§ 1250.2 Railroad performance data elements.

(a) * * *

(6) The weekly average of loaded and empty cars, operating in normal movement and billed to an origin or destination, which have not moved in 48 hours or more, sorted by service type (intermodal, grain, coal, crude oil, automotive, ethanol, fertilizer (the following Standard Transportation Commodity Codes (STCCs): 2812534, 2818142, 2818146, 2818170, 2818426, 2819173, 2819454, 2819815, 2871235, 2871236, 2871238, 2871244, 2871313, 2871315, and 2871451), chemicals or allied products (all remaining STCC 28), and all other).

* * * * *

Note: The following appendix will not appear in the Code of Federal Regulations.

Appendix

Information Collection

Title: United States Rail Service Issues—Performance Data Reporting.

OMB Control Number: 2140–0033.

Form Number: None.

Type of Review: Revision of a currently approved collection.

Summary: As part of its continuing effort to reduce paperwork burdens, and as required by the Paperwork Reduction Act of 1995, 44 U.S.C. 3501–3521, the Surface Transportation Board (Board) gives notice that it is requesting from the Office of Management and Budget (OMB) approval for the revision of the currently approved information collection, United States Rail Service Issues-Performance Data Reporting, OMB Control No. 2140–0033. The requested revision to the currently approved collection is necessitated by this notice of proposed rulemaking (NPRM), which would require respondents to include chemical and plastics (STCC 28) traffic as a distinct reporting category for cars-held metric at 49 CFR 1250.2(a)(6). All other information collected by the Board in the currently approved collection is without change from its approval (currently expiring on June 30, 2020).

Respondents: Class I railroads (on behalf of themselves and the Chicago Transportation Coordination Office (''CTCO'')).

Number of Respondents: Seven.

Estimated Time per Response: The proposed rules seek three related responses, as indicated in the table below.

TABLE—ESTIMATED TIME PER RESPONSE

Type of responses	Estimated time per response (hours)
Weekly	1.5
Quarterly	1.5
On occasion	1.5

Frequency: The frequencies of the three related collections sought under the proposed rules are set forth in the table below.

TABLE—FREQUENCY OF RESPONSES

Type of responses	Frequency of responses (year)
Weekly	52
Quarterly	4
On occasion	2

Total Burden Hours (annually including all respondents): The recurring burden hours are estimated to be no more than 591 hours per year, as derived in the table below. In addition, there are some one-time, start-up costs of approximately 45 hours for each respondent that must be added as a one-time burden due to the programming changes to add the additional reporting category. To avoid inflating the estimated total annual hourly burden, the 45-hour start-up burden has been divided by three and spread over the three-year approval period. Thus, the total annual burden hours for each of the three years are estimated at no more than 696 hours per year.

TABLE—TOTAL BURDEN HOURS

[per year]

Type of responses	Number of respondents	Estimated time per response	Frequency of responses (year)	Total yearly burden hours
Weekly	7	1.5 hours	52	546
Quarterly	7	1.5 hours	4	42
On occasion	1	1.5 hours	2	3
One-Time	7	15 hours (45 hours/3 years)	1	105
Total				696

Total ''Non-hour Burden'' Cost: There are no other costs identified because filings are submitted electronically to the Board.

Needs and Uses: The information collection allows the Board to better understand current service issues and potentially to identify and resolve possible future regional and national service disruptions more quickly. Transparency would also benefit rail shippers and stakeholders, by allowing them to better plan operations and make informed business decisions based on publicly available data, and their own analysis of performance trends over time. As described in more detail above in the NPRM, the Board is amending the rules that apply to this collection to add chemical and plastics (STCC 28, except fertilizer) traffic as a distinct reporting category. The reporting of this traffic as a stand-along category of cars will allow the Board to monitor the fluidity of these commodities and give chemical and plastics shippers the ability to identify and mitigate service issues more readily. The collection by the Board of this information, and the agency's use of this information, enables the Board to meet its statutory duties.

[FR Doc. 2019–21627 Filed 10–4–19; 8:45 am]

BILLING CODE 4915–01–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R6–ES–2018–0045; FXES11130600000C6–178–FF06E11000]

RIN 1018–BC03

Endangered and Threatened Wildlife and Plants; Removal of Howellia aquatilis (Water Howellia) From the List of Endangered and Threatened Plants

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to remove the plant *Howellia aquatilis* (water howellia) from the Federal List of Endangered and Threatened Plants. The best available scientific and commercial data indicate that threats to water howellia identified at the time of listing in 1994 are not as significant as originally anticipated and are being adequately managed. Therefore, the species no longer meets the definition of an endangered or threatened species under the Endangered Species Act of 1973, as amended (Act). This determination is based on a thorough review of all available information, which indicates that this species' population and distribution are much greater than was known at the time of listing in 1994 and that threats to this species have been sufficiently minimized. We are seeking information and comments from the public regarding this proposed rule and the draft post-delisting monitoring (PDM) plan for water howellia.

DATES: We will accept comments received or postmarked on or before December 6, 2019. 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 public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by November 21, 2019.

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

- *Electronically:* Go to the Federal eRulemaking Portal: http://www.regulations.gov. In the Search box, enter Docket No. FWS–R6–ES–2018–0045, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on the blue ''Comment Now!'' box. If your comments will fit in the provided comment box, please use this feature of *http://www.regulations.gov,* as it is most compatible with our comment review procedures. If you attach your comments as a separate document, our preferred file format is Microsoft Word. If you attach multiple comments (such as form letters), our preferred formation is a spreadsheet in Microsoft Excel.
- *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R6–ES–2018–0045, U.S. Fish and Wildlife Service, MS: BPHC, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you submit written comments only by the methods described above. We will post all comments on *http://www.regulations.gov.* This generally means that we will post any personal information you provide us (see *Public Comments,* below, for more details).

Document availability: This proposed rule and supporting documents, including a copy of the draft post-delisting monitoring plan referenced throughout this document, are available on *http://www.regulations.gov* at Docket No. FWS–R6–ES–2018–0045. In addition, the supporting file for this proposed rule will be available for public inspection, by appointment, during normal business hours at the Montana Ecological Services Field Office, 585 Shepard Way, Suite 1, Helena, MT 59601; telephone: 406–449–5225. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800–877–8339.

FOR FURTHER INFORMATION CONTACT: Jodi Bush, Office Supervisor, telephone: 406–449–5225. Direct all questions or requests for additional information to: WATER HOWELLIA QUESTIONS, U.S. Fish and Wildlife Service, Montana Ecological Services Field Office, 585 Shepard Way, Suite 1, Helena, MT 59601. Individuals who are hearing-impaired or speech-impaired may call the Federal Relay Service at 800–877–8337 for TTY assistance.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, if a species is determined to no longer be an endangered or threatened species, we may reclassify the species or remove it from the Federal Lists of Endangered and Threatened Wildlife and Plants due to recovery. A species is an ''endangered species'' for purposes of the Act if it is in danger of extinction throughout all or a significant portion of its range and is a ''threatened species'' if it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act does not define the term ''foreseeable future.'' However, we consider ''foreseeable future'' as that period of time within which a reliable prediction can be reasonably relied upon in making a determination about the future conservation status of a species. Water howellia is listed as threatened. We are proposing to remove this species from the Federal List of Endangered and Threatened Plants (*i.e.,* ''delist'' this species) because we have determined that it is not likely to become an endangered species now or within the foreseeable future. Delisting a species can only be completed by issuing a rule.

The basis for our action. Under the Act, we can determine that a species is an endangered or threatened species based on any one or more of the following five factors or the cumulative effects thereof: (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. Based on an assessment of the best available information regarding the status of and threats to water howellia, we have determined that the species no longer meets the definition of an endangered or threatened species under the Act.

We will seek peer review. We will seek comments from independent specialists to ensure that our determination is based on scientifically sound data, assumptions, and analyses. We will invite these peer reviewers to comment on this delisting proposal. Because we will consider all comments and information we receive during the comment period, our final determination may differ from this proposal.

Information Requested

Public Comments

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 concerned governmental agencies, Native American tribes, the scientific community, industry, or any other interested parties concerning this proposed rule. Comments should be as specific as possible. We particularly seek comments concerning:

(1) Reasons why we should or should not remove water howellia from the List of Endangered and Threatened Plants;

(2) New biological or other relevant data concerning any threat (or lack thereof) to this species (for example, those associated with climate change);

(3) New information on any efforts by the State or other entities to protect or otherwise conserve the species;

(4) New information concerning the range, distribution, and population size or trends of this species;

(5) New information on the current or planned activities in the habitat or range that may negatively affect or benefit the species; and

(6) Information pertaining to the requirements for post-delisting monitoring of water howellia.

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, may not meet the standard of information required by section 4(b)(1)(A) of the Act (16 U.S.C. 1531 *et seq.*), which directs that determinations as to whether any species is an endangered or threatened species must be made ''solely on the basis of the best scientific and commercial data available.''

Prior to issuing a final determination on this proposed action, we will take into consideration all comments and any additional information we receive. Such information may lead to a final rule that differs from this proposal. All comments and information we collect, including commenters' names and addresses, if provided to us, will become part of the supporting record.

You may submit your comments and materials concerning the proposed rule by one of the methods listed in **ADDRESSES**. If you submit your comments electronically, you must submit your comments on *http://www.regulations.gov* before 11:59 p.m. (Eastern Time) on the date specified in **DATES**. We will not consider hand-delivered comments that we do not receive, or mailed comments that are not postmarked, by the date specified in **DATES**.

If you submit information via *http://www.regulations.gov,* your entire submission—including any personal identifying information—will be posted on the website. Please note that comments posted on this website are not immediately viewable. When you submit a comment, the system receives it immediately. However, the comment will not be publicly viewable until we post it, which might not occur until several days after submission.

If you mail or hand-deliver hardcopy comments that include 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. To ensure that the electronic docket for this rulemaking is complete and all comments we receive are publicly available, we will post all hardcopy submissions on *http://www.regulations.gov.*

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule and the draft post-delisting monitoring (PDM) plan, will be available for public inspection on *http://www.regulations.gov,* or by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Montana Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Public Hearings

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. We must receive requests for public hearings, in writing, by the date specified above in **DATES**. You must send your request to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule at least one public hearing on this proposal if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodation, in the **Federal Register** and local newspapers at least 15 days before the hearing.

Peer Review

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 under the Act, we will seek the expert opinion of at least three appropriate and independent specialists regarding the scientific data and interpretations contained in this proposed rule. These reviews will be completed during the public comment period; we will send copies of this proposed rule to the peer reviewers immediately following publication in the **Federal Register**. Peer reviewer comments will be available, along with other public comments, in the docket for this proposed rule. The purpose of such review is to ensure that our decisions are based on scientifically sound data, assumptions, and analysis. Accordingly, our final decision may differ from this proposal.

Previous Federal Actions

On December 15, 1980, we published a notice of review in the **Federal Register** (45 FR 82480) issuing a list of plant taxa being considered for listing as endangered or threatened. Water howellia was included on this list as a Category 2 species. Category 2 species were taxa for which information in possession of the Service at that time indicated the probable appropriateness of listing as endangered or threatened but for which sufficient information was not available to biologically support a proposed rule.

