis for northeastern bulrush, we choose to address the status question first. We began by identifying portions of the range where the biological status of the species may be different from its biological status elsewhere in its range. For this purpose, we considered information pertaining to the geographic distribution of (a) individuals of the species, (b) the threats that the species faces, and (c) the resiliency condition of populations.

We evaluated the range of the northeastern bulrush to determine if the species is in danger of extinction or likely to become so within the foreseeable future in any portion of its range. The range of a species can theoretically be divided into portions in an infinite number of ways. We focused our analysis on portions of the species’ range that may meet the definition of an endangered species or a threatened species. For northeastern bulrush, we considered whether the threats or their effects on the species are greater in any biologically meaningful portion of the species’ range than in other portions, such that the species is in danger of extinction or likely to become so within the foreseeable future in that portion. We examined the following threats: (1) habitat disturbance and destruction from development; (2) beaver activity; (3) deer and bear activities, such as trampling, browsing, and wallowing; and (4) climate change, including cumulative effects.

As stated previously under **Summary of Biological Status and Threats**, when this species was listed, we identified habitat disturbance and destruction from development and other anthropogenic impacts as important threats to the northeastern

bulrush. However, since listing, the anticipated threat of habitat loss from development has not materialized in any portion of the range, and we conclude that the threats of habitat disturbance and destruction from development do not rise to a level that threatens the species now or into the future. Similarly, while we identified threats of beaver activity, trampling, and wallowing that can cause localized impacts to individual northeastern bulrush populations, these factors are not occurring at a significant level in any portion of the species' range.

The effects of climate change differ between the northern and southern portions of the range of the northeastern bulrush, as most populations in the southern portion of the range occur in seasonal wetlands while populations in the northern portion are more evenly distributed between seasonal wetlands and beaver marshes. Changing climatic conditions will include more precipitation during winters, higher temperatures throughout the species' range, and an increased frequency of extreme precipitation events. We project these conditions will have more negative effects on seasonal wetlands and neutral effects on beaver marshes, equating to a slightly elevated risk from climate change in the southern portion of the range. As described in the SSA report (Service 2019a, pp. 32–39), climate change under a worst-case scenario could contribute to extirpation of 13 populations (2 populations in the northern portion and 11 in the southern portion) across the species' range. However, our analyses in the SSA report projected that 135 populations would remain: 46 populations in the northern portion (96 percent of extant populations) and 89 in the southern portion (89 percent), providing representation and redundancy within each portion and across the species' range. Moreover, it is projected that the southern and northern portions of the range will each retain strong resiliency, with more than 85 percent of populations in the southern portion and 93 percent in the northern portion projected to maintain high, moderate, or fair resiliency.

We found no biologically meaningful portion of the northeastern bulrush's range where the condition of the species differs from its condition elsewhere in its range such that the status of the species in that portion differs from its status in any other portion of the species' range.

Therefore, we find that the species is not in danger of extinction or likely to become so within the foreseeable future in any significant portion of its range. This does not conflict with the courts' holdings in *Desert Survivors v. U.S. Department of the Interior*, 321 F. Supp. 3d 1011, 1070–74 (N.D. Cal. 2018) and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d. 946, 959 (D. Ariz. 2017) because, in reaching this conclusion, we did not apply the aspects of the final policy on interpretation of the phrase “significant portion of its range” in the Endangered Species Act's definitions of “endangered species” and “threatened species” (79 FR 37578, July 1, 2014), including the definition of “significant” that those court decisions held to be invalid.

Determination of Status

Based on the best scientific and commercial information available, we determine that the northeastern bulrush does not meet the definition of an endangered species or a threatened species in accordance with sections 3(6) and 3(20) of the Act. In accordance with our regulations at 50 CFR 424.11(e)(2), the northeastern bulrush has recovered to the point at which it no longer meets the definition of an endangered species or a threatened species. Therefore, we are removing the northeastern bulrush from the Federal List of Endangered and Threatened Plants.

Effects of This Rule

This rule revises 50 CFR 17.12(h) by removing the northeastern bulrush from the Federal List of Endangered and Threatened Plants. On the effective date of this rule (see **DATES**, above), the prohibitions and conservation measures provided by the Act, particularly through sections 7 and 9, will no longer apply to this species. Federal

agencies will no longer be required to consult with the Service under section 7 of the Act in the event that activities they authorize, fund, or carry out may affect northeastern bulrush.

There is no critical habitat designated for this species, so there will be no effect to 50 CFR 17.96.

Post-delisting Monitoring

Section 4(g)(1) of the Act requires us, in cooperation with the States, to implement a monitoring program for not less than 5 years for all species that have been recovered. Post-delisting monitoring (PDM) refers to activities undertaken to verify that a species delisted due to recovery remains secure from the risk of extinction after the protections of the Act no longer apply. The primary goal of PDM is to monitor the species to ensure that its status does not deteriorate, and if a decline is detected, to take measures to halt the decline so that proposing it as endangered or threatened is not again needed. If at any time during the monitoring period data indicate that protective status under the Act should be reinstated, we can initiate listing procedures, including, if appropriate, emergency listing.

We will coordinate with other Federal agencies, State resource agencies, interested scientific organizations, and others as appropriate to develop and implement an effective PDM plan for the northeastern bulrush. The PDM plan will build upon current research and effective management practices that have improved the status of the species since listing. Ensuring continued implementation of proven management strategies that have been developed to sustain the species will be a fundamental goal for the PDM plan. The PDM plan will identify measurable management thresholds and responses for detecting and reacting to significant changes in northeastern bulrush numbers, distribution, and persistence. If declines are detected equaling or exceeding these thresholds, the Service, in combination with other PDM participants, will investigate

causes of these declines. The investigation will be to determine if the northeastern bulrush warrants expanded monitoring, additional research, additional habitat protection, or resumption of Federal protection under the Act.

Required Determinations

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), Executive Order 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 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 have determined that no Tribes will be affected by this rule because there are no Tribal lands or interests within or adjacent to northeastern bulrush habitat.

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 New England Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

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

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

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

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

§ 17.12 [Amended]

2. In § 17.12, amend paragraph (h) by removing the entry for “*Scirpus ancistrochaetus*” under FLOWERING PLANTS from the List of Endangered and Threatened Plants.

Brian R. Nesvik,
Director,
U.S. Fish and Wildlife Service.

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