

SECTION 7 GUIDELINES - Snake River Basin Office
***Howellia aquatilis* (water howellia) - Threatened**

I. BACKGROUND

Status

Howellia aquatilis was listed as threatened on July 14, 1994 (59 FR 35860). Small populations are currently extant in California, Idaho, Montana, and Washington. This species is threatened by loss of wetland habitat and habitat changes due to timber harvesting, livestock grazing, residential development, and competition by introduced plant species.

Species Description

Howellia aquatilis is an annual aquatic species that grows as a mostly submerged plant rooted in the bottom sediments of ponds and sloughs. It is a member of the Bellflower family (Campanulaceae). The stems branch several inches from the base with some branches extending to the surface of the water. The numerous, narrow leaves are approximately 1 to 2 inches long. Two types of flowers are produced: 1) small flowers with an inconspicuous corolla (floral tube) develop beneath the water surface, and 2) small (ca. 1/4 inch across), white, 5-lobed flowers form above the water surface. Both types of flowers produce thin-walled fruits (approx. 1 or more inches in length) that contain 5 shiny brown seeds about 1/4 inch long (adapted from Shelly 1994).

Life History

The population size fluctuates yearly for this taxon, and appears to be dependant on fluctuations in precipitation and temperature patterns (Shelley and Moseley 1988). Populations vary from a few individuals to thousands of plants; however, due to the presence of seed banks, the total number of individuals cannot be reliably estimated (Shelley and Moseley 1988). The flowers that emerge from the water's surface are usually visible from late June until August. It is likely that outcrossing is extremely restricted in *H. aquatilis*, which appears to rely primarily on selfing.

Population Description/Range

Howellia aquatilis is currently known from 14 sites (which consist of single geographically isolated occurrences or clusters of closely adjacent occurrences): 1 in Idaho (Latah County); 3 in Washington (Clark and Spokane Counties); 9 in Montana (Lake and Missoula Counties) (Shelly 1994); and 1 in California (Mendocino County). The population in Idaho is on private land in Latah County.

Although 4 sites were previously documented from northwestern Oregon (Clackamas, Marion,

and Multnomah Counties), these have not been successfully relocated.

Habitat

Howellia aquatilis may be found in two general types of wetland/ riparian habitats: 1) small isolated ponds (also known as vernal or seasonal ponds or potholes), and 2) river oxbows that may be abandoned or hydrologically linked to the adjacent river system.

These habitats are generally shallow (less than 1 meter deep), but the species has occasionally been observed in deeper water (up to 2 m in depth). The ponds may occur in openings in forest vegetation (such as ponderosa pine). Occupied habitat, including ponds and river oxbows, are usually surrounded in part by deciduous trees and/or shrubs.

Howellia aquatilis occupies open microhabitats within the ponds it inhabits. It is thought that this taxon cannot compete well with other aquatic species. These ponds generally dry completely by the end of the growing season (Shelly and Moseley 1988).

Associated species may include *Carex vesicaria* (inflated sedge), *Equisetum fluviatile* (water horsetail), *Sium suave* (hemlock water-parsnip), and *Ranunculus aquatilis* (hairleaf water buttercup).

In Idaho, the forests bordering the broad river bottom (i.e., along the Palouse River in Latah County) are dominated by a mixture of coniferous species including *Pinus contorta*, *Larix occidentalis*, *Thuja plicata* (western red-cedar), *Abies grandis*, *Pinus ponderosa*, and *Abies lasiocarpa* (Shelly and Moseley 1988). Species immediately bordering the wetland include *Craetagus douglasii* (hawthorn), *Cornus stolonifera*, *Alnus incana*, *Symphoricarpos albus*, *Phalaris arundinacea*, and *Rosa* spp. Associated aquatic species include *Alisma plantago-aquatica*, *Sium suave*, *Carex rostrata*, *Lemna minor* (duckweed), *Eleocharis* sp., and *Callitriche heterophylla* (Shelly and Moseley 1988).

