

V.C.2.N.A. PERMANENTLY FLOODED TEMPERATE OR SUBPOLAR HYDROMORPHIC ROOTED VEGETATION

V.C.2.N.a.22. POLYGONUM AMPHIBIUM PERMANENTLY FLOODED HERBACEOUS ALLIANCE

Water Smartweed Permanently Flooded Herbaceous Alliance

Alliance Identifier: A.1762

Polygonum amphibium Permanently Flooded Herbaceous Alliance

Water Smartweed Permanently Flooded Herbaceous Alliance

Water Smartweed Wetland

ELEMENT CONCEPT

GLOBAL SUMMARY: This alliance-level community is found primarily in the western United States and one province in Canada. It occurs over a wide elevational range from near sea level to over 2700 m. Stands are found in permanently flooded depressions, such as margins of lake shores and oxbow lakes in river floodplains. The vegetation is characterized by the dominance or codominance of *Polygonum amphibium*, a hydromorphically rooted emergent forb. Associates may include species of *Potamogeton* and other aquatic plants.

ENVIRONMENTAL DESCRIPTION

USFWS WETLAND SYSTEM: LACUSTRINE, PALUSTRINE

Ouray National Wildlife Refuge Environment: In Woods Bottom, a natural basin, much of the *Polygonum amphibium* Herbaceous Vegetation stand was found inundated by up to 5 cm of water, fully saturating the fine clay soil. At this site, near equal vegetative cover was provided by pondweed (*Potamogeton* spp.) and total vegetative cover exceeded 90%. At the upper margin of this water smartweed stand, coyote willow (*Salix exigua*) became the dominant shrub with water smartweed occurring as an understory forb. In Leota Bottom, an artificial pool, the basin was entirely dry, the fine clay soil exhibiting large cracks, but the water smartweed present appeared bright green and healthy. It is apparent that water levels fluctuate more in this pool than in Woods Bottom, because no pondweed or other aquatic vegetation was present, rather only a few plants of *Atriplex rosea* a coarse annual forb. Under the drier conditions of Leota Bottom, water smartweed plants were taller and denser than those in Woods Bottom; the plants nearly exceeded one m in height and 90% foliar cover.

Global Environment: This wetland occurs in shallow water around the edges of ponds and lakes in western North America. Elevation varies depending on geographical location. Stands reported along the Columbia River are located just above sea level, in Montana between 640-1080 m, in northeastern Utah at 1420 m, and in Colorado from 2050-2700 m. Sites include oxbow lakes and backwater areas of the Columbia floodplains, seasonally flooded basins in the floodplains of the Green River, in glacial ponds or prairie potholes in northern Montana, and in shallow lakes in the mountains of Colorado. Stands are located in standing water that is permanent or present at least during the growing season. The pond bottoms are composed of finer sediments, organic muck, clay, or silt.

VEGETATION DESCRIPTION

Ouray National Wildlife Refuge Vegetation: In the natural basin of Woods Bottom, with a more stable water level, *Polygonum amphibium* grows in a band around the upper margin, where it is co-dominant with *Potamogeton natans* and *Potamogeton pectinatus* on the lower, deeper edge and is understory to *Salix exigua* shrubs at the upper edge. In the constructed basins of Leota and Johnson Bottoms, *Polygonum amphibium* grows in a monotypic stand which occupies the deepest portion of the basins, where water and/or saturated soils persist for the longest period of time. In these constructed basins, water smartweed may be inundated all or part of the year, or the basin may dry completely by the end of summer. Water smartweed plants are taller, up to one meter in height, in the constructed basins, than in the natural basin where they are typically below 0.5 meters in height. Foliar cover is also greater in the constructed basins, exceeding 90%, while it is in the range of about 50% in the more evenly saturated conditions at Woods Bottom.

Global Vegetation: This wetland vegetation type occurs in shallow water along the edges of ponds and lakes. Floating-leaved aquatic forbs cover at least 30% of the water's surface (Kunze 1994). *Polygonum amphibium* often forms dense, nearly monotypic stands. *Lemna minor*, *Potamogeton natans*, *Sagittaria* spp., *Spirodela polyrrhiza*, and *Wolffia* spp. are occasionally present.

