

IV. Dwarf-shrubland

IV.A.2.N.A. EXTREMELY XEROMORPHIC EVERGREEN SUBDESERT DWARF-SHRUBLAND

IV.A.2.N.a.9. *ARTEMISIA NOVA DWARF-SHRUBLAND ALLIANCE*

Black Sagebrush Dwarf-shrubland Alliance

Alliance Identifier: A.1105

Artemisia nova Dwarf-shrubland

Black Sagebrush Dwarf-shrubland

ELEMENT CONCEPT

GLOBAL SUMMARY: This broadly defined association is reported from eastern Wyoming to eastern California but may be found elsewhere in the interior western U.S. Stands occur at middle to upper elevations (1400-2730 m) on mountain and hill slopes, ridges, mesa tops, alluvial fans and river bluffs. Sites are nearly level to moderately sloping; aspects are variable. Soils are shallow (often <30 cm deep), well-drained, and coarse-textured with high cover (35-70% cover) of gravel and cobbles (desert pavement). Soil texture ranges from gravelly loam to sandy clay loam. The vegetation is characterized by an open to moderately dense (12-40% cover) dwarf-shrub layer (<0.5 m tall) that is dominated by *Artemisia nova*. Other woody species present include *Picrothamnus desertorum* (= *Artemisia spinescens*), *Atriplex confertifolia*, *Chrysothamnus viscidiflorus*, *Ericameria nauseosa*, *Ephedra* spp., *Grayia spinosa*, *Krascheninnikovia lanata*, and *Opuntia erinacea*. Diagnostic of this community is a sparse herbaceous understory with only scattered grasses and forbs. Common grasses may include *Achnatherum hymenoides*, *Aristida purpurea*, *Hesperostipa comata*, *Pleuraphis jamesii*, and *Poa secunda*. Forbs such as *Erysimum capitatum* (= *Erysimum asperum*), *Erigeron aphanactis*, and *Phlox viridis* may also be present. Scattered trees may be present, such as *Juniperus osteosperma*, *Pinus monophylla*, or *Yucca brevifolia*, depending on location. Introduced species are important in some stands and may include *Bromus tectorum*, *Salsola kali*, and *Halogeton glomeratus*.

ENVIRONMENTAL DESCRIPTION

USFWS WETLAND SYSTEM: UPLAND

Ouray National Wildlife Refuge Environment: The ridgeline and mesa edge that supports *Artemisia nova* Dwarf-shrubland consists of exposed cobble with small patches of silty clay soil among the rocks. This site has orientation to all aspects and the slope ranges from 3-5%. A fair amount of browsing was noted, probably from pronghorn, mule deer, and cottontail rabbit.

Global Environment: This broadly defined dwarf-shrubland association is reported from eastern Wyoming to eastern California but may be found elsewhere in the interior western U.S. Stands occur at middle to upper elevations (1400-2730 m) on mountain and hill slopes, ridges, mesa tops, alluvial fans and river bluffs. Sites are nearly level to moderately sloping; aspects are variable, but stands are reported from northwestern slope. Soils are often shallow (<30 cm deep), well-drained, calcareous and coarse-textured with high cover (35-70% cover) of gravel and cobbles (desert pavement). Soil texture ranges from gravelly loam to sandy clay loam. Adjacent vegetation includes *Juniperus osteosperma*-dominated woodlands.

VEGETATION DESCRIPTION

Ouray National Wildlife Refuge Vegetation: The *Artemisia nova* Dwarf-shrubland is relatively sparse, providing only about 25% cover over the cobble substrate. The shrubs present are less than 25 cm tall and are spread uniformly through the stand. This type is dominated by black sagebrush, but *Atriplex confertifolia*, *Eriogonum schockleyi*, and *Ephedra torreyana* are also present in the stand. Common herbaceous plants include the bunch grasses *Hesperostipa comata* and *Aristida purpurea* and the sod-forming *Pleuraphis jamesii*. The only forb observed was *Erysimum asperum*.

Global Vegetation: This association has an open to moderately dense (12-40% cover) dwarf-shrub layer (<0.5 m tall) that is dominated by *Artemisia nova*. Other woody species present include *Picrothamnus desertorum* (= *Artemisia spinescens*), *Atriplex confertifolia*, *Chrysothamnus viscidiflorus*, *Ericameria nauseosa*, *Ephedra nevadensis*, *Ephedra torreyana*, *Ephedra viridis*, *Grayia spinosa*, *Krascheninnikovia lanata*, and *Opuntia erinacea*. Diagnostic of this community is a sparse herbaceous understory with only scattered grasses and forbs. Common grasses may include *Achnatherum hymenoides*, *Aristida purpurea*, *Hesperostipa comata*, *Pleuraphis jamesii*, and *Poa secunda*. Forbs such as *Erysimum capitatum* (= *Erysimum asperum*), *Erigeron aphanactis*, and *Phlox viridis* may be present. Scattered *Juniperus osteosperma*, *Pinus monophylla*, and *Yucca brevifolia* may be present in eastern Mojave stands such as

Ouray National Wildlife Refuge Vegetation Mapping Project

Cottonwood Mountains in Death Valley National Park in California. Introduced species are important in some stands and may include *Bromus tectorum*, *Salsola kali*, and *Halogeton glomeratus*.