On February 21, 1990, we published a notice of review in the **Federal Register** (55 FR 6184) reclassifying water howellia from a Category 2 species to a Category 1 species. Category 1 species were taxa for which the Service currently had on file enough substantial information on biological vulnerability and threat(s) to support proposed rules to list them as endangered or threatened species. Because water howellia is the only species within the genera *Howellia,* we assigned a Category 1 listing priority to this plant.

On October 30, 1991, the Service was petitioned to list water howellia as an endangered species. On April 16, 1993, we published in the **Federal Register** a proposed rule (58 FR 19795) to list water howellia as threatened. This proposed rule also served the Service's finding for the October 30, 1991, petition.

On July 14, 1994, we published in the **Federal Register** a final rule (59 FR 35860) listing water howellia as a threatened species. The final rule included a determination that the designation of critical habitat for water howellia was not prudent.

In 1996, we drafted a recovery plan for the species (USFWS 1996, entire). To date, this plan has not been finalized.

On April 18, 2007, we published a notice in the **Federal Register** (72 FR 19549) announcing the initiation of a 5-year review for water howellia. The resulting recommendation from this 5-year review (USFWS 2013, entire) was to take the necessary steps to remove water howellia from the List of Endangered and Threatened Plants (*i.e.,* to ''delist'' the species).

Background

Species Information

It is our intent to discuss only those topics directly related to delisting water howellia in this proposed rule. For more information on the description, biology, ecology, and habitat of water howellia, please refer to the final listing rule published in the **Federal Register** on July 14, 1994 (59 FR 35860); the most recent 5-year review for water howellia completed in August of 2013 (USFWS 2013, entire); and the draft recovery plan for water howellia, completed in

September 1996 (USFWS 1996, entire). These documents will be available as supporting materials on *http://www.regulations.gov* under Docket No. FWS–R6–ES–2018–0045.

Species Description and Habitat Information

Water howellia was first collected in 1879, along the Columbia River in Multnomah County, Oregon (Gray 1880, entire), and is native to the northwestern United States. The taxonomy of water howellia as a full species in a monotypic genus is widely accepted as valid by the scientific community (The Plant List 2013, unpaginated; ITIS 2017).

Water howellia is an annual, aquatic herb in the bellflower family (Campanulaceae). The entire plant is smooth, possessing no hairs or projections. The stems are fragile, submerged and floating, reaching up to 39 inches (in.) (100 centimeters (cm)) in length. Stems branch several inches from the base, and each branch extends to the water surface. The numerous leaves are narrow and range from 1–2 in. (25–50 millimeters (mm)) long.

Water howellia produce two types of flowers: Cleistogamous (closed) and chasmogamous (showy, open for pollination). Small cleistogamous flowers are produced along the stem below the water surface and are self-fertilizing. Chasmogamous flowers are produced on the water surface and commonly self-pollinate (Lesica *et al.* 1988, p. 276; Shelly and Moseley 1988, pp. 5–6).

Seed germination occurs in the fall, only when ponds dry and seeds are exposed to air (Lesica 1990). Water howellia seedlings overwinter in soil and resume growth in spring in northern climates (Mincemoyer 2005, p. 3) or begin growing after fall germination in southern climates (*e.g.,* California) (Johnson 2013, pers. comm.). Spring growth in California and low-elevation occurrences in western Washington typically commences in early April, and in eastern Washington, Idaho, and Montana by early May. Range wide, emergent (chasmogamous) flowers bloom soon after the stems reach the water surface and are typically present from May through July. Seed dispersal starts in June from submerged (cleistogamous) flowers and extends until late summer from emergent flowers (Shelly and Moseley 1988, p. 5).

Long-term viability of water howellia seeds is uncertain. Decreased germination rates have been documented for seeds residing in the soil longer than 8 months (Lesica 1992, pp. 415–416). However, monitoring data and observations from Montana (U.S. Forest Service (USFS) 2002, pp. 6–7; USFWS 1996, pp. 17–18) and Washington (Gilbert 2008, pers. comm.) indicate the presence of water howellia occurrences after 2 consecutive years with no plant observations, suggesting a significant number of seeds may remain viable for at least 3 years. This life-history strategy likely provides a buffer against unfavorable growing conditions in consecutive years.

Water howellia plants typically inhabit small, vernal freshwater wetlands and ponds with an annual cycle of filling with water in spring and drying up in summer or autumn (USFWS 1996, p. 14). These habitats can be glacial potholes or depressions (Shapley and Lesica 1997, p. 8; U.S. Department of Defense (USDOD) 2017a, p. 1) or river oxbows (Lesica 1997, p. 366) in Montana and western Washington, riverine meander scars (Idaho NHP 2017, p. 1; Wiechmann 2014a, p. 3) in Idaho, glacial-flood remnant wetlands (Robison 2007, p. 8) in eastern Washington, or landslide depressions (Johnson 2013, pers. comm.) in California, but are all ephemeral (transitory) to some degree. Depending on annual patterns of temperature and precipitation, the drying of the ponds may be complete or partial by autumn; these sites are usually shallow and less than 3 feet (ft) (1 meter (m)) in depth. Some ponds supporting water howellia are dependent on complex ground and surface water interactions. Snow melt runoff is important in maintaining suitable conditions in the spring, while localized groundwater flow mitigates water loss from evaporation and plant transpiration later in the summer (Reeves and Woessner 2004, pp. 7–9).

Water howellia occupies habitats across its range that vary in the extent of canopy cover, suggesting some flexibility in light tolerance. Many water howellia occurrences are surrounded or nearly surrounded, by forested vegetation (Mincemoyer 2005, p. 7), with numerous observations reporting water howellia occupying shaded portions of ponds and wetlands (Isle 1997, p. 32; McCarten *et al.* 1998, p. 4). Conversely, on the Joint Base Lewis-McChord (Lewis-McChord) military base in Washington, occupied ponds were historically surrounded by prairie vegetation and, as a result of years of fire suppression, are now surrounded by forest (Gilbert 2017, pers. comm.). Currently, water howellia is occurring in portions of ponds that receive the most light and least shade (Gilbert 2017, pers. comm.). In Montana's Swan Valley, water howellia was present in 78 percent of sites with prior disturbance (roads, fire, grazing, and vegetation treatments) of vegetation surrounding the ponds (Pipp 2017, p. 6), indicating some plasticity to disturbance and varying light levels.

Range, Distribution, Abundance, and Trends of Water Howellia

Water howellia is endemic to the Pacific Northwest with historical occurrences identified in California, Oregon, Washington, Idaho, and Montana (Shelly and Moseley 1988, pp. 6, 9). Currently, the species still occurs in all five States representing six distinct geographic areas. The species' historical distribution—before European settlement and modern development in the Pacific Northwest—is unknown. However, the geographic area historically occupied by the species was likely small, due to the species' requirement of ephemeral wetlands with specific filling and drying regimes. Since listing in 1994, new occurrences of water howellia have been documented in all five States, generally in areas known historically to support the species. Thus, locations of extant occurrences are generally representative of the areas where the species was thought to historically occur.

At the time of Federal listing (1994), 107 water howellia occurrences (defined as known populations) were known across the species' range (59 FR 35860; July 14, 1994). In 2017, a minimum of 307 occurrences were documented. The majority of extant occurrences (91 percent) are within three metapopulations occupying distinct, geographic areas in Montana's Swan Valley (Lake and Missoula Counties); Department of Defense property at Lewis-McChord, Pierce County in western Washington; and Turnbull National Wildlife Refuge (Turnbull Refuge), Spokane County in northeastern Washington (Figure 1). Regional occurrences of plants demonstrate metapopulation structure when regional persistence is governed by the processes of patch colonization, extirpation (local extinction), and recolonization (Freckleton and Watkinson 2002, p. 419). These metapopulations are important to the viability of the species as long-term persistence is expected of metapopulations compared to small, isolated occurrences that generally experience short persistence (Lesica 1992, p. 420). Consequently, identification of these metapopulations is important for directing conservation efforts toward the regional availability of suitable habitat (Freckleton and Watkinson 2002, p. 432). Currently, 258

of the 307 (84 percent) reported water howellia occurrences are on lands administered by the Federal Government. There are 37 reported occurrences of water howellia on private property; however, little is known about them, as limited monitoring of these occurrences has taken place over the years.

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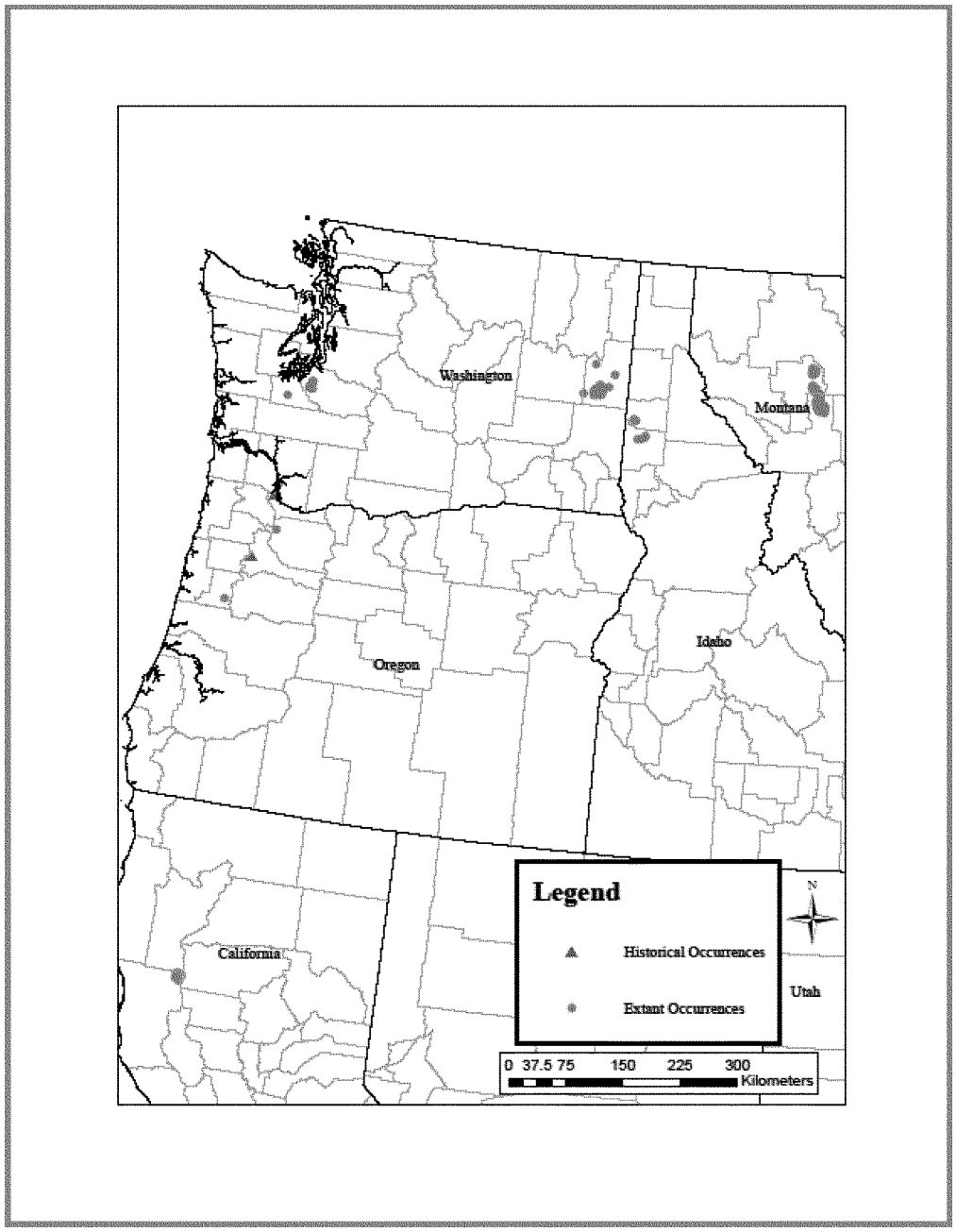

Figure 1. Historical and extant occurrences of water howellia across the species' known range.

