

Post-Delisting Monitoring Plan

Water Howellia (*Howellia aquatilis*)



Photo Credits: Andrea Pipp, MTNHP and Rod Gilbert, USDOD

Prepared by:

**U.S. Fish and Wildlife Service
Montana Ecological Services Field Office
Helena, Montana**

August 2020

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Acknowledgements

The post-delisting monitoring plan for water howellia (*Howellia aquatilis*) was prepared by staff of the U.S. Fish and Wildlife Service (Service) with participation from the Helena (MT) and Arcata (CA) Ecological Services Field Offices, the Turnbull and Ridgefield National Wildlife Refuges, and the Pacific and Pacific Southwest Regional Offices. The Services acknowledges partners outside our agency who provided assistance in preparing the plan, including Steve Shelly, U.S. Forest Service, Region 1; Diane Ikeda, U.S. Forest Service, Region 5; Andrea Pipp, Montana Natural Heritage Program; Rod Gilbert, U.S. Department of Defense Joint Base Lewis-McChord; Kim Frymire, Bureau of Land Management (BLM); Maria Mantas, Swan Valley Connections; and Gerald Green, Coeur d'Alene Tribe.

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I. Introduction

Section 4(g) of the Endangered Species Act of 1973, as amended (Act; 16 U.S.C. 1531 et seq.) requires the U.S. Fish and Wildlife Service (Service) to implement a system in cooperation with the affected states to monitor for not less than 5 years the status of all species that have recovered and been removed from the list of threatened and endangered plants and animals (list; 50 CFR 17.11, 17.12, 224.101, and 227.4). Section 4(g)(2) of the Act directs the USFWS to make prompt use of its emergency listing authorities under section 4(b)(7) of the Act to prevent a significant risk to the well-being of any recovered species. While not specifically mentioned in section 4(g) of the Act, authorities to list species in accordance with the process prescribed in sections 4(b)(5) and 4(b)(6) of the Act may also be used to reinstate species on the list, if warranted.

The Service and states have latitude to determine the extent and intensity of post-delisting monitoring (PDM) that is needed and appropriate. The Act does not require the development of a formal PDM “plan.” However, the Service generally desires to follow a written planning document that provides effective implementation of section 4(g) to guide the collection and evaluation of pertinent information for the monitoring period and to articulate the associated funding needs. Thus, this document was prepared to describe the PDM effort for water howellia (*Howellia aquatilis*). This PDM plan follows the Post-Delisting Monitoring Plan Guidance under the Endangered Species Act (USFWS and NMFS 2008).

The purpose of this PDM plan is to verify that water howellia remains secure from the risk of extinction after it has been removed from the protections of the Act. We have prepared this document in coordination with the United States Forest Service (USFS), Bureau of Land Management (BLM), United States Department of Defense (USDOD) Joint Base Lewis McChord, Montana Natural Heritage Program (MTNHP), Idaho Department of Fish and Game (IDFG), Washington Natural Heritage Program (WNHP), Oregon Department of Agriculture (ODA), and California Department of Fish and Wildlife (CDFW). This plan is designed to detect distinct changes in presence and abundance of water howellia populations. It meets the minimum requirement set forth by the Act by effectively monitoring the status of water howellia using a minimum of six annual sampling events, over a 15-year period.

If we determine at the end of the 15-year post-delisting monitoring period that the “recovered” status is still appropriate and factors that led to the listing of water howellia, or any new factors, remain sufficiently reduced or eliminated, monitoring may be reduced or terminated. If data show the species is declining or if one or more factors that have demonstrated the potential to cause a decline are identified, we may continue monitoring beyond the 15-year period and may modify the PDM plan based on an evaluation of the results of the initial monitoring plan, or reinstate listing if necessary.

II. Summary of Species' Status

A. Species Status and Distribution

Water howellia is endemic to the Pacific Northwest, and prior to listing, occurrences were identified in California, Oregon, Washington, Idaho, and Montana (Shelly and Moseley 1988, pp. 6 and 9). Currently, the species still occurs in all five States represented by a minimum of 307 reported occurrences. The majority of extant occurrences (91 percent) are within three metapopulations occupying distinct, geographic areas in Montana's Swan Valley (Lake and Missoula Counties); Pierce County in western Washington; and Spokane County in northeastern Washington. It is an annual aquatic species that inhabits small, vernal freshwater wetlands and ponds that annually fill with water in the spring and dry 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 abandoned river oxbows (Lesica 1997) in Montana and western Washington, riverine meander scars (Idaho NHP 2016, p. 1; Wiechmann 2014, 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 to some degree.

B. Residual Impacts

Stressors currently fall into one of three categories: (1) stressors identified at the time of listing either have not occurred to the extent anticipated, (2) stressors are being adequately managed, or (3) the species is tolerant of the stressor. The threats that fall into category 3 are those residual impacts that may continue to affect the species at some level. All noteworthy foreseeable factors affecting the status of the species are included in the final rule to remove water howellia from the Federal List of Endangered and Threatened Plants. To ensure impacts remain minor, all monitored populations in this plan will be assessed for the effects of residual threats.

The primary threats to water howellia at the time of listing included narrow ecological requirements, invasive species, land management activities (primarily timber harvest and road building), trampling by domestic livestock, and direct habitat loss from urbanization or dam construction (59 FR 35860). Since the time of listing, climate change has become a potential threat to the species. Based on our analysis in conducting our 5-year Review (USFWS 2013) and summarized in the final rule to delist the species, water howellia is no longer considered at risk of extinction because additional occurrences have been found, identified stressors have not occurred to the extent anticipated at the time of listing, identified stressors are being adequately managed, or the species is tolerant of the stressor.

The stressors identified in category 3 for water howellia include invasive species and changes in climate. Invasive species that occupy suitable habitat can displace water howellia as well as change their habitat. Climate change predictions vary, and the extent, duration, and impact of that change are uncertain. In the range of water howellia,

changes in climate could bring about shifts in weather patterns that affect precipitation, changing the annual cycles in vernal pond hydrology. Because these factors have the potential to impact water howellia, they will be tracked as part of the post-delisting monitoring.

