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of Engineers**
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Station

Aquatic Plant Control Research Program

Survey of Threatened and Endangered Wetland and Aquatic Plants at Four Corps of Engineers Districts

by Linda S. Nelson

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Prepared for Headquarters, U.S. Army Corps of Engineers

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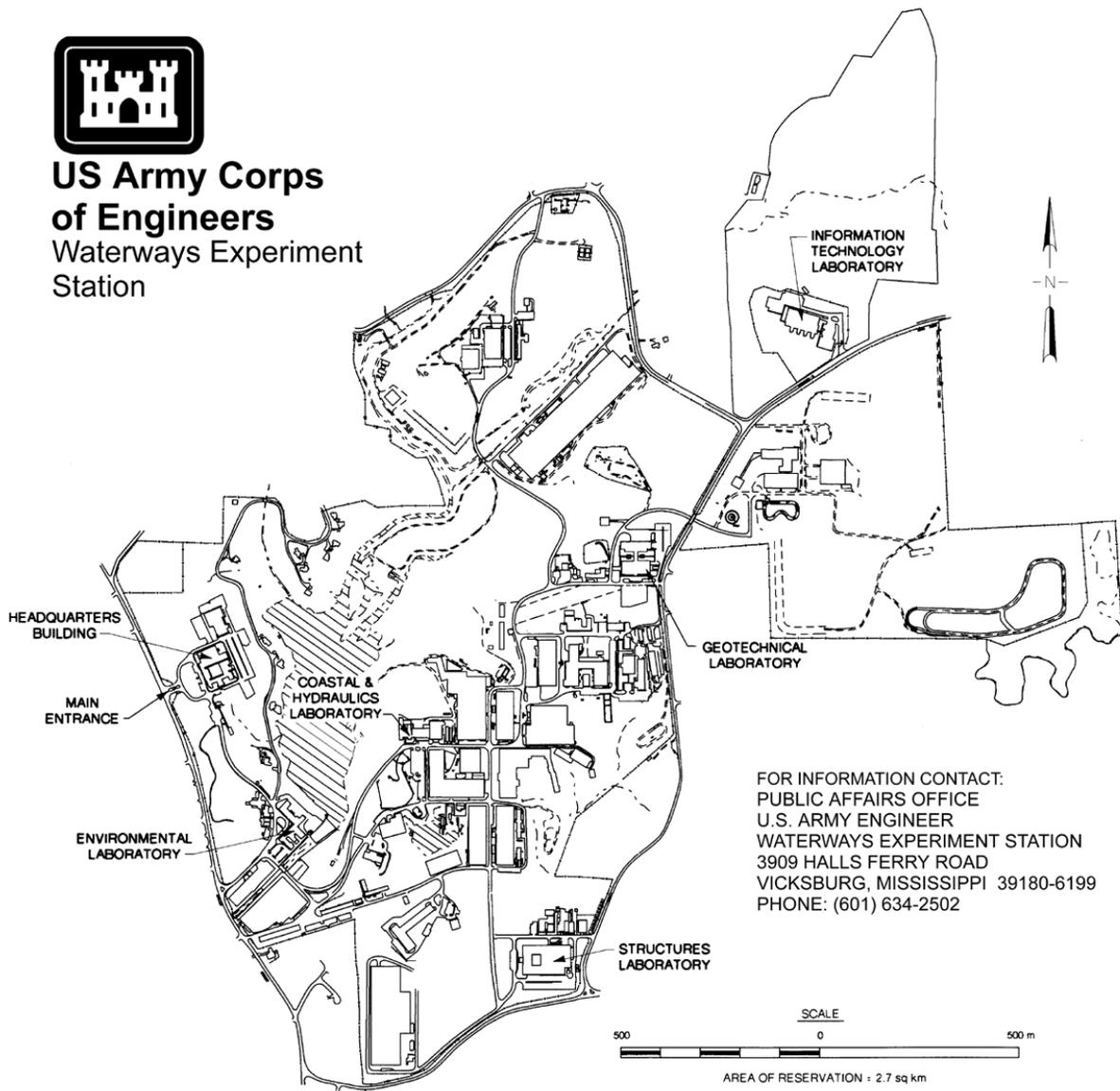
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Preface

The work reported herein was conducted as part of the Aquatic Plant Control Research Program (APCRP), Work Unit 33199. The APCRP is sponsored by the Headquarters, U.S. Army Corps of Engineers (HQUSACE), and is assigned to the U.S. Army Engineer Waterways Experiment Station (WES) under the purview of the Environmental Laboratory (EL). Funding was provided under Department of the Army Appropriation No. 96X3122, Construction General. The APCRP is managed under the Center for Aquatic Plant Research and Technology (CAPRT), Dr. John W. Barko, Director. Mr. Robert C. Gunkel, Jr., was Assistant Director for the CAPRT. Program Monitor during this study was Mr. Timothy Toplisek, HQUSACE.

The Principal Investigator of the study was Dr. Kurt D. Getsinger, Ecosystem Processes and Effects Branch (EPEB), Environmental Processes and Effects Division (EPED), EL, WES. This study was conducted by and the report prepared by Ms. Linda S. Nelson, EPEB. Technical reviews of this report were provided by Dr. Kurt D. Getsinger and Mr. Mike D. Netherland, EPEB.

This investigation was performed under the general supervision of Dr. John Harrison, Director, EL; Dr. Richard E. Price, Chief, EPED; and Dr. Robert Kennedy, Acting Chief, EPEB.

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1 Introduction

In 1973, the Endangered Species Act (ESA) was signed, providing a legislative tool for protecting imperiled plant and animal species. Under this Act, protected species are classified as either “endangered” or “threatened” with most species listed when their populations are close to extinction (Eisner et al. 1995). In addition to federal ranking of species under the ESA, Natural Heritage Programs from all 50 states and the District of Columbia have established lists and ranks for species of local conservation concern. A recent review of these state and federal species lists showed that one-third of all flowering plants in the United States are at risk of extinction (Stein and Flack 1997). Habitat degradation and destruction and the invasion of nuisance, exotic plant species were identified as the leading causes of imperilment.

Several of the plants protected under the ESA inhabit wetland and aquatic environments. Threatening their existence are many non-native nuisance plants such as hydrilla (*Hydrilla verticillata* (L.f.) Royle), Eurasian watermilfoil (*Myriophyllum spicatum* L.), waterhyacinth (*Eichhornia crassipes* (Mart.) Solms), waterlettuce (*Pistia stratiotes* L.), and purple loosestrife (*Lythrum salicaria* L.) which occupy the same environments. For example, the invasion of hydrilla has been identified as one of the leading threats to the survival of Texas wild-rice (*Zizania texana* Hitchc.), a federally listed endangered species that grows exclusively in the San Marcos River, TX (Power 1996). Rapidly expanding populations of purple loosestrife have impacted the survival of several rare plant, animal, and bird species (Thompson, Stuckey, and Thompson 1987). At the Turnbull National Wildlife Refuge, WA, reed canary grass (*Phalaris arundinacae* L.), an aggressive wetland species, has been identified as the major threat to wetland habitat shared by water howellia (*Howellia aquatilis* Gray), a federally listed threatened species.¹ Since healthy ecosystems are key to the survival of native plant communities, control of exotic species should be a national and regional management priority.

The potential impacts of aquatic plant management techniques on threatened and endangered species are not well documented. Exotic plant intrusions present a

¹ Personal Communication, October 1998, Nancy Curry, Refuge Manager, Turnbull Wildlife Refuge, WA.

serious dilemma for aquatic plants managers: How can the exotic invader be managed in an area shared by a protected plant species? Herbicide use is often discouraged or prohibited due to the possibility of nontarget plant injury and the perception that threatened and endangered species are extremely susceptible to chemical treatment. However, recent research on the use of selective herbicides to control nuisance, exotic species has demonstrated that herbicides can be used to remove a target species with minimal harm to nontarget communities (Getsinger et al. 1997; Netherland, Getsinger, and Skogerboe 1997; Petty et al. 1998).

In 1991, the U.S. Army Engineer Waterways Experiment Station (WES) Chemical Control Technology Team conducted a large-scale field study on the Pend Oreille River, WA, to evaluate the selective herbicide triclopyr as a technique for restoring native submersed plant communities in an area dominated by Eurasian watermilfoil. Results showed that following removal of Eurasian watermilfoil, nontarget plant communities thrived. Native species diversity doubled while native plant biomass increased 500-1000 percent (Getsinger et al. 1997). Although many dicot species are sensitive to triclopyr, populations of white water crowfoot (*Ranunculus longirostris* Godron; synonym: *R. aquatilis*), a state-listed threatened species at the time of the study, and other native dicot species (*Heteranthra dubia* (Jacq.) MacM., *Ceratophyllum demersum* L.) increased significantly in herbicide-treated plots one-year after treatment. Getsinger et al. (1997) concluded that triclopyr did not have a prolonged, negative impact on the native dicot plant community and that native plants actually flourished as a result of removing the dense milfoil monoculture that had been suppressing their growth. Furthermore, the substantial increase in the native plant community delayed the re-establishment of problematic levels of Eurasian watermilfoil for up to 3 years following herbicide treatment.

The results of this study clearly demonstrated that restoration of a diverse native plant community can delay the reinvasion and dominance of an aggressive exotic weed such as Eurasian watermilfoil. Guidance is needed for identifying and incorporating management schemes that promote the preservation of threatened plant species through elimination of exotics that share the same habitat. With this information, managers of public waters will be able to identify and select appropriate control strategies (chemical and/or alternative methods) that can both reduce nuisance plant populations and favor conservation of rare species.

The current ESA list of sensitive plant species does not characterize plants by growth habit. A need exists to identify federally protected flora which inhabit wetland and aquatic environments that may be affected by aquatic plant management practices. In addition, several states have adopted policies and regulations that recognize and protect locally imperiled species. Aquatic plant managers must be knowledgeable of where sensitive species exist within their Districts and of the laws that protect them. Selection of aquatic management techniques should be influenced by a stewardship ethic that emphasizes habitat and native species restoration through the removal of exotic invaders, as well as conservation/preservation of rare species.

2 Objectives

The objectives of this report are to: (a) identify those federally listed threatened and endangered plant species that inhabit wetland and aquatic environments, (b) identify and establish the location of federal- and state-listed threatened and endangered wetland and aquatic plant species at four selected U.S. Army Corps of Engineers (USACE) Districts, and (c) propose future research that will identify effective management practices where sensitive species are threatened by exotic plant pests. The information in this report will be useful for identifying legally protected species of concern in project areas subject to aquatic plant management practices and other land-use planning operations (e.g., wetland mitigation, 404 permit review, impact assessment, or construction operations).

3 Materials and Methods

Federal-Listed Wetland and Aquatic Plants

Wetland and aquatic threatened and endangered plant species were identified from the most recent issue (5 May 1998) of the U.S. Fish and Wildlife Service endangered and threatened plant list (U.S. Fish and Wildlife Service 1998). This list does not distinguish plants by habitat or growth habit. Therefore, for the purpose of this investigation, plants were identified as wetland or aquatic by cross-referencing each ESA-listed species with those cataloged in the “National List of Plant Species that Occur in Wetlands” (U.S. Fish and Wildlife Service 1988a). This publication assigns a “wetland indicator” to each species, indicating the probability of its occurrence in a wetland community. It is also the current standard used for assessing the wetland plant component for determining jurisdictional wetland boundaries.

A wetland indicator from the National List reflects the range of a species occurring in wetlands versus nonwetlands across the entire distribution of the species (U.S. Fish and Wildlife Service 1988a). The wetland indicator categories assigned to plants in this publication are defined as follows: obligate wetland (OBL), occur almost always (>99 percent of the time) under natural conditions in wetlands; facultative wetland (FACW), usually occur in wetlands (estimated probability 67-99 percent) but occasionally are found in nonwetlands; facultative (FAC), are equally likely to occur in wetlands or nonwetlands (estimated probability 34-66 percent); facultative upland (FACU), usually occur in nonwetlands (estimated probability 67-99 percent), but occasionally are found in wetlands (1-33 percent of the time); and obligate upland (UPL), occur almost always in uplands (>99 percent of the time). A plus (+) or minus (-) sign is used with the facultative indicator categories to more specifically define the regional frequency of occurrence. The plus sign indicates a frequency toward the higher end of the category (more frequently found in wetlands), and a minus sign indicates that a species is less frequently found in wetlands.

Because aquatic plant management practices can directly or indirectly affect both submersed and emergent or shoreline vegetation, any species that occupied these habitats at a frequency of ≥ 50 percent of the time were included in this inquiry. This included those plants designated as obligate, facultative wetland

(both + and -), or facultative (+ only). Information regarding growth habit characteristics of each species was also included in this data search.

District Survey of Threatened and Endangered Aquatic and Wetland Plants

Four USACE Districts (St. Paul, Seattle, Galveston, and Fort Worth) were selected for evaluation. Selected Districts represented different geographic regions of the United States (Northwest, Northern Plains, and Southern Plains) and areas where non-native nuisance aquatic and wetland species are problematic and routinely managed. District boundaries are shown in Figure 1. Except for South Dakota, lists of state-protected plant species were obtained from Natural Heritage Program databases and/or Conservation Data Centers located within each state of interest. Currently the state of South Dakota (St. Paul District) does not maintain a list of state-protected plants.

Regional lists of wetland plants (U.S. Fish and Wildlife Service Regions 2, 3, 4, 6, and 9 1988b-f) were used to assign each state-listed plant species as an inhabitant of wetland and aquatic environments. Regional lists were used, as they more accurately describe conditions in which plants are locally observed. As previously described, those plants designated as obligate, facultative wetland (both + and -), or facultative (+ only) were included in this data inquiry. County or parish (LA) distribution of state-listed plants was based on state-maintained records and reflects general distribution in the areas of interest. If portions of counties were included within district boundaries, then listed plants for that entire county were included in the survey. Information regarding state laws governing protection of locally listed species was also obtained from each state.

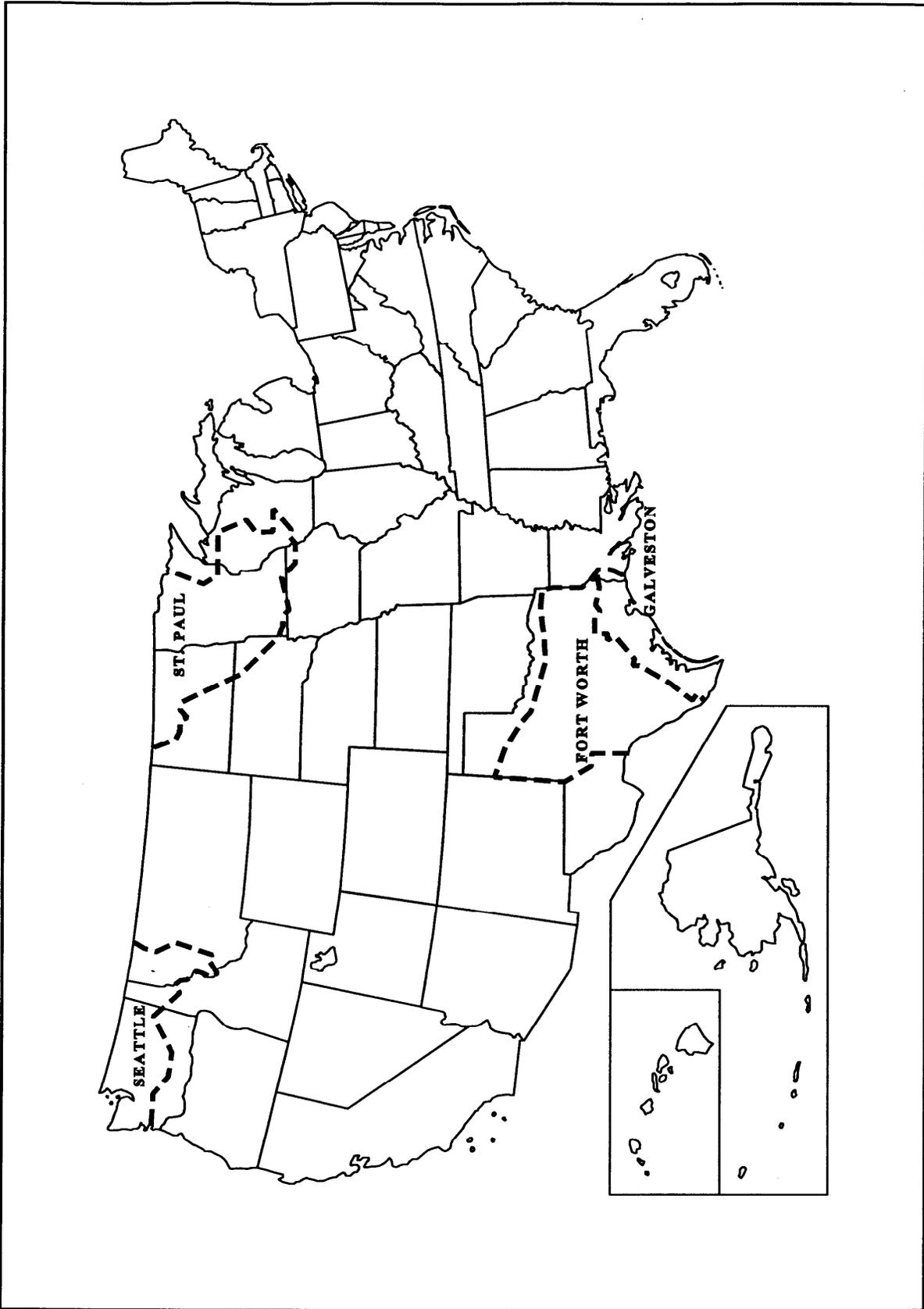


Figure 1. Regulatory/jurisdictional boundary lines of four USACE Districts: Seattle, St. Paul, Fort Worth, and Galveston

4 Results and Discussion

Of the 666 flowering plants, ferns, and fern-allies currently listed as threatened or endangered under the ESA, 105 (16 percent) were identified as wetland or aquatic as defined by the methods outlined in this report (Table 1). Of these 105 plants, >80 percent were classified as either obligate or facultative wetland species, suggesting that plants which rely on submerged or shallow-water environments 67-99 percent of the time are at high risk of extinction. Imperilment was not confined to particular taxonomic groups, as many plant families were represented.