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Trends for water howellia are difficult to determine. Substantial numbers of new occurrences have been discovered since listing in 1994, and, most recently, several occurrences have been documented in Oregon, where the species was thought to be extirpated. However, this may not necessarily indicate a positive population trend. Rather, this could indicate increased efficiency at finding new occurrences. Consistent, standardized monitoring has not occurred across the range of the species, making it difficult to document trends. Additionally, an occurrence is broadly defined as ''a known population.'' Abundance of individual water howellia plants within occurrences fluctuates widely. This is due, in part, to environmental conditions of the preceding autumn,

which affect seed germination rates. Nevertheless, based on the discovery of many new occurrences and few recent extirpations of existing occurrences, population trends for the species appear to be stable.

Genetic variation among water howellia occurrences is low. Occurrences in California and Montana are genetically similar; however, occurrences in Idaho and Washington are more distantly related (Schierenbeck and Phipps 2010, p. 5). These data suggest that gene flow is occurring between occurrences separated by large geographic distances, albeit at a relatively low rate. A correlation between migratory waterfowl routes with either genetic similarity or distance indicates that waterfowl may be transporting seed or plant material between water howellia population areas (Schierenbeck and Phipps 2010, pp. 6–7). A more robust sampling and genetic analysis of water howellia occurrences across the species' range would be necessary to support or refute this hypothesis.

Conservation Efforts

Here, we provide a summary of progress made on the draft recovery criteria for water howellia. More detailed information related to conservation efforts can be found below under *Summary of Factors Affecting the Species*. A recovery plan for water howellia was drafted in 1996; to date, the plan has not been finalized (USFWS 1996, entire). The draft plan includes objective, measureable criteria for delisting; however, the plan is dated and may no longer reflect the best scientific information available for water howellia. Since 1994, monitoring has resulted in additional occurrences being documented in all five States, including Oregon, where the species was thought to be extirpated. Additionally, significant exchanges of land have occurred in Montana, resulting in ponds occupied by water howellia being transferred from private ownership to State or Federal ownership, which provides greater protections. Lastly, research specific to water howellia has increased our understanding of the biology and ecology of the species.

Below are the recovery criteria as described in the draft recovery plan and the progress made to date in implementing each.

1. *Recovery criterion:* Management practices, in accordance with habitat management plans, have reduced and/or controlled anthropogenic threats, thereby maintaining the species and its habitat integrity throughout the currently known range on public lands in five geographic areas for 10 years after the effective date of the final recovery plan (when finalized). Monitoring will demonstrate the effectiveness of management plans. Management plans will be in place for, at a minimum, the occurrences listed in the following table:

TABLE OF FORMALIZED MANAGEMENT PLANS PER GEOGRAPHIC AREA

Geographic area	Minimum number of occurrences identified in draft recovery plan	Current number of occurrences covered by management plans	Years management plans in place
Montana	67	191	20
Spokane County, Washington	33	37	10
Pierce County, Washington	5	19	14
Clark County, Washington	4	4	7
Mendocino County, California	5	7	22

Progress: Despite the recovery plan not being finalized, management plans are in place on public lands for the minimum number of occurrences identified in the table above.

Monitoring indicates management plans have been effective at maintaining the minimum number of occurrences by reducing or eliminating anthropogenic threats associated with land management activities (*e.g.,* timber harvest, road construction, and maintenance) and other threats (*e.g.,* invasive species). Prior to formalized management plans, some conservation efforts were occurring on Federal, State, and some private land. In addition, survey efforts have documented substantially more occurrences of water howellia range wide than were known at the time of listing (Mincemoyer 2005, pp. 4–5; Frymire 2017, pers. comm.; Gilbert 2017, pers. comm.; Johnson 2017, pers. comm.; Lichthardt and Pekas 2017, p. 1; ORBIC 2017, unpaginated; Rule 2017, pers. comm.).

2. *Recovery criterion:* Foster or promote the conservation of occurrences on lands not addressed by agency management plans. Specifically, this recovery criterion recommends long-term conservation measures for the occurrence in Latah County, Idaho.

Progress: Long-term conservation measures for water howellia have been established through land transfers, conservation easements, and management plans on some private lands. In Montana's Swan Valley, large-scale land transfers (67,000 acres (ac) (27,000 hectares (ha)) for the benefit of many species have occurred, and land supporting known water howellia occurrences have been transferred from private to Federal ownership. These occurrences are now protected under Federal agency management plans and conservation strategies. Additionally, one occurrence located on private land in Latah County, Idaho, is protected under a conservation agreement, held in perpetuity by the Palouse Land Trust. In the 5-year review (USFWS 2013, p. 6), it was noted that, in addition to the conservation agreement, a management plan for this occurrence was being developed, but to date that has not yet been completed (Trujillo 2017, pers. comm.). The Service is unaware of any information regarding additional efforts to protect water howellia occurrences on private land in other parts of the species' range.

3. *Recovery criterion:* A post-delisting strategy for monitoring the species' population dynamics is in place.

Progress: We have developed a draft post-delisting monitoring plan in cooperation with the States and Federal land management partners. The draft post-delisting monitoring plan is available for public review on *http://www.regulations.gov* under Docket No. FWS–R6–ES–2018–0045.

Additionally, the 5-year review recommended development of a memorandum of understanding (MOU) with the USFS and USDOD to ensure the continuation of existing conservation measures currently benefitting water howellia. Although a formal MOU has not been developed, both agencies have specific conservation strategies in place (for specific

conservation strategies, see discussion of land management effects under A. *The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range,* below).

Summary of Factors Affecting the Species

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for listing species, reclassifying species, or removing species from listed status. ''Species'' is defined by the Act as including any species or subspecies of fish or wildlife or plants, and any distinct vertebrate population segment of fish or wildlife that interbreeds when mature (16 U.S.C. 1532(16)). A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We must consider these same five factors in delisting a species. For species that are already listed as endangered or threatened species, this analysis of threats is an evaluation of both the threats currently facing the species and the threats that are reasonably likely to affect the species in the foreseeable future following the removal of the Act's protections. We may delist a species according to 50 CFR 424.11(d) if the best available scientific and commercial data indicate that the species is neither endangered nor threatened for the following reasons: (1) The species is extinct; (2) the species has recovered and is no longer endangered or threatened; and/or (3) the original scientific data used at the time the species was classified were in error.

Water howellia is currently listed as threatened. Section 3(20) of the Act defines a ''threatened species'' as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range'' (16 U.S.C. 1532(20)). We consider ''foreseeable future'' to be that period of time within which a reliable prediction can be reasonably relied upon in making a determination about the future conservation status of a species, as described on January 16, 2009, Solicitor's opinion, and number M–37021 (DOI 2009, entire). We consider 30 years to be a reasonable period of time within which reliable predictions can be made for the species. This time period includes multiple generations of water howellia. Additionally, various global climate models and emission scenarios provide consistent predictions within that timeframe (IPCC 2014, p. 11). We consider 30 years a relatively conservative timeframe in view of the long-term protections in place for 84 percent of the species' occupied habitat occurring on Federal land.

A recovered species has had threats removed or reduced to the point that it no longer meets the Act's definition of endangered or threatened. A species is ''endangered'' for purposes of the Act if it is in danger of extinction throughout all or a significant portion of its range and is ''threatened'' if it is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. For the purposes of this analysis, we will evaluate whether or not the currently listed species, water howellia, should continue to be listed as threatened, based on the best scientific and commercial information available.

In considering what factors might constitute threats, we must look beyond the exposure of the species to a particular factor to evaluate whether the species may respond to the factor in a way that causes actual impacts to the species. If there is exposure to a factor and the species responds negatively, the factor may be a threat, and during the five-factor threats analysis, we will attempt to determine the significance of the threat. The threat is significant if it drives or contributes to the risk of extinction of the species such that the species warrants listing as endangered or threatened as those terms are defined by the Act. However, the identification of factors that could affect a species negatively may not be sufficient to justify a finding that the species warrants listing or should remain listed. The information must include evidence sufficient to suggest that the potential threat is likely to materialize and that it has the capacity (sufficient magnitude and extent) to affect the species' status such that it meets the definition of endangered or threatened under the Act. This determination does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact a species negatively is not sufficient to compel a finding that a listing action is appropriate; we require evidence that these factors are operative threats that act on the species to the point that the species meets the definition of an endangered species or threatened species under the Act. The following analysis examines the five factors currently affecting water howellia, or that are likely to affect it within the foreseeable future.

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

Factor A requires the Service to consider present or threatened destruction, modification, or curtailment of water howellia habitat or range. The following potential threats were identified for this species at the time of listing: (1) Invasive species, (2) land management (primarily timber harvest and road building), (3) trampling by domestic livestock, (4) direct habitat loss from urbanization or dam construction, and (5) the narrow ecological requirements of the species (59 FR 35860; July 14, 1994). In the analysis that follows, we also considered climate change in the context of narrow ecological requirements. An assessment of threats (1) through (4) follows; the narrow ecological requirements of the species and climate change are discussed under Factor E, below.

Invasive Species

In the 1994 final listing rule (59 FR 35860, July 14, 1994), invasive plant species were identified as a threat to water howellia in habitats where they overlap. Invasive species, such as reed canarygrass (*Phalaris arundinacea*) and sweet flag (*Acorus calamus*), were identified to have the capacity to outcompete water howellia, presumably for nutrients and space, effectively excluding water howellia from historically occupied water bodies (Lesica 1997, p. 367). *P. arundinacea* was specifically identified as having the potential to extirpate water howellia occurrences (59 FR 35860; July 14, 1994), and as a result, we focus our analysis on this species. We are not aware of any information indicating potentially significant negative impacts to water howellia from any other invasive species.

