

**Hesperostipa comata - Bouteloua gracilis - Carex filifolia Herbaceous Vegetation**

COMMON NAME Needle-and-Thread - Blue Grama - Threadleaf Sedge Herbaceous Vegetation

SYNONYM Needle-and-Thread - Blue Grama Mixedgrass Prairie

PHYSIOGNOMIC CLASS Herbaceous Vegetation (V)

PHYSIOGNOMIC SUBCLASS Perennial graminoid vegetation (V.A)

PHYSIOGNOMIC GROUP Temperate or subpolar grassland (V.A.5)

PHYSIOGNOMIC SUBGROUP Natural/Semi-natural (V.A.5.N)

FORMATION Medium-tall sod temperate or subpolar grassland (V.A.5.N.c)

ALLIANCE STIPA COMATA - BOUTELOUA GRACILIS HERBACEOUS ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 1

USFWS WETLAND SYSTEM

RANGE

***Lacreek National Wildlife Refuge***

This type was limited to a few sites in the northern portion of the Refuge.

***Globally***

This community is common in Montana, Wyoming, and is in Nebraska, North Dakota, South Dakota, southern Saskatchewan, and southern Manitoba. In Nebraska it is apparently absent from extreme northwestern and east-central regions (Steinauer and Rolfsmeier 1997).

ENVIRONMENTAL DESCRIPTION

***Lacreek National Wildlife Refuge***

Stands occurred on flat terraces and moderate sloping foot and toe slopes.

***Globally***

Stands occur on flat to rolling topography with deep (40- 100 cm) sandy loam to loam soils. They are typically associated with uplands, though they may also occur lower in the landscape, such as coulee and draw bottoms, if soils are sufficiently coarse (usually sandstone derived). Even though it is a major association in the Northern Plains, it does not occur in areas dominated exclusively by shale and mudstone parent materials, from which heavy soils are derived. This type is found at elevations ranging from 2000 to 5500 feet; average annual precipitation associated with these elevation parameters ranges from slightly less than 10 to slightly more than 20 inches. This association and the *Pascopyrum smithii* - *Bouteloua gracilis* - *Carex filifolia* association could be considered the most common plant associations in the Northern Great Plains (Martin et al. 1998). These two associations, cited by many authors as the climatic climax communities for this region, are manifested by matrix or large patch occurrences frequently found dominating whole landscapes. The *Hesperostipa comata* defined community is more associated with uplands and the *Pascopyrum smithii* defined type characterizes sites with higher moisture status, generally occurring at lower positions in the landscape.

MOST ABUNDANT SPECIES

**Globally**

Stratum

Species

Graminoid     *Bouteloua gracilis*, *Carex filifolia*, *Hesperostipa comata*

CHARACTERISTIC SPECIES

**Globally**

*Bouteloua gracilis*, *Carex filifolia*, *Hesperostipa comata*

OTHER SPECIES

**Globally**

Stratum

Species

Graminoid     *Calamovilfa longifolia*, *Koeleria macrantha*

VEGETATION DESCRIPTION

**LaCreek National Wildlife Refuge**

Needle-and-thread, blue grama, and threadleaf sedge (*Carex filifolia*) are the major species, while sand dropseed and western wheatgrass are common secondary species. Total cover ranges from 40-70% depending primarily on the abundance of threadleaf sedge and blue grama.

Japanese brome is a common invader on these sites.