State distribution of federally listed wetland and aquatic plants is shown in Figure 2. The greatest numbers of endangered species occur in California, Hawaii, and the southeastern coastal states. These states also top the list with presumed or possibly extinct species (Stein and Flack 1997).

Many researchers have speculated as to the geographic distribution of endangered species in the United States. California's vulnerability has been attributed to two factors: (a) it is home to more native plant species (many of which are restricted to localized areas) than any other state and (b) its landscape has been severely impacted by urban and agricultural development (Dobson et al. 1997, Doyle 1997, Stein and Flack 1997). Geographic isolation and extreme endemism, coupled with the intrusion of numerous nonindigenous plants and severe habitat alterations, have compromised much of Hawaii's native flora (Gemmill et al. 1998, Doyle 1997, Stein and Flack 1997). Doyle (1997) speculated that areas such as the southeastern United States have a high proportion of rare plant species due to the great diversity of habitat, whereas the upper Great Plains and much of the Midwest report the least numbers of threatened plant species, partly because of the fairly uniform climate, topography, and geology, conditions that favor fewer species but with widespread ranges. Dobson et al. (1997) examined the associations between the density of endangered species in each state with variables such as climate, topology, and anthropogenic activities and found that, for plants, the key variable influencing the distribution and number of endangered species was agricultural activity. In the case of wetland and aquatic habitats, agricultural expansion has played a significant, if not primary, role in the loss of wetland ecosystems (Mitsch and Gosselink 1993).

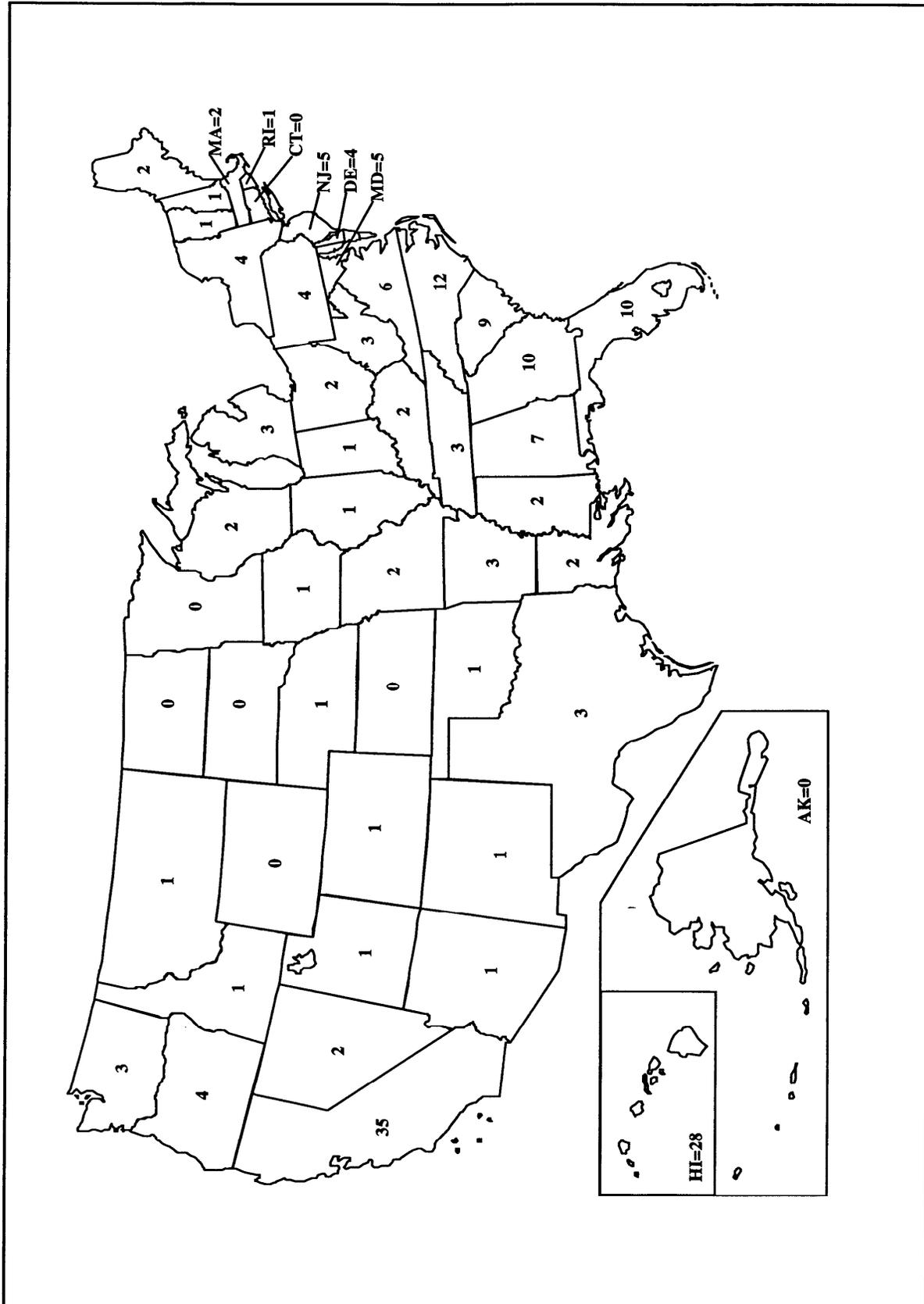


Figure 2. State distribution of federally listed threatened and endangered aquatic and wetland plant species

In addition to the federal list of threatened and endangered plant species, most states maintain species lists of local conservation concern. Tables 2-5 summarize those wetland and aquatic plant species that are designated as “at risk” by states included within the boundaries of the St. Paul, Seattle, Fort Worth, and Galveston USACE Districts. There was no single standardized method used to assign status or rank to individual species by the states queried in this study. Louisiana, North Dakota, Montana, and Texas utilized the classification system established by the Natural Heritage Program (Groves, Klein, and Breden 1995; Stein and Flack 1997), whereas endangered species administrative rules or codes dictated rank assignment in Wisconsin, Minnesota, and Iowa. Idaho and Washington utilized a ranking method similar to that of the Natural Heritage Program system. The reader should be aware that a state species rank of “endangered” or “threatened” was not analogous among all states.

Protection of federally listed plant species is mandated under the ESA, but not all state-listed species are legally protected. Placing a plant species on a “state list” does not imply that it has legal status. In fact, only 3 (Minnesota, Iowa, Wisconsin) of the 10 states included in this data inquiry have specific laws for protecting state-listed threatened and endangered plants (Table 6). The Minnesota endangered species statute even recognizes the potential threat of exotic weeds by including the following language: “if control of noxious weeds is necessary, it takes priority over the protection of endangered plant species as long as a reasonable effort is taken to preserve the endangered plant first.”¹ Texas has a law in place for legally listing and protecting state threatened and endangered plants, but to date the Texas Department of Parks and Wildlife has been unsuccessful in obtaining legal status for the current plant list. In contrast, the state of Washington has no statewide legal authority to list or protect rare plants, but several counties within the state have established ordinances that allow for indirect protection. In these instances, county approval is required for all development projects that may impact rare plant species habitat. Interestingly, all of the 10 states polled in this investigation have laws that protect state-listed threatened and endangered animals.

In summary, it is evident from this data search that numerous aquatic and wetland plant species are in jeopardy. Many agree that inhabitants of freshwater ecosystems have, as a whole, suffered far more than plants and animals dependent on upland habitats (Master, Flack, and Stein 1998; Lydeard and Mayden 1995; Stein and Flack 1997; Flack and Chipley 1996). As previously mentioned, aggressive foreign pests (both plant and animal) have been identified as a serious threat to aquatic environments. Exotic species spread quickly in natural areas, monopolize resources, and usually have no natural enemies or competitors to keep them in check. The combined effects of competition, predation, and hybridization by non-native species further tax native plants and animals already jeopardized by physical threats (Flack and Chipley 1996).

¹ Minnesota Statute 84.0895, Protection of Threatened and Endangered Species. Subdivision 2 Application, Part 2b.

Furthermore, a recent survey of natural resource management practices on USACE water resource development projects revealed that nearly 40 percent of the responding projects identified nuisance levels of exotic plant and animal species as a major factor threatening their aquatic and wetland resources (Kasul, Martin, and Jackson in preparation). The most often cited nuisance plants were Eurasian watermilfoil, hydrilla, and purple loosestrife. Projects with nuisance levels of plants indicated that infestation levels have increased over the last 10 years, and most expected additional increases over the next decade. The survey also documented that completion of threatened and endangered species inventories was the most commonly cited need associated with the management of imperiled species. Of the respondents, 61 percent indicated that they have initiated inventories to identify federally protected plants and/or animals; of these however, only 13 percent reported inventories that were 80-100 percent complete. About half (55 percent) of the responding projects have made efforts to identify species on state protection lists. These results are startling, given the fact that federally listed species, as well as several state-listed species, are protected by law. Natural resource managers at USACE Districts must be cognizant of federal and local laws that protect rare plants and should emphasize conservation management plans that control exotic plant infestations where rare species reside. Clearly, a need exists to inventory and manage USACE wetland and aquatic resources for both federal- and state-listed threatened and endangered species.

Efforts in aquatic plant management should support a stewardship ethic of preservation, biodiversity, and ecosystem restoration management. After all, restoration and preservation of native plant communities are achievable goals. In many instances, endangered plant species will persist on a site only if the habitat is actively managed on their behalf. This is especially true if survival is threatened by the invasion of non-native nuisance plants. Herbicide use to selectively remove nuisance species from wetland and aquatic habitats is a proven technology (Getsinger et al. 1997; Netherland, Getsinger, and Skogerboe 1997; Petty et al. 1998). Herbicide selectivity can be accomplished by choosing the right product and rate, timing, and method of application for a known nuisance target. Moreover, the use of plant growth regulators (PGRs) and integrated treatments of herbicides with nuisance-plant-specific fungal pathogens have also proven to be successful selective plant management tools (Nelson 1996, 1997; Netherland and Shearer 1996; Nelson, Shearer, and Netherland 1998). The result of such treatments is a healthy, diverse native plant community that can better compete with future nuisance invaders. Future research should address the possible use of these proven technologies for the management of sensitive plant habitats.

5 Future Work

Future research efforts within this work unit will evaluate aquatic herbicides, plant growth regulators, and integrated herbicide-pathogen treatments on several threatened and endangered plant species (both federal- and state-listed species as mandated) and their exotic competitors for the purpose of developing guidance for using selective chemical control strategies where rare plant species are of concern on USACE-managed projects and public waters. The following outline summarizes future research needs:

- a. Growth chamber studies will be initiated to evaluate herbicide selectivity and concentration and exposure time relationships on selected threatened and endangered plant species and their exotic competitors. Pending permit approval to conduct research on federally listed species, these studies will be initiated on Texas wild rice and hydrilla.
- b. Herbicides shown to be selective in growth chamber studies will be further evaluated in a large outdoor mesocosm system against the respective threatened and endangered species. These studies will evaluate long-term effects of using chemical management strategies on sensitive plants. Competition studies will also be conducted in this outdoor system to demonstrate the potential benefits from implementing a chemical management strategy versus no use of chemicals. Such studies will scientifically document the impact of management versus no management on the survival of sensitive species when grown with their exotic competitors.
- c. Additional aquatic and wetland threatened and endangered plant inventories will be conducted for other USACE Districts. This information will be helpful for identifying sensitive habitats that may be impacted by exotic plant pests.
- d. Additional management strategies such as the use of PGRs and integrated treatments of pathogens and herbicides (hydrilla-specific fungal pathogens plus low rates of herbicides) will be evaluated for use where exotics threaten sensitive plants. In particular, the hydrilla-specific strain of the pathogen *Mycocleptodiscus terrestris* (Gerd.) Ostazeski in combination

with low rates of herbicides may be useful for managing hydrilla in Texas wild-rice stands.

References

- Dobson, A. P., Rodriguez, J. P., Roberts, W. M., and Wilcove, D. S. (1997). "Geographic distribution of endangered species in the United States," *Science* 275, 550-53.
- Doyle, R. (1997). "By the numbers: Plants at risk in the U.S.," *Scientific American* 277(2), 26.
- Eisner, T., Luchenco, J., Wilson, E. O., Wilcove, D. S., Bean, M. J. (1995). "Building a scientifically sound policy for protecting endangered species," *Science* 269, 1231-32.
- Flack, S. R., and Chipley, R., eds. (1996). "Troubled waters: Protecting our aquatic heritage," The Nature Conservancy, Arlington, VA.
- Gemmill, C. E., Ranker, T. A., Ragone, D., Perlman, S. P., and Wood, K. R. (1998). "Conservation genetics of the endangered endemic Hawaiian genus *Brighamia* (Campanulaceae)," *Am. J. of Bot.* 85(4), 528:539.
- Getsinger, K. D., Turner, E. G., Madsen, J. D., and Netherland, M. D. (1997). "Restoring native vegetation in a Eurasian watermilfoil-dominated plant community using the herbicide triclopyr," *Regul. Rivers: Res. Mgmt.* 13, 357-75.
- Groves, C. R., Klein, M. L., and Breden, T. F. (1995). "Natural heritage programs: Public-private partnerships for biodiversity conservation," *Wildl. Soc. Bull.* 23(4), 784-90.
- Kasul, R. L., Martin, C. O., and Jackson, S. R. "Natural resources management on Corps of Engineers water resources development projects: Practices, challenges, and perspectives on the future," Technical Report (in preparation), U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Lydeard, C., and Mayden, R. L. (1995). "A diverse and endangered aquatic ecosystem of the southeast United States," *Conserv. Biol.* 9(4), 800-5.