P. arundinacea is present in water howellia habitat in all States, except California (Johnson 2017, per. comm.), but the extent of invasion varies by site (Gilbert 2017, pers. comm.; Rule 2017, pers. comm.; Shelly 2017, pers. comm.; Lesica 1997, pp. 367–368). Abundance of *P. arundinacea* in ponds occupied by water howellia on Lewis-McChord and the Turnbull Refuge has fluctuated through time, with no definitive long-term trend, based on personal observation and long-term monitoring (Gilbert 2017, pers. comm.; Rule 2017,

pers. comm.). In Montana, *P. arundinacea* exhibited a slight upward trend in presence and abundance from long-term monitoring in 1998–2007 (USFS 2010, pp. 1–2), but increased distribution has not been detected recently (Shelly 2017, pers. comm.). In Idaho, monitoring efforts have not detected any decreases in pond size, which may act as a surrogate for *P. arundinacea* colonization; however, detailed monitoring of *P. arundinacea* has not been conducted (Lichthardt and Pekas 2017, p. 6). Little is known about the extent of *P. arundinacea* invasion with regard to the extent of occurrences in Oregon.

The mechanisms driving invasive potential of *P. arundinacea* within water howellia habitats are unclear. The invasive potential may be due to some sites being occupied by a native genotype of *P. arundinacea* and other sites being occupied by a highly invasive variety (Lichthardt and Pekas 2017, p. 8; Wiechmann 2014a, p. 31). Density of *P. arundinacea* is a better determinant of impact to water howellia occurrences than presence alone (Wiechmann 2014a, pp. 31, 34, 38). Additionally, *P. arundinacea* was found to be dominant at shallower water depths and water howellia dominant at deeper depths, suggesting that water howellia is occupying a niche that *P. arundinacea* may be unable to occupy (Wiechmann 2014a, p. 32).

Mechanical and chemical treatment efforts to decrease the abundance and distribution of *P. arundinacea* have largely been successful across the range of water howellia (TNC 2006, p. 65; Gilbert 2008, 2013, pers. comm.; Lichthardt and Gray 2010, pp. 9, 14; Johnson 2011, pers. comm.). In California, mechanical treatment has limited the spread of *P. arundinacea* in ponds and wetlands adjacent to water howellia occurrences, and chemical treatment is further reducing the size of *P. arundinacea* patches (Johnson 2011, 2017, pers. comm.). Similarly, consistent suppression of *P. arundinacea* at Lewis-McChord in Washington has reduced patch sizes of *P. arundinacea* in the past (TNC 2006, p. 65; Engler 2008, pers. comm.; Gilbert 2008, pers. comm.). Currently, no suppression efforts are underway at Lewis-McChord, due to little change in *P. arundinacea* distribution and the risk of harming water howellia plants in the process (Gilbert 2017, pers. comm.). In Idaho, the success of suppression efforts to limit abundance and distribution of *P. arundinacea* were mixed (Lichthardt and Gray 2010, p. 9). However, once suppression efforts were stopped, distribution and abundance of *P. arundinacea* appeared to vary more with fluctuating environmental conditions than with the presence of suppression effort (Lichthardt and Gray 2010, p. 9). No suppression efforts to control or eradicate *P. arundinacea* on the Turnbull Refuge in Washington are currently underway; the species is present, but trends indicate variability in abundance with fluctuating environmental conditions (Rule 2009, 2013a, 2017, pers. comm.). No suppression efforts of *P. arundinacea* have been attempted in Montana.

A. calamus was identified by the State of Idaho as an invasive species that may be displacing water howellia at one location (Idaho Department of Fish and Game (IDFG) 2016, p. 3). Monitoring at this location has been ongoing since 1999, and water howellia has not been observed since 2001 (Lichthardt and Pekas 2017, p. 2). However, we are unaware of any other water howellia occurrences being affected by *A. calamus.* As a result, *A. calamus* is unlikely to become a threat to water howellia.

Invasive plants can be aggressive and quickly displace natives in some situations. While there are some small sites that may have been completely or partially overtaken by invasive plants, water howellia metapopulations appear to be holding their own in the face of invasive species. This conclusion is reinforced by *P. arundinacea* coexisting with extant water howellia occurrences; large-scale displacement of water howellia by *P. arundinaceae* is not occurring in any of the metapopulations (Swan Valley, MT; Turnbull Refuge and Lewis-McChord, Washington), even in the absence of suppression efforts. Given the absence of displacement of water howellia by *P. arundinacea* within the three metapopulations of water howellia, and the success of existing suppression efforts where they have been applied, we do not consider *P. arundinacea* to be a significant threat to water howellia. We are also unaware of any information indicating that any other invasive species likely pose a threat to water howellia.

Land Management Activities

Land management activities that cause disturbance to vegetation surrounding water howellia occurrences were identified as a threat to the species in the 1994 final listing rule (59 FR 35860; July 14, 1994). Previous modeling efforts suggested that these activities, singularly or in combination, could result in a loss of vegetation at the pond fringe, disrupting the hydrological cycle and negatively impacting the phenology of water howellia (Reeves and Woessner 2004, pp. 10, 15). However, more recent evidence indicates that effects from land management activities are no longer a threat to the species.

Most land management activities that could disturb vegetation surrounding water howellia occurrences on State and Federal land are now prohibited. For example, land management activities that could disturb vegetation within 300 ft (91 m) of water howellia occurrences on USFS lands in Montana and California are typically not allowed because of standards and guidelines to protect the plant included in USFS Forest Plans (USFS 1995, p. IV–32; USFS 1997, p. 17; Johnson 2013, pers. comm.). Limited activities (including prescribed fire) may be allowed within the 300-ft (91-m) buffer, but only if needed to maintain the integrity of the buffer (USFS 1997, p. 17; Johnson 2013, pers. comm.). As a result of these actions, abundance and distribution of water howellia have remained stable in Montana's Swan Valley from 1978 to 2014 (Pipp 2017, p. 14). The Flathead National Forest (FNF) in Montana developed a conservation strategy for water howellia on USFS lands in 1994, and a second edition was finalized in 1997 (USFS 1997, entire). Additionally, the FNF amended their Land and Resource Management Plan (LRMP) in 1996, to provide measures specific to the conservation and recovery of water howellia (USFS 1996, entire). On State land in Montana, clear-cutting of timber and burning are prohibited within defined buffers surrounding waterbodies (Montana Code Annotated, p. 1). In Washington, wetlands containing water howellia on the Turnbull Refuge are buffered by the distance from mechanical thinning and prescribed fire used in treating conifer encroachment (Rule 2009, pers. comm.). Timber harvest and prescribed fire were not identified as potential threats to other water howellia occurrences in Washington (USDOD 2006, entire; USDOD 2012, entire; USDOD 2017a, entire; Anderson 2013, pers. comm.; Gilbert 2013, 2017, pers. comm.), or occurrences in Oregon or Idaho (Currin 2013, pers. comm.; USFWS 2009, entire; IDFG 2016, entire).

Some disturbance of vegetation surrounding water howellia occurrences from land management activities occurred historically, prior to existing guidelines and standards in Federal land management plans. For example, in Montana's Swan Valley, historical disturbances caused from land management activities (*e.g.,* timber harvest, thinning, prescribed fire, road building, and grazing) have occurred in

vegetated buffers surrounding many of the existing water howellia occurrences (Pipp 2017, p. 6). However, 79 percent of existing water howellia occurrences in the Swan Valley have experienced at least one historical disturbance event in the surrounding vegetation and are still present, suggesting some tolerance of water howellia to buffer disturbance. In addition, abundance or distribution of water howellia in the Swan Valley has remained stable, despite these historical disturbances from land management activities (Pipp 2017, p. 14). Further, despite experiencing a stand-replacing fire in 2003, water howellia occurrences occurring in the Crazy Horse area of the Swan Valley continue to persist; buffer vegetation appears to have recovered, and hydrology is adequately functioning (Pipp 2017, pp. 14–15).

The effects of historic road building within vegetated buffers surrounding water howellia occurrences have largely been mitigated on Federal and State lands. Guidance established in the FNF LRMP and FNF conservation strategy for water howellia have resulted in the stabilization of roads to reduce sedimentation where they exist within 300 ft (91 m) of water howellia ponds in Montana (USFS 2001, p. II–46; USFS 1997, p. 18). No effects of historic roads occurring within vegetated buffers on water howellia in the Swan Valley were found in a recent analysis (Pipp 2017, p. 16). Similarly, in California, small spur roads are being closed and hydrologically stabilized in areas occupied by water howellia on the Mendocino National Forest (MNF) to minimize anthropogenic contribution to landscape instability per direction in the MNF LRMP (USFS 1995, p. III–26; Johnson 2008, pers. comm.). These conservation measures appear to be working in California, as all seven known occurrences of water howellia are still extant. In Idaho, the Idaho Transportation Department (ITD) is to avoid adverse effects to wetlands during project implementation, and a Best Management Practices Manual identifies measures to minimize any potential effects during project implementation (ITD 2014, entire; ITD 2017, p. 1). The State of Idaho identified two water howellia occurrences within 98 ft (30 m) of an established highway and expressed concern about indirect effects of road work resulting in sedimentation and, of less concern, potential removal of shade (IDFG 2016, p. 4). However, we have no information of any potential effects that road work may pose to this population. Roads were not cited as a threat to water howellia occurrences in Washington or Oregon (USDOD 2006, entire; USDOD 2012, entire; USDOD 2017a, entire; USFWS 2007, entire; USFWS 2010; entire; Anderson 2013, pers. comm.; Currin 2013, pers. comm.).

Land management activities (*e.g.,* timber harvest, thinning, road building, grazing, and prescribed fire) that disturb vegetation surrounding water howellia occurrences were once considered a threat to the species. However, most land management activities that have the potential to disturb surrounding vegetation are prohibited by land management plans or other Federal or State policy. Some of these prohibitions were put in place a result of the species being listed, but will remain in effect for the duration of the land management plan or other policy, even if the species is delisted. Where disturbance of vegetation from land management activities has occurred, water howellia has shown some tolerance for disturbance and no downward trend in abundance or distribution. Given that all three metapopulations currently have conservation measures in place to avoid vegetative buffer disturbance from land management activities and that water howellia has shown some tolerance to disturbance when it occurs, we do not consider land management activities to be a significant threat to water howellia.

Trampling by Domestic Livestock

Trampling of water howellia by domestic livestock was cited as a threat in the 1994 final listing rule for the species (59 FR 35860; July 14, 1994). Direct effects of plant crushing, seed bank disturbance, and alterations to substrate are likely to occur when livestock enter and exit ponds and wetlands. In addition, increased nutrient loading may be an indirect effect of livestock occupancy in and near water howellia habitat. Many water howellia occurrences are within habitats actively used by livestock. However, the level of livestock-caused disturbance that water howellia can withstand is not known and likely varies with site-specific conditions, as well as timing, severity, and duration of cattle use of occupied water howellia habitat.

The effects of trampling on water howellia occurrences on Federal and State land have largely been mitigated with fencing, cattle barricades, elimination of grazing in some areas occupied by water howellia, or limitations on the duration of time livestock have access to sensitive pond and wetland habitats (USFS 2002, p. 6; Mincemoyer 2005, p. 11; Johnson 2008, 2013, pers. comm.; Frymire 2017, pers.comm.). In Montana, analyses of monitoring data spanning nearly 30 years have concluded that despite some grazing in occupied habitat, the presence of water howellia has not been affected (Pipp 2017, p. 17).