III. Monitoring Methods

This section outlines the monitoring design for water howellia populations. State and federal partners will work cooperatively with the Service to ensure that monitoring is completed in accordance with this PDM plan. The monitoring methods for water howellia are intended to be straightforward and simple.

Monitoring will take place once the ponds have filled and the growing season has progressed, which will assure that plants are developed and visible, but not so late that plants are senescing. This timing will vary by state. For example, in Montana, monitoring will occur between June and August. Monitoring will be conducted by qualified and trained individuals able to accurately identify water howellia.

This section outlines our general procedure for conducting monitoring using population surveys to determine presence/absence in occupied wetlands, which has been used successfully in the past to document water howellia trends. This type of monitoring allows for more extensive sampling and general abundance and distribution trends can be reported for more populations over a larger percentage of the species' range.

A. Water Howellia Occurrence Selection

Currently, there are 307 known water howellia occurrences across the range. A minimum of 60 ponds across the range will be monitored for presence/absence and abundance of water howellia, presence/absence and abundance of reed canary grass (*Phalaris arundinacea*), and pond water levels. This represents 20% of the known range-wide population. A minimum of 30 ponds in Montana and 30 ponds in Washington will be monitored. A random sampling process that stratifies by monitoring history should be one of the criteria for selecting monitoring ponds. For example, in Montana approximately 125 of the 220 known occurrences have had from 3 to 13 years of monitoring. Randomly selecting 30 ponds from the pool of previously monitored ponds would contribute to the collection of long-term data that will directly help address the needs of the post-delisting monitoring plan. The Mendocino National Forest has committed to monitoring the occupied ponds in California, and the USFWS has committed to monitoring the occurrences located on Portland Metro property in Oregon. The Coeur d'Alene Tribe has indicated that occurrences on their respective jurisdictions in Idaho will continue to be monitored on an annual basis. Monitoring occurrences outside of the metapopulations will provide additional value as it may offer early detection of potential trends.

Two representative committees will work together to identify the subset of ponds to be monitored with by this effort. The MT committee is represented by Chantelle Delay (USFS), Maria Mantas (Swan Valley Connections), Andrea Pipp (MTNHP), and Steve Shelly (USFS) or qualified designees from those agencies/organizations. The WA committee is represented by Alex Chmielewski (USFWS), Walt Fertig (WNHP), Rod Gilbert (USDOD), Karen Reagan (USFWS), and Mike Rule (USFWS) or qualified designees from those agencies. Criteria for determining which ponds to monitor include the: 1) history of monitoring (opportunity to making meaningful interpretations of data sets that are already in place), 2) the range of disturbance factors (fire, road, vegetation treatments, etc.) represented by pond buffers, 3) the ability to capture geographic and elevational distribution across the metapopulation, and 4) reasonable accessibility. Partnering agencies also recognize that flexibility may need to be exercised with regards to the criteria.

B. Occurrence Monitoring

Species monitoring will occur once during the growing season when the plants are in their active growth stage. Species monitoring will occur in quarter-acre sections for each pond. Each selected pond will be mapped in ArcGIS and divided into quarter-acre sections that are named S1, S2, S3, etc. If the pond is smaller than a quarter-acre, then the entire pond will be monitored as a single section. Developing a diagram that shows the pond shape and overlays the quarter-acre boundaries will serve as a permanent map that will guide annual monitoring (Appendix A). Each quarter-acre section will be evaluated for the presence/absence and general abundance of water howellia and reed canarygrass (Table 1). The surveyor will either walk through each section in an opportunistic fashion searching for plants, or will survey from the shore. During “good” water howellia years, the amount and distribution of plants in small ponds may be easily assessed from the shore. It is also likely that estimates of reed canarygrass can be made from shore. Measures to limit fungus contamination between sites will be adopted.

Table 1. Abundance categories to use for assessing reed canarygrass and water howellia in each quarter-acre section at each occurrence

Abundance for Reed Canarygrass	Abundance for Water Howellia
None = 0% cover; Low = >0-25% cover; Moderate = >25 <= 50% cover; High = > 50% cover.	None = no individuals detected; Low = hard to detect, < 50 plants; Moderate = easily detected but sparse, 50-100 plants; High = easily detected, >100 individuals but difficult to count due to density.

If a determination of presence/absence cannot be made immediately, a 20-minute minimum search time is required for each section. The time spent surveying each pond will be recorded.

Pond drying is an important factor to determining population levels. As such, monitoring at each site will include a transect intended to capture an estimate of pond drying each season. A depth measurement (measured in feet) will be taken at a minimum of three points along a transect from shore to the pond center (i.e. deep, middle, shallow). In the fall, measurements along all or a subset of transects would be collected a second time. Additionally, if feasible, temperature logging ibuttons will be co-located at each monitoring site where depth is measured.

Comments regarding hydrology, plant phenology, observed threats, problems with assessing abundance, and other pertinent information at the site (pond) will be recorded on the datasheet. Notes should be clearly written in order for someone who is not familiar with the site to properly interpret the comments and their intent.

Photo point locations will be established at each monitoring site and photos taken each year. These stations will be permanently marked (tree tags, PVC, etc.) and will serve to assist surveyors with identifying the correct photo-monitoring locations. Prior to the first year of monitoring, a standard operating procedure will be developed for each site that describes where to stand, direction to face, and other pertinent details for photo-monitoring. All data in each year should be clearly written in order for someone who is not familiar with the site to properly understand the instructions, data, and site comments.