Dynamics: Beatley (1976) observed *Artemisia nova* communities above the *Coleogyne ramosissima* and *Atriplex confertifolia* zones and below the Pinyon-Juniper zone in the Great Basin. Milton and Purdy (1983) found *Artemisia nova* common on hydrothermally altered rocks of the Harmony Formation at the Battle Mountain study site in Utah. They reported that altered soils had lower total vegetation cover, higher pH and more kaolinite and less illite than the unaltered sites, but could not explain why *Artemisia nova* replaced *Artemisia tridentata* on the altered sites.

MOST ABUNDANT SPECIES

Ouray National Wildlife Refuge

| Stratum | Species |
|-------------|---|
| DWARF SHRUB | <i>Artemisia nova</i> , <i>Atriplex confertifolia</i> , <i>Eriogonum schockleyi</i> |
| HERBACEOUS | <i>Hesperostipa comata</i> |

Global

| Stratum | Species |
|-------------|-----------------------|
| DWARF SHRUB | <i>Artemisia nova</i> |

CHARACTERISTIC SPECIES

Ouray National Wildlife Refuge

Species
Artemisia nova, *Atriplex confertifolia*, *Hesperostipa comata*

Global

Species
Artemisia nova

OTHER NOTEWORTHY SPECIES

Ouray National Wildlife Refuge

Stratum **Species**
N/A

Global

Stratum **Species**
N/A

GLOBAL SIMILAR ASSOCIATIONS:

Grayia spinosa / *Artemisia nova* / *Achnatherum speciosum* Shrubland (CEGL001344)
Artemisia nova / *Elymus elymoides* Dwarf-shrubland (CEGL001418)
Artemisia nova - *Gutierrezia sarothrae* / *Bouteloua gracilis* - *Pleuraphis jamesii* Dwarf-shrubland (CEGL001419)
Artemisia nova / *Pleuraphis jamesii* Dwarf-shrubland (CEGL001420)
Artemisia nova / *Leymus salinus* ssp. *salmonis* Dwarf-shrub Herbaceous Vegetation (CEGL001421)
Artemisia nova / *Achnatherum hymenoides* Dwarf-shrubland (CEGL001422)
Artemisia nova / *Poa secunda* Dwarf-shrubland (CEGL001423)
Artemisia nova / *Pseudoroegneria spicata* Dwarf-shrubland (CEGL001424)
Artemisia nova / *Hesperostipa comata* Dwarf-shrubland (CEGL001425)
Artemisia nova / *Festuca idahoensis* Dwarf-shrub Herbaceous Vegetation (CEGL001524)

SYNONYMY:

Artemisia nova communities (Beatley 1976)
Artemisia nova Community (Blackburn et al. 1968c)

Ouray National Wildlife Refuge Vegetation Mapping Project

Artemisia nova Association (Leary and Peterson 1984)
Artemisia nova Association (Peterson 1984)
Black Sagebrush Series (Sawyer and Keeler-Wolf 1995)

CLASSIFICATION COMMENTS

Ouray National Wildlife Refuge: N/A

Global Comments: This wide-ranging and broadly defined association is distinguished from other *Artemisia nova* dwarf-shrublands by the lack of a significant graminoid layer and therefore is quite variable in species composition. Blackburn et al. (1968c) described an *Artemisia nova* / *Bromus tectorum* association that may be included here until a new *Artemisia nova* / *Bromus tectorum* Shrubland association is created in the NVCS.

ELEMENT DISTRIBUTION

Ouray National Wildlife Refuge Range: Only one stand of *Artemisia nova* Dwarf-shrubland is present within the Refuge, at the junction of Leota Bottom Overlook and Johnson Bottom Overlook roads. This stand occupies the ridgeline and mesa edge, extending northeastward approximately half the distance up the Leota Bottom Overlook Road and just a short distance up the Johnson Bottom Overlook Road. A small patch of *Artemisia nova* is also present on the mesa edge approximately 200 m northwest of the Johnson Bottom Overlook parking area.

Global Range: This association occurs from eastern Wyoming to eastern California.

Nations: US

States/Provinces: CA NV UT WY

TNC Ecoregions: 10:C, 17:C, 20:C, 26:C, 6:C

USFS Ecoregions: 322:C, 331F:CC, 341C:CC, 342B:CC, 342F:CC, M261:C, M331A:CC, M331B:CC, M331I:CC, M331J:CC

Federal Lands: USFWS (Ouray)

ELEMENT SOURCES

Identifier: CEGL001417 **Confidence:** 3 **Conservation Rank:** G3G5

REFERENCES: Beatley 1976, Blackburn et al. 1968c, Heinze et al. 1962, Leary and Peterson 1984, Milton and Purdy 1983, Peterson 1984, Sawyer and Keeler-Wolf 1995, Von Loh 2000