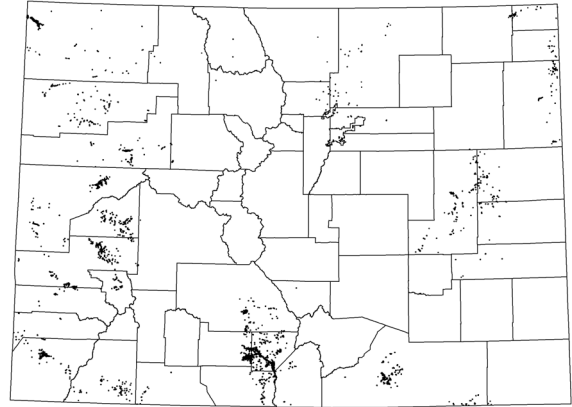


# NORTH AMERICAN ARID WEST EMERGENT MARSH



G. Doyle



extent exaggerated for display

- (POTAMOGETON DIVERSIFOLIUS, STUCKENIA FILIFORMIS) PERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Potamogeton diversifolius* Herbaceous Vegetation
  - Stuckenia filiformis* Herbaceous Vegetation
- CALAMAGROSTIS CANADENSIS SEASONALLY FLOODED HERBACEOUS ALLIANCE
  - Calamagrostis canadensis* Western Herbaceous Vegetation
- CAREX (ROSTRATA, UTRICULATA) SEASONALLY FLOODED HERBACEOUS ALLIANCE
  - Carex utriculata* Herbaceous Vegetation
- CAREX NEBRASCENSIS SEASONALLY FLOODED HERBACEOUS ALLIANCE
  - Carex nebrascensis* Herbaceous Vegetation
- CAREX VESICARIA SEASONALLY FLOODED HERBACEOUS ALLIANCE
  - Carex vesicaria* Herbaceous Vegetation
- DISTICHLIS SPICATA INTERMITTENTLY FLOODED HERBACEOUS ALLIANCE
  - Distichlis spicata* - (*Scirpus nevadensis*) Herbaceous Vegetation
- ELEOCHARIS (MONTEVIDENSIS, PALUSTRIS, QUINQUEFLORA) SEASONALLY FLOODED HERBACEOUS ALLIANCE
  - Eleocharis (montevidensis, palustris, quinqueflora)* Seasonally Flooded Herbaceous Vegetation [Placeholder]
- ELEOCHARIS (QUINQUEFLORA, ROSTELLATA) SATURATED HERBACEOUS ALLIANCE
  - Eleocharis rostellata* Herbaceous Vegetation
- GLYCERIA BOREALIS SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Glyceria borealis* Herbaceous Vegetation
- JUNCUS BALTICUS SEASONALLY FLOODED HERBACEOUS ALLIANCE
  - Juncus balticus* - *Carex rossii* Herbaceous Vegetation
  - Juncus balticus* Herbaceous Vegetation
- LEMNA SPP. PERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Lemna* spp. Permanently Flooded Herbaceous Vegetation
- MYRIOPHYLLUM SIBIRICUM PERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Myriophyllum sibiricum* Herbaceous Vegetation
- NYMPHAEA ODORATA - NUPHAR SPP. PERMANENTLY FLOODED TEMPERATE HERBACEOUS ALLIANCE
  - Nuphar lutea* ssp. *polysepala* Herbaceous Vegetation
- PHALARIS ARUNDINACEA SEASONALLY FLOODED HERBACEOUS ALLIANCE
  - Phalaris arundinacea* Western Herbaceous Vegetation
- PHRAGMITES AUSTRALIS SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Phragmites australis* Western North America Temperate Semi-natural Herbaceous Vegetation
- POTAMOGETON FOLIOSUS PERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Potamogeton foliosus* Herbaceous Vegetation
- POTAMOGETON SPP. - CERATOPHYLLUM SPP. - ELODEA SPP. PERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Potamogeton natans* Herbaceous Vegetation
- RANUNCULUS AQUATILIS SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Ranunculus aquatilis* - *Callitriche palustris* Herbaceous Vegetation
- SALICORNIA RUBRA SEASONALLY FLOODED HERBACEOUS ALLIANCE
  - Salicornia rubra* Herbaceous Vegetation
- SCHOENOPECTUS ACUTUS - (SCHOENOPECTUS TABERNAEMONTANI) SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Schoenoplectus acutus* Herbaceous Vegetation
  - Schoenoplectus tabernaemontani* Temperate Herbaceous Vegetation
- SCHOENOPECTUS AMERICANUS SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Schoenoplectus americanus* - *Carex* spp. Herbaceous Vegetation
  - Schoenoplectus americanus* - *Eleocharis palustris* Herbaceous Vegetation
  - Schoenoplectus americanus* - *Eleocharis* spp. Herbaceous Vegetation
  - Schoenoplectus americanus* Western Herbaceous Vegetation
- SCHOENOPECTUS MARITIMUS SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Schoenoplectus maritimus* Herbaceous Vegetation
- SCHOENOPECTUS PUNGENS SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Schoenoplectus pungens* Herbaceous Vegetation
- SPARGANIUM ANGUSTIFOLIUM PERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Sparganium angustifolium* Herbaceous Vegetation
- SPARGANIUM EURYCARPUM PERMANENTLY FLOODED HERBACEOUS ALLIANCE
  - Sparganium eurycarpum* Herbaceous Vegetation
- SPARTINA GRACILIS SEASONALLY FLOODED HERBACEOUS ALLIANCE
  - Spartina gracilis* Herbaceous Vegetation
- SPARTINA PECTINATA TEMPORARILY FLOODED HERBACEOUS ALLIANCE
  - Spartina pectinata* Western Herbaceous Vegetation