Threats

In many areas, *Howellia aquatilis* is threatened by grazing, road construction and maintenance, and timber harvesting activities (Shelly 1994). Livestock grazing and trampling can adversely affect this species due to the disturbance of shorelines and associated vegetation. Trampling of bottom sediments adversely affects the seed bank and the consolidated substrate that appears to be necessary for germination (USFWS 1994). In addition, any activities that have potential to alter the hydrological regime may threaten this species. The removal of trees around ponds can result in increased water temperatures and evaporation, which may increase wetland drying and influence plant succession. Increased siltation in wetlands, associated with activities such as logging and road maintenance or road building, can impact the wetland's substrate and plant community composition (USFWS 1994).

Since *H. aquatilis* is found on privately owned land in Idaho, its habitat is not secure and may be

threatened by land use changes as well as intentional or unintentional vandalism or neglect.

There may be potential for Federal involvement for *Howellia aquatilis* in Idaho through the Corps section 404 permit process. However, because this species occurs on private land, it may be threatened by land use changes that do not require Federal involvement. The Idaho population of *Howellia aquatilis* is also threatened by the lack of any habitat or species management plan (Bob Moseley, CDC, pers. comm., 1996).

Accelerated succession of the ponds containing *Howellia aquatilis* could threaten the local persistence of this species. This is considered to be a potential threat to the Idaho population (Bob Moseley, CDC, pers. comm. 1995). The invasion of nonnative species or native species (especially reed canary grass, *Phalaris arundinacea*) could also pose a threat to the survival of *H. aquatilis*.

Landownership

The single known *Howellia aquatilis* population in Idaho is located on privately owned land in Latah County.

II. GUIDELINES:

A. No ground disturbing activities should be allowed within habitat occupied by this species. Activities that may alter hydrology or change microsite conditions (such as removal of vegetation adjacent to occupied habitat, e.g. by timber harvesting) should also be avoided.

B. Surveys¹ for *Howellia aquatilis* should be conducted for projects in Benewah, Clearwater, Kootenai, Idaho, Latah, Lewis, Nez Perce, and Shoshone counties that may involve riparian (especially oxbow) or seasonal pond habitats.

- 1) Surveys should be conducted during the growing season (which is weather dependent), generally from June through August.
- 2) Because this species is found in wetland habitat on private land in Idaho, 404 permit review in the above counties should also consider this species. Road building and maintenance projects in these areas should also be reviewed for potential impacts to water howellia.
- 3) This species should also be considered for projects on Federal lands in central Idaho (including the Panhandle and Clearwater National Forests, Nez Perce Indian Reservation,

¹Refer to the "Rare Plant Inventory Guidelines" (dated 12/97, file #6100.0000) re: protocol for conducting and reporting rare plant surveys.

and Cottonwood District BLM), and for projects that involve Federal actions/funding. For all projects/Federal actions that may have potential to impact riparian habitat in this area, adequate surveys should be conducted and section 7 consultation (formal or informal) should be initiated.

4) *Howellia aquatilis* should also be considered in private lands (e.g., Partners for Wildlife) projects AND for any flood-related activities in north-central Idaho.

References (file #6108.0000):

Shelly, J.S. and R.K. Moseley. 1988. Report on the conservation status of *Howellia aquatilis*, a candidate threatened species. Prepared for Regions 1 and 6, U.S. Fish and Wildlife Service.

Shelly, J.S. 1994. Conservation strategy for *Howellia aquatilis* A. Gray. Prepared for Flathead National Forest, U.S. Department of Agriculture, Forest Service, Northern Region.

U.S. Fish and Wildlife Service. 1994. Final rule to list water howellia (*Howellia aquatilis*) as a threatened species (59 *Federal Register* 35860; July 14, 1994).

U.S. Fish and Wildlife Service. 1996. Water howellia (*Howellia aquatilis*) recovery plan (public and agency review draft). Helena, Montana.

U.S. Fish and Wildlife Service. 1997. Rare plant inventory guidelines. Prepared by the Snake River Basin Office, Boise, Idaho.