Although no causal link was made between grazing levels and the probability of water howellia presence in the Pipp (2017) analysis, it appears that management actions implemented concurrently with grazing have provided protections to water howellia habitat and allowed the species to be conserved in Montana's Swan Valley (Pipp 2017, p. 17). In California, specific grazing regimes near five occupied ponds within an active grazing allotment on National Forest land appear to be effective; monitoring indicates no effects to water howellia occurrences from livestock trampling (Johnson 2013, pers. comm.). Two other water howellia occurrences in California are within inactive grazing allotments, where livestock are not currently present and not expected to be present in the future (Johnson 2013, 2017, pers. comm.). Trampling is not reported as a threat in Washington, Idaho, or Oregon (USDOD 2006, entire; USDOD 2017a, entire; USFWS 2007, entire; USFWS 2010, entire; Currin 2013, pers. comm.; IDFG 2016, entire). It is unknown where grazing may occur on the 37 occurrences on private property. Therefore, the extent of trampling and other livestock-related alterations to water howellia habitat on these private lands is unknown. However, potential trampling effects from livestock on Federal and State land have been largely mitigated.

Trampling of water howellia by domestic livestock is not a threat to the species on Federal or State land at current grazing levels because of mitigation measures being implemented, including riparian fencing, cattle guards, and timely removal or relocation of livestock from the sensitive pond and wetland habitats. We have no information indicating levels of livestock use (and thus potential trampling) will increase beyond current levels in the future. The severity and frequency of trampling of water howellia occurrences on private land are unknown, but as significantly fewer water howellia occurrences are known from private lands, these impacts are likely not significant at the species level. We conclude, based on the available information, that trampling by domestic livestock is not a significant threat to water howellia.

Habitat Loss From Urbanization and Dam Construction

Habitat loss from urbanization and dam construction occurred historically,

particularly in Oregon, and was considered a threat to water howellia at the time of listing in 1994. However, additional habitat loss from urbanization and dam construction is no longer a threat to the species because conservation strategies implemented following listing and increased Federal ownership now provide additional protections (see *Conservation Efforts,* above).

Direct habitat loss from urbanization and dam construction occurred along the Columbia River in Oregon, and water howellia was thought to be extirpated from that area prior to 2015 (USFWS 2017, entire; Norman 2010, pers. comm.). However, since then, two occurrences of water howellia have been located in the Portland, Oregon, metro area (ORBIC 2017, unpaginated).

Most of the water howellia occurrences on corporate or private lands in Montana were previously owned by Plum Creek Timber. In 2007, approximately 67,000 ac (27,000 ha) of Plum Creek land in the Swan Valley were sold to The Nature Conservancy (TNC) and Trust for Public Land; ownership was then transferred to either the USFS or the State of Montana (Swan Valley Connections 2017, entire). The 47 water howellia occurrences and potential habitat that were formerly on Plum Creek land are now protected from urbanization through either the FNF LRMP (USFS 1997, entire) or State agency direction for managing timberlands (DNRC 1996, p. 1). The FNF LRMP mandates avoidance of disturbance, including urbanization, in forested buffers of a minimum of 300 ft (91 m) from water howellia occurrences. The State of Montana manages its timberlands for long-term revenue and biodiversity (DNRC 1996, p. 2) and not for short-term revenue from selling timbered State lands and the potential urbanization that may follow.

It is unknown if historical habitat loss occurred in California; however, most known occurrences of water howellia are within USFS lands, including some within designated wilderness areas (Johnson 2013, pers. comm.). Therefore, no current or future threat of habitat loss from urbanization is expected because any disturbance of vegetated buffers surrounding water howellia ponds is prohibited under the LRMP unless it is necessary to promote natural ecological and hydrological function (USFS 1995, pp. IV–19, 35). It is unknown how urbanization has affected the 37 water howellia occurrences on private land, but because there are significantly fewer occurrences known from private lands, these impacts are likely not significant at the species level.

In sum, habitat loss from urbanization and dam construction occurred historically, particularly in Oregon, but is no longer considered a significant threat. In Oregon, recent new discoveries of water howellia suggest that the species has been able to remain extant on the landscape where it was once considered extirpated. In areas surrounding the extant, larger metapopulations, habitat loss from urbanization and dam construction is not considered a threat to the species because of conservation strategies and land transfers implemented in Montana (USFS) and Washington (USDOD and USFWS). Further, known habitat in California is largely within USFS lands, including designated wilderness; thus, there is no significant threat of habitat loss from urbanization or dam construction in California.

Summary of Factor A

The following stressors warranted consideration as possible current or future threats to water howellia under Factor A: Invasive species, land management activities, trampling by domestic livestock, and direct habitat loss from urbanization or dam construction (59 FR 35860; July 14, 1994). However, these stressors have not occurred to the extent anticipated at the time of listing in 1994, or the stressors are being adequately managed, or the species is tolerant of the stressor as described below.

- Suppression efforts directed at *P. arundinacea* have resulted in some success. Furthermore, water howellia occupies a habitat niche that *P. arundinacea* appears unable to tolerate. Consequently, water howellia occurrences are not currently being displaced by *P. arundinacea* and we have no data to suggest that they are being displaced by other invasive species.
- Land management plans and conservation management strategies have been adopted by Federal and State agencies to mitigate the effects of land management activities on water howellia and are in place for all three metapopulations. These plans vary in duration, but are mandated by Federal and State law and are expected to continue to provide protections to water howellia habitat into the future, even if the species is delisted.
- The installation of riparian fencing and cattle barricades and the implementation of specific grazing routines have effectively mitigated the effects of trampling on water howellia.
- The extant metapopulations, as well as most occurrences in California, are largely managed by Federal agencies that have conservation strategies in place. Therefore, neither urbanization nor dam construction is a threat to water howellia.
- Limited information is available regarding the 37 occurrences (12 percent of known occurrences) that occur on private property. Due to the low number of occurrences on private land relative to Federal and State land, impacts are likely, not significant at the species level.

Therefore, based on the available information, we do not consider there to be any significant threats related to the present or threatened destruction, modification, or curtailment of habitat or range of water howellia.

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

Overutilization, for any purpose, was not considered a threat in the final rule to list water howellia (59 FR 35860; July 14, 1994). We are not aware of any current utilization of water howellia for commercial, recreational, scientific, or educational purposes. Regarding future utilization, interest has been expressed by the Valencia Wetland Mitigation Bank in Priest River, Idaho, to collect seed via soil plugs from vigorous water howellia occurrences for use in establishing new occurrences where appropriate habitat exists (Wiechmann 2014b, entire). Initially, a harvest of 5 to 7 soil plugs from other Idaho occurrences has been proposed. It is unclear how ''vigorous'' populations have been defined in this context, although any proposed collection of soil plugs would have to be permitted by the Service, assuming a Federal nexus. The proposed project would be beneficial if it created another occurrence of water howellia in northern Idaho or had educational value. We are not aware of any other current or future plans for utilization of the species. Therefore, based on the available information, we find that there are no significant threats to water howellia related to overutilization for commercial, recreational, scientific, or educational purposes.

C. Disease or Predation

Predation (herbivory) on water howellia by domestic livestock was considered a threat in the final rule to list the species (59 FR 35860; July 14, 1994). As described in more detail above under the Factor A discussion, grazing is limited within the species' habitat, and the persistence of water howellia in ponds accessible to livestock in the Swan Valley metapopulation has not been affected

(Pipp 2017, p. 17). As a result, we conclude that predation does not affect the species throughout its range at the population or species level. We have no information suggesting levels of livestock grazing will increase in the future. We are not aware of any issues or potential stressors regarding disease or insect predation. Therefore, based on the available information, we do not consider there to be any significant threats to water howellia from disease or predation.

D. The Inadequacy of Existing Regulatory Mechanisms

Under this factor, we examine whether existing regulatory mechanisms are inadequate to address the threats to water howellia discussed under other factors. Section 4(b)(1)(A) of the Act requires the Service to take into account ''those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species.'' In relation to Factor D under the Act, we interpret this language to require us to consider relevant Federal, State, and Tribal laws, regulations, and other such mechanisms that may minimize any of the threats we describe in the threats analyses under the other four factors or otherwise enhance conservation of the species. We give the strongest weight to statutes and their implementing regulations and to management direction that stems from those laws and regulations; an example would be State governmental actions enforced under a State statute or constitution or Federal action under the statute.

For currently listed species, we consider the adequacy of existing regulatory mechanisms to address threats to the species absent the protections of the Act. Therefore, we examine whether other regulatory mechanisms would remain in place if the species were delisted, and the extent to which those mechanisms will continue to help ensure that future threats will be reduced or eliminated.

In our discussion under Factors A, B, C, and E, we evaluate the significance of threats as mitigated by any conservation efforts and existing regulatory mechanisms. Where threats exist, we analyze the extent to which conservation measures and existing regulatory mechanisms address the specific threats to the species. Regulatory mechanisms, if they exist, may reduce or eliminate the impacts from one or more identified threats.

Although inadequacy of existing regulatory mechanisms was not specifically identified as a threat to water howellia at the time of listing in 1994, we did mention the very limited number of protections that existed for the species (59 FR 35860, July 14, 1994, see p. 59 FR 35862). Specifically, we discussed the designation of water howellia as a sensitive species by the USFS and referred to wetland protection measures provided under section 404 of the Federal Clean Water Act (33 U.S.C. 1251 *et seq.*), Food Security Act (16 U.S.C. 3801 *et seq.*), and some State laws.

I. Federal

Clean Water Act

The Clean Water Act (CWA) was designed, in part, to protect surface waters of the United States from unregulated pollution from point sources. The CWA provides some benefit to water howellia through the regulation of discharge into surface waters through a permitting process; however, the historical threats to water howellia habitat have not typically been associated with point sources of pollution, and current information does not point to these as threats for occurrences today.

Under section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) regulates the discharge of fill material into waters of the United States, including wetlands. In general, the term ''wetland'' refers to areas meeting the USACE's criteria of hydric soils, hydrology (either sufficient annual flooding or water on the soil surface), and hydrophytic vegetation (plants specifically adapted for growing in wetlands). Some habitat occupied by water howellia is considered isolated waters under the CWA. As a result of various Supreme Court decisions, the CWA jurisdiction over isolated waters has been uncertain and generally determined case-by-case. Further, federal agencies are currently considering removing isolated waters from CWA jurisdiction (82 FR 34899; July 27, 2017). Thus, the extent of water howellia receiving the protections of the CWA now and in the future is uncertain. However, the protections of the CWA to water howellia habitat that is under CWA jurisdiction are expected to remain, without the provisions of the Act.

Food Security Act

The Food Security Act was designed, in part, to protect wetlands by removing incentives for farmers to convert wetlands into crop fields. The Food Security Act likely provides some indirect protection of potential water howellia habitats on private land, but not those on Federal or State land. Although there are no data directly linking the Food Security Act and water howellia, historically, it has been demonstrated that the Food Security Act has had positive impacts on wetland function (Gleason *et al.* 2011, p. S65). Although the future of the Food Security Act in its current form is uncertain, any protections afforded to wetlands would infer benefit to water howellia should the species be present.