- Master, L. L., Flack, S. R., and Stein, B. A., eds. (1998). "Rivers of life: Critical watersheds for protecting freshwater biodiversity," The Nature Conservancy, Arlington, VA.
- Mitsch, W. J., and Gosselink, J. G. (1993). *Wetlands*. 2nd ed. Van Nostrand Reinhold, New York.
- Nelson, L. S. (1996). "Growth regulation of Eurasian watermilfoil with flurprimidol," *J. Plant Growth Regulation* 15, 33:38.
- _____. (1997). "Response of hydrilla and American pondweed to flurprimidol," *J. Aquat. Plant Manage.* 35, 50-54.
- Nelson, L. S., Shearer, J. F., and Netherland, M. D. (1998). "Mesocosm evaluation of integrated fluridone-fungal pathogen treatment on four submersed plants," *J. Aquat. Plant Manage.* 36, 73-77.
- Netherland, M. D., and Shearer, J. F. (1996). Integrated use of fluridone and a fungal pathogen for control of hydrilla," *J. Aquat. Plant Manage.* 33, 4-8.
- Netherland, M. D., Getsinger, K. D., and Skogerboe, J. D. (1997). "Mesocosm evaluation of the species-selective potential of fluridone," *J. Aquat. Plant Manage.* 35, 41-50.
- Petty, D. G., Getsinger, K. D., Madsen, J. D., Skogerboe, J. D., Haller, W. T., Fox, A. M., and Houtman, B. A. (1998). "Aquatic dissipation of the herbicide triclopyr in Lake Minnetonka, Minnesota," Technical Report A-98-01, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Power, P. (1996). "Growth of Texas wildrice (*Zizania texana*) in three sediments from the San Marcos River," *J. Aquat. Plant Manage.* 34, 21-23.
- Stein, B. A., and Flack, S. R. (1997). "1997 species report card: The status of U.S. plants and animals," The Nature Conservancy, Arlington, VA.
- Thompson, D. Q., Stuckey, R. L., and Thompson, E. B. (1987). "Spread, impact, and control of purple loosestrife (*Lythrum salicaria*) in North American wetlands," Fish and Wildlife Research 2, U.S. Department of the Interior, Fish and Wildlife Service, Washington, DC.
- U.S. Fish and Wildlife Service. (1988a). "National list of plant species that occur in wetlands: 1988 national summary," Biological Report 88(24). Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC.
- _____. (1988b). "National list of plant species that occur in wetlands: Southeast (region 2)," Biological Report 88(26.2), Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC.

U.S. Fish and Wildlife Service. (1988c). "National list of plant species that occur in wetlands: North central (region 3)," Biological Report 88(26.3), Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC.

_____. (1988d). "National list of plant species that occur in wetlands: North plains (region 4)," Biological Report 88(26.4), Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC.

_____. (1988e). "National list of plant species that occur in wetlands: South plains (region 6)," Biological Report 88(26.6), Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC.

_____. (1988f). "National list of plant species that occur in wetlands: Northwest (region 9)," Biological Report 88(26.9), Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC.

_____. (1998). "Endangered and threatened wildlife and plants," 50 CFR 17.11 and 17.12, Washington, DC.

**Table 1
Threatened and Endangered Wetland and Aquatic Plants Protected under the
Endangered Species Act of 1973**

Scientific Name (Common Name)	Family	Wetland Indicator ¹	Historic Range ²	Status ³	Date Listed (mo-da-yr)
<i>Acaena exigua</i> (Liliwai)	Rosaceae	OBL?	HI	E	5-15-92
<i>Aeschynomene virginica</i> (Sensitive joint-vetch)	Fabaceae	OBL, FACW	DE, MD, NC, NJ, PA, VA	T	5-20-92
<i>Alopecurus aequalis</i> var. <i>sonomensis</i> (Sonoma alopecurus)	Poaceae	OBL	CA	E	10-22-97
<i>Alsinidendron lychnoides</i> (Kuawawaenohu)	Caryophyllaceae	FACW?	HI	E	10-10-96
<i>Alsinidendron viscosum</i> (no common name)	Caryophyllaceae	FACW?	HI	E	10-10-96
<i>Amaranthus pumilus</i> (Seabeach amaranth)	Amaranthaceae	FACW	DE, MA, MD, NC, NJ, NY, RI, SC, VA	T	4-7-93
<i>Amphianthus pusillus</i> (Little amphianthus)	Scrophulariaceae	OBL	AL, GA, SC	T	2-5-88
<i>Arenaria paludicola</i> (Marsh sandwort)	Caryophyllaceae	OBL	CA, OR, WA	E	8-3-93
<i>Argyroxiphium kauense</i> (Mauna Loa (=Ka'u) silversword)	Asteraceae	FACW?	HI	E	4-7-93
<i>Blennosperma bakeri</i> (Sonoma sunshine (= Baker's stickseed))	Asteraceae	OBL	CA	E	12-2-91
<i>Cardamine micranthera</i> (Small-anthered bittercress)	Brassicaceae	FAC	NC	E	9-21-89
<i>Carex albida</i> (White sedge)	Cyperaceae	OBL	CA	E	10-22-97
<i>Chamaesyce hooveri</i> (Hoover's spurge)	Euphorbiaceae	OBL	CA	T	3-26-97
<i>Cirsium fontinale</i> var. <i>obispoense</i> (Chorro Creek bog thistle)	Asteraceae	OBL	CA	E	12-15-94
<i>Cirsium fontinale</i> var. <i>fontinale</i> (Fountain thistle)	Asteraceae	OBL	CA	E	2-3-95

(Sheet 1 of 6)

¹ From the National List of Plants That Occur in Wetlands: 1998 National Summary, U.S. Fish and Wildlife Service (1988a).

OBL = occur most always (>99%) under natural conditions in wetlands

FACW = usually occur in wetlands (67-99%), but occasionally found in nonwetlands

FAC = equally likely to occur in wetlands or nonwetlands (estimated probability 34-66%)

A plus (+) or minus (-) sign is used with the FAC and FACW indicator categories to more specifically define the regional frequency of occurrence in wetlands. A question mark (?) following an indicator denotes a tentative assignment based on the botanical literature and not confirmed by regional review. Two indicators reflect the range from the lowest to the highest frequency of occurrence in wetlands across the regions in which the species is found.

² The Historic Range indicates the known general distribution of the species or subspecies as reported in the current scientific literature; however, applications of prohibitions in the Act apply to all individuals of the plant species wherever found.

³ E = endangered; any species in danger of extinction within its range.

T = threatened; any species which is likely to become endangered within its range.

Table 1 (Continued)

Scientific Name (Common Name)	Family	Wetland Indicator ¹	Historic Range ²	Status ³	Date Listed (mo-da-yr)
<i>Cirsium hydrophilum</i> var. <i>hydrophilum</i> (Suisun thistle)	Asteraceae	OBL	CA	E	11-20-97
<i>Cirsium vinaceum</i> (Sacramento Mountains thistle)	Asteraceae	OBL	NM	T	6-16-87
<i>Clermontia drepanomorpha</i> (‘Oha wai)	Campanulaceae	FACW?	HI	E	10-10-96
<i>Clermontia oblongifolia</i> ssp. <i>brevipes</i> (‘Oha wai)	Campanulaceae	FAC?	Hi	E	10-8-92
<i>Clermontia oblongifolia</i> ssp. <i>mauiensis</i> (‘Oha wai)	Campanulaceae	FAC?	HI	E	5-15-92
<i>Conradina verticillata</i> (Cumberland rosemary)	Lamiaceae	FACW-, FACW+	KY, TN	T	11-29-91
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i> (Salt marsh bird's-beak)	Scrophulariaceae	OBL	CA	E	9-28-78
<i>Cordylanthus palmatus</i> (Palmate-bracted bird's-beak)	Scrophulariaceae	OBL	CA	E	7-1-86
<i>Cordylanthus mollis</i> ssp. <i>mollis</i> (Soft bird's-beak)	Scrophulariaceae	OBL	CA	E	11-20-97
<i>Cyanea macrostegia</i> ssp. <i>gibsonii</i> (no common name)	Campanulaceae	FAC?	HI	E	9-20-91
<i>Cyanea (=Rollandia) st. johnii</i> (Haha)	Campanulaceae	FAC?	HI	E	10-10-96
<i>Cyperus trachysanthos</i> (Pu'uka'a)	Cyperaceae	FACW?	HI	E	10-10-96
<i>Cyrtandra viridiflora</i> (Ha'iwale)	Gesneriaceae	FACW?	HI	E	10-10-96
<i>Deeringothamnus pulchellus</i> (Beautiful pawpaw)	Annonaceae	FAC	FL	E	9-26-86
<i>Deeringothamnus rugelii</i> (Rugel's pawpaw)	Annonaceae	FACW	FL	E	9-26-86
<i>Delissea rivularis</i> (‘Oha)	Campanulaceae	FAC?	HI	E	10-10-96
<i>Dubautia pauciflora</i> (no common name)	Asteraceae	FAC?	HI	E	9-20-91
<i>Eryngium aristulatum</i> var. <i>parishii</i> (San Diego button-celery)	Apiaceae	OBL	CA	E	8-3-93
<i>Eryngium constancei</i> (Loch Lomand coyote-thistle)	Apiaceae	OBL	CA	E	8-1-85
<i>Eutrema penlandii</i> (Penland alpine fen mustard)	Brassicaceae	OBL	CO	T	7-28-93

Table 1 (Continued)

Scientific Name (Common Name)	Family	Wetland Indicator ¹	Historic Range ²	Status ³	Date Listed (mo-da-yr)
<i>Geranium multiflorum</i> (Nohoanu)	Geraneaceae	FAC?	HI	E	5-15-92
<i>Grindelia fraxino-pratensis</i> (Ash Meadows gumplant)	Asteraceae	FACW+	CA, NV	T	5-20-85
<i>Harperocalis flava</i> (Harper's beauty)	Liliaceae	OBL	FL	E	10-2-79
<i>Helonias bullata</i> (Swamp pink)	Liliaceae	OBL	DE, GA, MD, NC, NJ, NY, SC, VA	T	9-9-88
<i>Howellia aquatilis</i> (Water howellia)	Campanulaceae	OBL	VA, ID, MT OR, WA	T	7-14-94
<i>Hymenoxys texana</i> (Texas prairie dawn-flower (=Texas bitterweed))	Asteraceae	FACW	TX	E	3-13-86
<i>Iris lacustris-</i> (Dwarf lake iris)	Iridaceae	FAC	MI, WI	T	9-28-88
<i>Isoetes louisianensis</i> (Louisiana quillwort)	Isoetaceae	OBL	LA, MS	E	10-28-92
<i>Isoetes melanospora</i> (Black-spored quillwort)	Isoetaceae	OBL	GA, SC	E	2-5-88
<i>Isoetes tegetiformans</i> (Mat-forming quillwort)	Isoetaceae	OBL	GA	E	2-5-88
<i>Justicia cooleyi</i> (Cooley's water-willow)	Acanthaceae	FACW	FL	E	7-27-89
<i>Lasthenia burkei</i> (Burke's goldfields)	Asteraceae	OBL	CA	E	12-2-91
<i>Lasthenia conjugens</i> (Contra Costa goldfields)	Asteraceae	FACW	CA	E	6-18-97
<i>Lilaeopsis schaffneriana</i> ssp. <i>recurva</i> (Huachuca water-umbel)	Apiaceae	OBL	AZ	E	1-6-97
<i>Lilium occidentale</i> (Western lily)	Liliaceae	FACW+	OR, CA	E	8-1794
<i>Lilium paradalinum</i> ssp. <i>pitkinense</i> (Pitkin Marsh lily)	Liliaceae	OBL	CA	E	10-22-97
<i>Limnanthes floccosa</i> ssp. <i>californica</i> (Butte County meadowfoam)	Limnanthaceae	OBL	CA	E	6-8-92
<i>Limnanthes vinculans</i> (Sebastopol meadowfoam)	Limnanthaceae	OBL	CA	E	12-2-91
<i>Lindera melissifolia</i> (Pondberry)	Lauraceae	OBL	AL, AR, FL, GA, LA, MO, MS, NC, SC	E	7-31-86
<i>Lobelia gaudichaudii</i> ssp. <i>koolauensis</i> (no common name)	Campanulaceae	FACW?	HI	E	10-10-96

Table 1 (Continued)

Scientific Name (Common Name)	Family	Wetland Indicator ¹	Historic Range ²	Status ³	Date Listed (mo-da-yr)
<i>Lobelia oahuensis</i> (no common name)	Campanulaceae	FACW?	HI	E	3-28-94
<i>Lomatium bradshawii</i> (Bradshaw's desert-parsley (=lomatium))	Apiaceae	FACW	OR, WA	E	9-30-88
<i>Lysimachia asperulaefolia</i> (Rough-leaved loosestrife)	Primulaceae	OBL	NC, SC	E	6-12-87
<i>Lysimachia filifolia</i> (no common name)	Primulaceae	FAC?	HI	E	2-25-94
<i>Macbridea alba</i> (White birds-in-a-nest)	Lamiaceae	FACW+	FL	T	5-8-92
<i>Marshallia mohrii</i> (Mohr's Barbara's buttons)	Asteraceae	FACW	AL, GA	T	9-7-88
<i>Mimulus glabratus</i> var. <i>michiganensis</i> (Michigan monkey-flower)	Scrophulariaceae	OBL	MI	E	6-21-90
<i>Myrsine juddii</i> (Kolea)	Myrsinaceae	FACW?	HI	E	10-10-96
<i>Navarretia leucocephala</i> ssp. <i>pauciflora</i> (=N. <i>pauciflora</i>) (Few-flowered navarretia)	Polemoniaceae	OBL	CA	E	6-18-97
<i>Navarretia leucocephala</i> ssp. <i>plieantha</i> (Many-flowered navarretia)	Polemoniaceae	OBL	CA	E	6-18-97
<i>Neostapfia colusana</i> (Colusa grass)	Poaceae	OBL	CA	T	3-26-97
<i>Nitrophila mohavensis</i> (Amargosa niterwort)	Chenopodiaceae	OBL, FACW	CA, NV	E	5-20-85
<i>Orcuttia californica</i> (California orcutt grass)	Poaceae	OBL	CA	E	8-3-93
<i>Orcuttia pilosa</i> (Hairy orcutt grass)	Poaceae	OBL	CA	E	3-26-97
<i>Orcuttia tenuis</i> (Slender orcutt grass)	Poaceae	OBL	CA	T	3-26-97
<i>Pedicularis furbishiae</i> (Furbish lousewort)	Scrophulariaceae	FACW+	ME	E	4-26-78
<i>Pinguicula ionantha</i> (Godfrey's butterwort)	Lentibulariaceae	OBL	FL	T	7-12-93
<i>Palgiobothrys strictus</i> (Calistoga allocarya)	Boraginaceae	OBL	CA	E	10-22-97
<i>Platanthera leucophaea</i> (Eastern prairie fringed orchid)	Orchidaceae	OBL, FACW	AR, IA, IL, IN, ME, MI, MO, NE, NJ, NY, OH, OK, PA, VA, WI	T	9-28-89
<i>Poa mannii</i> (Mann's bluegrass)	Poaceae	FAC?	HI	E	11-10-94

Table 1 (Continued)

Scientific Name (Common Name)	Family	Wetland Indicator ¹	Historic Range ²	Status ³	Date Listed (mo-da-yr)
<i>Poa napensis</i> (Napa bluegrass)	Poaceae	OBL	CA	E	10-22-97
<i>Poa sandivicensis</i> (Hawaiian bluegrass)	Poaceae	FAC?	HI	E	5-13-92
<i>Poa siphonoglossa</i> (no common name)	Poaceae	FAC?	HI	E	5-13-92
<i>Pogogyne abramsii</i> (San Diego mesa mint)	Lamiaceae	OBL	CA	E	9-28-78
<i>Pogogyne nudiuscula</i> (Otay mesa mint)	Lamiaceae	OBL	CA	E	8-3-93
<i>Potamogeton clystocarpus</i> (Little Aguja pondweed)	Potamogetonaceae	OBL	TX	E	11-14-91
<i>Pritchardia kaalae</i> (Loulou)	Arecaceae	FAC?	HI	E	10-10-96
<i>Pritchardia viscosa</i> (Loulou)	Arecaceae	FAC?	HI	E	10-10-96
<i>Ptilimnium nodosum</i> = <i>P. fluviatile</i> (Harperella)	Apiaceae	OBL	AL, AR, GA, MD, NC, SC, WV	E	9-28-88
<i>Ranunculus acriformis</i> var. <i>aestivalis</i> (= <i>R. acris</i> var. <i>a.</i>) (Autumn buttercup)	Ranunculaceae	FACW+	UT	E	7-21-89
<i>Rhododendron chapmanii</i> (Chapman rhododendron)	Ericaceae	FACW+	FL	E	4-24-79
<i>Rhynchospora knieskernii</i> (Knieskern's beaked-rush)	Cyperaceae	OBL	DE, NJ	T	7-18-91
<i>Sagittaria fasciculata</i> (Bunched arrowhead)	Alismataceae	OBL	NC, SC	E	7-25-79
<i>Sagittaria secundifolia</i> (Kral's water-plantain)	Alismataceae	OBL	AL, GA	T	4-13-90
<i>Sanicula purpurea</i> (no common name)	Apiaceae	FACW+?	HI	E	10-10-96
<i>Sarracenia oreophila</i> (Green pitcher-plant)	Sarraceniaceae	OBL	AL, GA, NC, TN	E	3-24-80
<i>Sarracenia rubra</i> ssp. <i>alabamensis</i> (= <i>S. alabamensis</i> ssp. <i>a.</i>) (Alabama canebrake pitcher-plant)	Sarraceniaceae	OBL	AL	E	3-10-89
<i>Sarracenia rubra</i> ssp. <i>jonesii</i> (= <i>S. jonesii</i>) (Mountain sweet pitcher-plant)	Sarraceniaceae	OBL	NC, SC	E	9-30-88
<i>Scirpus ancistrochaetus</i> (Northeastern (=Barbed bristle) bulrush)	Cyperaceae	OBL	MA, MD, NH, NY, PA, VA, VT, WV	E	5-7-91
<i>Scutellaria floridana</i> (Florida skullcap)	Lamiaceae	OBL	FL	T	5-8-92