SPOROBOLUS AIROIDES HERBACEOUS ALLIANCE  
*Sporobolus airoides* Southern Plains Herbaceous Vegetation  
 TRIGLOCHIN MARITIMA SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE  
*Triglochin maritima* Herbaceous Vegetation  
 TYPHA (ANGUSTIFOLIA, LATIFOLIA) - (SCHOENOPLECTUS SPP.) SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE  
*Schoenoplectus acutus* - *Typha latifolia* - (*Schoenoplectus tabernaemontani*) Sandhills Herbaceous Vegetation  
*Typha latifolia* Western Herbaceous Vegetation  
 TYPHA DOMINGENSIS SEASONALLY FLOODED TEMPERATE HERBACEOUS ALLIANCE  
*Typha domingensis* Western Herbaceous Vegetation

**Overview:** This widespread ecological system occurs throughout much of the arid and semi-arid regions of western North America. Natural marshes may occur in depressions in the landscape (ponds, kettle ponds), as fringes around lakes, and along slow-flowing streams and rivers (such riparian marshes are also referred to as sloughs). This system includes seeps and springs: small wetland ecological systems that are hydrologically supported by groundwater discharge.

**Characteristic species:** The vegetation is characterized by herbaceous plants that are adapted to saturated soil conditions. Common emergent and floating vegetation includes species of *Scirpus* and/or *Schoenoplectus*, *Typha*, *Juncus*, *Potamogeton*, *Polygonum*, *Nuphar*, and *Phalaris*. This system may also include areas of relatively deep water with floating-leaved plants (*Lemna* and *Potamogeton*) and submergent and floating plants (*Myriophyllum*, *Ceratophyllum*, and *Elodea*).

In the Western Great Plains, seeps and springs provide habitat for a variety of amphibian species, including tiger salamander (*Ambystoma tigrinum*), red-spotted toad (*Bufo punctatus*), Woodhouse toad (*Bufo woodhousii*), chorus frog (*Pseudacris triseriata*), plains leopard frog (*Rana blairi*), Couch's spadefoot toad (*Scaphiopus couchii*), plains spadefoot toad (*Spea bombifrons*), and New Mexico spadefoot toad (*Spea multiplicata*) (Mackessey 1998).

**Environment:** Marshes are frequently or continually inundated, with water depths up to 6 ft (2 m). Water levels may be stable, or may fluctuate 3 ft (1 m) or more over the course of the growing season. Marshes have distinctive soils that are typically mineral, but can also accumulate organic material. Soils have characteristics that result from long periods of anaerobic conditions (e.g., gleying, high organic content, redoximorphic features). The occurrence of springs depends on the nature and relationship of rocks, especially permeable and impermeable strata, on the position of the water table, and on the topography (Horton 2000).



