**OVERVIEW**

***Hierarchy Level:** Level 8
***Placement in Hierarchy:** Association

**USNVC code:** CEGL007722.
***Scientific Name:** *Eleocharis rostellata - Schoenoplectus pungens - Tripsacum dactyloides - Spartina pectinata* - Fen
***Common (Translated Scientific) Name:** Beaked Spikerush - Common Threesquare - Switchgrass - Eastern Gamagrass - Prairie Cordgrass Fen
***Colloquial Name:** Texas Rolling Plains Prairie Fen

**Type Concept Sentence:** This fen wetland community is found in the Sandhills region of the Rolling Plains Ecoregion of Texas in the Southern Great Plains on sloping to level valley bottoms bordering headwater streams and marshes. Stands are typically dominated by sedges and grasses, including *Eleocharis rostellata, Schoenoplectus pungens, Tripsacum dactyloides, Spartina pectinata*, and *Equisetum* spp.

***Type Concept:** This community is found in the Sandhills region of the Rolling Plains Ecoregion of Texas in the Southern Great Plains on sloping to level valley bottoms bordering headwater streams and marshes. The water table is very shallow below the surface, and these sites remain saturated throughout the year but never become flooded. The soils are deep muck formed from decaying herbaceous vegetation. Soils include Sweetwater Series in Hemphill, Lipscomb and Wheeler Counties and Gracemore Series in Oldham County. They are generally moist throughout the year and formed in calcareous loam over sandy alluvium under wet conditions. These prairie fens occupy sloughs and stream channels. The vegetation consists mainly of hydrophytic herbaceous species. Stands are typically dominated by sedges and grasses, including *Eleocharis rostellata, Schoenoplectus pungens, Tripsacum dactyloides, Spartina pectinata*, and *Equisetum* spp. (*Equisetum arvense, Equisetum hyemale*, or *Equisetum laevigatum*). Other abundant species are *Carex stricta, Carex pellita, Carex hystericina, Carex emoryi, Carex oklahomensis, Andropogon gerardii, Juncus arcticus, Juncus torreyi, Berula erecta, Helianthus maximiliani*, *Panicum virgatum*, and *Asclepias speciosa*. In areas of well-preserved fibrous peat, *Carex pellita, Carex hystericina, Carex emoryi*, and *Carex oklahomensis* dominate. Some parts of the fen may be dominated by taller graminoids, such as *Glyceria striata, Leersia oryzoides, Schoenoplectus tabernaemontani*, and *Typha latifolia*. In other parts, shrub cover can be high. Shrub species include *Baccharis salicina*, *Salix exigua, Amorpha fruticosa*, and *Cephalanthus occidentalis*. Several disjunct and periphery of range plant species are found in the fibrous peat, including *Agrimonia parviflora, Anemopsis californica, Epilobium leptophyllum, Epipactis gigantea, Liatris lancifolia, Lobelia siphilitica, Mimulus glabratus, Scutellaria galericulata, Scutellaria lateriflora, Spiranthes magnicamporum, Symphyotrichum expansum, Thalictrum dasycarpum, Verbena hastata, Verbena urticifolia*, and *Viola nephrophylla*.

***Diagnostic Characteristics:** The *Texas Rolling Plains Prairie Fen* is typically found in the Sandhills region of the Rolling Plains Ecoregion of Texas in the Southern Great Plains on sloping to level valley bottoms bordering headwater streams and marshes. These prairie fens occupy sloughs and stream channels. The surrounding landscape is dominated by Sand Bluestem - Giant Sandreed Grasslands. Hydrophytic herbaceous species dominated by grasses, sedges, and rushes are typical. These wetlands are saturated throughout most of the year with seepage flowing in from side slope contacts at the base of sandhills and/or fed by springs at the head waters or side slopes. The soils are deep muck formed from decaying herbaceous vegetation. *Eleocharis rostellata, Schoenoplectus pungens, Tripsacum dactyloides, Spartina pectinata*, and *Equisetum* spp. (*Equisetum arvense, Equisetum hyemale*, or *Equisetum laevigatum*) frequent these fens. Shrubs ranging from infrequent to frequent include *Baccharis salicina*, *Salix exigua, Amorpha fruticosa*, and *Cephalanthus occidentalis*.

***Classification Comments:** Recognition of this association is consistent with recognition in Central Great Plains of other rare or unique vegetation associations. It differs significantly from the nearest related association, i.e., Sandhills Fen ~*Carex interior - Eleocharis elliptica - Thelypteris palustris* Fen (CEGL002390)$$, known from the Sandhills region of the Central Great Plains in northwestern Nebraska and adjacent southwestern South Dakota. No similar associations occur adjacent to Texas in nearby New Mexico, Oklahoma, Kansas or Colorado.

