

Dangly Fen Sedge (*Carex limosa* L.)

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Dangly fen sedge at Bunchgrass Meadow, Washington. Photo by Bruce Newhouse.

“**T**he cutest *Carex* in Oregon” is *Carex limosa*, according to many botanists. In the recent *Field Guide to Sedges of the Pacific Northwest*, the authors noted that “mud sedge is too mundane a name for this graceful little fen dweller” (Wilson *et al.* 2008). Not only does it grow primarily in “non-muddy” wetlands, it also has much more aesthetic appeal than “mud.” I suggest a common name that reflects both its appearance and its habitat (see sidebar): dangly fen sedge. Of course, some readers will smile at the combination of “dangly fen,” but when they encounter living plants, they will see that the spikelets of this sedge dangle from long slender stems and shake gently in the breeze. This trait is not obvious in herbarium specimens and drawings or photos of pressed plants, which often give a false impression that spikelets are erect or stationary.

**Range and Rarity**

Dangly fen sedge has a circumpolar distribution in the northern hemisphere, occurring in northern Europe, all of Canada and approximately the northern half of the US, extending south into the mountains of California and New Mexico. In Oregon, *Carex limosa* grows along the spine of the Cascade Mountains from Multnomah County south to Jackson and Klamath counties, plus two sites in the mountains of northeastern Oregon (Elkhorn and Wallowa mountains). Eighteen voucher specimens have been collected from about ten sites in Oregon, with another 16 observed locations (occasionally photographed). Most of the collections are in the OSU herbarium, except for a few in agency and community college herbaria. The herbarium at the University of Washington



An 1877 Dutch illustration shows the stolons and other features of dangly fen sedge. Illustration from [http://caliban.mpiz-koeln.mpg.de/~stueber/batava/band17/high/IMG\\_9539.html](http://caliban.mpiz-koeln.mpg.de/~stueber/batava/band17/high/IMG_9539.html)

(WTU) houses 22 specimens from ten Washington counties. Most were collected from the Cascade Range, but a few are from mountainous northeastern Washington.

The University of California's Jepson Interchange website (Jepson Online Interchange 2008) indicates that *Carex limosa* has been found in California primarily in the high Sierra Nevada Mountain region, with two sites in the North Central region, for a total of 46 vouchers in 8 counties. It is rated S3 for rarity in California, indicating an extent of "21-80 occurrences or 3,000-10,000 individuals or 10,000-50,000 acres" (CNPS 2009). Because it occurs fairly regularly throughout its worldwide, boreal range, the global status of dangly fen sedge is secure, and in North America, it is rare only at the southern limits of its range (NatureServe 2009). Dangly fen sedge is not a rare species in Oregon and Washington.

### **Carex limosa locations in Oregon**

(specimens at OSC and observation locations, summarized from Oregon Flora Project 2009)

#### Clackamas County

- Near Government Camp (1916, OSC)
- Dinger Lake, Mt. Hood NF (1993 obs.)

#### Deschutes County

- Southern mire of three main mires at Little Cultus Lake (1985, 1993 OSC)

#### Jackson County

- Swamp (1902 OSC)

#### Klamath County

- Swamps along west boundary, Crater Lake National Park (1928 OSC)
- 28 mi. NW of Klamath Falls (1979 OSC)
- Tunnel Creek Wetland (2001 obs.)

#### Lane County

- Gold Lake Bog (1926, 1977 OSC; 1989 obs.)
- Quaking Aspen Bog, Quaking Aspen Swamp (1979, 1984 OSC; 1999 obs.)
- Hidden and Lulu Lakes (1992 obs.)
- Cedar Swamp and meadows to north and west (2005 obs.)
- Skookum Creek Swamp (2001 obs.)
- Meadows at headwaters of French Pete Creek (2005 obs.)
- Meadow southwest of Blue Lake (2005 obs.)
- Shroy Meadow, Mink Lake Basin: Shroy, West Porky and Cliff Lake meadows, Cow Swamp (2006 obs.)

#### Linn County

- Bog 100 yards south of Jct. of Hwy 22 and USFS Rd. 2067 (1996 OSC)
- Hwy 22 & USFS Rd. 2067 (1996 obs.)
- Meadow on east side of Jack Creek, south of Marion Lake (2005 obs.)

#### Multnomah County

- Vicinity of LaTourelle Prairie (1996 obs.)

#### Union County

- Headwaters of the Grand Ronde River (2001 OSC)

#### Wallowa County

- Bog at Duck Lake (1991, 1999 OSC)

#### Wasco County

- Trapper Meadow (1995 obs.)

### **Relatives and Look-alikes**

Dangly fen sedge belongs to a small section of the genus *Carex* (Section Limosae) whose members often have yellow felt-like hairs on young roots (Hitchcock and Cronquist 1973, Mastrogiuseppe



The range map from the PLANTS web site shows the primarily boreal distribution of *Carex limosa* in North America.