Table 1 (Concluded)

Scientific Name (Common Name)	Family	Wetland Indicator ¹	Historic Range ²	Status ³	Date Listed (mo-da-yr)
<i>Sidalcea oregana</i> ssp. <i>valida</i> (Kenwood Marsh checker-mallow)	Malvaceae	OBL	CA	E	10-22-97
<i>Sidalcea pedata</i> (Pedate checker-mallow)	Malvaceae	OBL	CA	E	8-31-84
<i>Spiraea virginiana</i> (Virginia spiraea)	Rosaceae	FACW, FACU	GA, KY, NC, OH, TN, VA, WV	T	6-15-90
<i>Suaeda californica</i> (California seablite)	Chenopodiaceae	FACW+	CA	E	12-15-94
<i>Thalictrum cooleyi</i> (Cooley's meadowrue)	Ranunculaceae	FACW+	FL, NC	E	2-7-89
<i>Trematolobelia singularis</i> (no common name)	Campanulaceae	FACW?	HI	E	10-10-96
<i>Viola helenae</i> (no common name)	Violaceae	FACW?	HI	E	9-20-91
<i>Viola kauaiensis</i> var. <i>wahiawaensis</i> (Nani wai'ale'ale)	Violaceae	OBL?	HI	E	10-10-96
<i>Viola oahuensis</i> (no common name)	Violaceae	FAC?	HI	E	10-10-96
<i>Zizania texana</i> (Texas wild-rice)	Poaceae	OBL	TX	E	4-26-78

(Sheet 6 of 6)

**Table 2
Federal and State-Listed Threatened and Endangered Wetland and Aquatic Plant
Species Within the St. Paul District**

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Minnesota (Region 3)				
<i>Allium schoenoprasum</i> (Wild chives)	FAC+	T	PNF	Carlton, Cook, St. Louis
<i>Arnoglossum plantagineum</i> (Indian plantain)	FAC	T	PNF	Blue Earth, Brown, Dakota, Dodge, Faribault, Fillmore, Freeborn, Goodhue, Houston, Martin, Mower, Nicollet, Olmsted, Steele, Waseca, Watonwan
<i>Astragalus alpinus</i> (Alpine milk-vetch)	FAC	E	PNF	Lake
<i>Bartonia virginica</i> (Virginia bartonia)	FACW+	E	ANF	Anoka, Goodhue
<i>Botrychium lanceolatum</i> (Triangle moonwort)	FACW	T	PNF3	Aitkin, Beltrami, Carlton, Cass, Cook, Crow Wing, Itasca, Kanabec, Lake, Morrison, Pine, St. Louis
<i>Botrychium lunaria</i> (Common moonwort)	FACW	T	PNF3	Cook, Lake, Lake of the Woods, St. Louis
<i>Cacalia suaveolens</i> = <i>Hasteola suaveolens</i> (Sweet-smelling Indian plantain)	OBL	E	PNF	Fillmore, Houston, Mower, Olmsted, Wabasha
<i>Caltha natans</i> (Floating marsh-marigold)	OBL	E	PNZF	St. Louis
<i>Carex conjuncta</i> (Jointed (=soft fox) sedge)	FACW	T	PNGL	Rice
<i>Carex conjuncta</i> (Davis' sedge)	FAC+	T	PNGL	Houston, Rice, Wabasha

(Sheet 1 of 14)

¹ An asterisk (*) by the scientific name indicates that a species is also federally listed under the Endangered Species Act of 1973.

² From the "National List of Plant Species That Occur in Wetlands: North Central (Region 3) and North Plains (Region 4)," U.S. Fish and Wildlife Service (1988c,d). OBL = occur most always (>99%) under natural conditions in wetlands; FACW = usually occur in wetlands (67-99%), but occasionally found in nonwetlands; FAC = equally likely to occur in wetlands or nonwetlands (estimated probability 34-66%); NI=No Indicator, insufficient information available to determine regional status. A plus (+) or minus (-) sign is used with the FAC and FACW indicator categories to more specifically define the regional frequency of occurrence in wetlands. A plus sign indicates a higher probability of occurring in a wetland. An asterisk (*) following a regional indicator identifies a tentative assignment of wetland status.

³ State conservation ranks for Minnesota, Wisconsin, and Iowa (E = endangered; T = threatened; SC = special concern (SC has no legal status in Iowa)) as assigned by the Minnesota Department of Natural Resources, Natural Heritage and Nongame Research Program, Wisconsin Department of Natural Resources, and the Iowa Department of Natural Resources, respectively. For North Dakota, rank is assigned by the Endangered Species Committee of the North Dakota Chapter of The Wildlife Society and maintained by the North Dakota Natural Heritage Inventory: S1 = critically imperiled (≤ 5 occurrences); S2 = imperiled (6-20 occurrences); S3 = rare (21-100 occurrences); SH = historically known but not verified in last 20 years; SU = possibly in peril but status uncertain; more information needed.

⁴ The combined habit symbols describe species life form: A = annual; B = biennial; C = clubmoss; E = emergent; F = forb; F3 = fern; G = grass; GL = grasslike (Cyperaceae, Juncaceae); H = partly woody; H2 = horsetail (Equisetaceae); I = introduced; N = native; P = perennial; P3 = peppercorn (Marsileaceae) Q = quillwort (Isoetaceae); S = shrub; T = tree; Z = submerged; \$ = succulent; / = floating.

⁵ State Distribution indicates the general distribution by county as reported by aforementioned state offices (see footnote 4).

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Minnesota (Region 3) (cont.)				
<i>Carex festucacea</i> (Fescue sedge)	FAC	T	PNGL	Jackson
<i>Carex formosa</i> (Handsome sedge)	FACW-	E	PNGL	Hennepin, Olmsted, Ramsey
<i>Carex katahdinensis</i> = <i>C. conoidea</i> (Katahdin sedge)	FACW+	T	PNGL	St. Louis
<i>Carex laevivaginata</i> (Smooth-sheath sedge)	OBL	T	PNGL	Fillmore, Houston, Wabasha, Winona
<i>Carex sterilis</i> (Sterile sedge)	OBL	T	PNGL	Becker, Carver, Clay, Clearwater, Dakota, Goodhue, Koochiching, LeSueur, Mahnommen, Marshall, Norman, Olmsted, Ottertail, Pennington, Polk, Pope, Rice, Roseau, Scott, Wilkin, Winona
<i>Chrysosplenium iowense</i> (Iowa golden saxifrage)	OBL	E	PNF	Fillmore, Houston
<i>Crassula aquatica</i> (Pigmyweed)	OBL	T	AN\$F	St. Louis
<i>Crataegus douglasii</i> (Black hawthorn)	FAC	T	NT	Cook, Lake
<i>Cyperus acuminatus</i> (Short-pointed umbrella sedge)	OBL	T	ABPNGL	Big Stone, Nicollet, Pipestone, Traverse
<i>Cypripedium arietinum</i> (Ram's-head lady's slipper)	FACW+	T	PNF	Aitkin, Anoka, Becker, Beltrami, Cass, Clearwater, Cook, Hennepin, Hubbard, Isanti, Itasca, Koochiching, Lake, Lake of the Woods, Roseau, Stearns, St. Louis, Wright
<i>Eleocharis nitida</i> (Neat spike-rush)	OBL	T	PNGL	Cook, Lake, St. Louis
<i>Eleocharis olivacea</i> (Olivaceous spike-rush)	OBL	T	PNGL	Aitkin, Cass, Clearwater, Itasca, Pine, Todd
<i>Eleocharis rostellata</i> (Beaked spike-rush)	OBL	T	PNGL	Becker, Carver, Clearwater, Koochiching, LeSueur, Mahnommen, Norman, Scott
<i>Eleocharis wolfii</i> (Wolf's spike rush)	OBL	E	PNEGL	Nicollet, Norman, Traverse
<i>Empetrum nigrum</i> (Black crowberry)	FACW-	E	NS	Cook
<i>Fimbristylis puberula</i> (Hairy fimbriatylis)	OBL	E	PNEGL	Redwood, Wilkin
<i>Floerkea proserpinacoides</i> (False mermaid weed)	FAC+	T	ANF	Chisago, Fillmore, Olmsted, Wabasha, Winona

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Minnesota (Region 3) (cont.)				
<i>Glaux maritima</i> (Sea milkwort)	OBL	E	PI\$F	Kittson
<i>Heteranthera limosa</i> (Blue mud plantain)	OBL	T	ANEF	Pipestone
<i>Iodanthus pinnatifidus</i> (Purple rocket)	FACW	E	PNF	Fillmore, Goodhue
<i>Isoetes melanopoda</i> (Blackfoot quillwort)	OBL	E	PNEQ	Pipestone
<i>Listera auriculata</i> (Auricled twayblade)	FACW+	E	PNF	Cook, Lake, St. Louis
<i>Malaxis paludosa</i> (Bog adder's mouth)	OBL	E	PNF	Beltrami, Clearwater, Hubbard, Ottertail
<i>Marsilea vestita</i> (Hairy water fern)	OBL	E	PNEP3	Pipestone
<i>Montia chamissoi</i> (Chamisso's miners-lettuce (=Montia)	OBL	E	PNEF	Winona
<i>Napaea dioica</i> (Glade mallow)	FACW-	T	PNF	Fillmore, Goodhue, Houston, Itasca, Olmsted, Wabasha
<i>Nymphaea leibergii</i> (Small white waterlily)	OBL	T	PNZF	Beltrami, Cook, Itasca, Lake, Lake of the Woods, Roseau
<i>Plantago elongata</i> (Slender plantain)	FACW	T	ANF	Pipestone
<i>Platanthera flava</i> (Tuberclad rein-orchid)	FACW	E	PNF	Anoka, Benton, Chisago, Crow Wing, Dakota, Goodhue, Hennepin, Isanti, Morrison, Mower, Sherburne, Stearns, Wabasha, Washington
<i>Poa paludigena</i> (Bog bluegrass)	OBL	T	PNG	Benton, Chisago, Houston, Isanti, Morrison, Pine, Washington
<i>Polygala cruciata</i> (Cross-leaved milkwort)	FACW+	E	ANF	Anoka, Chisago, Hennepin, Mille Lacs, Washington, Winona
<i>Potamogeton bicupulatus</i> (Snailseed pondweed)	OBL	E	PNZF	Aitkin, Anoka, Crow Wing, Isanti, Kanabec, Pine
<i>Potamogeton diversifolius</i> (Diverse-leaved pondweed)	OBL	E	PN/F	Ramsey, St. Louis
<i>Rhynchospora capillacea</i> (Hair-like beak-rush)	OBL	T	PNGL	Becker, Big Stone, Blue Earth, Carver, Chippewa, Clay, Clearwater, Dakota, Hennepin, Jackson, Koochiching, LeSueur, Mahnomon, Norman, Olmsted, Pennington, Pipestone, Polk, Pope, Redwood, Roseau, Scott, Wilkin, Winona, Yellow Medicine
<i>Rotala ramosior</i> (Toothcup)	OBL	T	ANF	Anoka, Chisago, Hennepin, Lac Qui Parle, Ramsey, Washington, Yellow Medicine

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Minnesota (Region 3) (cont.)				
<i>Salicornia rubra</i> (Red saltwort)	OBL	T	AN\$F	Lac Qui Parle, Kittson
<i>Saxifraga cernua</i> (Nodding saxifrage)	FACW	E	PNF	Cook
<i>Scleria triglomerata</i> (Tall (=Whip) nutrush)	FAC	E	PNGL	Anoka, Dakota, Hennepin, Sherburne, Ramsey
<i>Scleria verticillata</i> (Whorled nutrush)	OBL	T	ANGL	Becker, Blue Earth, Carver, Clay, Dakota, Jackson, LeSueur, Mahnomen, Norman, Olmsted, Pope, Redwood, Scott, Wilkin
<i>Selaginella selaginoides</i> (Northern (=Club) spikemoss)	FACW+	E	PNC	Cook
<i>Silene nivea</i> (Snowy campion)	FACW	T	PNF	Fillmore, Goodhue, Houston, Winona
<i>Subularia aquatica</i> (Water awlwort)	OBL	T	ANZF	Cook, Itasca, Lake, St. Louis
<i>Tofieldia pusilla</i> (Small false asphodel)	FACW+	E	PNF	Cook, Lake
<i>Vaccinium uliginosum</i> (Bog blueberry (=Alpine bilberry))	FAC	T	IS	Cook
<i>Valeriana edulis</i> (Edible valerian)	FACW+	T	PNF	Carver, Dakota, Dodge, Fillmore, Freeborn, Goodhue, Hennepin, Houston, Mower, Olmsted, Rice, Scott, Steele, Wabasha, Waseca, Winona
<i>Viola lanceolata</i> (Lance-leaf violet)	OBL	T	PNF	Anoka, Hennepin, Isanti, Lake, Ramsey, Sherburne, Winona
<i>Xyris torta</i> (Twisted yellow-eyed grass)	OBL	E	PNEF	Anoka, Hennepin
Wisconsin (Region 3)				
<i>Adoxa moschatellina</i> (Muskroot)	FAC	T	PNF	Eau Claire, Grant, Juneau, Monroe, Pierce, Richland, Sauk, Vernon
<i>Amerorchis rotundifolia</i> (Small round-leaf orchis)	OBL	T	PNF	Ashland, Forest, Sawyer
<i>Armoracia lacustris</i> (Lake cress)	OBL	E	PNZF	Bayfield, Lincoln
<i>Astragalus alpinus</i> (Alpine milk vetch)	FAC	E	PNF	Bayfield
<i>Botrychium lunaria</i> (Moonwort)	FACW	E	PNF3	Ashland

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Wisconsin (Region 3) (cont.)				
<i>Cacalia tuberosa</i> = <i>Arnoglossum plantagineum</i> (Prairie (=Groove-stem) Indian plantain)	FAC	T	PNF	Crawford, Dane, Grant, Iowa
<i>Callitriche heterophylla</i> (Large water starwort)	OBL	T	PIZ/F	Dane, Douglas, Jackson, LaCrosse, Monroe, Sauk
<i>Caltha natans</i> (Floating marsh marigold)	OBL	E	PNZF	Douglas
<i>Calypso bulbosa</i> (Calypso orchid (=Fairy slipper))	FACW	T	PNF	Ashland, Bayfield, Burnett, Douglas, Forest, Iron, Langlade, Oneida, Price, Sawyer, Vilas
<i>Camissia scilloides</i> (Wild hyacinth (=Atlantic camassia))	FAC+	E	PNF	Dane, Iowa
<i>Carex exilis</i> (Coast sedge)	OBL	T	PNGL	Ashland
<i>Carex laevivaginata</i> (Smooth-sheath sedge)	OBL	E	PNGL	Dane, Iowa
<i>Carex lenticularis</i> (Lenticular (=Shore) sedge)	OBL	T	PNGL	Ashland, Bayfield, Vilas
<i>Carex lupuliformis</i> (Hop-like sedge (=False hop sedge))	FACW+	E	PNGL	Columbia, Taylor
<i>Carex media</i> (Intermediate sedge)	FACW	E	PNGL	Grant
<i>Carex michauxiana</i> (Michaux's sedge)	OBL	T	PNGL	Ashland, Bayfield
<i>Carex prasina</i> (Drooping sedge)	OBL	T	PNGL	Ashland, Burnett, Columbia, Juneau, Sauk, Vernon
<i>Carex schweinitzii</i> (Schweinitz's sedge)	OBL	E	PNEGL	Bayfield, Iowa
<i>Catabrosa aquatica</i> (Brookgrass)	NI (Nationally=OBL)	E	PNG	Adams, St. Croix
<i>Cypripedium artietinum</i> (Ram's-head lady's slipper)	FACW+	T	PNF	Ashland, Iron, Sawyer, Vilas
<i>Cypripedium candidum</i> (White (=Small) lady's slipper)	OBL	T	PNF	Buffalo, Columbia, Dane, Grant, Marquette, Sauk, Trempealeau
<i>Drosera anglica</i> (English sundew)	NI (Nationally=OBL)	T	PNF	Ashland, Bayfield

