

Rhus trilobata / Carex filifolia Shrub Herbaceous Vegetation

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| COMMON NAME | Ill-scented Sumac / Threadleaf Sedge Shrub Herbaceous Vegetation |
| SYNONYM | Ill-scented Sumac / Thread-leaved Sedge Shrub Prairie |
| PHYSIOGNOMIC CLASS | Herbaceous Vegetation (V) |
| PHYSIOGNOMIC SUBCLASS | Perennial graminoid vegetation (V.A) |
| PHYSIOGNOMIC GROUP | Temperate or subpolar grassland with a sparse shrub layer (V.A.7) |
| PHYSIOGNOMIC SUBGROUP | Natural/Semi-natural (V.A.7.N) |
| FORMATION | Medium-tall temperate or subpolar grassland with a sparse cold-deciduous shrub layer (V.A.7.N.g) |
| ALLIANCE | RHUS TRILOBATA SHRUB HERBACEOUS ALLIANCE |
| CLASSIFICATION CONFIDENCE LEVEL | 1 |
| USFWS WETLAND SYSTEM | Terrestrial |

RANGE

Badlands National Park

Stands of sparse ill-scented sumac occur throughout the park along the upper cliff borders of buttes, and on some ridges and knolls. Moderately sparse stands occupy hillslope slumps near Cedar Pass, near a road-cut on Red Shirt Table, and along the White River Valley. Dense stands of ill-scented sumac are present in the Sage Creek Wilderness of the park's North Unit, along the Cheyenne River drainage, northwest of the park boundary, and at the base of various sand hill complexes.

Globally

This community is found in eastern Montana, western North Dakota, and western South Dakota.

ENVIRONMENTAL DESCRIPTION

Badlands National Park

Sparse stands of ill-scented sumac occur most commonly on very steep slopes, where the upper butte cliffs meet the well-vegetated butte top and along the edge of draws. The geologic formation of cliff faces is predominantly Brule siltstone that is rapidly eroding, resulting in small ledges, nearly vertical faces, and steep slopes with rocks and fine sediments. Dense stands of ill-scented sumac occur sporadically within Badlands NP, but are a regular landscape feature along the breaks of the Cheyenne River, northwest of the park. They occupy ridgetops and hillslopes with gravelly to sandy soils; one stand is located in a large slump just east of Cedar Pass. A few stands are located in old oxbows along the White and Cheyenne Rivers.

Globally

This community occurs on moderate to steep slopes on protected ridgetops and upper slopes of draws (Johnston 1987, USFS 1992). Hansen and Hoffman (1988) found four stands in western South Dakota on sandy loam soil. In Badlands National Park, South Dakota, sparse stands of ill-scented sumac occur most commonly on very steep slopes, where the upper butte cliffs meet the well-vegetated butte top and along the edge of draws. The geologic formation of cliff faces is predominantly Brule siltstone that is rapidly eroding, resulting in small ledges, nearly vertical faces, and steep slopes with rocks and fine sediments. Dense stands of ill-scented sumac occur sporadically within Badlands National Park, but are a regular landscape feature along the breaks of the Cheyenne River, northwest of the park. They typically occupy ridgetops and hillslopes with gravelly to sandy soils, though a few stands are located in old oxbows along the White and Cheyenne Rivers (Von Loh *et al.* 1999).

MOST ABUNDANT SPECIES

Badlands National Park

| <u>Stratum</u> | <u>Species</u> |
|----------------|---|
| Shrub | <i>Ribes odoratum</i> , <i>Prunus virginiana</i> , <i>Symphoricarpos occidentalis</i> , <i>Toxicodendron rydbergii</i> , <i>Chrysothamnus nauseosus</i> , <i>Yucca glauca</i> , <i>Rhus trilobata</i> |
| Herbaceous | <i>Poa pratensis</i> , <i>Mentzelia decapetala</i> , <i>Schizachyrium scoparium</i> , <i>Bouteloua curtipendula</i> |

Globally

| <u>Stratum</u> | <u>Species</u> |
|----------------|--|
| Short Shrub | <i>Rhus trilobata</i> |
| Graminoid | <i>Bouteloua curtipendula</i> , <i>Carex filifolia</i> |

CHARACTERISTIC SPECIES

Badlands National Park

Rhus trilobata, *Yucca glauca*, *Chrysothamnus nauseosus*, *Toxicodendron rydbergii*, *Artemisia cana*, *Bouteloua curtipendula*, *Schizachyrium scoparium*, *Mentzelia decapetala*, *Artemisia ludoviciana*, *Symphoricarpos occidentalis*, *Ribes odoratum*, *Prunus virginiana*

Globally

Carex filifolia, *Muhlenbergia cuspidata*, *Rhus trilobata*

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OTHER NOTABLE SPECIES

Globally

Stratum

Short Shrub

Species

Chrysothamnus nauseosus, *Prunus virginiana*, *Ribes aureum* var *villosum*, *Symphoricarpos occidentalis*,
Toxicodendron rydbergii, *Yucca glauca*

Graminoid

Koeleria macrantha, *Muhlenbergia cuspidata*, *Poa pratensis*, *Schizachyrium scoparium*, *Stipa comata*