**Similar NVC Types [if applicable]:**

| Elcode | Scientific or Colloquial Name | Note |
|---|---|---|
| CEGL002028 | *Calamagrostis canadensis - Juncus* spp. - *Carex* spp. Sandhills Wet Meadow | |
| CEGL002030 | *Schoenoplectus acutus - Typha latifolia - (Schoenoplectus tabernaemontani)* Sandhills Marsh | |
| CEGL002390 | *Carex interior - Eleocharis elliptica - Thelypteris palustris* Sandhills Fen | |

**Similar NVC Types General Comments [optional]:**

## VEGETATION

**Physiognomy and Structure Summary:** The vegetation consists mainly of hydrophytic herbaceous species, especially sedges and grasses, occasionally with shrubby patches.

**Physiognomy and Structure Table [optional]:**

| Physiognomy-Structure Category | Prevailing Height (m) | Height Range (opt.) | Mean % Cover | Cover Range (opt.) |
|---|---|---|---|---|
| | | | | |

**Floristics Summary:** Stands are typically dominated by sedges and grasses, including *Eleocharis rostellata, Schoenoplectus pungens, Tripsacum dactyloides, Spartina pectinata*, and *Equisetum* spp. (*Equisetum arvense, Equisetum hyemale*, or *Equisetum laevigatum*). Other abundant species are *Carex stricta, Carex pellita, Carex hystericina, Carex emoryi, Carex oklahomensis, Andropogon gerardii, Juncus arcticus, Juncus torreyi, Berula erecta, Helianthus maximiliani*, *Panicum virgatum,* and *Asclepias speciosa*. In areas of well-preserved fibrous peat, *Carex pellita, Carex hystericina, Carex emoryi*, and *Carex oklahomensis* dominate. Some parts of the fen may be dominated by taller graminoids, such as *Glyceria striata, Leersia oryzoides, Schoenoplectus tabernaemontani*, and *Typha latifolia*. Shrub species include *Salix exigua, Amorpha fruticosa*, and *Cephalanthus occidentalis*. Several disjunct and periphery-of-range plant species are found in the fibrous peat, including *Agrimonia parviflora, Anemopsis californica, Epilobium leptophyllum, Epipactis gigantea, Liatris lancifolia, Lobelia siphilitica, Mimulus glabratus, Scutellaria galericulata, Scutellaria lateriflora, Spiranthes magnicamporum, Symphyotrichum expansum, Thalictrum dasycarpum, Verbena hastata, Verbena urticifolia*, and *Viola nephrophylla* (Singhurst et al. 2016, Singhurst and Baker 2016, Singhurst and Treuer-Kuehn 2017).

***Floristics Table [Med - High Confidence]:** High
***Number of Plots: 5, 1 per site**

| Physiognomy – Structure Category | Taxon Name | Specific Growth Form (opt.) | Constancy[+] | Mean % Cover | Cover Range (opt.) | Differential | Diagnostic Combination |
|---|---|---|---|---|---|---|---|
| S - Field: Herb | Eleocharis rostellata | Flowering forb | 100 | 17 | na | Y | Dom[++], Dif, C |
| S - Field: Herb | Schoenoplectus pungens | Flowering forb | 100 | 9 | na | | Dom, C |
| S - Field: Herb | Tripsacum dactyloides | Graminoid | 100 | 7 | na | Y | Dom, Dif, C |
| S - Field: Herb | Spartina pectinata | Graminoid | 100 | 17 | na | | Dom, C |
| S - Field: Herb | Equisetum laevigatum | Fern Allies | 100 | 7 | na | Y | Dom, Dif, C |
| S - Field: Herb | Carex hystericina | Flowering forb | 100 | 15 | na | | Dom, C |
| S - Field: Herb | Panicum virgatum | Graminoid | 60 | 4 | na | | C |
| S - Field: Herb | Juncus arcticus | Flowering forb | 100 | 2 | na | | C |
| S - Field: Herb | Leersia oryzoides | Graminoid | 80 | 3 | na | Y | Dif, C |
| S - Field: Herb | Schoenoplectus tabernaemontani | Flowering forb | 100 | 2 | na | | C |
| S - Field: Herb | Typha latifolia | Flowering forb | 80 | 2 | na | | C |
| S - Field: Herb | Asclepias speciosa | Flowering forb | 20* | 1 | na | Y | Dif |
| S - Field: Herb | Andropogon gerardii | Graminoid | 40** | <1 | na | Y | Dif |
| S - Tree: Tree | Ulmus americana | Broad leaved deciduous tree | 100 | 7 | na | | Dom, C |
| S - Tree: Tree | Populus deltoides | Broad leaved deciduous tree | 100 | 7 | na | | Dom, C |
| S - Tree: Tree | Salix nigra | Narrow leaved deciduous tree | 100 | 2 | na | | C |
| S - Tree: Tree | Salix exigua | Narrow leaved deciduous tree | 100 | 2 | na | | C |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| S - Tree: Shrub | Baccharis salicina | Deciduous Shrub | 100 | 2 | na | | C |
| S - Tree: Shrub | Ribes aureum | Deciduous Shrub | 60 | 1 | na | | C |
| S - Tree: Shrub | Cornus drummondii | Deciduous Shrub | 60 | 1 | na | | C |
| S - Tree: Shrub | Elaeagnus angustifolia | Deciduous Shrub | 60 | 1 | na | | C |
| | | | | | | | |

+ Additional species with < 60% constancy, and not otherwise diagnostic, are not shown here.
++ Dominant Species = species > 5%
* Despite 20% constancyit occurs in 80% of sites
** Despite 40% constancy, it occurs in 80% of sites.

