

## Ouray National Wildlife Refuge Vegetation Mapping Project

---

### IV.A.2.N.b.3. *ATRIPLEX GARDNERI DWARF-SHRUBLAND ALLIANCE*

#### Gardner's Saltbush Dwarf-shrubland Alliance

Alliance Identifier: A.1110

*Atriplex gardneri* Dwarf-shrubland

Gardner's Saltbush Dwarf-shrubland

---

#### ELEMENT CONCEPT

**GLOBAL SUMMARY:** This dwarf-shrubland association is reported from northern and eastern Utah and Montana. Utah stands occur in flat bottomlands north of the Great Salt Lake, and alluvial fans and hillsides along the Green River. Sites are flat to moderately steep (12%). Soils are calcareous, alkaline, and typically saline and fine-textured. One site had gravelly/cobbly substrate. The vegetation is composed solely of or dominated by *Atriplex gardneri* without an herbaceous layer. Associated shrubs may include minor cover of *Gutierrezia sarothrae*, *Atriplex confertifolia*, *Sarcobatus vermiculatus*, or *Picrothamnus desertorum* (= *Artemisia spinescens*). No herbaceous layer is reported though scattered grasses such as *Pleuraphis jamesii* and *Elymus elymoides* may be present. Invasive species such as *Bromus tectorum* and *Halogeton glomeratus* are present in some stands. The dominance of *Atriplex gardneri* and the lack of an herbaceous layer are diagnostic of this association.

#### ENVIRONMENTAL DESCRIPTION

**USFWS WETLAND SYSTEM:** UPLAND

**Ouray National Wildlife Refuge Environment:** The erosion fan upon which the *Atriplex gardneri* Dwarf-shrubland has become established consists of silty clay outwash from badlands bluffs to the west. Therefore, there is little gravel or cobble at the soil surface, rather a very fine-grained, alkaline substrate. The erosion fan aspect is nearly due east and the slope is relatively mild, approximately 2%. The hillslope south of the Leota Bottom Overlook is gravelly, cobbly, and relatively steep with an approximately 12% slope.

**Global Environment:** This dwarf-shrubland association is reported from northern and eastern Utah and Montana. Elevation ranges from 1350-1500 m. Climate is temperate semi-arid. Utah stands occur in Curlew Valley, a dry Pleistocene lakebed north of the Great Salt Lake, and alluvial fans and hillsides along the Green River. Sites are flat to moderately steep (12%). Soils are calcareous, alkaline, and typically saline and fine-textured. One site had gravelly/cobbly substrate.

#### VEGETATION DESCRIPTION

**Ouray National Wildlife Refuge Vegetation:** The *Atriplex gardneri* Dwarf-shrubland has very low foliar cover values for all species present, the total foliar cover is estimated at 10-15%. Common dwarf shrubs include *Atriplex gardneri*, *Atriplex confertifolia*, *Sarcobatus vermiculatus*, *Artemisia spinescens*, and *Gutierrezia sarothrae*. The stand on the hillslope south of Leota Bottom overlook also has *Kochia americana* as an associated dwarf shrub. Considerable spacing between individual shrubs is evident. Most of the shrubs present are less than 25 cm tall, but *Sarcobatus vermiculatus* may approach 0.5 m in height. Very little herbaceous foliar cover is available, usually less than 3%, provided by *Pleuraphis jamesii*, *Hesperostipa comata*, and *Elymus elymoides*. Minor foliar cover is provided by the exotic annuals *Bromus tectorum* and *Halogeton glomeratus*.

**Global Vegetation:** This association is broadly defined as a dwarf-shrubland composed solely of or dominated by *Atriplex gardneri* without an herbaceous layer. Associated shrubs may include scattered *Gutierrezia sarothrae*, *Atriplex confertifolia*, *Sarcobatus vermiculatus*, and *Picrothamnus desertorum* (= *Artemisia spinescens*). No herbaceous layer is reported though scattered grasses such as *Pleuraphis jamesii* and *Elymus elymoides* may be present. Invasive species such as *Bromus tectorum* and *Halogeton glomeratus* are present in some stands. The dominance of *Atriplex gardneri* and the lack of an herbaceous layer are diagnostic of this association.

## Ouray National Wildlife Refuge Vegetation Mapping Project

---

**Dynamics:** Although very slow-growing, *Atriplex gardneri* can completely dominate these extremely saline sites (Branson et al. 1976). This plant utilizes winter soil moisture, beginning new growth in March when the soils are relatively warm and moist. It flowers in April and by mid-July fruits are shattered (Branson et al. 1976). *Atriplex gardneri*-dominated vegetation occurs on the most saline-alkaline soils that Gates et al. (1956) studied. It is not limited to the harsh saline soils but was also found on calcareous loam.

