

Stipa 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

GLOBAL RANGE

Theodore Roosevelt National Park

Stipa comata - Bouteloua gracilis - Carex filifolia grassland occupy sites that are, topographically, the greatest distance from the Little Missouri River. In the South Unit of Theodore Roosevelt National Park, the largest stands occur on the Petrified Forest Plateau.

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

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This community is generally found on the level and gently rolling uplands with deep soils. The soils found under this grassland type tend to be more coarse textured compared to *Pascopyrum smithii* grasslands.

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 *Stipa 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

Theodore Roosevelt National Park

<u>Stratum</u>	<u>Species</u>
Herbaceous	<i>Stipa comata, Bouteloua gracilis, Carex filifolia</i>

Globally

<u>Stratum</u>	<u>Species</u>
Graminoid	<i>Bouteloua gracilis, Carex filifolia, Stipa comata</i>

CHARACTERISTIC SPECIES

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Stipa comata, Bouteloua gracilis, Carex filifolia

Globally

Bouteloua gracilis, Carex filifolia, Stipa comata

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VEGETATION DESCRIPTION

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Foliar cover is generally quite high (75-100%) on most sites. The vegetation is dominated by *Stipa comata* and *Bouteloua gracilis* that are usually less than 0.5 m in height. On some sites, dominance between these two species is shared almost equally, while on other sites one species is a clear dominant over the other. *Carex filifolia* is usually a major contributor within these grasslands followed closely by *Artemisia frigida*. *Koeleria macrantha* is another major graminoid within this community type.

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. *Stipa 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 *Stipa comata*. For woody species, subshrub forms (*Artemisia frigida*, *Gutierrezia sarothrae*, *Rosa arkansana*) have the highest cover and constancy but their total cover does not 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.

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 - *Stipa comata* Central Mixedgrass Herbaceous Vegetation

COMMENTS

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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