**Dynamics:** Information is currently lacking on the dynamics of this type.

## ENVIRONMENT

**Environmental Description:** This community is typically found at the headwaters of Sandhills stream valleys, in between alluvial terraces along larger streams and rivers, or along sloughs. The water table is very close to the soil surface, and these sites remain saturated throughout the year but never become flooded. The soils are deep muck formed from decaying herbaceous vegetation. Soils include Sweetwater Series in Hemphill, Lipscomb, and Wheeler Counties and Gracemore Series in Oldham County. They are generally moist throughout the year and formed in calcareous loam over sandy alluvium under wet conditions.

## DISTRIBUTION

***Geographic Range:** This association is documented only from five sites in the northern portion of the Rolling Plains of Texas.

**Nations:** US
**States/Provinces:** TX
**USFS Ecoregions (2007) [optional]:** 315
**Omernik Ecoregions L3, L4 [optional]:** 26a
**MLRAs [optional]:**

## PLOT SAMPLING AND ANALYSIS

***Plot Analysis Summary [Med - High Confidence]:** High
***Plots Used to Define the Type [Med - High Confidence]:** 5

## CONFIDENCE LEVEL

**USNVC Confidence Level:** High
**USNVC Confidence Comments [optional]:**

## HIERARCHY

***Lower Level NVC Types:**

## DISCUSSION

**Discussion [optional]:**

## CONCEPT HISTORY

***Recent Concept Lineage [if applicable]:**

| Date | Predecessor | Note |
|---|---|---|
| | | |

## RELATED CONCEPTS

**Supporting Concepts [optional]:**

| Relationship to NVC | Supporting Concept Name | Short Citation | Note |
|---|---|---|---|
| | | | |

## AUTHORSHIP

***Primary Concept Source [if applicable]:**

| Relationship to NVC | Name Used in Source | Short Citation | Note |
|---|---|---|---|
| | | | |

***Author of Description:** Jason R. Singhurst

**Acknowledgments [optional]:** I thank Chip Ruthven, Amie Treuer-Kuehn, and Jamie Baker with Texas Parks and Willdife with their assistance in documenting these prairie fens.

## REFERENCES

***References [Required if used in text]:**

Singhurst, J. R., C. Ruthven, J. Baker, and S. Cojer 2016. Botanical Survey of Rolling Plains Fens at the Gene Howe Wildlife Management Area and the Black Kettle National Grasslands - Marvin Lake Unit in Hemphill County, Texas. Field note summary in a spreadsheet that lists overall flora, dominant plant species and other abundant plant species. On reference file in the Texas Natural Diversity Database, Nongame and Rare Species Program, Texas Parks and Wildlife Department, Austin, Texas.

Singhurst, J. R. and J. Baker 2016. Botanical Survey of a Rolling Plains Fen at the Gene Howe Wildlife Management Area – Pat Murphy Unit in Lipscomb County, Texas. Field note summary in a spreadsheet that lists overall flora, dominant plant species and other abundant plant species. On reference file in the Texas Natural Diversity Database, Nongame and Rare Species Program, Texas Parks and Wildlife Department, Austin, Texas.

Singhurst, J. R. and A. Treuer-Kuehn 2017. Botanical Survey of a Rolling Plains Fen at the Boys Ranch in Oldham County, Texas. Field note summary in a spreadsheet that lists overall flora, dominant plant species and other abundant plant species. On reference file in the Texas Natural Diversity Database, Nongame and Rare Species Program, Texas Parks and Wildlife Department, Austin, Texas.

## ADDITIONAL INFORMATION

**Ecological Systems:**
Western Great Plains Sand Prairie (CES303.670)
Western Great Plains Open Freshwater Depression Wetland (CES303.675)

**Internal Comments:** There are additional somewhat similar sites identified through remote sensing in Hartley, Hemphill, Lipscomb, Oldham, and Wheeler counties, Texas, and adjacent western Oklahoma that potentially may be referred to this type.

**High-ranked species:** *Agrimonia parviflora* (G5S1), *Anemopsis californica* (G5S1), *Epipactis gigantea* (G4S2), *Epilobium leptophyllum* (G5S1), *Liatris lancifolia* (G4S1), *Lobelia siphilitica* (G5S1), *Mimulus glabratus* (G5S2), *Scutellaria galericulata* (G5S1), *Scutellaria lateriflora* (G5S1), *Spiranthes magnicamporum* (G4S2), *Symphyotrichum expansum* (GNRS1), *Thalictrum dasycarpum* (G5S2), *Verbena hastata* (G5S1), *Verbena urticifolia* (G5S2), and *Viola nephrophylla* (G5S1).

## ELEMENT GLOBAL RANK & REASONS

**GRank: G1**
**GReasons:** As currently described, this type occurs at five sites in the northern portion of the Rolling Plains of Texas, with a small potential natural range which is further limited by habitat specificity.