### MOST ABUNDANT SPECIES

#### Ouray National Wildlife Refuge

Stratum	Species
DWARF SHRUB	<i>Atriplex gardneri</i> , <i>Atriplex confertifolia</i> , <i>Sarcobatus vermiculatus</i> , <i>Artemisia spinescens</i> , <i>Gutierrezia sarothrae</i>
HERBACEOUS	<i>Pleuraphis jamesii</i>

#### Global

Stratum	Species
DWARF SHRUB	<i>Atriplex gardneri</i>

### CHARACTERISTIC SPECIES

#### Ouray National Wildlife Refuge

**Species**  
*Atriplex gardneri*, *Atriplex confertifolia*, *Sarcobatus vermiculatus*, *Artemisia spinescens*, *Gutierrezia sarothrae*,  
*Pleuraphis jamesii*

#### Global

**Species**  
*Atriplex gardneri*

### OTHER NOTEWORTHY SPECIES

#### Ouray National Wildlife Refuge

**Stratum**                      **Species**  
N/A

#### Global

**Stratum**                      **Species**  
N/A

**OURAY NATIONAL WILDLIFE REFUGE SIMILAR ASSOCIATIONS:** *The Sarcobatus vermiculatus* – *Distichlis spicata* Sparse Shrubland and *Atriplex corrugata* -*Atriplex gardneri* Dwarf-shrubland share species and habitats with Gardner saltbush stands.

#### GLOBAL SIMILAR ASSOCIATIONS:

*Allenrolfea occidentalis* / *Atriplex gardneri* Shrubland (CEGL000989)  
*Sarcobatus vermiculatus* / *Atriplex gardneri* Shrubland (CEGL001360)  
*Atriplex gardneri* - *Picrothamnus desertorum* Dwarf-shrubland (CEGL001439)  
*Atriplex gardneri* / *Artemisia tridentata* Dwarf-shrubland (CEGL001440)  
*Atriplex gardneri* / *Pleuraphis jamesii* Dwarf-shrubland (CEGL001441)  
*Atriplex gardneri* / *Leymus salinus* Dwarf-shrubland (CEGL001442)  
*Atriplex gardneri* / *Monolepis nuttalliana* Dwarf-shrubland (CEGL001443)  
*Atriplex gardneri* / *Achnatherum hymenoides* Dwarf-shrubland (CEGL001444)  
*Atriplex gardneri* / *Pascopyrum smithii* Dwarf-shrubland (CEGL001445)  
*Atriplex gardneri* / *Xylorhiza venusta* Dwarf-shrubland (CEGL001446)  
*Artemisia pedatifida* - *Atriplex gardneri* Dwarf-shrubland (CEGL001525)

## Ouray National Wildlife Refuge Vegetation Mapping Project

---

### SYNONYMY:

*Atriplex* spp. Series (Johnston 1987) B

*Atriplex nuttallii* plant community (Branson et al. 1976) B

*Atriplex nuttallii* community (Mitchell et al. 1966)

### CLASSIFICATION COMMENTS

**Ouray National Wildlife Refuge:** N/A

**Global Comments:** This association is poorly defined and is only referred to as a "pure, evidently stable stand of saltsage" in Mitchell et al. (1966). Mitchell et al. (1966) investigated the relatively sharp boundaries between the *Atriplex gardneri* and the *Krascheninnikovia lanata* communities at their study site; no edaphic factor was identified to explain the abrupt change. This association is separated from other *Atriplex gardneri*-dominated associations by the lack of codominant shrubs or significant herbaceous layer. This may be a seral community in areas with a history of over-grazing by livestock. More classification work is needed to further define this association.

### ELEMENT DISTRIBUTION

**Ouray National Wildlife Refuge Range:** The *Atriplex gardneri* Dwarf-shrubland type has become established on an erosion fan west of Leota Bottom. *Atriplex gardneri* is a component of sparse greasewood shrublands just above Wyasket Bottom. Small patches of *Atriplex gardneri* have become established on hillslopes south of the Leota Bottom Overlook.

**Global Range:** This dwarf-shrubland association is reported from northern and eastern Utah and Montana, but likely has a wider distribution in the interior West.

**Nations:** US

**States/Provinces:** MT UT

**TNC Ecoregions:** 10:C, 11:C, 6:C

**USFS Ecoregions:** 341C:CC, 342B:??

**Federal Lands:** USFWS (Ouray)

### ELEMENT SOURCES

**Identifier:** CEGL001438 **Confidence:** 2 **Conservation Rank:** G3G5

**REFERENCES:** Branson et al. 1976, Gates et al. 1956, Johnston 1987, MTNHP n.d., Mitchell et al. 1966, Von Loh 2000.