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Wisconsin (Region 3) (cont.)				
<i>Drosera linearis</i> (Linear (=Slender)-leaf sundew)	OBL	T	PNF	Ashland, Bayfield, Columbia, Iron, Polk, St. Croix
<i>Eleocharis nitida</i> (Neat (=Slender) spikerush)	OBL	E	PNGL	Douglas
<i>Eleocharis quadrangulata</i> (Angle- (=Square-) stem spikerush)	OBL	E	PNEGL	Adams, Shawano
<i>Eleocharis wolfii</i> (Wolf spikerush)	OBL	E	PNEGL	Juneau
<i>Fuirena pumila</i> (Umbrella (=Dwarf) sedge)	OBL	E	ANGL	Marquette
<i>Listera auriculata</i> (Auricled twayblade)	FACW+	E	PNF	Bayfield
<i>Listera convallarioides</i> (Broad-leaf twayblade)	FACW	T	PNF	Ashland, Bayfield, Iron
<i>Parnassia palustris</i> (Marsh (=Northern) grass-of-Parnassus)	OBL	T	PNF	Ashland, Bayfield, Douglas
<i>Petasites sagittatus</i> (Sweet (=Arrow-leaved) coltsfoot)	OBL	T	PNF	Bayfield, Douglas, Forest
<i>Pinguicula vulgaris</i> (Common butterwort)	OBL	E	PNF	Ashland
<i>Platanthera flava</i> var. <i>herbiola</i> (Tuberclad (=Pale green) orchid)	FACW	T	PNF	Ashland, Buffalo, Burnett, Dane, Iowa, Iron, Juneau, LaCrosse, Lincoln, Marquette, Portage, Richland, Sauk, Waushara, Wood
* <i>Platanthera leucophaea</i> (White- (=Eastern-) fringed prairie orchid)	FACW+	E	PNF	Dane, Grant, LaCrosse, Sauk
<i>Poa paludigena</i> (Bog bluegrass)	OBL	T	PNG	Adams, Burnett, Marquette, Monroe, Polk, Richland, Sauk, Trempealeau, Washburn
<i>Potamogeton confervoides</i> (Algal-leaf (=Tuckerman's) pondweed)	OBL	T	PNZF	Bayfield, Forest, Iron, Juneau, Langlade, Lincoln, Oneida
<i>Potamogeton pulcher</i> (Spotted pondweed)	OBL	E	PN/F	Lincoln, Sauk, Sawyer
<i>Potamogeton vaginatus</i> (Sheathed pondweed)	OBL	T	PNZF	Dane

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Wisconsin (Region 3) (cont.)				
<i>Preanthes crepidinea</i> (Great white lettuce (=Nodding rattlesnake-root))	FAC+	E	PNF	Crawford, Sauk
<i>Psilocarya scirpoides</i> (Bald rush (=Long-beak baldrush))	OBL	T	ANGL	Marquette, Waushara
<i>Pyrola minor</i> (Small Shinleaf (=Lesser wintergreen))	FAC+	E	PNF	Bayfield, Douglas, Iron
<i>Ranunculus cymbalaria</i> (Seaside crowfoot (=Seaside buttercup))	OBL	T	PNEF	Douglas
<i>Ranunculus gmelinii</i> (Small yellow water crowfoot)	FACW+	E	PNEF	Ashland, Bayfield, Douglas, Langlade, Vilas
<i>Ranunculus lapponicus</i> (Lapland buttercup)	OBL	E	PNF	Douglas
<i>Rhododendron lapponicum</i> (Lapland rosebay (=Lapland azalea))	FACW-	E	NS	Columbia, Vernon
<i>Salix pellita</i> (Satiny willow)	FACW	E	NS	Ashland
<i>Salix planifolia</i> (Flat-leaf (=Diamond-leaf) willow)	OBL	T	NS	Ashland, Douglas
<i>Scirpus cespitosus</i> (Tussock (=Tufted) bulrush)	OBL	T	PNGL	Dane, Oneida
<i>Scirpus hallii</i> (Hall's bulrush)	OBL	E	PNEGL	Dane
<i>Scleria reticularis</i> (Netted (=Reticulated) nutrush)	OBL	E	ANGL	Adams
<i>Senecio indecorus</i> (Plains ragwort (=Elegant groundsel))	FACW*	T	PNF	Ashland, Forest
<i>Silene nivea</i> (Snowy campion)	FACW	T	PNF	Buffalo, Crawford, Dane, Grant, Iowa, LaCrosse, Marathon, Monroe, Pierce, Pepin, Trempealeau, Vernon, Washburn
<i>Tofieldia glutinosa</i> (False (=Sticky) asphodel)	OBL	T	PNF	Dane, Columbia, Marquette, Waushara

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Wisconsin (Region 3) (cont.)				
<i>Vaccinium vitis-idaea</i> (Mountain cranberry)	FAC	E	NS	Ashland, Bayfield, Douglas, Forest, Polk
<i>Valeriana sitchensis</i> (Marsh (=Sitka) valerian)	FACW+	T	PNF	Langlade, Portage
<i>Viburnum edule</i> (Squashberry)	FACW	E	NS	Rusk
Iowa (Region 3)				
<i>Abies balsamea</i> (Balsam fir)	FACW	SC	NT	Allamakee, Clayton, Howard, Winneshiek
<i>Adoxia moschatellina</i> (Muskroot)	FAC	SC	PNF	Allamakee, Clayton, Howard, Mitchell, Winneshiek
<i>Angelica atropurpurea</i> (Great angelica)	OBL	SC	PNF	Mitchell, Winneshiek
<i>Asclepias speciosa</i> (Showy milkweed)	FAC	T	PNF	Emmet, Winnebago
<i>Berula erecta</i> (Water parsnip)	OBL	T	PIF	Emmet
<i>Betula pumila</i> (Bog birch)	OBL	T	NS	Clayton, Howard, Mitchell
<i>Brasenia schreberi</i> (Water shield)	OBL	SC	PNZF	Allamakee
<i>Callitriche hertophylla</i> (Water starwort)	OBL	SC	PIZ/F	Allamakee, Winneshiek
<i>Calopogon tuberosus</i> (Grass pink)	OBL	SC	PNF	Howard, Winneshiek
<i>Carex crawei</i> (Crawe sedge)	FACW	SC	PNGL	Emmet
<i>Carex sterilis</i> (Sterile sedge)	OBL	SC	PNGL	Winneshiek
<i>Chelone obliqua</i> (Red turtlehead)	OBL	SC	PNF	Mitchell
<i>Chrysosplenium iowense</i> (Golden saxifrage)	OBL	T	PNF	Allamakee, Clayton, Howard, Winneshiek
<i>Cornus canadensis</i> (Bunchberry)	FAC	T	NS	Allamakee, Clayton, Winneshiek
<i>Cypripedium candidum</i> (Small white lady's slipper)	OBL	SC	PNF	Allamakee, Emmet, Howard, Kossuth, Winnebago, Winneshiek
<i>Cypripedium reginae</i> (Showy lady's slipper)	FACW+	T	PNF	Allamakee, Clayton, Emmet, Howard, Winnebago, Winneshiek

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Iowa (Region 3) (cont.)				
<i>Decodon verticillatus</i> (Waterwillow)	OBL	E	PNF	Allamakee
<i>Dryopteris intermedia</i> (Glandular woodfern)	FAC	T	PNF3	Allamakee
<i>Eleocharis pauciflora</i> (Fewflower spikerush)	OBL	SC	PNGL	Emmet
<i>Equisetum scirpoides</i> (Dwarf scouring rush)	FAC+	SC	PNH2	Allamakee, Clayton, Winneshiek
<i>Equisetum sylvaticum</i> (Woodland horsetail)	FACW	T	PNH2	Howard, Winneshiek
<i>Eriophorum angustifolium</i> (Tall cottongrass)	OBL	SC	PNGL	Emmet, Howard, Mitchell
<i>Floerkea proserpinacoides</i> (False mermaid-weed)	FAC+	E	ANF	Clayton
<i>Galium labradoricum</i> (Bog bedstraw)	OBL	E	PNF	Clayton
<i>Gentianopsis procera</i> (Small fringed gentian)	OBL	SC	ANF	Emmet, Howard, Winneshiek
<i>Gymnocarpium dryopteris</i> (Oak fern)	FAC	T	PNF3	Allamakee, Clayton, Winneshiek
<i>Ilex verticillata</i> (Black holly)	FACW+	E	NST	Allamakee, Mitchell
<i>Juncus greenei</i> (Green's rush)	FAC	SC	PNGL	Winneshiek
<i>Linnaea borealis</i> (Twinflower)	FAC	T	PNHF	Allamakee, Clayton, Winneshiek
<i>Lobelia kalmii</i> (Brook lobelia)	OBL	SC	PNF	Emmet, Howard
<i>Lycopodium clavatum</i> (Running pine)	FAC	E	PNC	Allamakee
<i>Lycopodium dendroideum</i> (Treelike clubmoss)	FAC	T	C	Allamakee, Clayton
<i>Malaxis unifolia</i> (Green adder's mouth)	FAC	SC	PNF	Winneshiek
<i>Menyanthes trifoliata</i> (Buckbean)	OBL	T	PNEF	Emmet, Winnebago
<i>Mertensia paniculata</i> (Northern lungwort)	FAC	E	PNF	Allamakee, Clayton, Howard, Winneshiek
<i>Mimulus glabratus</i> (Yellow monkeyflower)	OBL	T	PNEF	Emmet, Mitchell, Winnebago, Winneshiek

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
North Dakota (Region 4)				
<i>Acorus calamus</i> (Sweetflag)	OBL	S3	PIEF	Bottineau, McHenry, Ransom
<i>Athyrium filix-femina</i> (Northern (=Subartic) lady-fern)	FAC	S3	PNF3	Cavalier, Grand Forks, Pembina, Ransom, Richland
<i>Calla palustris</i> (Water arum (=Common marsh marigold))	OBL	S2	PNF	Pembina, Rolette
<i>Campanula aparinoides</i> (Marsh bellflower)	OBL	S2-S3	PNF	Pembina, Ransom, Richland
<i>Cardamine bulbosa</i> (Spring cress)	OBL	S1	PNF	Ransom
<i>Carex alopecoidea</i> (Foxtail sedge)	OBL	S2	PNGL	Barnes, Bottineau, Pembina, Ransom, Richland, Rolette
<i>Carex athrostachya</i> (Jointed spike rush)	FACW	S3	PNGL	Benson, Divide, Mountrial, Williams
<i>Carex brunnescens</i> (Brown sedge)	FAC	S1	PNGL	McHenry
<i>Carex buxbaumii</i> (Buxbaum's sedge)	OBL	S1-S2	PNEGL	Barnes, Stutsman
<i>Carex capillaris</i> (Hair-like sedge)	FACW	S1-S2	PNGL	Bottineau, McHenry
<i>Carex chordorrhiza</i> (Creeping sedge)	NI (Nationally=OBL)	S1	PNGL	Bottineau
<i>Carex diandra</i> (Lesser-panicled sedge)	OBL	S2-S3	PNGL	Bottineau, Burke, Groand Forks, Rolette
<i>Carex garberi</i> (Elk sedge)	FACW	S1-S2	PNGL	Benson, Burke, McHenry
<i>Carex gynocrates</i> (Northern bog (=Pistillate) sedge)	OBL	S1	PNGL	McHenry
<i>Carex lasiocarpa</i> (Wiregrass sedge)	OBL	S3	PNEGL	Bottineau, Grand Forks, McHenry, Ransom, Richland, Rolette
<i>Carex leptalea</i> (Delicate sedge)	OBL	S2-S3	PNGL	Cavalier, McHenry, Pembina, Ransom, Richland
<i>Carex limosa</i> (Mud sedge)	NI (Nationally=OBL)	S2-S3	PNGL	Bottineau, McHenry
<i>Carex scoparia</i> (Pointed broom sedge)	FACW	SH	PNGL	Benson, Grand Forks, Stutsman, Walsh
<i>Carex simulata</i> (Short-beak (=Copycat) sedge)	OBL	S2	PNGL	Burke, Divide, McHenry

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
North Dakota (Region 4) (cont.)				
<i>Carex sterilis</i> (Sterile (=Dioecious) sedge)	NI (Nationally=OBL)	S1-S2	PNGL	McHenry
<i>Cyperus diandrus</i> (Low (=Umbrella) flatsedge)	FACW	S2-S3	ANGL	Ransom, Richland
<i>Cypripedium candidum</i> (White lady's slipper)	OBL	S2-S3	PNF	Benson, Cass, Eddy, Grand Forks, Griggs, Nelson, Ransom, Richland, Rolette, Sargent, Walsh
<i>Cypripedium reginae</i> (Showy lady's slipper)	FACW	S2-S3	PNF	Benson, Cavalier, Eddy, Pembina, Ransom, Richland
<i>Drosera rotundifolia</i> (Round-leaved sundew)	OBL	S1	PNEF	Bottineau
<i>Dryopteris cristata</i> (Crested woodfern (=shieldfern))	OBL	S3	PNEF3	Bottineau, Cass, Cavalier, Pembina, Ransom, Richland
<i>Dryopteris carthusiana</i> = <i>D. spinulosa</i> (Spinulose woodfern)	OBL	S3	F3	Cavalier, Pembina, Ransom, Richland
<i>Eleocharis parvula</i> (Small (=Dwarf) spikerush)	OBL	S1-S2	PNGL	Grand Forks, Nelson, Sargent
<i>Eleocharis pauciflora</i> (Few-flowered spikerush)	OBL	S2-S3	PNGL	Benson, Burke, McHenry, Rolette, Stutsman, Wells
<i>Eleocharis wolfii</i> (Wolf's spikerush)	OBL	SH	PNGL	Cass
<i>Epilobium coloratum</i> (Purple-leaved willow herb)	OBL	SU	PNF	Ransom, Richland, Stutsman
<i>Equisetum palustre</i> (Marsh horsetail)	FACW	S2	PNH2	Ransom, Richland
<i>Equisetum pratense</i> (Meadow horsetail)	FACW	S2	PNH2	Barnes, Cass, Pembina, Ransom, Richland
<i>Equisetum sylvaticum</i> (Wood horsetail)	FACW	S2	PNH2	Benson, Cavalier, Pembina
<i>Equisetum variegatum</i> (Variegated horsetail)	FACW	S1	PNH2	McHenry
<i>Eriophorum chamissonis</i> (Chamisson's cottongrass)	OBL	S1	PNGL	Barnes, Bottineau, McHenry
<i>Eriophorum gracile</i> (Slender cottongrass)	OBL	S1	PNEGL	Ransom