National Environmental Policy Act

Environmental review of potential effects of Federal actions is mandated under the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*). When NEPA analysis reveals significant environmental effects, the Federal agencies must disclose those effects to the public and consider mitigation that could offset the effects. These mitigations usually provide some protections for listed species. However, the NEPA does not require that adverse impacts be mitigated, only disclosed. Therefore, it is unclear what level of protection would be conveyed to water howellia through NEPA, in the absence of protections under the Act.

National Forest Management Act

Federal activities on USFS lands are subject to the National Forest Management Act of 1976 (NFMA; 16 U.S.C. 1600 *et seq.*). The NFMA requires the development and implementation of resource management plans that guide the maintenance of ecological conditions that support natural distributions and abundance of species and not contribute to their extirpation.

Water howellia is given consideration as a federally listed species by Federal agencies, and, if delisted, it would likely continue to be included on the sensitive species list for the USFS, as it was at the time of listing (59 FR 35860; July 14, 1994). Under the 2012 National Forest System land planning rule (77 FR 21162; April 9, 2012), the status given is ''species of conservation concern,'' and direction is given to provide ecological conditions necessary to maintain viable populations of species of conservation concern (Hayward *et al.* 2016, p. 8). Currently, the FNF in Montana is in the process of revising their LRMP, and the MNF in California anticipates revising their plan in the near future. The USFS anticipates that water howellia will be given the status of ''species of conservation concern'' in both plans, even if the species is delisted (Shelley 2016, pers. comm.; Johnson 2017, pers. comm.). Special status species policies (USFS manual, section 2670, p. 4) detail the need to conserve these species and the

ecosystems on which they depend on using all methods and procedures necessary to improve the condition of these species and their habitats to a point where their special status recognition is no longer warranted. The FNF adopted a plan specific to guiding conservation of the known water howellia occurrences on Federal land in Montana, and guidance provided in the MNF LRMP has resulted in the use of buffer strips to protect riparian species and function surrounding occupied ponds in California. Both the FNF plan and MNF policy are expected to continue to be implemented if we delist water howellia, based on discussions with the USFS (see *Conservation Efforts* and A. *The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range,* above).

Federal Land Policy and Management Act

Similar to NFMA, the Federal Land Policy and Management Act (43 U.S.C. 1701 *et seq.*) applies to the Bureau of Land Management (BLM) with regard to the conservation and use of public lands under their management. Water howellia is given consideration as a federally listed species by Federal agencies, and if delisted, would likely be included on the sensitive species list for the BLM as it was at the time of listing (59 FR 35860; July 14, 1994). Special status species policies (BLM manual, section 6840, p. 37) detail the need to conserve these species and the ecosystems on which they depend using all methods and procedures which are necessary to improve the condition of special status species and their habitat to a point where their special status recognition is no longer warranted. The one occurrence of water howellia in Washington on BLM land makes the existence of the plant vulnerable to localized actions. However, application of best management practices (BMPs) consistent with resource management plan (RMP) direction appears to have maintained this occurrence since 1993 (Frymire 2017, pers. comm.). The implementation of BMPs is expected to continue in the absence of protections under the Act because the current RMP (which requires BMPs) will still be the guiding land management document into the future.

Sikes Act

Water howellia occurrences and habitats on Federal military installations (Lewis-McChord in Pierce County, Washington) are managed under an INRMP (USDOD 2006, pp. 4–6; USDOD 2017, p. X–X) authorized by the Sikes Act (16 U.S.C. 670a *et seq.*). Protections for water howellia habitat in the INRMP include restrictions on motorized equipment and military training activities in wetlands occupied by water howellia. In concert with the INRMP, Lewis-McChord has developed an Endangered Species Management Plan for water howellia that establishes conservation goals, management prescriptions, and monitoring efforts (USDOD 2012, entire). These protections would be expected to continue in the absence of protections under the Act because the Sikes Act mandates USDOD to conserve and rehabilitate wildlife, fish, and game on military reservations.

National Wildlife Refuge System Improvement Act

As directed by the National Wildlife Refuge System Improvement Act (Pub. L. 105–57, 16 U.S.C. 668dd), Refuge managers have the authority and responsibility to protect native ecosystems, fulfill the purposes for which an individual refuge was founded, and implement strategies to achieve the goals and objectives stated in management plans. For example, Turnbull Refuge (Spokane County, Washington) includes extensive habitat for water howellia, including 35 known occupied sites. The National Wildlife Refuge's comprehensive conservation plan (CCP) is a land management plan with a 15-year term that directs protection of these habitats and identifies specific objectives relative to research and monitoring, invasive species management, and education regarding water howellia (USFWS 2007, p. 2–22). Given the 15-year timeframe of CCPs, these protections would remain in place until 2022 regardless of water howellia Federal listing status.

Ridgefield National Wildlife Refuge in western Washington finalized a CCP in 2010, which included several conservation strategies for water howellia. These strategies included allowing natural flood-up and various methods (*e.g.,* mechanical, biological, chemical) for invasive species control (USFWS 2010, pp. 2–37, 2–54). Given the 15-year timeframe of CCPs, protections outlined in the Ridgefield National Wildlife Refuge CCP for water howellia are expected to remain in place until 2025 regardless of water howellia Federal listing status.

In addition to specific protections for water howellia provided under CCPs, the species is permanently protected by the mission of all National Wildlife Refuges to manage their lands and waters for the conservation of fish, wildlife, and plant resources and their habitats.

II. State

Montana Streamside Management Zone Act

The Montana Streamside Management Zone Act (SMZ), in part, designates vegetated buffer strips around surface waters, including wetlands adjacent to streams (and thus potential water howellia habitat), within the boundaries of timber harvest units in Montana. The SMZ law covers Federal, State, and private commercial timber practices (Montana Code Annotated 2009, p. 1). The SMZ law specifically prohibits slash fill of wetlands, off-road vehicle use, and clear cutting within 50 ft (15 m) of water bodies (Administrative Rules of Montana 2007, p. 7). There are no buffer strips designated for isolated wetlands (those not adjacent to a stream/river) under the SMZ and only voluntary restrictions on equipment travel through isolated wetlands. Although unclear, some water howellia occurrences in Montana's Swan Valley may occur in isolated wetlands. Thus, the direct loss of habitat or plants for a small number of occurrences from timber harvest activities is a possibility if water howellia plants occupy isolated wetlands within a timber harvest unit. However, audits of timber sale practices conducted by interdisciplinary review teams have consistently documented few violations of the SMZ law and generally high compliance (>90%) with voluntary regulations in the recent past (Montana DNRC 2016, entire). Thus, while there is potential for water howellia habitat to be lost for occurrences in isolated wetlands, the magnitude of the stressor appears small. As State law, the protections of the SMZ are expected to continue if we delist water howellia.

Montana State Comprehensive Fish and Wildlife Strategy

This conservation strategy identifies focus areas, community types, species, and inventory needs along with their conservation concerns and strategies in Montana (Montana FWP 2005, p. 170). The emphasis of the strategy is conserving a broad range of species and habitats, not just game species and their habitats. The Swan Valley (site of the Montana water howellia metapopulation) is designated a ''Terrestrial Conservation Focus Area in Greatest Need.'' Multiple conservation strategies include riparian area conservation, conservation easement planning, sustainable land management practices, and weed control

partnerships. However, implementation of these conservation actions is dependent on State wildlife grants—funds that have an uncertain future. For this reason, it is unlikely these conservation strategies could be relied upon to protect the 14 ponds occupied by water howellia on State land in Montana if we delist water howellia.

Washington Natural Heritage Plan

Washington State's Natural Heritage Plan identifies priorities for preserving natural diversity, including wetlands, in Washington State (Washington Department of Natural Resources (DNR) 2007, 2011, entire). The progressive plan aids Washington DNR in conserving key habitats that are currently imperiled or expected to be in the future. The prioritization of conservation efforts provided by this plan is expected to remain in place if we delist water howellia; however, the effects of plan implementation on water howellia would depend upon whether habitat for water howellia was part of a conservation effort.

Washington Forest Practices Act

Washington State's Forest Practices Act, and associated regulations and rules, (Washington Annotated Code 2008, p. 30–3) provides protection of wetlands from the fill and cutting that could result from commercial timber harvest operations. Minimum buffers of 25 ft (8 m) are designated around ponds and wetlands inside timber sale boundaries, effectively prohibiting most harvest and all heavy equipment used in these areas. These buffers protect water howellia habitat from disturbance and minimize impacts to water quality. As State law, these protections are expected to remain in place if we delist water howellia.

Oregon Senate Bill (SB) 533/Oregon Revised Statute (ORS) 564

Oregon SB 533/ORS 564 requires non-Federal public agencies to protect State-listed plant species found on their lands (Oregon Revised Statute 2009, entire). Any land action on Oregon non-Federal public lands which results, or might result, in the taking of an endangered or threatened species requires consultation with the Oregon Department of Agriculture (ODA) staff. Removal of Federal protections for water howellia would remove State protection of the species under this statute since water howellia was never formally listed by ODA. However, protections are expected to remain in place due to other rare, sensitive plant species in the area inhabited by water howellia and the commitment of the Metro (Portland-area regional government) to protect the only known occurrences of water howellia in Oregon (Currin 2013, pers. comm.).

III. Summary of Factor D

As discussed above and under the other factors, conservation measures and existing regulatory mechanisms (such as Federal and State land management plans and conservation strategies) have minimized, and are continuing to minimize, the previously identified threats of invasive species, land management activities (primarily timber harvest and road building), trampling by domestic livestock, and direct habitat loss from urbanization or dam construction to all three water howellia metapopulations. As indicated above, we anticipate that the majority of these mechanisms will remain in place regardless of the species' Federal listing status. Consequently, we find that conservation measures, along with existing regulatory mechanisms, are adequate to address these specific stressors.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Factor E requires the Service to consider any other factors that may be affecting water howellia. Under this factor, we discuss: (1) The narrow ecological requirements of the species in the context of climate change, (2) small population size/low genetic diversity, and (3) the potential for cumulative effects of stressors.

Narrow Ecological Requirements/ Climate Change

Here we consider the narrow ecological requirements of water howellia in the context of observed or projected changes in climate. The 1994 listing rule (59 FR 35860; July 14, 1994) did not discuss the potential impacts of climate change on water howellia. The terms ''climate'' and ''climate change'' are defined by the Intergovernmental Panel on Climate Change (IPCC). The term ''climate'' refers to the mean and variability of relevant quantities (*i.e.,* temperature, precipitation, wind) over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2014, pp. 119–120). The term ''climate change'' thus refers to a change in the mean or variability of one or more measures of climate (*e.g.,* temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to internal processes or anthropogenic changes (IPCC 2014, p. 120).

