

Eroding Great Plains Badlands Sparse Vegetation

COMMON NAME Eroding Great Plains Badlands Sparse Vegetation
SYNONYM Eroding Great Plains Badlands
PHYSIOGNOMIC CLASS Sparse Vegetation (VII)
PHYSIOGNOMIC SUBCLASS Unconsolidated material sparse vegetation (VII.C)
PHYSIOGNOMIC GROUP Sparsely vegetated soil slopes (VII.C.3)
PHYSIOGNOMIC SUBGROUP Natural/Semi-natural (VII.C.3.N)
FORMATION Dry slopes (VII.C.3.N.b)
ALLIANCE LARGE ERODING BLUFFS SPARSE VEGETATION ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 3

USFWS WETLAND SYSTEM Terrestrial

RANGE

Badlands National Park

Badland formations are widespread within Badlands NP, covering approximately 45% of the park area, and are exposed as spires, cliffs, ridges, slopes, narrow gorges, buttes, mounds, fans, and drainages. This type covers the most sparsely vegetated or unvegetated portions of the badlands formations.

Globally

This type is found in the badlands formations of the western Great Plains of the United States and Canada.

ENVIRONMENTAL DESCRIPTION

Badlands National Park

This type is found on eroded formations of Oligocene Brule siltstone and Chadron clayey mudstone and shale, and Miocene Arickaree sandstone. Brule formation siltstone is often capped by Rocky Ford volcanic ash and may also contain veins of chalcedony. Soils are undeveloped, poor, loose, and easily eroded; the topography tends to be somewhat sloping to vertical.

Globally

Badlands are produced by a combination of factors, including elevation, type of rainfall, carving action of streams, and a particular material. Badlands are basically a type of mature dissection with a finely-textured drainage pattern and steep slopes. Badlands can only form where the land lies well above its local base level. The land must also be easily erodable, or vegetation cover will stabilize the surface. An arid climate will also discourage vegetation growth and will tend to have infrequent, but torrential, rains with great eroding action. In the Great Plains, the geologic formations are from Cretaceous shales, Oligocene siltstones, sandstones, and clayey mudstones (Von Loh *et al.* 1999). The soils in the Great Plains badlands are generally poorly consolidated clays with bands of sandstone or isolated conglomerates (Froiland 1990).

MOST ABUNDANT SPECIES

Badlands National Park

Stratum Species
Information not available.

Globally

Stratum Species
Information not available.

CHARACTERISTIC SPECIES

Badlands National Park

Eriogonum pauciflorum, *Gutierrezia sarothrae*, *Grindelia squarrosa*

Globally

Eriogonum pauciflorum, *Grindelia squarrosa*, *Gutierrezia sarothrae*

OTHER NOTABLE SPECIES

VEGETATION DESCRIPTION

Badlands National Park

This type is virtually devoid of any vegetation, typically less than 1% vegetative cover. On the steeper slopes and cliffs, what little vegetation there is, may grow in patches and in rows or seams. Plant species that may be present include small-flowered wild buckwheat (*Eriogonum pauciflorum*), snakeweed (*Gutierrezia sarothrae*), and curlycup gumweed (*Grindelia squarrosa*).

Globally

The clay soils of the badland eroding slopes and walls are almost devoid of vegetation. Widely scattered individuals of *Grindelia squarrosa*, *Gutierrezia sarothrae*, or *Eriogonum pauciflorum* may be present (Froiland 1990).

CONSERVATION RANK G4G5.

USGS-NPS Vegetation Mapping Program
Badlands National Park

DATABASE CODE CEGL002050

MAP UNITS The Eroding Great Plains Badlands Sparse Vegetation is mapped as part of Map Class 2 (Badlands Sparse Vegetation Complex) on the vegetation map.

SIMILAR ASSOCIATIONS

Artemisia longifolia Badlands Sparse Vegetation
Badlands Sparse Vegetation Complex (This complex includes this association.)
Eriogonum pauciflorum - *Gutierrezia sarothrae* Badlands Sparse Vegetation
Shale Barren Slopes Sparse Vegetation

COMMENTS

Badlands National Park

This type occupies naturally eroded features of the Brule siltstone, and Chadron clayey mudstone and shale formations. The vegetation is patchy or even linear on steeper slopes and along drainages. Many truly barren cliffs, slopes and mounds are present. Barren slopes of Pierre shale are described as a separate type - Shale Barrens Slopes Sparse Vegetation. Badlands formations shed water rapidly following precipitation events and reflect a tremendous amount of solar energy. Other associations with somewhat more vegetation, though still sparse, have also been described in the badlands complex. These include the *Artemisia longifolia* Badlands Sparse Vegetation and the *Eriogonum pauciflorum* - *Gutierrezia sarothrae* Badlands SparseVegetation.

REFERENCES

- Froidland, S.G. 1990. Natural history of the Black Hills and Badlands. The Center for Western Studies, Augustana College, Sioux Falls, South Dakota. 225 pp.
- Frolick, A.L. and F.D. Keim. 1933. Native vegetation in the prairie hay district of north central Nebraska. Ecology 14:298-305.
- Steinauer, G. and S. Rolfsmeier. 1997. Terrestrial natural communities of Nebraska. Draft - October 28, 1997. Nebraska Game and Parks Commission, Lincoln, NE. 117 p.
- Von Loh, J., D. Cogan, D. Faber-Langendoen, D. Crawford, and M. Pucherelli. 1999. USGS-NPS Vegetation Mapping Program, Badlands National Park, South Dakota (Final Report). Technical Memorandum No. 8260-00-02. U.S. Bureau of Reclamation Technical Service Center. Denver Colorado.