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
North Dakota (Region 4) (cont.)				
<i>Eriophorum viridicarinatum</i> (Green keeled cottongrass)	OBL	S1	PNEGL	Bottineau, Pembina, Ransom
<i>Galium labradoricum</i> (Bog bedstraw)	OBL	S3	PNF	Bottineau, McHenry, Ransom
<i>Gentianopsis crinita</i> (Fringed gentian)	OBL	S1	ABF	Burke, Eddy, Pembina, Towner
<i>Geum rivale</i> (Water (=Purple) avens)	FACW	SH	PNF	Pembina
<i>Juncus brevicaudatus</i> (Short-tailed (=Narrow-panicle) rush)	OBL	S2	PNGL	Bottineau, McHenry
<i>Juncus vaseyi</i> (Vasey's rush)	OBL	SH	PNGL	Bottineau
<i>Leersia virginica</i> (Whitegrass)	FACW	SU	PNG	Richland
<i>Liparis loeselii</i> (Loesel's twayblade (=Fen orchid))	OBL	S2	PNF	Benson, Pembina, Ransom, Stutsman
<i>Menyanthes trifoliata</i> (Buckbean)	OBL	S3	PNEF	Bottineau, McHenry, Ransom
<i>Mimulus guttatus</i> (Yellow monkeyflower)	OBL	S1	ANF	Grand Forks
<i>Mitella nuda</i> (Naked mitrewort (=Bishop's cap))	OBL	S3	PNF	Cavalier, Pembina, Rolette
<i>Muhlenbergia filiformis</i> (Pull-up muhly)	FACW	S1	ANG	Burke
<i>Myosurus aristatus</i> (Sedge mousetail)	NI (Nationally=OBL)	S1	ANF	Ward, Williams
<i>Myriophyllum pinnatum</i> (Cutleaf watermilfoil)	OBL	S2-S3	PNEZF	Barnes, Stutsman
<i>Najas marina</i> (Spiny naiad)	OBL	S1	ANZF	Richland
<i>Onoclea sensibilis</i> (Sensitive fern)	FACW	S2-S3	PNEF3	Pembina, Ransom, Richland, Sargent
<i>Parnassia parviflora</i> (Small-flowered grass-of-Parnassus)	OBL	SH	PNF	Bottineau
<i>Petasites frigidus</i> (Sweet coltsfoot)	FAC	S2	PNF	Bottineau, Cavalier

Table 2 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
North Dakota (Region 4) (cont.)				
<i>Pogonia ophioglossoides</i> (Rose pogonia)	NI (Nationally=OBL)	SH	PNEF	Grand Forks
<i>Polygonum hydropiperoides</i> (Swamp smartweed)	OBL	S1	PNEF	Pembina
<i>Polygonum punctatum</i> (Dotted smartweed)	OBL	S2-S3	PNEF	Cavalier, Grand Forks, Richland
<i>Polygonum sagittatum</i> (Arrow-leaved tearthumb)	OBL	SH	APNF	Bottineau
<i>Potamogeton diversifolius</i> (Water-thread pondweed)	OBL	S2-S3	PN/F	Stutsman
<i>Potamogeton filiformis</i> (Slender pondweed)	OBL	S2-S3	PNZF	Barnes, Divide, Ramsey
<i>Potamogeton natans</i> (Floating pondweed)	OBL	S2	PN/F	Bottineau, Burke, Rolette
<i>Potamogeton praelongus</i> (White-stemmed pondweed)	OBL	S1	PNZF	Bottineau, Ward
<i>Potamogeton strictifolius</i> (Narrow-leaved pondweed)	OBL	S1	PNZF	Bottineau, McHenry
<i>Potamogeton vaginatus</i> (Sheathed pondweed)	OBL	S3	PNZF	Bottineau, Grand Forks, Rolette, Stutsman
<i>Potentilla palustris</i> (Purple (=Marsh) cinquefoil)	NI (Nationally=OBL)	S2	PNF	Bottineau, Grand Forks, McHenry
<i>Primula incana</i> (American primrose)	FACW	S1-S2	PNF	Burke, Divide, Mountrial
<i>Ranunculus cardiophyllus</i> (Heart-leaved buttercup)	FACW	S1	PNF	Williams
<i>Ranunculus flammula</i> (Buttercup spearwort)	NI (Nationally=FAC W)	S1	PNEF	Burke
<i>Rhynchospora capillacea</i> (Hair (=Needle) beakrush)	OBL	S2	PNGF	Benson, Bottineau, McHenry, Stutsman
<i>Sanicula gregaria</i> (Cluster sanicle (=Clustered snakeroot))	FAC	SH	PNF	Richland
<i>Solidago riddellii</i> (Riddell's goldenrod)	OBL	SH	PNF	Richland
<i>Spiranthes cernua</i> (Nodding ladies-tresses)	FACW	S1	PNF	Benson, McHenry, Richland, Stutsman

Table 2 (Concluded)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
North Dakota (Region 4) (cont.)				
<i>Spiranthes romanzoffiana</i> (Hooded ladies-tresses)	OBL	S1	PNF	Benson, Burke, McHenry
<i>Thelypteris palustris</i> (Marsh fern)	OBL	S3	F3	McHenry, Pembina, Ransom, Richland
<i>Utricularia intermedia</i> (Flat-leaved bladderwort)	OBL	S2	ANZF	Bottineau, McHenry, Pembina
<i>Utricularia minor</i> (Lesser bladderwort)	OBL	S2-S3	PNZF	Benson, Burke, Eddy, McHenry, Pembina, Richland
<i>Wolffia columbiana</i> (Southern watermeal)	OBL	S2	PN/F	Cavalier, Pembina, Richland, Ward
<i>(Sheet 14 of 14)</i>				

**Table 3
Federal and State-Listed Threatened and Endangered Wetland and Aquatic Plant
Species Within the Seattle District**

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Washington				
<i>Agoseris elata</i> (Tall agoseris (=Tall false dandelion))	FAC	S	PNF	Chelan, Clallam, Island, Kittitas, Okanogan, Pierce, Snohomish, Thurston, Whatcom, Yakima
* <i>Arenaria paludicola</i> (Marsh sandwort)	OBL	P. Extirp.	PNF	Grays Harbor, King, San Juan
<i>Bolandra oregana</i> (Northern bolandra)	FACW	S	PNF	Skamania
<i>Botrychium lanceolatum</i> (Lance-leaf grape-fern (=Triangle moonwort))	FACW	S	PNF3	Chelan, Ferry, Grays Harbor, Jefferson, King, Lewis, Okanogan, Pend Oreille, Pierce, Skagit, Skamania, Snohomish, Stevens, Whatcom, Yakima
<i>Botrychium lunaria</i> (Moonwort)	FAC	S	PNF3	Chelan, Clallam, Ferry, Jefferson, King, Lewis, Okanogan, Pierce, Skamania, Snohomish, Stevens, Whatcom, Yakima
<i>Botrychium pinnatum</i> = <i>B. boreale</i> (St. John's moonwort)	FAC	S	PNF3	Chelan, Clallam, Ferry, Jefferson, King, Lewis, Okanogan, Pend Oreille, Pierce, Skamania, Snohomish, Stevens, Whatcom, Yakima
<i>Carex buxbaumii</i> (Buxbaum's (=Brown bog) sedge)	OBL	S	PNEGL	Chelan, Clallam, Ferry, Grays Harbor, King, Kittitas, Mason, Okanogan, Pend Oreille, Skagit, Snohomish, Stevens, Whatcom
<i>Carex capillaris</i> (Hair-like sedge)	FACW	S	PNGL	Okanogan
<i>Carex comosa</i> (Bristly (=Bearded) sedge)	OBL	S	PNEGL	Chelan, Jefferson, King, Kittitas, Pend Oreille, Pierce, Skagit
<i>Carex densa</i> (Dense sedge)	FACW	S	PNGL	Okanogan
<i>Carex flava</i> (Yellow sedge)	OBL	S	PNEGL	Chelan, Jefferson, King, Kittitas, Pend Oreille, Pierce, Skagit, Snohomish, Spokane, Thurston, Whatcom
<i>Carex heteroneura</i> (Different nerve sedge)	OBL	S	PNGL	Benton, Wahkiakum, Yakima, Wahkiakum, Yakima
<i>Carex hystericina</i> (Porcupine sedge)	OBL	S	PNGL	Ferry, Lincoln, Pend Oreille, Stevens
<i>Carex macrochaeta</i> (Long-awn sedge)	FAC	S	PNGL	Okanogan, Whatcom, Yakims

(Sheet 1 of 10)

¹ An asterisk (*) indicates that a species is also federally listed under the Endangered Species Act of 1973.

² From the National List of Plant Species That Occur in Wetlands: Northwest (Region 9), U.S. Fish and Wildlife Service (1988f). OBL = occur most always (>99%) under natural conditions in wetlands; FACW = usually occur in wetlands (67-99%), but occasionally found in nonwetlands; FAC = equally likely to occur in wetlands or nonwetlands (estimated probability 34-66%). A plus (+) or minus (-) sign is used with the FAC and FACW indicator categories to more specifically define the regional frequency of occurrence in wetlands. A plus sign indicates a higher probability of occurring in a wetland in that particular region.

³ State conservation ranks for Washington as assigned by the Washington Natural Heritage Program, Department of Natural Resources: E = endangered; T = threatened; S = sensitive, taxon vulnerable or declining; Review = more information is needed to assess status; P. Extirp. = possibly extirpated. For Idaho, rank is assigned by the Idaho Native Plant Society and maintained by the Idaho Conservation Data Center, Idaho Department of Fish and Game: S1 = taxon in danger of extinction; S2 = taxon threatened; S = sensitive, taxon with small or localized distribution; Review = taxon of concern, insufficient data to assign status; P. Extirpat. = possibly extirpated. For Montana, status is assigned by the Montana Natural Heritage Program: S1 = critically imperiled (≤5 occurrences); S2 = imperiled (6-20 occurrences); S3 = rare (21-100 occurrences); SH = historically known but only from records over 50 years ago; SU = possibly in peril but status uncertain; more information needed.

⁴ The combined habit symbols describe species life form: A = annual; B = biennial; C = clubmoss; E = emergent; F = forb; F3 = fern; G = grass; GL = grasslike (Cyperaceae, Juncaceae); I = introduced; N = native; P = perennial; Q = quillwort (Isoetaceae); S = shrub; Z = submerged; / = floating; \$ = succulent.

⁵ State Distribution indicates the general distribution by county as reported by aforementioned state offices.

Table 3 (Continued)

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Washington (cont.)				
<i>Carex magellanica</i> = <i>C. paupercula</i> (Poor sedge)	OBL	S	PNEGL	Chelan, Okanogan, Pend Oreille, Skagit, Stevens, Whatcom
<i>Carex norvegica</i> (Scandinavian sedge)	FACW	S	PNGL	Okanogan
<i>Carex pauciflora</i> (Few-flowered sedge)	OBL	S	PNGL	Clallam, Jefferson, King, Kittitas, Mason, San Juan, Snohomish, Whatcom
<i>Carex pluriflora</i> (Several-flowered sedge)	OBL	S	PNGL	Clallam, Whatcom
<i>Carex rostrata</i> (Beaked sedge)	OBL	S	PNEGL	Ferry, Pend Oreille
<i>Carex saxatilis</i> var. <i>major</i> (Russet sedge)	FACW+	S	PNGL	Chellan, Clallam, King, Okanogan, Skagit, Snohomish, Whatcom
<i>Carex stylosa</i> (Long-styled sedge)	FACW+	S	PNGL	Clallam, Jefferson, King, Skagit, Snohomish, Whatcom
<i>Carex sychnocephala</i> (Many-headed sedge)	FACW	S	PNGL	Ferry, Okanogan, Pend Oreille
<i>Chrysosplenium tetrandrum</i> (Northern golden-carpet (=Golden saxifrage))	OBL	S	PNF	Okanogan
<i>Cicuta bulbifera</i> (Bulb-bearing water hemlock)	OBL	S	PNF	Chelan, Island, Pend Oreille, Stevens, Whatcom
<i>Cochlearia officinalis</i> (Scurvygrass)	FACW	S	PNF	Clallam, Grays Harbor, Jefferson, Mason
<i>Coptis asplenifolia</i> (Spleenwort-leaved goldthread)	FAC	S	PNF	Clallam, Grays Harbor, Jefferson, Snohomish
<i>Corydalis aquae-gelidae</i> (Clackamas (=Coldwater) corydalis)	OBL	T	PN\$F	Skamania
<i>Cypripedium fasciculatum</i> (Clustered lady's slipper)	FAC	T	PNF	Shelan, Kittitas, Pierce, Skamania, Yakima
<i>Dryopteris cristata</i> (Crested shield-fern)	FACW	S	PNEF3	Pend Oreille, Stevens
<i>Eleocharis rostellata</i> (Beaked spike-rush)	OBL	S	PNGL	Grant, Okanogan, Yakima
<i>Epipactis gigantea</i> (Giant helleborine)	FACW+	S	PNF	Chelan, Clallam, Douglas, Grant, Lewis, Okanogan, San Juan, Skamania, Spokane, Stevens, Wahkiakum, Yakima
<i>Erigeron howellii</i> (Howell's daisy (=fleabane))	FACW	T	PNG	Skamania
<i>Erigeron humilis</i> (Arctic-alpine daisy (=Low fleabane))	FACW-	Review	PNF	Okanogan
<i>Eriophorum viridicarinatum</i> (Green-keeled cotton-grass)	OBL	S	PNEGL	Ferry, Okanogan, Pend Oreille, Spokane
<i>Erythronium revolutum</i> (Pink (=Mahogany) fawn-lily)	FAC+	S	PNF	Clallam, Grays Harbor, Jefferson, Lewis, Pacific, Pierce, Skagit, Thurston, Wahkiakum

Table 3 (Continued)

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Washington (cont.)				
<i>Fritillaria camschatcensis</i> (Black lily (=Kanchatka mission-bells))	FACW	S	PNF	Island, King, Snohomish, Whatcom
<i>Gaultheria hispidula</i> (Creeping snowberry)	FACW	S	NS	Pend Oreille
<i>Gentiana douglasiana</i> (Swamp gentian)	OBL	S	PNF	Clallam, Kittitas
<i>Gentiana glauca</i> (Glaucous gentian)	FAC	S	PNF	Okanogan, Whatcom
<i>Gentianella tenella</i> (Slender (=Dane's) gentian)	FACW-	S	ANF	Okanogan
<i>Geum rivale</i> (Water avens)	FACW	T	PNF	Ferry, Okanogan, Pend Oreille, Stevens
* <i>Howellia aquatilis</i> (Water howellia)	OBL		ANZF	Pierce, Spokae
<i>Hydrocotyle ranunculoides</i> (Floating water pennywort)	OBL	Review	PN/F	Kitsap, Pacific, Wahkiakum
<i>Hypericum majus</i> (Large Canadian St. John's wort)	FAC	S	ANF	Benton
<i>Isoetes nuttallii</i> (Nuttall's quillwort)	OBL	S	PNQ	Cowlitz, Linclon, San Juan, Thurston
<i>Lindernia dubia</i> var. <i>anagallidea</i> (False pimpernel)	OBL	Review	ANF	Benton, Franklin
<i>Liparis loeselii</i> (Twayblade (=Fen orchid))	FACW	E	PNF	San Juan
<i>Listera borealis</i> (Northern twayblade)	FACW	S	PNF	Ferry, Okanogan, Pend Oreille, Stevens, Whatcom
<i>Lobelia dortmanna</i> (Water lobelia)	OBL	T	PNEF	Clallam, King, Mason, San Juan, Skagit, Snohomish, Wahtcom
<i>Lobelia kalmii</i> (Kalm's (=Brook) lobelia)	OBL	E	PNF	Yakima
<i>Microseris borealis</i> = <i>Apargidium boreale</i> (Northern (=Common) microseris)	OBL	S	PIF	Clallam, Pierce, Skamania
<i>Muhlenbergia glomerata</i> (Marsh muhly)	FACW	S	PNG	Pend Oreille, Spokane
<i>Nymphaea tetragona</i> (Pygmy water-lily)	OBL	P. Extirp.	PNZF	Whatcom
<i>Parnassia fimbriata</i> var. <i>hoodiana</i> (Fringed grass-of-parnassus)	OBL	S	PNF	Skamania
<i>Parnassia kotzebuei</i> (Kotzebue's grass-of-parnassus)	OBL	S	PNF	Okanogan
<i>Parnassia palustris</i> var. <i>neogaea</i> (Northern grass-of-parnassus)	OBL	S	PNF	Grays Harbor, Jefferson, Mason, Pacific

Table 3 (Continued)