Ouray National Wildlife Refuge Vegetation Mapping Project

Dynamics: Johnson (1939, 1941) found this community in Colorado montane lakes with significant sediment deposition, but not in lakes with rocky bottoms. Kunze (1994) suggested that this community may have occurred at higher elevations along the Columbia River Gorge, but *Phalaris arundinacea*, which occupies similar environments, may have displaced the *Polygonum amphibium*.

MOST ABUNDANT SPECIES

Ouray National Wildlife Refuge

Stratum	Species
FORB	<i>Polygonum amphibium</i> , <i>Potamogeton natans</i>

Global

Stratum	Species
FORB	<i>Polygonum amphibium</i>

CHARACTERISTIC SPECIES

Ouray National Wildlife Refuge

Species
Polygonum amphibium, *Potamogeton natans*, *Atriplex rosea*

Global

Species
Polygonum amphibium

OTHER NOTEWORTHY SPECIES

Ouray National Wildlife Refuge

Stratum	Species
N/A	

Global

Stratum	Species
N/A	

OURAY NATIONAL WILDLIFE REFUGE SIMILAR ASSOCIATIONS:

Polygonum lapathifolium Herbaceous Vegetation in Wyasket Bottom shares a common habitat and some traits with *Polygonum amphibium* Herbaceous Vegetation stands growing in constructed basins. However, Wyasket Bottom is even more ephemeral than the basins in Leota and Johnson Bottoms, resulting in the habitat supporting the annual *P. lapathifolium* rather than the perennial *P. amphibium*.

GLOBAL SIMILAR ASSOCIATIONS: N/A

SYNONYMY:

Polygonum amphybium community type (Kunze 1994)
Persicaria amphibia Association (Cooper and Severn 1992)
Freshwater Aquatic Beds (Chappell et al. 1997)
Polygonum amphibium Community (Christy 1993)
Polygonum amphibium Community Type (Hansen et al. 1995)
Lake Zone (Johnson 1932b)
Lake Area Zone (Johnson 1936)
Lake Area Zone (Johnson 1939)
Lake Area Zone (Johnson 1941)
Water Zone: *Persicaria coccinea* within Pond, sloughs and seepage areas of the *Sarcobatus - Ericameria* Association (Ramaley 1942)

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CLASSIFICATION COMMENTS

Ouray National Wildlife Refuge: Monotypic stands of *Polygonum amphibium* Herbaceous Vegetation persist in constructed basins that are seasonally flooded. This type is also a component of dike and levee embankments, where the embankments are saturated much of the growing season. If these basins would have a more permanent source of water, a *Potamogeton* spp. association would likely develop either displacing water smartweed or reducing its abundance and foliar cover.

Global Comments: This vegetation type is only classified to the alliance level. More work is needed to describe associations.

ELEMENT DISTRIBUTION

Ouray National Wildlife Refuge Range: *Polygonum amphibium* Herbaceous Vegetation was observed in Leota Bottom on the west side of the Green River and in Woods Bottom and Johnson Bottom on the east side of the river. All of the stands observed occupy basins that had been flooded early in the growing season; the basins are located on terraces of oxbow bends in the Green River. It appears that the basin in Woods Bottom is natural and maintains a relatively stable hydrologic regime. The other two basins are filled with water and dry if environmental conditions warrant.

Global Range: This alliance is found primarily in the western United States and Canada, but may extend further east.

Nations: US

States/Provinces: CA? CO ID MT OR UT WA

TNC Ecoregions: 10:C, 20:C, 26:C, 2:C, 6:C

USFS Ecoregions: 242A:CC, 331D:CC, 331G:CC, 341C:CC, 342B:CC, 342C:C?, M242A:CC, M242B:CC, M242C:CC

Federal Lands: USFWS (Ouray)

ELEMENT SOURCES

Identifier: CEGL002002 **Confidence:** 1 **Conservation Rank:** G5

REFERENCES: Christy and Putera 1993, Hansen et al. 1991, Hansen et al. 1995, Johnson 1932a, Johnson 1932b, Johnson 1936, Johnson 1939, Johnson 1941, Kunze 1994, Ramaley 1930, Ramaley 1942, Von Loh 2000.