C. Data analysis

Each year, the data will be shared with the Service and subsequently entered into a database maintained by the Service or other identified partner or contractor. Monitoring

data will be compiled and analyzed annually at the metapopulation levels by the respective committees identified above in Section III-A. This will help determine if populations are declining, increasing, or remaining stable for each metapopulation and at the range-wide scale. Some of the metrics to measure include:

- Number and percentage of sites (ponds) where water howellia is present and absent, analyzed by metapopulation, across range per consecutive 2-year sampling period
- Number and percentage of quarter-acre sections where water howellia has high, moderate, and low abundances, analyzed by metapopulation, across range per consecutive 2-year sampling period.
- Number and percentage of sites (ponds) where reed canarygrass is present and absent, analyzed by metapopulation, across range per consecutive 2-year sampling period.
- Number and percentage of quarter-acre sections where reed canarygrass has high, moderate, and low abundances, analyzed by metapopulation, across range per consecutive 2-year sampling period.
- Change in the number and percentage of quarter-acre sections where water howellia is present/absent and reed canarygrass is present/absent per site (pond).
- Analysis of pond drying per consecutive 2-year sampling period and by metapopulation and across range.
- For each pond where depths are recorded, an analysis of water depth relative to water howellia and reed canarygrass presence/absence, analyzed at the metapopulation and range-wide levels.
- For each monitoring year, a summary of annual precipitation and temperature from the closest weather station. This will provide a context for tracking weather patterns at a more local scale.

IV. Implementation

A. Monitoring Schedule

Monitoring will be conducted during three distinct time periods over a 15 year span. Specifically, monitoring will be conducted on years 1-2, 7-8, and 14-15 during the 15 year post-delisting monitoring period. It is important that each of these three time periods includes two consecutive years of monitoring, to account for the large annual fluctuations in presence and abundance of water howellia. For example in Montana, a retrospective analysis of presence/absence data estimated that a monitoring period of two consecutive years would have captured 83 percent of instances of water howellia presence when the species occurred in that waterbody (Pipp 2020, entire).

The time between monitoring periods when no monitoring would take place are 4 and 5 years, respectively. These time periods are commensurate with the length of time that effects from potential stressors such as climate change could act on water howellia. Eighty four percent of water howellia occurrences currently have longer term

conservation measures in place (i.e., managed under a Forest Plan, Comprehensive Conservation Plan, Integrated Natural Resource Management Plan), thus making it more likely that any potential future changes in presence/absence or abundance would not result from direct effects of land management. Rather, changes in presence/absence or abundance, if they did occur, would be tied to natural processes that typically operate on longer time scales (e.g., climate change on a decadal scale). Thus, our 15 year post-delisting monitoring period, with extended time between monitoring periods, is designed to help detect potential changes to water howellia occurrences on a time scale that best aligns with the longer term processes that have the greatest amount of uncertainty and potential to drive population dynamics.

Upon analyzing the data-set from the post-delisting monitoring period, a decision will be made to determine if populations at the metapopulation and range wide level are declining, increasing, or stable. If populations are declining, then monitoring may continue and/or changes in management may need to be implemented.

B. Reporting

Raw data collected during the field season in support of the PDM plan will be submitted by all agencies, states, or designees to the respective committees by December 31st of each year (see Section III-A). This will allow the Service, in cooperation with its partners in the PDM plan, to evaluate in a timely manner whether adequate data are being collected as well as allow the results of periodic assessment of the species to provide for adaptive management. The committees will then compile the data and issue an annual report that synthesizes all monitoring data including population trend and comment on the status of the water howellia. Information on any recorded disturbance or stressors within the metapopulations will be included so that we can determine if new factors may be negatively affecting the species. After all data from the post-delisting monitoring period are available, the Service (MTFO) or other identified partner or contractor will compile all field collection data and synthesize a final report with regard to overall population trends and apply the appropriate thresholds for the monitoring outcomes and conclusions (see Section V).

C. Monitoring Thresholds

If during the monitoring, water howellia occurrences appear to have noticeably declined in abundance at more than 33% of sites within the three metapopulations, a meeting convening biologists and botanists range-wide would be triggered. Efforts should be made to review the design of the monitoring protocol and identify any weaknesses that may be contributing to the apparent decline. All available data should be reviewed to assess causes for any changes in abundance. If concerns are sufficiently high, the Service will conduct a full status review of the species.

D. Roles and Responsibilities of Cooperators

The Service is responsible for ensuring that effective post-delisting monitoring of water howellia is accomplished. The Service does not have sufficient personnel resources for conducting the necessary on-site monitoring, data analysis, and reporting requirement for this PDM effort, thus the Service will work with partners to seek funding opportunities through existing grant programs, such as our section 6 Endangered Species Cooperative Grant Program.

Ultimately, the Service has the lead responsibility for this monitoring effort. Service staff will therefore participate in and maintain oversight of all activities undertaken as part of the PDM plan. This will include interpreting the intent of the PDM plan, developing and managing grants or contracts, reviewing and commenting on draft reports, distributing final reports and other information to interested parties, approving and documenting any changes to the PDM plan, conducting any necessary future status reviews of water howellia, and determining when the PDM is complete. The Service (MTFO), or other identified partner or contractor, will serve as the main coordinator for all monitoring and the Service (MTFO) will be the repository for all data collected during the monitoring work. Additionally, the Service, or other identified partner or contractor, will perform data analysis and prepare progress reports to be delivered to the Service that detail the level of monitoring accomplished during the year and the results of these investigations. At the conclusion of the 15-year PDM effort, the Service (MTFO) will review the work in conjunction with the identified partner or contractor to produce a final report.

The Turnbull and Ridgefield National Wildlife Refuge biologists/staff members will carry out monitoring for occurrences on their respective refuges in Washington. The USDOD will conduct monitoring for occurrences located on Joint Base Lewis-McChord in western Washington. The USFS and partners will conduct monitoring for occurrences located in Montana and California. The Coeur d'Alene Tribe will conduct monitoring for occurrences location Tribal property.

E. Estimated Funding Requirements

Table 2 provides a rough cost estimate of \$198,000 for completing PDM for water howellia. These estimates are not adjusted for inflation and assume that the monitoring schedule is consistent with the methodology and schedule contained in this PDM plan. The cost estimates are based on the minimum activities of annual monitoring for the planned six years and do not include the additional costs of analysis of data at the conclusion of fifteen years or if increased monitoring efforts become necessary. For these reasons and others related to projecting cost estimates, the actual costs of completing the PDM could be more or less than this estimate.