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Washington (cont.)				
<i>Plantago macrocarpa</i> (Alaska plantain)	OBL	S	PNF	Clallam, Grays Harbor, Jefferson
<i>Platanthera chorisiana</i> (Choris bog-orchid)	OBL	T	PNF	King, Snohomish
<i>Platanthera obtusata</i> (Small northern bog-orchid)	FACW	S	PNF	Ferry, King, Whatcom
<i>Platanthera sparsiflora</i> (Canyon bog-orchid)	FACW	S	PNF	Chelan, Skamania, Whatcom
<i>Potamogeton obtusifolius</i> (Blunt-leaved pondweed)	OBL	S	PNZF	Mason, San Juan, Skagit
<i>Puccinellia nutkaensis</i> (Alaska alkaligrass)	OBL	S	PNF	Island, Jefferson, Kitsap, San Jaun, Skagit, Thurston, Whatcom
<i>Ranunculus cooleyae</i> (Cooley's buttercup)	FACW	S	PNF	Grays Harbor, Snohomish
<i>Ranunculus populago</i> (Mountain buttercup)	FACW	S	PNF	Pierce
<i>Rorippa columbiana</i> (Persistentsepal (=Columbia) yellow-cress)	OBL	T	PNEF	Benton, Franklin, Grant, Skamania
<i>Rotala ramosior</i> (Lowland toothcup)	OBL	Review	ANF	Benton, Franklin, Grant
<i>Rubus acaulis</i> (Nagoonberry (=Dwarf raspberry))	FAC+	S	PNF	Okanogan
<i>Salix candida</i> (Hoary willow)	OBL	S	NS	Okanogan, Pend Oreille, Stevens
<i>Salix glauca</i> (Glaucous willow (=Gray-leaf willow))	FACW	S	NS	Okanogan
<i>Salix sessilifolia</i> (Soft-leaved willow)	FACW	T	NS	Cowlitz, Skagit, Wahkiakum, Whatcom
<i>Salix tweedyi</i> (Tweedy's willow)	FACW+	S	NS	Okanogan
<i>Salix vestita</i> var. <i>erecta</i> (Rock willow)	FAC	P. Extirp.	ns	Chelan
<i>Sanguisorba menziesii</i> (Menzie's burnet)	OBL	S	PNF	Clallam, Grays Harbor
<i>Saxifraga cernua</i> (Nodding saxifrage)	FACW-	S	PNF	Okanogan
<i>Saxifraga rivularis</i> (Pygmy (=Alpine-brook) saxifrage)	FAC+	S	PNF	Chelan, Clallam, Jefferson, Okanogan, Pierce, Skagit, Snohomish, Whatcom
<i>Sidalcea oregana</i> var. <i>calva</i> (Oregon checker-mallow)	FACW-	E	PNF	Chelan, Kittitas
<i>Sisyrinchium sarmentosum</i> (Pale blue-eyed grass)	OBL	T	PNF	Skamania, Yakima

Table 3 (Continued)

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Washington (cont.)				
<i>Sisyrinchium septentrionale</i> (Northern blue-eyed grass)	FACW+	S	PNF	Ferry, Okanogan, Pend Oreille, Stevens, Yakima
<i>Spartina pectinata</i> (Prairie cordgrass)	OBL	S	PNG	Franklin, Pend Orielle, Spokane
<i>Spiranthes porrifolia</i> = <i>S. romanzoffiana</i> (Western (=Hooded) ladies-tresses)	OBL	S	PNF	Chelan, Kittitas, Lincoln, Okanogan, Skamania
<i>Swertia perennis</i> (Swertia)	FACW	Review	PNF	Chelan
<i>Tauschia tenuissima</i> = <i>Lomatium orogeninoides</i> (Leiberg's tauschia)	FAC+	P. Extirp.	PNF	Spokane
<i>Thalictrum dasycarpum</i> (Purple meadowrue)	FACW	S	PNF	Pend Oreille
<i>Teucrium canadense</i> ssp. <i>viscidum</i> (Woodsage (=American germander))	FAC+	S	PNEF	Douglas, Grant, Okanogan, Spokane, Stevens
<i>Utricularia intermedia</i> (Flat-leaved bladderwort)	OBL	S	ANZF	Clallam, King, Skamania, Snohomish
<i>Viola renifolia</i> (Kidney-leaved violet)	FACW	P. Extirp.	ANZF	Clallam, Spokane
<i>Woodwardia fimbriata</i> (Chain fern)	FACW	S	PNF3	Jefferson, Kitsap, Mason, Pierce, Thurston
Idaho				
<i>Andromeda polifolia</i> (Bog-rosemary)	OBL	S1	NS	Bonner
<i>Aster junciformis</i> (Rush aster)	OBL	S	PNF	Bonner, Kootenai
<i>Betula pumila</i> var. <i>glandulifera</i> (Dwarf (=Bog) birch)	OBL	S	NS	Bonner, Boundary
<i>Blechnum spicant</i> (Deer fern)	FAC+	S	PNF3	Benewah, Bonner, Boundary, Kootenai, Shoshone
<i>Botrychium lanceolatum</i> (Lance-leaf grapefern (=Triangle moonwort))	FACW	S2	PNF3	Bonner, Boundary, Kootenai, Shoshone
<i>Botrychium pinnatum</i> = <i>B. boreale</i> (Northern moonwort (=grapefern))	FAC	S2	PNF3	Bonner, Boundary, Kootenai, Shoshone
<i>Carex buxbaumii</i> (Buxbaum's (=Brown bog) sedge)	OBL	S	PNEGL	Bonner, Boundary
<i>Carex californica</i> (California sedge)	OBL	S	PNGL	Shoshone
<i>Carex comosa</i> (Bristly (=Bearded) sedge)	OBL	S1	PNEGL	Bonner, Boundary
<i>Carex leptalea</i> (Bristle-stalked sedge)	OBL	S	PNGL	Bonner, Boundary

Table 3 (Continued)

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Idaho (cont.)				
<i>Carex livida</i> (Pale (=Livid) sedge)	OBL	S	PNGL	Bonner, Kootenai
<i>Carex paupercula</i> (Poor (=Few flowered) sedge)	OBL	S2	PNGL	Bonner, Boundary
<i>Carex rostrata</i> (Beaked sedge)	OBL	S	PNEGL	Bonner, Kootenai
<i>Cicuta bulbifera</i> (Bulb-bearing waterhemlock)	OBL	S	PNF	Bonner, Boundary
<i>Dryopteris cristata</i> (Crested shield-fern)	FACW	S	PNEF3	Bonner, Boundary
<i>Epipactis gigantea</i> (Giant helleborine)	FACW+	S1	PNF	Bonner, Boundary
<i>Eriophorum viridicarinatum</i> (Green keeled cotton-grass)	OBL	S1	PNEGL	Bonner, Boundary
<i>Gaultheria hispidula</i> (Creeping snowberry)	FACW	S2	NS	Bonner, Boundary
<i>Hypericum majus</i> (Large Canadian St. John's wort)	FAC	S2	ANF	Bonner, Boundary, Kootenai
<i>Mimulus alsinoides</i> (Chickweed monkeyflower)	OBL	S1	ANF	Shoshone
<i>Muhlenbergia racemosa</i> (Green muhly)	FAC	S1	PNG	Bonner, Boundary
<i>Nymphaea tetragona</i> (Pygmy water-lily)	OBL	P. Extirp.	PNZF	Bonner
<i>Oxalis trillifolia</i> (Trillium-leaved woodsorrel)	FAC	S1	PNF	Bonner, Boundary
<i>Psilocarphus tenellus</i> (Slender woolly-heads)	FACW	S	ANF	Kootenai
<i>Rhynchospora alba</i> (White beakrush)	OBL	S1	PNGL	Bonner, Boundary, Kootenai
<i>Romanzoffia sitchensis</i> (Sitka mistmaiden)	FACW-	S	PNF	Boundary, Shoshone
<i>Rubus spectabilis</i> (Salmonberry)	FAC	S1	NS	Bonner
<i>Salix candida</i> (Hoary willow)	OBL	S	NS	Bonner, Boundary
<i>Salix pedicellaris</i> (Bog willow)	OBL	S2	NS	Bonner, Boundary
<i>Scheuchzeria palustris</i> (Pod grass)	OBL	S2	PNEF	Bonner, Boundary, Kootenai
<i>Scirpus fluviatilis</i> (River bulrush)	OBL	Review	PNEGL	Kootenai

Table 3 (Continued)

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Idaho (cont.)				
<i>Scirpus subterminalis</i> (Water (=Subterminate) bulrush)	OBL	S	PNXGL	Bonner, Boundary, Kootenai
<i>Thalictrum dasycarpum</i> (Purple meadowrue)	FACW	Review	PNG	Bonner, Boundary
<i>Trientalis arctica</i> (Northern (=Arctic) starflower)	OBL	S	PNF	Bonner, Boundary
<i>Vaccinium oxycoccos</i> (Bog (=Small) cranberry)	OBL	S2	NS	Bonner
<i>Vallisneria americana</i> (Wild celery (=Tapegrass))	OBL	S	PIZF	Kootenai
Montana				
<i>Amerorchis rotundifolia</i> (Round leaf orchid)	OBL	S2-S3	PNF	Flathead, Lewis and Clark, Lincoln, Powell
<i>Aster frondosus</i> (Alkali (=Leafy) aster)	FACW+	S1	ANF	Sanders
<i>Bidens beckii</i> = <i>Megalodonta beckii</i> (Beck water-marigold)	OBL	S2	PNZF	Flathead, Lake, Missoula
<i>Boisduvalia densiflora</i> (Dense-flower spike-primrose)	FACW-	SH	ANF	Sanders
<i>Brasenia schreberi</i> (Watershield)	OBL	S2	PNZF	Flathead, Lake, Lincoln, Missoula
<i>Cardamine oligosperma</i> var. <i>kamtschatica</i> (Few-seeded bittercress)	FACW	S1	ANF	Flathead
<i>Carex amplifolia</i> (Big-leaf sedge)	FACW+	S1	PNGL	Sanders
<i>Carex comosa</i> (Bristly (=Bearded) sedge)	OBL	S1	PNEGL	Flathead
<i>Carex crawei</i> (Crawe's sedge)	FACW	S2	PNGL	Powell
<i>Carex lenticularis</i> var. <i>dolia</i> (Goose-grass (=Shore) sedge)	FACW+	S1	PNGL	Flathead
<i>Carex livida</i> (Pale (=Livid) sedge)	OBL	S3	PNGL	Flathead, Lake, Lewis and Clark, Missoula, Powell
<i>Carex neurophora</i> (Alpine-nerve sedge)	FACW	S2	PNGL	Granite, Missoula, Ravalli
<i>Carex paupercula</i> (Poor sedge)	OBL	S3	PNEGL	Flathead, Lake, Lincoln, Missoula, Ravalli
<i>Carex prairea</i> (Prairie sedge)	OBL	S1	PNGL	Flathead
<i>Carex rostrata</i> (Beaked sedge)	OBL	S1	PNEGL	Flathead, Sanders

Table 3 (Continued)

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Montana (cont.)				
<i>Carex scoparia</i> (Pointed broom sedge)	FACW	S1	PNGL	Missoula, Ravalli
<i>Carex sychnocephala</i> (Many-headed sedge)	FACW	S1	PNGL	Lake, Lincoln
<i>Castilleja exilis</i> (Small-flower Indian paintbrush)	OBL	S2	ANF	Jefferson
<i>Centunculus minimus</i> (Chaffweed)	FACW	S1	ANF	Lake, Missoula, Ravalli
<i>Chrysosplenium tetrandrum</i> (Northern golden-carpet (=golden saxifrage))	OBL	S3	PNF	Granite, Ravalli
<i>Cyperus acuminatus</i> (Short-point flatsedge)	OBL	S1	ABPNG L	Sanders
<i>Cyperus erythrorhizos</i> (Red-root sedge)	OBL	SH	ABPNG L	Flathead, Missoula
<i>Cyperus rivularis</i> (Shining flatsedge)	OBL	S1	ANGL	Missoula, Ravalli
<i>Cypripedium fasciculatum</i> (Clustered lady's slipper)	FAC	S2	PNF	Lake, Sanders
<i>Cypripedium passerinum</i> (Sparrow's-egg lady's slipper)	FACW	S2	PNF	Flathead, Lake, Lewis and Clark, Lincoln, Powell
<i>Drosera anglica</i> (English sundew)	OBL	S2	PNF	Flathead, Lake, Lewis and Clark, Lincoln, Missoula, Powell, Ravalli
<i>Dryopteris cristata</i> (Crested shield fern (=Buckler fern))	FACW	S2	PNEF3	Flathead, Lake, Missoula, Ravalli
<i>Elatine brachysperma</i> (Short-seeded waterwort)	OBL	SU	ANE/F	Missoula
<i>Elatine californica</i> (California waterwort)	OBL	SU	ANEF	Lake
<i>Eleocharis rostellata</i> (Beaked spikerush)	OBL	S2	PNGL	Flathead, Lake, Sanders
<i>Epipactis gigantea</i> (Giant helleborine)	FACW+	S2	PNF	Flathead, Granite, Lake, Powell
<i>Eriophorum gracile</i> (Slender cotton-grass)	OBL	SU	PNEGL	Flathead, Lake, Lincoln
<i>Gentiana glauca</i> (Glacous gentian)	FAC	S1	PNF	Flathead
<i>Gentianopsis simplex</i> (One-flower (=Hiker's) gentian)	FACW	S1	ANF	Missoula
<i>Heteranthera dubia</i> = <i>Zosterella dubia</i> (Water star-grass)	OBL	S1	APN/F	Flathead, Sanders
<i>Heterocodon rariflorum</i> (Western pearl-flower)	FAC	S1	ANF	Lake, Ravalli, Sanders

Table 3 (Continued)

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Montana (cont.)				
* <i>Howellia aquatilis</i> (Water howellia)	OBL	S2	ANZF	Lake, Missoula
<i>Juncus albescens</i> (Northern white (=Three-flower) rush)	OBL	S2	PNGL	Flathead
<i>Juncus covillei</i> var. <i>covillei</i> (Coville's rush)	FACW	SU	PNGL	Missoula, Ravalli
<i>Juncus hallii</i> (Hall's rush)	FAC	S2	PNGL	Powell
<i>Kalmia triglumis</i> = <i>K. microphylla</i> (Alpine bog (=Pale) laurel)	FACW+	S1	NS	Flathead, Missoula
<i>Kobresia simpliciuscula</i> (Simpe kobresia)	FAC	S2	PNGL	Granite
<i>Lilaea scilloides</i> (Flowering quillwort)	OBL	S1	ANZF	Lake
<i>Liparis loeselii</i> (Loesel's twayblade (=Fen orchid))	FACW	S1	PNF	Lake
<i>Lomatogonium rotatum</i> (Marsh felwort)	OBL	S1	ABNF	Ravalli
<i>Lycopodium inundatum</i> (Northern bog clubmoss)	OBL	S1	ANC	Flathead Missoula
<i>Mertensia bella</i> (Oregon bluebells)	FACW	S1	PNF	Missoula
<i>Mimulus breviflorus</i> (Short-flower monkey-flower)	FACW	S1	ANF	Flathead
<i>Mimulus primuloides</i> (Primrose monkey-flower)	FACW+	S2	PNF	Ravalli
<i>Najas guadalupensis</i> (Southern naiad)	OBL	S1	ANZF	Flathead, Lake, Ravalli
<i>Nymphaea tetragona</i> (Pygmy water-lily)	OBL	S1	PNZF	Flathead, Lake, Missoula
<i>Penstemon angustifolius</i> (Sulfur (=Taper-leaf) beardtongue)	FAC	S1	PNF	Ravalli
<i>Penstemon globosus</i> (Globe beardtongue)	FAC+	S2	PNF	Granite
<i>Petasites frigidus</i> var. <i>nivalis</i> (Palmate-leaf coltsfoot)	FACW	S1	ANF	Flathead
<i>Potamogeton obtusifolius</i> (Blunt-leaf pondweed)	OBL	S2	PNZF	Flathead, Lake, Missoula
<i>Psilocarphus brevissimus</i> (Dwarf Woolly-heads)	FACW+	S1	ANG	Sanders
<i>Ranunculus orthorhynchus</i> (Straightbeak buttercup)	FACW-	S1	PNF	Granite

Table 3 (Concluded)