Scientific measurements spanning several decades demonstrate that changes in climate are occurring. In particular, warming of the climate system is unequivocal, and many of the observed changes in the last 60 years are unprecedented over decades to millennia (IPCC 2014, p. 2). The current rate of climate change may be as fast as any extended warming period over the past 65 million years and is projected to accelerate in the next 30 to 80 years (National Research Council 2013, p. 5). Thus, rapid climate change is adding to other sources of extinction pressures, such as land use and invasive species, which will likely place extinction rates in this era among just a handful of the severe biodiversity crises observed in Earth's geological record (AAAS 2014, p. 7).

Examples of various other observed and projected changes in climate and associated effects and risks, and the basis for them, are provided for global and regional scales in recent reports issued by the IPCC (2013c, 2014), and similar types of information for the United States and regions within it can be found in the National Climate Assessment (Melillo *et al.* 2014, entire).

Results of scientific analyses presented by the IPCC show that most of the observed increase in global average temperature since the mid-20th century cannot be explained by natural variability in climate alone and is ''very likely'' (defined by the IPCC as 95 percent or higher probability) due to the observed increase in greenhouse gas (GHG) concentrations in the atmosphere as a result of human activities, particularly carbon dioxide emissions from fossil fuel use (IPCC 2014, pp. 47–48; see also Walsh *et al.* 2014, pp. 20–24). Further confirmation of the role of GHGs comes from analyses by Huber and Knutti (2012, p. 31), who concluded GHGs contributed 1.5 degrees Fahrenheit (0.85 degrees Celsius) of warming since the mid-20th century and that it was extremely unlikely that internal variability contributed.

Scientists use a variety of climate models, which include consideration of natural processes and variability, as well as various scenarios of potential levels and timing of GHG emissions, to evaluate the causes of changes already observed and to project future changes in temperature and other climate conditions. Model results yield very similar projections of average global warming until about 2030. Thereafter, the magnitude and rate of warming vary through the end of the century depending on the assumptions about population levels, emissions of GHGs, and other factors that influence climate

change. Thus, absent extremely rapid stabilization of GHGs at a global level, there is strong scientific support for projections that warming will continue through the 21st century, and that the magnitude and rate of change will be influenced substantially by human actions regarding GHG emissions (IPCC 2013b, 2014; entire).

Global climate projections are informative, and in some cases, the only or the best scientific information available for us to use. However, projected changes in climate and related impacts can vary substantially across and within different regions of the world (*e.g.,* IPCC 2013c, 2014; entire) and within the United States (Melillo *et al.* 2014, entire). Therefore, we use ''downscaled'' projections when they are available and have been developed through appropriate scientific procedures, because such projections provide higher resolution information that is more relevant to spatial scales used for analyses of a given species (see Glick *et al.* 2011, pp. 58–61, for a discussion of downscaling).

Various changes in climate may have direct or indirect effects on species. These may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as interactions of climate with other variables like habitat fragmentation (IPCC 2014, p. 67; for additional examples, see Franco *et al.* 2006; Forister *et al.* 2010; Galbraith *et al.* 2014; Chen *et al.* 2011; Bertelsmeier *et al.* 2013, entire). Identifying likely effects often involves aspects of climate change vulnerability analysis. Vulnerability to climate change has three principle components: Sensitivity, exposure, and adaptive capacity (Glick *et al.* 2011; Dawson *et al.* 2011). Sensitivity is the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli (U.S. CCSP 2008b as cited by Glick *et al.* 2011). Exposure is the nature and degree to which a system is exposed to significant climate variations (IPCC 2001b as cited by Glick *et al.* 2011). Adaptive capacity is the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences (IPCC 2001b as cited by Glick *et al.* 2011). There is no single method for conducting such analyses that applies to all situations (Glick *et al.* 2011, p. 3). We use our expert judgment and appropriate analytical approaches to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

As is the case with all stressors that we assess, even if we conclude that a species is currently affected or is likely to be affected in a negative way by one or more climate-related impacts, it does not necessarily follow that the species meets the definition of an ''endangered species'' or a ''threatened species'' under the Act. If a species is listed as endangered or threatened, knowledge regarding the vulnerability of the species to, and known or anticipated impacts from, climate-associated changes in environmental conditions can be used to help devise appropriate strategies for its recovery.

Climate change trends predicted for the Pacific Northwest (Oregon, Washington, Idaho, and Montana) broadly consist of an increase in annual average temperature; an increase in extreme precipitation events; and, with less certainty, variability in annual precipitation (Dalton *et al.* 2013, pp. 31–38, Figure 1.1; Snover *et al.* 2013, pp. 5–1–5–4). Lee *et al.* (2015) describe potential hydrological changes in response to predicted climate change on montane wetlands in the Pacific Northwest. These observations appear to vary with local conditions and include earlier drawdown, more rapid drying out in the summer, and reduced minimum water levels. We do not have a clear understanding of how water howellia responds to a diversity of temperature and precipitation changes, although the species has persisted in spite of rising temperatures and increasing variability in precipitation across its range over the past several decades (Shelly *et al.* 2016, entire).

A potential increase in precipitation as a result of climate change may affect the species in several ways. First, increases in precipitation may increase the surface area of existing ponds and wetlands, or create new ones. These new habitats would be available for colonization by water howellia and could increase the range and resiliency of the species. However, new habitats would also be available to invasive species such as *P. arundinacea* and may also promote their expansion on the landscape. An important factor in increased habitat would likely be the site-specific conditions within each habitat; new habitat with deeper water and longer periods of inundation would likely preclude the establishment of *P. arundinacea* and be beneficial to water howellia. Conversely, the creation of shallower habitat may favor *P. arundinacea.* Another possible effect of increased precipitation may be the alteration of the hydrologic cycle of water howellia habitats. Specifically, these habitats may fill earlier (with heavier spring rainfall) and dry later in the season than they did historically, thereby reducing the timing window for air exposure needed for seed germination of water howellia in late summer and autumn.

Alternatively, a potential decrease in precipitation as a result of climate change also may affect water howellia in several ways. Decreases in precipitation may result in water levels that are too low to support the submergent flower production. Additionally, earlier drawdowns and the faster receding of water in these wetlands as a result of decreased precipitation may ultimately limit the continued persistence of ephemeral ponds. This could provide an opportunity for expansion of *P. arundinacea* and other invasive species. On the other hand, amplified drying may allow for increased germination and expansion of water howellia. Another scenario of decreased precipitation is that the hydrological cycles could be altered in a way that would favor water howellia. Ponds that were previously perennial could potentially become ephemeral in nature, providing the wetting and drying cycle necessary for water howellia reproduction and, consequently, additional habitat for the species to occupy. Again, the site-specific conditions for each habitat would be an important factor.

Changes in precipitation from snow to rain may also affect water howellia, particularly in the southernmost occurrences (*e.g.,* California) (California DWR 2013, p. 22). More precipitation falling as rain rather than snow would likely alter the hydrologic cycle within these habitats. These alterations could include faster drying of wetlands than was observed historically, due to a lack of spring run-off from snow fields and increased annual air temperature. More frequent extreme precipitation events are predicted for California (California DWR 2013, p. 23). The effect of more extreme precipitation events on water howellia habitat in California is unclear, especially given the potential for interactions among precipitation and other environmental variables predicted to change (*e.g.,* reduced snowpack, increased annual air temperature).

The ability of water howellia to self-fertilize and produce seeds at both the early season submergent and later season emergent forms may be an advantage to surviving lengthened, shortened, or generally more inconsistent growing seasons than occurred historically. Seed production from both flower forms in one growing

season may increase the opportunity for surviving subsequent inclement years. It is uncertain how increases in water temperature and increased evaporation due to increased ambient temperatures would affect growth and reproduction of water howellia; however, climate conditions that restrict the dual seed production and seed banking could reduce the ability of water howellia to persist over time.

Associated wetland vegetation that positively contributes to suitable microclimates for water howellia could be altered by predicted variance in temperatures and precipitation. An increase in daily temperatures paired with a decrease in precipitation could potentially result in stressed and dying vegetation, which could result in an increased risk of wildfire, insect pathogens such as pine bark beetles, an increase in noxious or invasive weeds, and an increase in atmospheric carbon dioxide levels that could accelerate natural ecological succession. The loss of vegetation around ponds from wildfire or other events could accelerate sedimentation, resulting in the loss of water howellia occurrences. Montana and eastern Washington occurrences of water howellia could be more resilient to these processes than other occurrences because of their distribution over a larger landscape with many separate occurrences. Increasing temperatures combined with increased demand for ground and surface water for human development may compound negative impacts to water howellia in eastern Washington and northern Idaho. Climate-induced effects on water howellia may appear first in California, as these occurrences are at the southern edge of the known range. However, these effects may be buffered by the higher elevation (approximately 3,800 ft/1,158 m) at which the California occurrences are found compared to elsewhere in the range (western Washington: Approximately 15 ft/5m).

Predicted environmental changes resulting from climate change may have both positive and negative effects on water howellia, depending on the extent and type of impact and depending on site-specific conditions within each habitat type. The primary predicted negative effect is the alteration of hydrologic regimes potentially resulting in inconsistent growing seasons. This effect will likely be buffered by the ability of water howellia to produce seeds during both early and late seasons. Predicted environmental effects that may be positive for water howellia include increased habitat, seed dispersal, and species distribution in some areas, including within the three metapopulations due to predicted increases in precipitation across the northern range of the species (IPCC 2014, p. 61). The intact nature and current spatial arrangement (geographically diverse and at varying elevations) of the three large metapopulations will likely provide more resilience to climate change than the smaller, isolated occurrences. Effects of potential composition shifts in vegetation surrounding water howellia occurrences as a result of climate change are unknown.

In summary, climate change is affecting and will continue to affect temperature and precipitation events. The extent, duration, and impact of those changes are unknown, but could potentially increase or decrease precipitation in some areas. Water howellia may experience climate change-related effects in the future, most likely at the individual or local population level. Regional occurrences may experience some shifts. However, it is anticipated that the metapopulations important to the viability of the species would continue to persist because of resiliency due to geographic and elevational diversity. Available information indicates the species is adaptable to variable conditions. Therefore, based upon available information, we conclude that climate change is not a significant threat to water howellia.

Small Population Size/Low Genetic Diversity

The final rule to list water howellia (59 FR 35860; July 14, 1994) cited small population size and lack of genetic variation within and among occurrences as a contributor to its vulnerability. Small occurrences with low genetic diversity could limit a species' or population's ability to respond to novel changes in its environment, necessitating redundancy of occurrences across larger areas to increase the probability of survival. At the time of listing in 1994, the only genetic investigation of the species showed very low genetic diversity within and among occurrences in Washington and Montana (Lesica *et al.* 1988, p. 278). More current genetic results indicate greater genetic diversity within and among occurrences than previously thought; however, diversity is still relatively low (Brunsfeld and Baldwin 1998, p. 2; Schierenbeck and Phipps 2010, p. 5). Additionally, one genetic investigation documented that all occurrences are distantly related and that gene flow is likely occurring between the States (Schierenbeck and Phipps 2010, p. 6).