VEGETATION DESCRIPTION

Badlands National Park

This ill-scented sumac shrub herbaceous type occurs either as open shrubland with an open graminoid cover or as denser shrubland. The open shrubland variant typically has vegetation cover values of less than 30% because of its scattered nature along the top of cliff faces and along the edge of draws. Ill-scented sumac (*Rhus trilobata*) is clearly dominant, with each individual shrub covering a relatively large area. Other short shrubs commonly associated with ill-scented sumac include yucca (*Yucca glauca*), silver sagebrush (*Artemisia cana*), rabbitbrush (*Chrysothamnus nauseosus*), and poison-ivy (*Toxicodendron rydbergii*). Sideoats grama (*Bouteloua curtipendula*) is nearly always an understory associate and little bluestem (*Schizachyrium scoparium*) is the dominant grass along many draws. The dense shrubland variant has moderate to dense vegetative cover, depending on the landscape location. Sites with extra available soil moisture, such as seeps and slumps or old river oxbows, support dense vegetative cover in the 75-100% range. Sites on ridges and hilltops support less vegetative cover, in the 50-75% range. Ill-scented sumac is typically the overstory dominant, but in terms of vegetative cover, western snowberry (*Symphoricarpos occidentalis*), poison ivy (*Toxicodendron rydbergii*), and chokecherry (*Prunus virginiana*) can contribute nearly equal amounts. Understory grasses often include little bluestem (*Schizachyrium scoparium*), sideoats grama (*Bouteloua curtipendula*), and Kentucky bluegrass (*Poa pratensis*).

Globally

This community is dominated by herbaceous vegetation, overtopped by a shrub canopy of 10-25%. The tallest shrubs are typically 0.6 m tall (Hansen and Hoffman 1988). Total coverage is moderate; exposed mineral soil is common. The USFS (1992) found an average vegetation cover of 70% on 10 stands in western North Dakota, most of that graminoids and shrubs. The most abundant shrub is *Rhus trilobata*, with lesser amounts of *Artemisia frigida*, *Gutierrezia sarothrae*, *Rosa arkansana*, and *Symphoricarpos occidentalis*. The most abundant herbaceous species is *Carex filifolia*, usually accompanied by *Koeleria macrantha*, *Muhlenbergia cuspidata*, and *Stipa comata*. *Carex inops* ssp. *heliophila* and *Elymus lanceolatus* are found in the shade of shrubs. Forbs have very low coverage. Common forbs include *Artemisia dracuncululus*, *Echinacea angustifolia*, *Dalea purpurea*, *Opuntia polyacantha*, and *Phlox andicola*.

In Badlands National Park, South Dakota, this sparse shrubland is found along with a more densely shrubby variant. The dense shrubland variant has moderate to dense vegetative cover, depending on the landscape location. Sites with extra available soil moisture, such as seeps and slumps or old river oxbows, support dense vegetative cover in the 75-100% range. Sites on ridges and hilltops support less vegetative cover, in the 50-75% range. *Rhus trilobata* is typically the overstory dominant, but in terms of vegetative cover, *Symphoricarpos occidentalis*, *Toxicodendron rydbergii*, and *Prunus virginiana* can contribute nearly equal amounts. Understory grasses often include *Schizachyrium scoparium*, *Bouteloua curtipendula*, and *Poa pratensis* (Von Loh *et al.* 1999).

CONSERVATION RANK G3. This community has a relatively restricted range, being found in three states. It is relatively small patch in scale. It was considered to be an infrequent type in National Forest areas sampled in the western Dakotas and southeastern Montana (Hansen and Hoffman 1988).

DATABASE CODE CEG001504

MAP UNITS The two variants of the ill-scented sumac shrub grassland type are mapped together as Map Class 35 (Ill-scented sumac / Threadleaf sedge Shrub Grassland) on the Badlands NP vegetation map.

SIMILAR ASSOCIATIONS

Rhus trilobata / *Festuca idahoensis* Shrub Herbaceous Vegetation

Rhus trilobata / *Pseudoroegneria spicata* Shrub Herbaceous Vegetation

Rhus trilobata / *Schizachyrium scoparium* Shrub Herbaceous Vegetation

COMMENTS

Badlands National Park

Although stands of ill-scented sumac are classified as the *Rhus trilobata* / *Carex filifolia* Shrub Herbaceous Vegetation type, they appear to contain very little *Carex filifolia*. They may fit better with the *Rhus trilobata* / *Schizachyrium scoparium* Shrub Herbaceous Vegetation type, reported from Montana. That type has not yet been described globally, so further review is still needed.

Sparse ill-scented sumac stands occur sporadically within the park, but are more common along butte tops and in draws that support little bluestem (*Schizachyrium scoparium*) grasslands. Both of these situations are more commonly observed in the park's South Unit. In some cases, it may not be possible to determine whether a stand is a sparse shrubland versus a grassland with scattered shrubs from the ground. In the dense shrub variant, the co-dominant species found with ill-scented sumac stands

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are also present in the understory of other shrub communities, particularly American plum (*Prunus americana*) stands. These stands are very extensive and best represented in the Cheyenne River breaks. Several stands were visited, including a few that had been regularly grazed by livestock.

Globally

Although stands of ill-scented sumac in Badlands National Park are classified as the *Rhus trilobata* / *Carex filifolia* Shrub Herbaceous Vegetation type, they appear to contain very little *Carex filifolia*. They may fit better with the *Rhus trilobata* / *Schizachyrium scoparium* Shrub Herbaceous Vegetation type (CEGL001506), reported from Montana. That type has not yet been described globally, so further review is still needed.

REFERENCES

- Hansen, P.L. 1985. An ecological study of the vegetation of the Grand River/Cedar River, Sioux, and Ashland Districts of the Custer National Forest. Unpublished dissertation, South Dakota State University. 257 pp.
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- United States Forest Service. 1992. Draft habitat types of the Little Missouri National Grasslands. Medora and McKenzie Ranger Districts, Custer National Forest. Dickinson, ND.
- 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.