R. Rondeau

**Variation:** Seeps differ from springs in that they often periodically dry and consequently support a lower diversity of wetland vegetation. Springs often have a more persistent source of water and thus support a greater diversity of wetland vegetation and often provide aquatic habitat (BLM 2000, Doyle et al. 2002).

Bureau of Land Management. 2000. A Handbook for the Management of Seeps and Springs in the Great Basin. Sada, D.W. (editor), J.E. Williams, J.C. Silvey, A. Halford, J. Ramakka, P. Summers, and L. Lewis.

Doyle, G., J. Rocchio, and D. Culver. 2002. Survey of Seeps and Springs within the Bureau of Land Management's Grand Junction Field Office Management Area (Mesa County, CO). Colorado Natural Heritage Program, Colorado State University, Fort Collins, CO.

Horton, G.A. 2000. Water Words Dictionary. Nevada Division of Water Resources, Department of Conservation and Natural Resources. Available online at: <http://ndwr.state.nv.us/>

Mackessy, Dr. Stephen P. 1998. A Survey of the Herpetofauna of the Comanche National Grasslands in Southeastern Colorado. USDA/Forest Service. 61 pages. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. <http://www.npwrc.usgs.gov/resource/1999/comaherp/comaherp.htm> (Version 04JUN99).

Rank:	A	B	C	D
<b>① CONDITION</b>				
<b>Hydrology</b>	Natural hydrologic regime intact. No or little evidence of marsh or wetland complex alteration due to increased or decreased drainage, clearing, excessive livestock grazing, anthropogenic nutrient input, mining, or other human impacts.	Natural hydrologic regime nearly intact. Alteration from local drainage, clearing, mining, or excessive livestock grazing is easily restorable by ceasing such activities.	Natural hydrologic regime altered. Alteration from local drainage, clearing, mining, or excessive livestock grazing, is extensive, but potentially restorable over several decades.	Natural hydrologic regime or disturbance to site not restorable without significant resources. System remains fundamentally compromised despite restoration of some processes.
<b>Native species that increase with disturbance to changes in hydrology or nutrients</b>	Absent or low abundance.	Absent, low in abundance, or restricted to high-nutrient microsites.	May be very prominent.	May be dominant.
<b>Exotic species (e.g. Canada thistle, redtop, kochia)</b>	None or very few present with no potential for expansion.	Few, with little potential for expansion if restoration occurs.	May be widespread but potentially manageable with restoration of most natural processes.	Prominent to dominant.
<b>② LANDSCAPE CONTEXT</b>				
<b>Surrounding land</b>	Uplands within 1 mile of the occurrence are largely unaltered by urban or agricultural uses (>90% natural), and include few to no cropped fields, roads, mines or quarries, developments, or excessively grazed pastures.	Uplands within ¼ mile of occurrence with moderate urban or agricultural alteration (60 to 90% natural), but retaining much connectivity, or uplands are heavily managed.	Uplands surrounding occurrence are fragmented by urban or agricultural alteration (20 to 60% natural).	Uplands surrounding occurrence are mostly converted to agricultural or urban uses.
<b>Area hydrology and natural processes</b>	No hydrological alterations are in place that pump groundwater or divert surface flows away from the marsh.	Some hydrological alteration may occur within the local watershed, but is at some distance (>1 mile) from the marsh and has only minor influence on the natural water levels in the marsh. Other natural processes such as flooding, drawdown, and fire have been altered but not significantly so from their historic frequency and intensity.	Natural processes have been eliminated or have had their frequency and intensity greatly altered. Restoration is feasible.	Restoration is not feasible within reason.
<b>Connectivity</b>	Connectivity of habitats allows natural processes and species migration to occur. There are no unnatural barriers present either within or surrounding the occurrence that would inhibit movement of organisms and materials across systems boundaries.	Few unnatural barriers present between wetlands and uplands.	Limited connectivity among patches of natural or semi-natural vegetation. Some barriers are present.	Connectivity and natural processes are almost nonexistent.
<b>③ SIZE</b>				
<b>Acres</b>	>50	20-20	2 -20	< 2