## Limosa and Common Names

The Latin word *limos* in the specific epithet means “slimy” or “muddy.” Linnaeus, who named *Carex limosa* in 1753 in *Species Plantarum*, was probably referring to wet habitats in northern Europe where this species was first described. In the western US, its habitats are peaty fens and bogs (sometimes floating bogs), rather than “slimy, muddy” places. German web sites generally list the species as “schlamm segge” (mud sedge), and a Danish site lists “mudder rietgrass” and two English common names: “mud carex” and “green and gold carex.” In the Flora of North America, Ball and Reznicek (2002) include a French name, “carex des bourbiers,” which translates to “mire sedge<sup>1</sup>.” Peck (1961) and Janeway (1992) used the name “shore sedge;” both “mud” and “shore” are common names listed by Hurd *et al.* (1998) and the Washington Flora Checklist (Burke Museum 2009). Hipp and others (2008) call it “muck sedge” in the *Field Guide to Wisconsin Sedges*. In the UK, *Carex limosa* is known as “bog sedge” or “common bog sedge.” The common name dangly fen sedge is my invention; it has not been published anywhere else.

## More About Limosa

Linnaeus also used “*Limosa*” to designate the genus of godwits, a group of tall, lanky shorebirds with very long bills. These bills, slightly upturned at the end, are an adaptation for probing in mud to feed on subsurface invertebrates. One Eurasian species, the Black-tailed Godwit, is named *Limosa limosa*<sup>2</sup>. (Perhaps a direct translation would be the “slimy-slimy?”)



Black-tailed godwit (*Limosa limosa*). Photo by Marek Szczepanek.

1 Bourbiers can also be translated as bog, slough, quagmire, morass or plight.

2 Tautonyms (in which the specific epithet is the same as the generic name) may be applied to animals, but are not allowed in botanical nomenclature.

1993), and whose flower spikes, borne on long peduncles, often dangle. All modern references consulted for this article consider *Carex limosa* L. as one taxonomic entity, with no subspecies or varieties currently recognized. At the terminus of the *Carex limosa* inflorescence is an all-male spikelet, skinny and nondescript. The lower spikelets (usually two to four) are female, sometimes with male flowers at the tips. These lower spikelets dangle on long peduncles at maturity.

Within Section Limosae, dangly fen sedge's two closest relatives in Oregon are long-awn sedge (*Carex macrochaeta*) and black bog sedge (*C. pluriflora*). Both are considered rare and are restricted to the northwestern part of the state. The *Field Guide to Sedges of the Pacific Northwest* tells how to distinguish these three species in Oregon, including morphological characters, as well as range and habitat differences. Long-awn sedge grows primarily on moist cliffs in the vicinity of the Columbia Gorge, while black bog sedge, with its distinctive black perigynia, is currently known from only one wetland near Seaside. In the Pacific Northwest, the species that most closely resembles dangly fen sedge is black bog sedge (*Carex magellanica* ssp. *irrigua*). It is a Rocky Mountain species that occurs as far west as northern Washington and it is highly unlikely that this species would be found in Oregon. Dangly fen sedge and black bog sedge have been known to hybridize where their ranges overlap (Gage and Cooper 2006).

Dangly fen sedge also superficially resembles two “dangly” grasses, big quaking grass (*Briza maxima*) and rattlesnake brome (*Bromus brizaeformis*), but luckily for the beginning botanist, grasses differ greatly in their reproductive structure. Additionally, these two grasses grow in human-disturbed habitats at low elevations, not montane wetlands.

If you find a sedge in the Cascade or Willowa mountains of northern Oregon that you think is dangly fen sedge, use a key that includes look-alike species with overlapping ranges (*e.g.*, *Field Guide to the Sedges of the Pacific Northwest*). If it is a “new” location (a site not shown on the distribution map), the population contains more than 20 individuals, and you have the landowner's permission, collect a specimen for the OSU herbarium (and possibly another for a second, nearby herbarium). Such collections allow taxonomists now and in the future to closely examine material for an accurate assessment. Otherwise, take photographs and document the location.