Scientific Name ¹ (Common Name)	Region 9 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Montana (cont.)				
<i>Ranunculus pedatifidus</i> (Northern (=Surefoot) buttercup)	FAC	S1	PNF	Flathead, Granite
<i>Ranunculus verecundus</i> (Timberline (=Wetslope) buttercup)	FACW-	S2	PNF	Flathead
<i>Ribes triste</i> (Swamp red currant)	FAC	S1	IS	Granite, Ravalli
<i>Rotala ramosior</i> (Toothcup)	OBL	S1	ANF	Lake, Missoula, Ravalli
<i>Salix wolfii</i> var. <i>wolfii</i> (Wolf willow)	FACW+	S2	NS	Ravalli
<i>Scheuchzeria palustris</i> (Pod grass)	OBL	S2	PNEF	Flathead, Lake, Lincoln, Missoula
<i>Scirpus cespitosus</i> (Tufted bulrush)	OBL	S2	PNGL	Flathead, Powell
<i>Scirpus hudsonianus</i> = <i>Eriophorum alpinum</i> (Hudson's bay bulrush (=Alpine cotton grass))	OBL	S1	PNGL	Flathead
<i>Scirpus subterminalis</i> (Water (=Subterminate) bulrush)	OBL	S2	PNZGL	Flathead, Lewis and Clark, Lincoln, Missoula
<i>Selaginella selaginoides</i> (Low (=Club) spike-moss)	FACW+	S2	PNC	Granite
<i>Senecio pauciflorus</i> (Few-flower butterweed (=groundsel))	FAC	S1	PNF	Flathead
<i>Sidalcea oregana</i> (Oregon checker mallow)	FACW-	S1	PNF	Lake
<i>Stellaria crassifolia</i> (Fleshy starwort)	FACW	S1	PNF	Sanders
<i>Thalictrum alpinum</i> (Alpine meadowrue)	FACW-	S1	PNF	Granite
<i>Trifolium cyanthiferum</i> (Cup clover)	FAC	S1	ANF	Missoula, Ravalli
<i>Utricularia intermedia</i> (Flat-leaf bladderwort)	OBL	S1	ANZF	Flathead, Missoula, Powell
<i>Veratrum californicum</i> (California false-hellebore)	FAC+	S1	PNF	Granite
<i>Viola renifolia</i> (Kidney-leaf white violet)	FACW	S3	PNF	Flathead, Jefferson, Lake, Lincoln, Missoula
<i>Wolffia columbiana</i> (Columbia watermeal)	OBL	S2	PN/F	Missoula

**Table 4
Federal and State-Listed Threatened and Endangered Wetland and Aquatic Plant
Species Within the Fort Worth District**

Scientific Name ¹ (Common Name)	Region 6 Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
<i>Aster puniceus</i> ssp. <i>elliottii</i> var. <i>scabricaulis</i> (Rough-stem aster)	FACW+	S2	PNF	Anderson, Cherokee, Franklin, Henderson, Hopkins, Smith, Van Zandt, Wood
<i>Bartonia texana</i> (Texas screwstem)	OBL	S2	ANF	Angelina, Nacogdoches, San Augustine
<i>Cyperus onerosus</i> (Dune umbrella sedge)	FACW	S2	PNEGL	Andrews
<i>Eleocharis cylindrica</i> (Cylinder spikerush)	OBL	S1	PNEGL	Lubbock (H)
<i>Eriocaulon koernickianum</i> (Small-headed pipewort)	OBL	S1	PIEF	Anderson, Brazos (H), Limestone, Leon (?)
<i>Hibiscus dasycalyx</i> (Neches River rose-mallow)	OBL	S1	PNF	Cherokee, Harrison, Houson
* <i>Hymenoxys texana</i> (Texas prairie dawn)	FACW	S2	ANF	La Salle (?)
<i>Isoetes lithophylla</i> (Rock quillwort)	OBL	S2	PNEQ	Burnet, Llano, Mason
<i>Leavenworthia aurea</i> var. <i>texana</i> (Texas golden glade cress)	FACW+	S1	ANF	Nacogdoches (I), Sabine, San Augustine
<i>Lesquerella pallida</i> = <i>L. gracilis</i> (White (=Spreading) bladderpod)	FACW	S1	ABNF	San Augustine
<i>Physostegia correllii</i> (Correll's false dragon-head)	OBL	S2	PNF	Bexar (H), Travis, Val Verde
<i>Salvia penstemonoides</i> (Big red sage)	FACW+	S1	PNF	Bandera, Bexar (H), Gillespie (H), Guadalupe (H), Kendall, Kerr (H), Real, Travis (I), Wilson (H)
<i>Trillium texanum</i> = <i>T. pusillum</i> var. <i>texana</i> (Texas trillium)	FAC	S2-S3	PNF	Cass, Harrison, Houston (H), Nacogdoches, Panola (H), Rusk, Smith, Wood (?)
<i>Valerianella texana</i> (Edwards Plateau cornsalad)	FAC+	S2	ANF	Burnet, Gillespie, Llano
* <i>Zizania texana</i> (Texas wild-rice)	OBL	S1	PNEG	Hays

¹ An asterisk (*) indicates that a species is also federally listed under the Endangered Species Act of 1973.

² From the ANational List of Plant Species That Occur in Wetlands: South Plains (Region 6),@U.S. Fish and Wildlife Service, 1988. OBL = occur most always (>99%) under natural conditions in wetlands; FACW = usually occur in wetlands (67-99%), but occasionally found in nonwetlands; FAC = equally likely to occur in wetlands or nonwetlands (estimated probability 34-66%). A plus (+) or minus (-) sign is used with the FAC and FACW indicator categories to more specifically define the regional frequency of occurrence in wetlands. A plus sign indicates a higher probability of occurring in a wetland.

³ State (S) conservation ranks (1 = endangered; 2 = threatened) as assigned by the Endangered Resources Branch of the Texas Parks and Wildlife Department and the Texas Conservation Data Center of The Nature Conservancy.

⁴ The combined habit symbols describe species life form: A = annual; B = biennial; E = emergent; F = forb; G = grass; GL = grasslike (Cyperaceae, Juncaceae); I = introduced; N = native; P = perennial; Q = quillwort (Isoetaceae).

⁵ State Distribution indicates the general distribution by county as reported by the Texas Parks and Wildlife Department and the Texas Conservation Data Center. Qualifiers following counties are defined as follows: H = historical (not observed or collected within 50 years); I = introduced; ? = questionable locality or identification.

**Table 5
Federal and State-Listed Threatened and Endangered Wetland and Aquatic Plant
Species Within the Galveston District**

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Texas (Region 6)				
<i>Bartonia texana</i> (Texas screwstem)	OBL	S2	ANF	Hardin, Jasper, Polk, Newton, San Jacinto, Tyler
<i>Cardiospermum dissectum</i> (Chihuahua ballon-vine)	FACW	S2	ANF	Hildago, Starr, Zapata
<i>Eriocaulon koernickianum</i> (Small-headed pipewort)	OBL	S1	PIEF	Tyler (H)
<i>Hibiscus dasycalyx</i> (Neches River rose-mallow)	OBL	S1	PNF	Trinity
* <i>Hymenoxys texana</i> (Texas prairie dawn)	FACW	S2	ANF	Fort Bend, Harris
<i>Leitneria floridana</i> (Corkwood)	OBL	S1	NEST	Brazoria, Chambers (H), Fort Bend, Jefferson
<i>Physostegia correllii</i> (Correll's false dragon-head)	OBL	S2	PNF	Galveston, Montgomery (H), Zapata
Louisiana (Region 2)				
<i>Amsonia ludoviciana</i> (Louisiana blue star (= L. slimpod))	FAC	S3	PNF	Calcasieu, Vernon
<i>Asclepias incarnata</i> (Swamp milkweed)	OBL	S2	PNF	Vernon
<i>Burmannia biflora</i> (Northern burmannia)	OBL	S1	AN-F	Vernon
<i>Calopogon barbatus</i> (Bearded grass-pink)	FACW+	S1	PNF	Vernon
<i>Calopogon pallidus</i> (Pale grass-pink)	OBL	S1-S2	PNF	Beuregard, Vernon
<i>Carex microdonta</i> (Little-toothed sedge)	FACW	S2	PNGL	Vernon
<i>Dalea carnea</i> var. <i>gracilis</i> (Hammock prairie clover)	FACW	SR	NFH	Beauregard, Calcasieu, Vernon

(Sheet 1 of 3)

¹ An asterisk (*) indicates that a species is also federally listed under the Endangered Species Act of 1973.

² From the National List of Plant Species That Occur in Wetlands: South Plains (Region 6) and the Southeast (Region 2), U.S. Fish and Wildlife Service (1988e). OBL = occur most always (>99%) under natural conditions in wetlands; FACW = usually occur in wetlands (67-99%), but occasionally found in nonwetlands; FAC = equally likely to occur in wetlands or nonwetlands (estimated probability 34-66%). A plus (+) or minus (-) sign is used with the FAC and FACW indicator categories to more specifically define the regional frequency of occurrence in wetlands. A plus (+) sign indicates a higher probability of occurring in a wetland in that particular region.

³ State (S) conservation ranks for Texas (1 = endangered; 2 = threatened) assigned by the Endangered Resources Branch of the Texas Parks and Wildlife Department and the Texas Conservation Data Center of The Nature Conservancy. State ranks for Louisiana assigned by the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program: S1 = critically imperiled (≤5 occurrences); S2 = imperiled (6-20 occurrences); S3 = rare (21-100 occurrences); SH = historically known but not verified in last 20 years; SR = reported in state but without persuasive documentation; ? = indicates uncertainty about assigned rank.

⁴ The combined habit symbols describe species life form: A = annual; E = emergent; F = forb; G = grass; GL = grasslike (Cyperaceae, Juncaceae); H = partly woody; I = introduced; N = native; P = perennial; S = Shrub; T = tree; Z = Submerged; / = floating; - = saprophytic.

⁵ Distribution in Texas indicates the general distribution by county as reported by the Texas Parks and Wildlife Department and the Texas Conservation Data Center. Alphabetic qualifier following counties: H = historical (not observed or collected within 50 years). Distribution in Louisiana indicates general distribution by parish as reported by the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program.

Table 5 (Continued)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Louisiana (Region 2) (cont.)				
<i>Eleocharis elongata</i> (Slim spikerush)	OBL	S1?	PNEGL	Calcasieu
<i>Eleocharis tricostata</i> (Three-angle spikerush)	FACW+	S1?	GL	Calcasieu
<i>Lachnocaulon digynum</i> (Pineland bog button)	FACW+	S3	PNEF	Beauregard, Vernon
<i>Ludwigia microcarpa</i> (Small-fruit seedbox (=Ludwigia))	OBL	S1	PNEF	Calcasieu
<i>Nymphaea elegans</i> (Blue water lily)	OBL	S1-S2	PNZ/F	Calcasieu
<i>Panicum flexile</i> (Wiry witchgrass)	FAC+	S1?	ANG	Vernon
<i>Panicum strigosum</i> = <i>Dichantheium leucoblepharis</i> (Rough-hair witchgrass)	FAC	S1	PNG	Calcasieu
<i>Panicum tenerum</i> (Southeastern (=Bluejoint) panic grass)	FACW	S1?	PNEG	Vernon
<i>Platanthera blephariglottis</i> var. <i>conspicua</i> (White-fringed orchid)	OBL	S1	PNF	Vernon
<i>Platanthera integra</i> (Yellow fringeless orchid)	OBL	S2-S3	PNF	Beauregard, Vernon
<i>Psilocarya nitens</i> (Short-beaked baldrush)	OBL	A2-S3	APNEGL	Calcasieu, Vernon
<i>Rhynchospora compressa</i> (Flat-fruit beakrush)	OBL	S1-S2	APNGL	Beauregard
<i>Rhynchospora divergens</i> (Spreading beakrush)	OBL	S1	APNGL	Calcasieu
<i>Rhynchospora macra</i> (Large beakrush)	OBL	S2	PNGL	Vernon
<i>Rhynchospora miliacea</i> (Millet beakrush)	OBL	S2	PNEGL	Calcasieu, Vernon
<i>Rhynchospora tracyi</i> (Tracy's beakrush)	OBL	SH	PNGL	Calcasieu
<i>Sabatia macrophylla</i> (Large-leaved rose gentian)	FACW+	S2-S3	NF	Beauregard, Vernon
<i>Samolus ebracteatus</i> (Brookweed (=Coast water pimpernel))	OBL	S1	PNF	Calcasieu
<i>Schwalbea americana</i> (American chaffseed)	FAC	SH	PNF	Calcasieu
<i>Scleria verticillata</i> (Low nutrush)	OBL	S1	ANGL	Calcasieu

Table 5 (Concluded)

Scientific Name ¹ (Common Name)	Wetland Indicator ²	State Status ³	Habit ⁴	State Distribution ⁵ (County Record)
Louisiana (Region 2) (cont.)				
<i>Scutellaria cardiophylla</i> (Heart-leaved skullcap)	FAC	S2	ANF	Calcasieu, Vernon
<i>Thalictrum revolutum</i> (Windflower (=Wax-leaf meadow-rue))	FAC+	S1?	PNF	Vernon
<i>Uvularia sessilifolia</i> (Sessil-leaved bellwort)	FAC+	S2	PNF	Vernon
<i>Xanthorhiza simplicissima</i> (Shrubby yellowroot)	FACW-	S1	NS	Vernon
<i>Xyris drummondii</i> (Drummond's yellow-eyed grass)	OBL	S3	PNG	Beauregard, Vernon
<i>Zigadenus densus</i> (Black snakeroot)	FACW+	S2	PNF	Vernon
<i>Zigadenus leimanthoides</i> (Pinebarren death camas)	FACW	S1	PNF	Vernon

(Sheet 3 of 3)

**Table 6
Laws that Govern Protection of State-Listed Threatened and Endangered Plant Species**

State	Title of Law (Year Enacted)	Provisions, Authority, and Penalties
St. Paul District		
Iowa	Endangered Plants and Wildlife Law Iowa Code Chapter 481B (1975)	Authorizes the Natural Resource Commission and the Director of the Department of Natural Resources to: establish lists of state threatened and endangered plant species; prohibit capture, possession, transport, sale, or purchase of listed species; and establish recovery and permitting programs. Violations are classified as misdemeanors punishable by fine.
Minnesota	Minnesota Endangered Species Statute Section 84.0895; Rules Parts 6212.1800 to 6212.2300 (1986)	Minnesota's Endangered Species Statute and associated Rules impose a variety of restrictions, a permit program, and several exemptions pertaining to species designated as endangered or threatened within the state of Minnesota. Violations are classified as misdemeanors.
North Dakota	None	Current laws protect rare animal species only.
South Dakota	None	Current laws protect rare animal species only.
Wisconsin	Wisconsin Endangered and Threatened Species Statute 29.415 (1971); Natural Resources Administrative Rule NR27 (1st plant list established in 1979)	Allows the Department of Natural Resources to: establish lists of endangered species; restrict the taking, possession, transportation, processing or sale of state-listed threatened and endangered species; and establish a permitting process for exemptions. Violations punishable by fine; intentional violators can be fined and/or imprisoned. Species listed as Special Concern are not legally protected by this law.
Fort Worth District		
Texas	Chapter 88 Sections 69.01-69.14 Texas Parks and Wildlife Code (1988)	Texas state laws and regulations prohibit commerce in threatened and endangered plants and the collection of listed plant species from public land without a permit issued by the Texas Parks and Wildlife Department (TPWD). The Endangered Resources Branch of the TPWD is responsible for listing and recovery of endangered species in Texas. Violations are misdemeanors punishable by fine. NOTE: The current list of rare plants in Texas is not recognized by this law and as such, has no legal status.
Galveston District		
Louisiana	None	Current laws protect rare wildlife (defined as vertebrates and invertebrates) only.
Texas	Chapter 88 Sections 69.01-69.14 Texas Parks and Wildlife Code (1988)	Texas state laws and regulations prohibit commerce in threatened and endangered plants and the collection of listed plant species from public land without a permit issued by the Texas Parks and Wildlife Department (TPWD). The Endangered Resources Branch of the TPWD is responsible for listing and recovery of endangered species in Texas. Violations are misdemeanors punishable by fine. NOTE: The current list of rare plants in Texas is not recognized by this law and as such, has no legal status.
Seattle District		
Idaho	None	Current laws protect rare animal species only.
Montana	None	Current laws protect rare animal species only.
Washington	None	NOTE: Although there is no statewide legal authority to list or protect plants in Washington, species lists are maintained by the Natural Heritage Program, Department of Natural Resources. Some counties have ordinances which recognize these lists and can indirectly provide protection of sensitive plants by requiring approval of county development projects.

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