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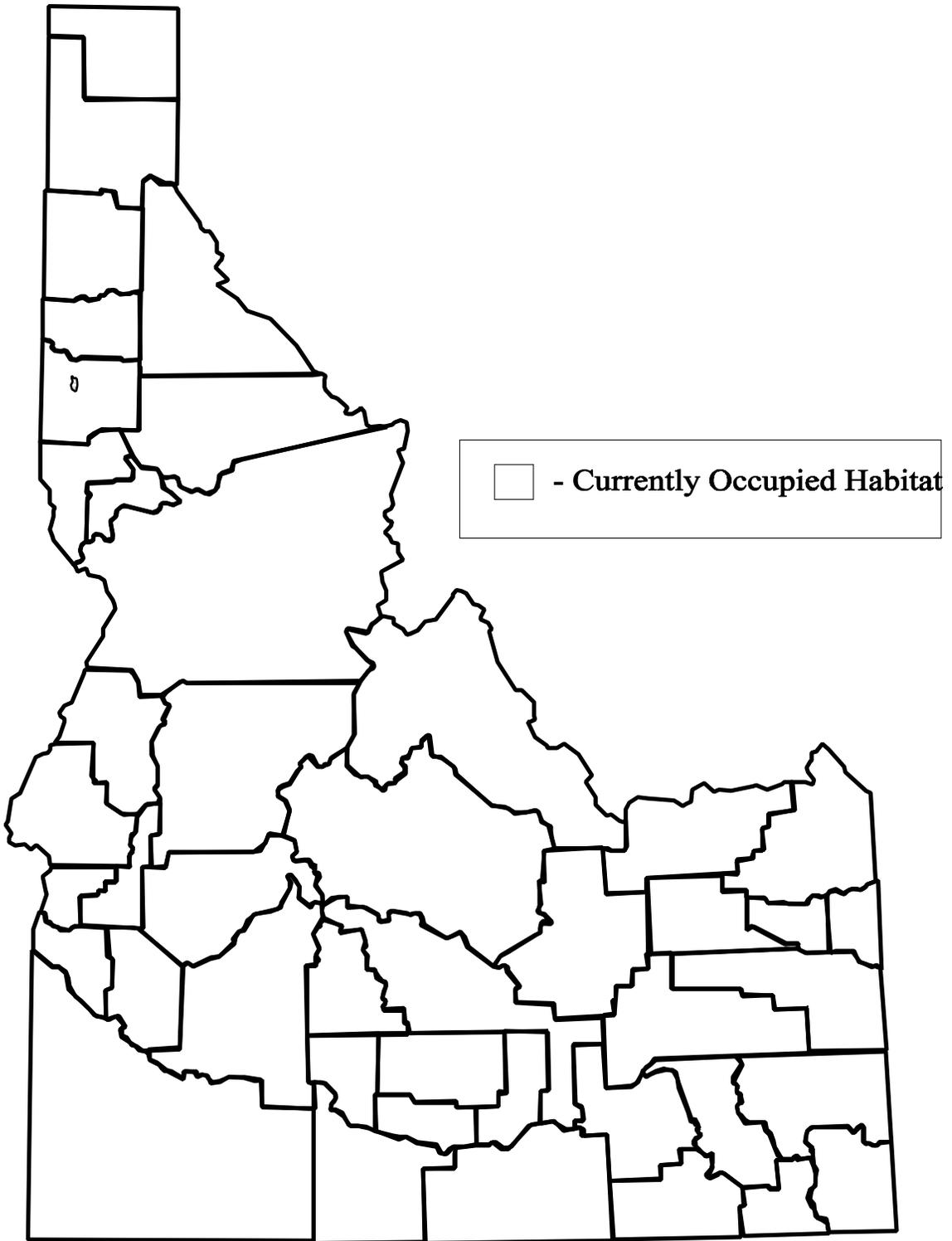


Figure 1 - Known occupied habitat for *Howellia aquatilis* near Harvard, Idaho.