Table 2. Estimated costs of water howellia post-delisting monitoring. Asterisks (*) indicate in-kind costs anticipated from partners.

Monitoring	
Salary (Annual Staff Time)*	
U.S. Fish and Wildlife Service (ES)	\$ 3,000
Identified partner or contractor	\$10,000
USDOD	\$ 2,000
USFS	\$ 8,000
USFWS (Refuges)	\$ 2,000
Travel (Annual)	
Service travel*	\$ 500
Partner or contractor travel	\$2,500
USDOD travel*	\$ 500
USFS travel*	\$2,500
Equipment & Supplies (Annual)	
Equipment and supply costs	\$2,000
Annual Expenses	\$33,000
Total Expenses for the PDM plan	\$198,000

i. Potential Funding Sources

Funding of PDM following removal of any species from the Act presents a challenge for all partners. While the Act authorizes expenditure of both recovery funds and section 6 grants to the States to plan and implement PDM, to date Congress has not allocated any funds expressly for this purpose. Funding of PDM activities, therefore, will require trade-offs with the conservation needs of other competing species. Much of the costs will likely be borne as in-kind services provided by cooperating agencies. Working closely with our partners, we anticipate using grant programs to provide funding for the initial years of PDM. Opportunities exist to compete for traditional section 6 grant funds or State wildlife grant funds. The Service and other cooperators will continue to work together to secure funding to implement this PDM plan. Many of the tasks in this PDM plan will be carried out by existing staff and will represent in-kind contributions to funding the effort.

ii. Anti-Deficiency Act Disclaimer

Post-delisting monitoring is a cooperative effort among the Service, State, other Federal agencies, and non-governmental partners. Funding of PDM presents a challenge for all partners committed to ensuring the continued viability of water howellia following removal of protections under the Act. To the extent feasible, the Service intends to provide funding for post-delisting monitoring efforts through the annual appropriations process. Nonetheless, nothing in this PDM plan should be construed as a commitment or requirement that any Federal agency,

including the Service, obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. 1341, or any other law or regulation.

V. Conclusion of PDM

After six years of monitoring during the 15 year post delisting monitoring period, all years of data within the three metapopulations and other occurrences that may be monitored will be analyzed for trend information and factors that may be influencing population trend (e.g., drought). From this analysis, it will be possible to categorize observations into one of the following four possible PDM outcomes.

1. The PDM indicates that the species remains secure without Endangered Species Act protections. The PDM will be concluded at the completion of the planned 15-year period and no further monitoring will be required. Additional monitoring may continue at the discretion of the Service and its partners, depending on available funding and resources.

2. The PDM indicates that the species may be less secure than anticipated at the time of delisting, but information does not indicate that the species meets the definition of threatened or endangered. The duration of the PDM period may, at the discretion of the Service, be extended and additional monitoring may be planned and carried out. A new monitoring plan should be written that builds upon the information gained from this PDM effort and describe future monitoring activities.

3. The PDM yields substantial information indicating a decline in the species' status since delisting, such that listing the species as threatened or endangered may be warranted. In addition to further monitoring activities discussed above, the Service should initiate a formal status review under section 4 of the Act to assess changes in threats to the species, its abundance, productivity, survival, and distribution. The purpose of the review is to determine whether a proposal for relisting water howellia as a protected species under section 4 of the Act is warranted.

4. The PDM documents a decline in the species' probability of persistence, such that the species once again meets the definition of a threatened or endangered species under the Act. If PDM reveals that water howellia may be threatened or endangered, then the plant should be promptly proposed for relisting under the Act in accordance with procedures in section 4(b)(5). Likewise, if the best available information indicates an emergency that poses a significant risk to the well-being of the species, then the Service may exercise its emergency listing authority under section 4(b)(7).

VI. Review and Adaptation of the PDM Plan

This PDM plan for water howellia was made available for review and comment by the public through a Federal Register notice. The Service solicited independent expert opinions from knowledgeable individuals with scientific expertise that includes plant ecology and conservation biology principles. All comments received from the public or

expert reviewers were considered and incorporated as appropriate into the final PDM plan. This PDM plan may be updated as needed to account for and respond to new information discovered as part of the ongoing data collection and analysis.

If substantial changes are made to the PDM plan or if significant deviations to described PDM procedures set forth in this document occur, this PDM plan will be revised by the Service to document the changes. Recognizing the need for future changes to the PDM plans will provide the necessary flexibility to ensure effective PDM for water howellia. The final PDM plan for water howellia will be announced with the final delisting rule and made available on the Service's web page (<http://endangered.fws.gov>).

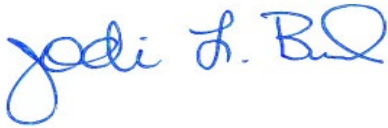
VII. Literature Cited

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VIII. Signature Approval

In Witness Whereof, the parties have caused this Post-Delisting Monitoring Plan to be executed as of the date of last signature below:

APPROVED:



January 12, 2021

Jodi Bush, Office Supervisor
Montana Ecological Services Office, USWFS
Helena, MT

Date

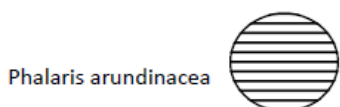
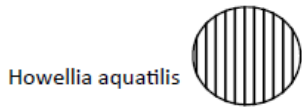
Appendix A: Data Sheets

Howellia aquatilis Monitoring

Surveyor Name(s): _____

Month: _____ Day: _____ Year: _____
 State: _____ County: _____
 EO #: _____

Site Sketch (Please include North arrow and scale as well as indicating approximate location of quarter acre sections.)



	Present/Absent (1)	Abundance (2)
S1		
S2		
S3		
S4		
S5		
S6		
S7		
S8		
S9		
S10		

	Present/Absent (1)	Abundance (2)
S1		
S2		
S3		
S4		
S5		
S6		
S7		
S8		
S9		
S10		

1: P or A
 2: 0=no plants found
 L=Low (1-50 plants)
 M=Moderate (50-100)
 H=High (>100)
 Comments on back

COMMENTS:

Howellia aquatilis:

Phalaris arundinacea:

Aquatic (submerged) Vegetation Coverage:

Emergent Vegetation Coverage:

Water Clarity:

Drying Transect Measurements (ft):

Weather:

Cattle Use?