**Globally**

The vegetation is dominated by graminoids that are usually between 0.5 and 1 m tall. Total cover is moderate. On 19 stands in west-central Montana the cover by the different strata was as follows: shrubs 6 percent, graminoids 67 percent, forbs 11 percent, bryophytes 14 percent, litter 55 percent, rock 4 percent, bare soil 9 percent (Mueggler and Stewart 1978). Thilenius et al. (1995) found that the average cover on 14 stands in eastern Wyoming was 42 percent. Tolstead (1942) described this community as the climax on the level lands of the northern part of Cherry County, Nebraska. *Hesperostipa comata* is the tallest of the dominant species, sending seed heads to a maximum height of approximately 1 m. The rhizomatous graminoids, *Bouteloua gracilis* and *Carex filifolia*, the other two dominant/codominant species, do not usually exceed 0.5 meter. *Calamovilfa longifolia* is often found with high cover values on sandier soils and *Koeleria macrantha* cover increases on degraded sites. There are regionalized expressions of variability with *Carex inops* var. *heliophila* surpassing *Carex filifolia* in Colorado and *Calamagrostis montanensis* being at least as important as the diagnostic species in north-central Montana. *Pascopyrum smithii* is consistently present and reaches the same height as *Hesperostipa comata*. For woody species, subshrub forms (*Artemisia frigida*, *Gutierrezia sarothrae*, *Rosa arkansana*) have the highest cover and constancy but their total cover does exceed more than 5 percent, except on overgrazed sites. Regardless of the geographic region of this broadly distributed type, cover values for forbs are low (the exception being *Selaginella densa*), though geographic setting does influence forb composition to some degree. *Sphaeralcea coccinea*, *Phlox hoodii*, *Heterotheca villosa*, *Gaura coccinea*, and *Liatris punctata*, at least in the northern distribution of this type, have high constancy values; the constancy of *Lygodesmia juncea*, *Opuntia polyacantha*, *Artemisia dracuncululus* and *Ratibida columnifera* seems to increase to the eastern and southern portions of the type's distribution.

ENVIRONMENTAL CONDITION

***LaCreek National Wildlife Refuge***

Stands occur primarily on loam soils of terraces and moderate slopes.

***Globally***

Stands occur on flat to rolling topography with deep (40- 100 cm) sandy loam to loam soils. They are typically associated with uplands, though they may also occur lower in the landscape, such as coulee and draw bottoms, if soils are sufficiently coarse (usually sandstone derived). Even though it is a major association in the Northern Plains, it does not occur in areas dominated exclusively by shale and mudstone parent materials, from which heavy soils are derived. This type is found at elevations ranging from 2000 to 5500 feet; average annual precipitation associated with these elevation parameters ranges from slightly less than 10 to slightly more than 20 inches. This association and the *Pascopyrum smithii* - *Bouteloua gracilis* - *Carex filifolia* association could be considered the most common plant associations in the Northern Great Plains (Martin et al. 1998). These two associations, cited by many authors as the climatic climax communities for this region, are manifested by matrix or large patch occurrences frequently found dominating whole landscapes. The *Hesperostipa comata* defined community is more associated with uplands and the *Pascopyrum smithii* defined type characterizes sites with higher moisture status, generally occurring at lower positions in the landscape.

CONSERVATION RANK G5. This is an exceedingly common type, manifesting any number of permutations, some of which are related to disturbance and some of which appear to be related to the expected geographic distinctions in such a broadly distributed type. The only reason to consider it a G4 is that it has received, and continues to receive, significant grazing pressure which, combined with the surge in alien weed populations, pose a significant threat to its quality.

DATABASE CODE CEGL002037

SIMILAR ASSOCIATIONS

*Bouteloua gracilis* - *Buchloe dactyloides* Xeric Soil Herbaceous Vegetation (On degraded sites, or on intermediate habitats, this type can be confused with CEGL002037.)

*Pascopyrum smithii* - *Hesperostipa comata* Central Mixedgrass Herbaceous Vegetation

COMMENTS

***LaCreek National Wildlife Refuge***

This type was probably more prevalent before agricultural and management disturbance.

***Globally***

Vast (singly and in the aggregate) prairie dog (*Cynomys ludovicianus*, *C. leucurus*) "towns" once developed on the favorable substrates of this type and exploited its vegetation. Prairie dog populations have undergone a precipitous decline since settlement, so much of this type could be in various states of secondary succession, returning from a somewhat denuded state and altered composition created by the prairie dogs (and attendant bison that found nutritious forage here). Fire, both aboriginal- and lightning-caused, was a regular part of this landscape. Fire-return intervals have been considerably lengthened since settlement by European-Americans.

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