The relatively low genetic diversity of water howellia across its current range may limit the species' ability to respond to environmental changes. However, gene flow is occurring among occurrences, and the redundancy of smaller occurrences across the species' range may mitigate for reduced genetic plasticity within individual occurrences (*i.e.,* the lower genetic representation may be mitigated by higher geographic representation). The current spatial arrangement of small occurrences is favorable to the species' long-term persistence because these occurrences are at different elevations and within varying climatic regimes (see discussion under ''Narrow Ecological Requirements/Climate Change,'' above). Thus, we do not consider small population size or low genetic diversity to be a significant threat to water howellia.

Cumulative Effects of All Stressors

Many of the stressors faced by water howellia are interrelated and could work in concert with each other, resulting in a cumulative adverse effect on the species. For example, stressors discussed under Factor A that individually do not rise to the level of a threat could together result in habitat loss. Similarly, small population size in combination with stressors discussed under Factor A could present a potential concern.

Climate change is occurring across the range of the species, coinciding with all other identified stressors. As described previously, variations in climatic conditions may favor or preclude invasive species, depending on site-specific habitat factors. Also described previously, climate change may alter hydrological cycles. However, despite changing climate conditions, water howellia has persisted across its range. Analysis of nearly 30 years of data on water howellia occurrences in the Swan Valley indicates the species has persisted even with climate change interacting with other potential stressors (Pipp 2017, entire). This suggests that the cumulative effects of climate change and other stressors are not meaningful at the metapopulation level, nor at the species level. Nevertheless, we recognize that there are uncertainties associated with climate change predictions; ongoing management and monitoring of water howellia (via the PDM plan) is designed to detect potential future changes in the species' distribution and abundance.

There may be locations of water howellia occurrences where invasive species are present, and cattle have access to occupied ponds. Grazing may

limit the expansion of invasive species in these instances. Otherwise, we are not aware of particular locations within water howellia occurrences where multiple stressors occur. Also, we do not anticipate stressors to increase on federally managed lands, which afford protection to the species in the most occupied habitat. Furthermore, the documented increases in the abundance and distribution of the species since it was listed in 1994 do not support a conclusion that cumulative effects pose a threat to the species. Therefore, we conclude, based on the available information, that cumulative effects are not a significant threat to water howellia.

Summary of Factor E

Given the lack of threats within water howellia occurrences and increases in abundance and distribution since listing in 1994, we conclude that climate change, small population size and low genetic diversity, and cumulative effects are not significant threats to water howellia.

Proposed Determination of Species 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 ''endangered species'' or ''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 a species meets the definition of ''endangered species'' or ''threatened species'' because of any of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial, recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence.

Determination of Status Throughout All of Water Howellia's Range

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to water howellia including invasive species (Factor A), land management activites (Factor A), trampling by domestic livestock (Factor A), direct habitat loss from urbanization or dam construction (Factor A), narrow ecological requirements of the species in the context of climate change (Factor E), predation (herbivory) by domestic livestock (Factor C), small population size/low genetic variation (Factor E), and cumulative effects of stressors (Factor E). Based on the best available information, and as described in our five-factor analysis, above, the identified stressors fall into one or more of the following categories:

- Stressors that have not occurred to the extent anticipated at the time of listing and existing information indicates that this will not change in the future (trampling by domestic livestock, predation (herbivory), direct habitat loss from urbanization).
- Stressors that are adequately managed and existing information indicates that this will not change in the future (invasive species, land management activities).
- Stressors for which the species is tolerant and existing information indicates that this will not change in the future (narrow ecological requirements, small population size/low genetic variation, climate change, cumulative effects).

Thus, our analysis of this information indicates that these stressors are not of sufficient imminence, intensity, or magnitude to indicate that water howellia is in danger of extinction or likely to become so within the foreseeable future throughout all of its range. Therefore, after assessing the best available information, we conclude that water howellia is not in danger of extinction throughout all of its range nor is it likely to become so in the foreseeable future.

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

Determination of Status Throughout a Significant Portion of Water Howellia's Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range (SPR). Where the best available information allows the Services to determine a status for the species rangewide, that determination should be given conclusive weight because a rangewide determination of status more accurately reflects the species' degree of imperilment and better promotes the purposes of the Act. Under this reading, we should first consider whether the species warrants listing ''throughout all'' of its range and proceed to conduct a ''significant portion of its range'' analysis if, and only if, a species does not qualify for listing as either an endangered or a threatened species according to the ''throughout all'' language.

Having determined that the water howellia 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 or likely to become so in the foreseeable future in an SPR. The range of a species can theoretically be divided into portions in an infinite number of ways, so we first screen the potential portions of the species' range to determine if there are any portions that warrant further consideration. To do the ''screening'' analysis, we ask whether there are portions of the species' range for which there is substantial information indicating that: (1) The portion may be significant; and, (2) the species may be, in that portion, either in danger of extinction or likely to become so in the foreseeable future. For a particular portion, if we cannot answer both questions in the affirmative, then that portion does not warrant further consideration and the species does not warrant listing because of its status in that portion of its range. We emphasize that answering these questions in the affirmative is not a determination that the species is in danger of extinction or likely to become so in the foreseeable future throughout a significant portion of its range—rather, it is it is a step in determining whether a more detailed analysis of the issue is required.

If we answer these questions in the affirmative, we then conduct a more thorough analysis to determine whether the portion does indeed meet both of the SPR prongs: (1) The portion is significant and (2) the species is, in that portion, either in danger of extinction or likely to become so in the foreseeable future. Confirmation that a portion does indeed meet one of these prongs does not create a presumption, prejudgment, or other determination as to whether the species is an endangered species or threatened species. Rather, we must then undertake a more detailed analysis of the other prong to make that determination. Only if the portion does indeed meet both SPR prongs would the species warrant listing because of its status in a significant portion of its range.

At both stages in this process—the stage of screening potential portions to identify any portions that warrant further consideration and the stage of undertaking the more detailed analysis of any portions that do warrant further consideration—it might be more efficient for us to address the ''significance'' question or the ''status'' question first. Our selection of which question to address first for a particular portion depends on the biology of the species, its range, and the threats it faces. 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 second question for that portion of the species' range.

For water howellia, we chose to evaluate the status question (*i.e.,* identifying portions where the water howellia may be in danger of extinction or likely to become so in the foreseeable future) first. To conduct this screening, we considered whether the threats are geographically concentrated in any portion of the species' range at a biologically meaningful scale. If a species is not in danger of extinction or likely to become so in the foreseeable future throughout all of its range and the threats to the species are essentially uniform throughout its range, then the species would not have a greater level of imperilment in any portion of its range than it does throughout all of its range and therefore no portions would qualify as an SPR.

We examined the following threats: Invasive species, land management activities, trampling by domestic livestock, direct habitat loss from urbanization or dam construction, narrow ecological requirements of the species in the context of climate change, predation (herbivory) by domestic livestock, small population size/low genetic variation, and the cumulative effects of these threats. We found no concentration of threats in any portion of the water howellia's range at a biologically meaningful scale. Since we found no portions of the species' range where threats are significantly concentrated or substantially greater than in other portions of its range, we did not identify any portions where the species may be in danger of extinction or likely to become so in the foreseeable future. Therefore, no portions warrant further consideration through a more detailed analysis, and the species is not in danger of extinction or likely to become so in the foreseeable future in any significant portion of its range. Our approach to analyzing SPR in this determination is consistent with the court's holding in *Desert Survivors* v. *Department of the Interior,* No. 16–cv–01165–JCS, 2018 WL 4053447 (N.D. Cal. Aug. 24, 2018).

Our review of the best available scientific and commercial information indicates that the water howellia is not in danger of extinction nor likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Therefore, we find that the water howellia does not meet the definition of an endangered species or a threatened species, and we propose to remove the species from the List.

Determination of Status

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to water howellia. After review and analysis of the information regarding stressors as related to the five statutory factors, we find that the ongoing stressors are not of sufficient imminence, intensity, or magnitude to indicate that this species is presently in danger of extinction throughout all or a significant portion of its range. Additionally, no threats exist currently, nor are any potential stressors expected to rise to the level, that would likely cause the species to become in danger of extinction in the foreseeable future throughout all or a significant portion of the species' range. Because the species is neither in danger of extinction now nor likely to become so in the foreseeable future throughout all or any significant portion of its range, the species does not meet the definition of an endangered species or threatened species under the Act. As a consequence of this determination, we find that water howellia no longer requires the protection of the Act, and we propose to remove the species from the Federal List of Endangered and Threatened Plants.

Effects of the Rule

This proposal, if made final, would revise 50 CFR 17.12(h) to remove water howellia from the Federal List of Endangered and Threatened Plants. Because no critical habitat was ever designated for this species, this rule will not affect 50 CFR 17.96.

The prohibitions and conservation measures provided by the Act, particularly through sections 7 and 9, would no longer apply to this species. Federal agencies would 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 water howellia.

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 delisted due to recovery. The purpose of this requirement is to develop a program that detects the failure of any delisted species to sustain itself without the protective measures provided by the Act. If at any time during the monitoring period, data indicate that protective status under the Act should be reinstated, we can initiate listing procedures, including, if appropriate, emergency listing.

We are proposing to delist water howellia based on new information we have received as well as conservation actions taken. Since delisting would be, in part, due to conservation taken by stakeholders, we have prepared a draft post-delisting monitoring (PDM) plan for water howellia. The draft PDM plan discusses the current status of the taxon and describes the methods proposed for monitoring if we delist the taxon. The draft PDM plan: (1) Summarizes the status of water howellia at the time of proposed delisting; (2) describes frequency and duration of monitoring; (3) discusses monitoring methods and potential sampling regimes; (4) defines what potential triggers will be evaluated to address the need for additional monitoring; (5) outlines reporting requirements and procedures; (6) proposes a schedule for implementing the PDM plan; and (7) defines responsibilities. It is our intent to work with our partners towards maintaining the recovered status of water howellia. We will seek public and peer reviewer comments on the draft PDM plan, including its objectives and procedures (see *Document availability* and Information Requested, above), with the publication of this proposed rule.

Required Determinations

Clarity of the Rule

We are required by Executive Orders 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.

National Environmental Policy Act

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), need not be prepared in connection with regulations pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

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), E.O. 13175, and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial 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 are aware of two water howellia occurrences that occur on tribal lands; we have notified the Tribes that may be affected by this proposed rule and offered government-to-government consultation.

References Cited

A complete list of all references cited in this proposed rule is available at *http://www.regulations.gov* at Docket No. FWS–R6–ES–2018–0045, or upon request from the Montana Ecological Services Field Office (see **ADDRESSES**).

Authors

The authors of this proposed rule are staff members of the Montana Ecological Services Field Office and field and regional offices in California, Colorado, Idaho, Oregon, and Washington.

List of Subjects in 50 CFR Part 17

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

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.

§ 17.12 [Amended]

■ 2. Amend § 17.12(h) by removing the entry for ''*Howellia aquatilis*'' under FLOWERING PLANTS from the List of Endangered and Threatened Plants.

Dated: August 9, 2019.

Margaret E. Everson,

Principal Deputy Director, U.S. Fish and Wildlife Service, Exercising the Authority of the Director, for the U.S. Fish and Wildlife Service.

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