Photographs

Tree tag/PVC Coordinates:

Detailed Instructions:

Other:

Appendix B: Conservation Funding Opportunities

USFWS Recovery Funds

Some state FWS offices provide recovery and candidate funds for species conservation. Amounts and deadlines vary. Contact your state USFWS office for more information. *Due dates may vary by state.*

Partners for Fish and Wildlife

The Partners for Fish and Wildlife program provides technical and cost-share funding to landowners to help meet the habitat needs of Federal trust species on private lands. Program projects may include improving habitat for any or all of the following: migratory bird species; anadromous fish species of special concern to the Service; endangered, threatened, or candidate species; species proposed for listing; and other declining or imperiled species. *Funding available year round.* <https://www.fws.gov/partners/?viewPage=home>

The Cooperative Endangered Species Conservation Fund (Section 6 of the ESA)

The Cooperative Endangered Species Conservation Fund provides funding to States and Territories for species and habitat conservation actions on non-Federal lands. States and Territories must contribute a minimum non-Federal match of 25% for the estimated program costs of approved projects, or 10% when two or more States or Territories implement a joint project. A State or Territory must currently have, or enter into, a cooperative agreement with the U.S. Fish and Wildlife Service (Service) to receive grant funds. Four grant programs are available through the Cooperative Endangered Species Conservation Fund: “Traditional” Section 6 Conservation Grants and “Nontraditional” Section 6 Grants. Nontraditional grants include Habitat Conservation Plan Land Acquisition, Habitat Conservation Planning Assistance, and Recovery Land Acquisition Grants. *Due dates may vary by state.* <https://www.fws.gov/endangered/grants/>

Traditional Section 6 Conservation Grants

The Conservation Grants program provides financial assistance to States projects that conserve listed, proposed, and candidate species. Funded activities include habitat restoration, species status surveys, public education, and outreach, captive propagation and reintroduction, nesting surveys, genetic studies, and development of management plans. Project selection is generally conducted by Service Endangered Species staff in conjunction with the States.

Nontraditional Section 6 Grants

- Habitat Conservation Planning (HCP) Assistance Grants

Through the development of regional Habitat Conservation Plans (HCPs), local governments incorporate species conservation into local land use planning, which streamlines the project approval process and facilitates economic development. The HCP Assistance Grants program provides funding to States to support the development of HCPs. Planning assistance grants may support planning activities such as document preparation, outreach, and baseline surveys, and inventories. The funding for the HCP Assistance Grants is competed for at the National level.

- Habitat Conservation Plan (HCP) Land Acquisition Grants

Under the HCP Land Acquisition program, the Service provides grants to States for land acquisitions that are associated with approved HCPs. This program has three primary purposes: 1) to fund land acquisitions that

complement, but do not replace, private mitigation responsibilities contained in HCPs, 2) to fund land acquisitions that have important benefits for listed, proposed, and candidate species, and 3) to fund land acquisitions that have important benefits for ecosystems that support listed, proposed, and candidate species.

- Recovery Land Acquisition Grants

This is a USFWS grant that funds fee-title or conservation easement purchase to help achieve recovery. Recovery Land Acquisition Grant funds are matched by States and non-federal entities to acquire habitats from willing sellers in support of approved species recovery plans. It is a national competition with ranking based on number of species protected and percent cost-share. *Open in January.*

<https://www.wildlife.ca.gov/Grants/Land-Acquisition>

USGS Science Support Partnership (SSP) Grants and Quick Response Program (QRP) Grants

SSP and QRP funds are annually made available by the USGS for work on research and information needs identified by the USFWS.

SSP: Through the SSP program, the USGS collaborates with the USFWS to understand and provide the critical science information required to effectively manage our nation's resources. SSP funding can extend up to 3 years and involve both experimental research and technical assistance. *Typically due in June.*

<http://www.usgs.gov/ecosystems/ssp/index.html>

QRP: Through QRP, the USGS provides funds to its scientists to respond quickly to immediate, current year research and technical assistance needs for the USFWS. QRP funding can only be used for <18 month projects with a maximum budget of \$25,000. For both SSP and QRP, project proposals are submitted by USFWS staff (project officer) to meet USFWS needs. Project proposals are developed jointly with a USGS scientist or principal investigator. The USGS scientist or principal investigator spends the money and leads the work, however, the USFWS project officer remains involved throughout the life of the project. *Typically due in June.*

USFWS Small Grants for Plants

Money set aside for underfunded species in USFWS Region 6 (a lot of which are plants). However, this is not a consistent money source (funds are only available when budgets are good). Contacting your Region 6 USFWS office for more information.

Cooperative Recovery Initiative (CRI) Grant

CRI is a strategic, cross-programmatic approach to recovering federally listed species on National Wildlife Refuges (Refuges) and surrounding lands that provides opportunities for focused, large scale on the ground conservation efforts. Projects are focused on implementing urgently needed actions for critically endangered species that are at risk of going extinct without intervention, or for implementing recovery actions for species near delisting or reclassification from endangered to threatened or that will significantly improve the status of one or more listed species. *RFPs usually out in June.* <https://www.fws.gov/refuges/whm/cri/>

Tribal Wildlife Grants

The goal of the Tribal Wildlife Grant Program is to provide funding for Federally recognized Tribal governments to develop and implement wildlife, fish, plant, and habitat projects on tribal lands. *Typically open around May.* <https://www.fws.gov/nativeamerican/grants.html>

Natural Resource Conservation Service (NRCS) Programs

Conservation Reserve Program

The CRP is a land conservation program administered by the USDA's Farm Services Agency (FSA), with the NRCS overseeing eligibility determinations, conservation planning, and implementation on the ground. In exchange for a yearly rental payment, farmers enrolled in the program agree to remove environmentally sensitive land from agricultural production and plant species that will improve environmental health and quality. Contracts for land enrolled in CRP are 10-15 years in length. The long-term goal of the program is to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat. The FSA enrolls most CRP acres during periodic "general sign-ups", though which land is bid into the program on a competitive basis. General sign-ups occur periodically. CRP also has a continuous sign-up option, the Continuous Conservation Reserve Program (CCRP), which pays farmers to install partial field conservation practices, primarily conservation buffers and wildlife habitat. For more information on general and continuous sign-ups see: <https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/>

- SAFE (State Acres for Wildlife Enhancement) – Agricultural producers within an approved SAFE area can submit offers to enroll acres in CRP contracts for 10-15 years. In exchange, these producers receive annual CRP rental payments, incentives and cost-share assistance focused on establishing conservation plant species that also improve or create quality habitat for high-priority wildlife species. Producers can offer land for approved SAFE areas by contacting their local FSA county office. For more information on the SAFE Program, visit https://www.fsa.usda.gov/Internet/FSA_File/safe08.pdf.
- Pollinator Practice (CP42) – The purpose of this CRP practice is to establish habitat to support a diversity of pollinator species. Croplands where pollinator habitat can be established and maintained in a cost-effective manner are eligible for funding. The minimum acceptable size must be at least 0.5 acres. For more details, including specifications for seed mixes and bloom periods, see https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1142413.pdf.

Environmental Quality Incentives Program (EQIP)

This is another Farm Bill conservation program that sometimes helps pay for seeding. The EQIP is a voluntary program that provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air and related natural resources on agricultural land and non-industrial private forestland. EQIP may also help producers meet Federal, State, Tribal, and local environmental regulations. *Application are accepted on a continuous basis.* <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>

Wetlands Reserve Easement (WRE)

The WRE is a voluntary program that provides an opportunity for landowners to receive financial assistance to restore, protect, and enhance wetlands through the purchase of a wetland reserve easement in exchange for retiring marginal land from agricultural production. There are several wetland reserve enrollment and cost-share options. NRCS will prioritize applications based the easement's potential for protecting and enhancing habitat for migratory birds and other wildlife. For more information, see:

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/id/programs/easements/acep/>

Cooperative Ecosystem Studies Units (CESU)

The [Cooperative Ecosystem Studies Units \(CESU\) Network](#) is a national, collaborative consortium of federal agencies, tribes, universities, state and local governments, and other partners. The CESU Network's mission is to provide scientific research, technical assistance, and education on natural and cultural resource issues to federal land management, environmental organizations and research institutions. The [17 CESUs](#) encompass all 50 states and U.S. territories. Each CESU is comprised of a host university, multiple federal agencies, and additional university and non-federal partners. Each CESU is structured as a working collaborative with participation from numerous federal and non-federal institutional partners. In the Service, each individual CESU project is administered as a distinct and standalone financial assistance award in the form of a cooperative agreement. CESU projects can involve research, technical assistance, or education, and must meet the following three criteria:

1. Project participants must be approved partners of the CESU Network;
2. The project should be to support or stimulate a public purpose (financial assistance) rather than for the exclusive direct benefit of the Government (procurement); and
3. Substantial involvement is expected between the funding agency and the award recipient.

Contact your appropriate USFWS CESU Technical Representative for more information:

<https://www.fws.gov/science/cesu-contact.html>

National Fish and Wildlife Foundation

Since its creation by Congress in 1984, NFWF has become one of the world's largest conservation grant-makers. They work with both the public and private sectors to protect and restore the nation's fish, wildlife, plants and habitats. Key funding topics which benefit rare plants include the Pulling Together Initiative which supports invasive weed control efforts, The Conservation Partners Program which provides support to projects that engage private, public and state private sectors, and several habitat restoration specific initiatives. See website for program descriptions and funding deadlines:

<http://www.nfwf.org/whatwedo/programs/Pages/home.aspx>

The Bureau of Land Management (BLM) Budget Planning Project System

This is the way BLM submits funding requests under resource sub-activities; budget submission themes to protect rare plants are under 1150 T&E and 1110 Wildlife and Plant Conservation program themes like Plant Conservation and Habitat Restoration. Contact local BLM office for more information and funding deadlines.

Science Partner Microgrant Program

Provided by Intermountain Region (R4) and Rocky Mountain Research Station (RMRS)

BeSMART is a joint Research and Development – National Forest Service effort developed to enhance relations between Forest Service scientists and managers. The goal of this program is to bridge mission areas while ensuring that the best science is available for managing public land resources. BeSMART believes that the highest quality science and the most effective management is born from managers and scientists working together.

Plant Conservation Alliance Native Plant Conservation Initiative Grant

In general, the NPCI grant program funds projects that provide conservation benefit for native plants (including associated pollinators), involve multiple partnerships, demonstrate the ability to find matching funds exceeding the minimum 1:1 federal/non-federal requirement, and use innovative ideas (such as landscape approach, shareable new technologies, and teaching by example). All projects address priorities established by one or more of the funding federal agencies and fall within at least one of six focal areas for plant conservation, as outlined in the [PCA National Framework for Progress](#) in plant conservation. *Typically due in May.*

<https://www.nps.gov/plants/nfwf/>

Idaho Department of Fish and Game

IDFG's Habitat Improvement Program (HIP) provides technical and financial assistance to private landowners and public land managers seeking to enhance upland game bird and waterfowl habitat. Projects eligible for HIP, such as establishing grass/legume forage and cover plantings, managing livestock use of existing cover, and creating and restoring wetlands, also benefit pollinators by increasing nectar, pollen, and larval host sources. IDFG habitat biologists work with interested applicants to assess the potential of lands, plan projects, and locate sources of seeds and seedlings for projects. Landowners/land managers are eligible for up to 75% reimbursement for out-of-pocket expenses with a general limit of \$10,000 per project. HIP funds may also be available for costshare in partnership with nonprofit organizations and federal agencies. See <https://idfg.idaho.gov/conservation/habitat/hip> for program guidelines.

The Idaho Fish & Wildlife Foundation

The IFWF grants program provides funding on a competitive basis to nonprofit organizations, the Idaho Department of Fish and Game, and tax-exempt organizations. The Foundation is especially interested in projects that align with the Foundation's mission. Grants of as much as \$10,000 per project are available (usually solicited in May). To qualify for grant support, projects generally address one or more of the following areas:

Habitat Conservation: Projects that aid in the protection, restoration or improvement of habitats.

Fish and Wildlife Management: Projects that apply management principles to protect or enhance fish and wildlife.

Conservation Education: Projects that help educate Idahoans of all ages about the state's wildlife resources.

See website for deadlines: <http://ifwf.org/about-us/apply-for-funding/>

State Native Plant Society Grants

Example: Idaho Native Plant Society Education, Research, and Inventory Grant (ERIG) program

Grants of up to \$1,000 are awarded to support projects that contribute to the appreciation, conservation, or knowledge of Idaho's native flora or vegetation. The purpose of the ERIG program is to stimulate and lend support to educational, research, and conservation activities that promote an appreciation for native plants and plant communities in Idaho. *Visit state Native Plant Society websites for opportunities and deadlines.*

Landscape Conservation Cooperative Network (LCC)

The LCCs offer annual strategic science support funds for specifically identified data and information needs and resource vulnerability assessments that contribute to collective understanding of the effects of priority landscape stressors on priority conservation targets. See <https://lccnetwork.org/funding-opportunities#?page=0> for funding opportunities, descriptions, and deadlines.

Forest legacy Program

A USFS funding source that supports State efforts to protect environmentally sensitive forest lands. Funding is available to private forest landowners through State forest contacts. *Funding usually available around June.*

<https://www.fs.fed.us/cooperativeforestry/programs/loa/flp.shtml>

Department of Defense (DoD) Opportunities

<https://serdp-estcp.org/Funding-Opportunities>

Fund for Wild Nature

The Fund for Wild Nature (Fund) provides small grants for North American campaigns to save native species and wild ecosystems, with particular emphasis on actions designed to defend threatened wilderness and biological diversity. *They do not consider proposals from organizations with annual budgets in excess of U.S. \$250,000. Grants awarded currently range from \$1,000 (or smaller) to \$3,000. Submission deadlines are May and October.* <http://www.fundwildnature.org/>

National Geographic Grants

Supports research, conservation, education, and storytelling. *Timing of funding varies.*

<http://www.nationalgeographic.org/grants/how-to-apply/>

Patagonia

Patagonia funds only environmental work. They are most interested in making grants to organizations that identify and work on the root causes of problems and that approach issues with a commitment to long-term change. Funding focuses on organizations that create a strong base of citizen support. They support small, grassroots, activist organizations with provocative direct-action agendas, working on multi-pronged campaigns to preserve and protect the environment. They also help local groups working to protect local habitat. There are two annual deadlines: *April and August.* <http://www.patagonia.com/grant-guidelines.html>

Invasive Species Grants

ISDA's Noxious Weed Cost Share Program: <http://invasivespecies.idaho.gov/cost-share/>

U.S. Department of Agriculture (USDA) Grant and Partnership Programs

Can address invasive species research, technical assistance, prevention and control

<https://www.invasivespeciesinfo.gov/docs/toolkit/usdagrants2017.docx>

USDA-NRCS <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/invasive/>

- Wildlife Habitat Improvement Program (WHIP)
- Agricultural Management Assistance Program (AMA)
- Conservation Stewardship Program (CS)
- Environmental Quality Incentives Program (EQUIP)

National Fish and Wildlife Foundation Pulling Together Initiative Grants

Pulling Together Initiative grants are intended to help support the creation of local cooperative weed management area partnerships. Such partnerships bring together local landowners, citizens groups and weed experts to develop and implement strategies for managing weed infestations on public lands, natural areas, and private working lands. See website for information and due dates: <http://www.nfwf.org/pti/Pages/home.aspx>

Other Sources/Lists/Resources

<http://www.weedcenter.org/funding/funding.html>

<http://www.bpaonline.org/habitat/grantsfundingetc.pdf>

Wetland Grants

Wetland Reserve Enhancement Partnership (WREP)

The U.S. Department of Agriculture (USDA) is investing up to \$15 million in technical and financial assistance to help eligible conservation partners voluntarily protect, restore and enhance critical wetlands on agricultural lands. Funding will be provided through the Wetland Reserve Enhancement Partnership (WREP), part of the Agricultural Conservation Easement Program (ACEP), a Farm Bill conservation program. This year, NRCS is encouraging partners to propose projects that focus on improving water quality as well as habitat on working landscapes in high-priority areas, ranging from the sagebrush of the West to the Chesapeake Bay. *Proposals due in April.* More information on the ACEP webpage:

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/>

North American Wetlands Conservation Act

Provides matching grants to wetlands conservation projects in the United States, Canada, and Mexico. Via the coordinator of Joint Venture in your region. *Funding dates (February, July, October).*

<https://www.fws.gov/birds/grants/north-american-wetland-conservation-act.php>

Joint Venture Coordinators:

<https://www.fws.gov/birds/management/bird-conservation-partnership-and-initiatives/migratory-bird-joint-ventures/joint-venture-directory.php>

EPA- Wetland Program Development Grant

Wetland Program Development Grants (WPDGs) assist state, tribal, local government agencies in developing or refining state/tribal/local programs which protect, manage, and restore wetlands. *Due date in March.*

<https://www.epa.gov/wetlands/wetland-program-development-grants>.

Education Grants

Connecting People with Nature Small Grants

“Connecting People with Nature” is a Regional FWS program that provides small grant funding to assist staff in implementing projects across the Region that help connect communities to nature. These connections inspire Service employees to work with each other, and our many partners, to bring maximum benefit to children, adults, communities, and ultimately to the fish, wildlife, plants and habitats that we are working together to conserve. Funding amounts, themes, and deadlines vary by Region. Contact your local FWS representative for more information. Idaho office contact is Ally Turner. *Deadline is typically April.*

National Environmental Education Foundation (NEEF)

NEEF offers a variety of grant opportunities. For a list of all grants and deadlines, go to:

<https://www.neefusa.org/grants>

Idaho Chapter of the Wildlife Society (ICTWS) Grants

The Idaho Chapter of TWS has a Management, Conservation & Education Grant Program to financially assist projects that further the purpose of scientifically sound wildlife and habitat management and education in Idaho. Grants are up to a maximum of \$2,000 annually, depending on availability of funds. There is no grant award minimum. Matching funds and partnerships, are encouraged, but not required. The deadline for applying is February. Go to: <http://ictws.org/resources.php> for the application and further details.

Got to: <http://wildlife.org/> for all TWS grant opportunities.

Lowe's Toolbox for Education

Lowe's donates up to \$5 million to K-12 public/charter schools and to parent teacher groups - at as many as 1,000 different public schools per school year. *Spring and Fall funding cycles.* Go to:

www.toolboxforeducation.com for more information.

Idaho Botanical Garden Lunaria Grant

The Idaho Botanical Garden Lunaria Grant Program was established to encourage and cultivate horticulture and related educational projects. The Lunaria Grant Program will fund horticulture—based projects within the State of Idaho. *Deadline is in February.*

<http://idahobotanicalgarden.org/lunaria-grant-program/>

Idaho Native Plant Society; Education, Research, and Inventory Grant

The Idaho Native Plant Society (INPS) provides grants of up to \$1,000 to support projects that contribute to the appreciation, conservation, or knowledge of Idaho's native flora or vegetation. The purpose of the ERIG program is to stimulate and lend support to educational, research, and conservation activities that promote an appreciation for native plants and plant communities in Idaho. *The deadline for submitting proposals is March.*

https://idahonativeplants.org/erig/Announcement_for_2016_ERIG.pdf

Micron Community Grants

The Micron Foundation provides grants and in-kind support for local non-profits to strengthen our communities. Go to: <https://www.micron.com/foundation/community/grants> for eligibility information and deadlines.

Idaho Power Employee Community Fund

Provides community service funding to qualified local 501(c)(3) agencies.

<https://www.idahopower.com/NewsCommunity/Community/empCommServFund.cfm>

Project Learning Tree

Project Learning Tree offers GreenWorks! grants up to \$1,000 to schools and youth organizations for environmental service-learning projects that link classroom learning to the real world. Students implement an action project they help design to green their school or to improve an aspect of their neighborhood's environment. *Deadline is in September.*

<https://www.plt.org/resources/greenworks-grants/>

The Cornell Lab Youth and Birds

The Cornell Lab invite organizations, educators, and youth to apply for mini-grants to help fund creative neighborhood events involving urban birds. Mini-grants range from \$100 to \$750.

<https://www.allaboutbirds.org/help-fund-your-community-event-with-a-mini-grant-from-celebrate-urban-birds/>

Local Businesses

Multiple businesses like Lowe's, Home Depot, and others provide grants or may donate materials to garden projects and schools. Contact your local businesses to see how they might be willing to help.

Foundation for Food and Agriculture Research-Pollinator Health Fund

The Pollinator Health Fund is a major new initiative from the Foundation for Food and Agriculture Research. Established in response to the increasingly visible agricultural issue of declining pollinator health in agricultural systems, this program focuses on applied research that addresses the social and economic realities faced by beekeepers, farmers, ranchers, private businesses and others engaged in working toward addressing this problem. One of their priorities is outreach and education. They support activities like planting pollinator gardens in urban areas, training future pollinator taxonomists, and coordinating land management activities with beekeeping schedules. This priority area seeks to promote innovative outreach and education projects that reach new demographics and communities to raise awareness around pollinator health and encourage the adoption of activities that promote pollinator health. Programs should assess efficacy of education and outreach methods to allow for recommendations for improvement. *Proposals requested in June and due in August.*

<http://foundationfar.org/pollinator-health-fund/pollinator-health-rfp/>

Partnering Opportunities

University of Montana Crown of the Continent and Greater Yellowstone Initiative

The CCC's vision is to sustain far into the future the Crown's rich biodiversity of plant and animal life, interconnected wildlands, cold, clean waters, diverse and critical habitats, and landscape connectivity, while supporting sustainable and vibrant regional communities. <https://crown-yellowstone.umt.edu/default.php>

Local Partnerships

For example, develop a partnership with The Nature Conservancy, USFS, State of Montana (DNRC), Confederated Salish-Kootenai Tribe, and private landowners in the Swan Valley.

Swan Valley Connections (MT)

SVC leads the Swan Lands Coordinating Network, that brings together over 20 agency partners, non-governmental organizations, private landowners, and other stakeholders to devise and implement strategies to meet our collective conservation goals in the Swan watershed. <https://www.swanvalleyconnections.org/>

Citizen Science Groups

Scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions.

General Grant Finding Websites		
Title	Provided By	Website
Federal grants	US Federal agencies	Grants.gov
Catalog of Federal Funding Sources for Watershed Protection	EPA	https://ofmpub.epa.gov/apex/watershedfunding/f?p=fedfund:1
National Center for Environmental Research	EPA	https://www.epa.gov/research-grants
National Fish and Wildlife Foundation Grants	NFWF	http://www.nfwf.org/whatwedo/grants/pages/home.aspx
Funding Opportunity Desk Guide	USFS	https://www.fs.usda.gov/detail/r2/workingtogether/partnerships/?cid=stelprdb5210649
Grants for Invasive Species Management	USDA	https://www.invasivespeciesinfo.gov/docs/toolkit/usdagrants2016.pdf
National Institute of Food and Agriculture Grants (formerly Cooperative State Research, Education and Extension Service)	USDA NIFA	https://nifa.usda.gov/grants
Integrated Pest Management Centers	USDA NIFA	http://www.ipmcenters.org/
Funding Site for Nonprofits	Global Giving	http://www.globalgiving.com/index.html