## Biology and Ecology

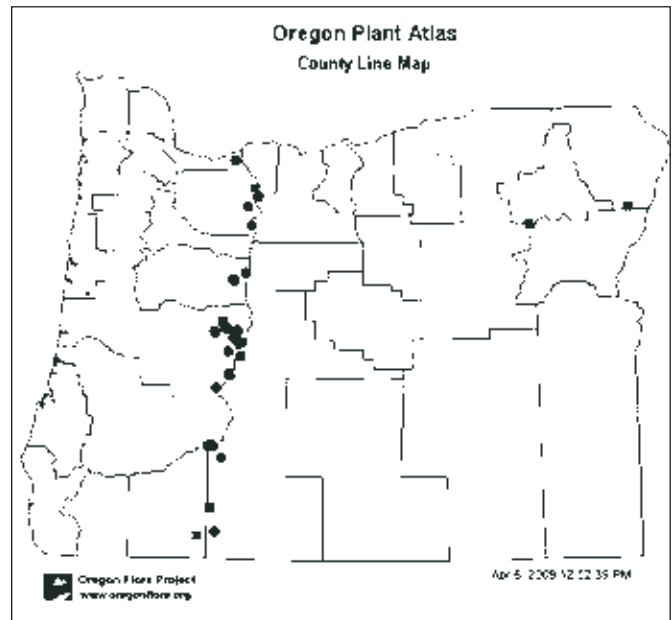
Dangly fen sedge is stoloniferous (unusual in the genus *Carex*), but is sometimes described as having rhizomes (lateral below-ground stems) because the stolons (lateral above-ground stems) may be shallowly embedded in the very wet substrate in which it grows. Slender tufts of stems and thin leaves with incurved margins usually are spaced widely apart along the stolons. Montane wetlands tend to be nutrient-poor, setting the stage for intense competition among plants in the communities. Along the stolons, dangly fen sedge has occasional “sinker” roots that penetrate deep into the substrate and enable it to take up the nutrients more efficiently than many of its taller competitors (Wilson *et al.* 2008). The fine tufts of delicate leaves and a tendency to mix with other vegetation make dangly fen sedge difficult to spot. Once, Washington caricologist (sedge expert) Fred Weinman overlooked this species the first time

he visited a particular site, and found it only by returning to search for it a second time!

Dangly fen sedge is a species of mountain wetlands. Collection sites in Oregon range from 3,000 to 5,500 feet, and in California up to about 6,600 feet in the Sierra Nevada Mountains. Collectors of dangly fen sedge in Oregon, Washington, and California described its habitat as sunny, wet sites, using a variety of terms: bog, mire, swamp, wet peaty sedge meadow, sphagnum bog, soggy *Darlingtonia* meadow. I have seen the species in about ten locations in the central Cascades of Oregon, where it grows with peat mosses and with other wet-site sedges and forbs. Occasionally, I found it in more open, muddy habitats. I learned to approach it cautiously in floating mat habitats after punching a foot (or more!) through to cold lake water. In the Rocky Mountains, dangly fen sedge occurs also primarily in fens, and in a wide range of pH and nutrient conditions (Gage and Cooper 2006).

### Associated species in Oregon

Dangly fen sedge often mingles with other sedges, including water sedge (*Carex aquatilis*), silvery sedge (*C. canescens*), star sedge (*C. echinata*) and southern beaked sedge (*C. utriculata*), and with a number of montane wetland plants, e.g., peat mosses (*Sphagnum* spp.), spikerushes (*Eleocharis* spp.), cottongrasses (*Eriophorum* spp.), marsh or purple cinquefoil (*Comarum palustre*) and English or



Distribution of *Carex limosa* in Oregon. Map courtesy of Oregon Atlas Project, [www.oregonflora.org/atlas.php](http://www.oregonflora.org/atlas.php)

line-leaved sundew (*Drosera anglica*). Other common associates are Baltic rush (*Juncus balticus*), marsh buckbean (*Menyanthes trifoliata*), podgrass or American scheuchzeria (*Scheuchzeria palustris*), willows (*Salix* spp.), alders (*Alnus* spp.), alpine shooting star (*Dodecatheon alpinum*), Gorman's buttercup (*Ranunculus gormanii*), elephant's head pedicularis (*Pedicularis groenlandica*), and lodge-pole pine (*Pinus contorta* var. *latifolia*) is often nearby. A collection label from Gold Lake Bog (Lane County) listed a moss (*Drepanocladus vernicosus*).

In Oregon, other species that share dangly fen sedge's montane wetland habitats are Roosevelt elk, black bear, sandhill crane, a small damselfly called sedge sprite (*Nehalennia irene*), and a small butterfly called dun skipper (*Euphyes vestris*). The skipper lays its eggs on sedges, where its larvae feed.

### Conservation

Because dangly fen sedge grows in wetlands on public land above 3,000 ft. in Oregon, land management practices generally do not jeopardize populations here. Potential exceptions include grazing, long-term plant succession and climate change. Large ungulates graze sedges and other graminoids, and elk occasionally create wallows in wet areas. (Over-hunting of mountain lions, the primary natural predator of elk, could result in larger populations and potentially affect vegetation



If you look very closely, you might find dangly fen sedge in this type of habitat, Blue Lake, Lane County, Oregon. Photo by Bruce Newhouse.



An elusive sandhill crane left tracks in the mud between sedges at Cow Swamp in Lane County. Photo by Bruce Newhouse.

similar to documented trophic cascade effects in other ecosystems; e.g., Ripple and Beschta 2003.) Fortunately, some populations of dangly fen sedge in Oregon grow on floating *Sphagnum* mats, which presently are too wet for ungulate use. In long-term succession, fens and bogs tend to fill in with soil and denser, woody vegetation, making habitat less favorable for dangly fen sedge and other herbaceous plants. With climate change, one could speculate that higher temperatures and changes in precipitation could eventually alter the range of the species. But for now, too many unknowns limit meaningful prediction.

### Final thoughts

The best time to look for dangly fen sedge in montane Oregon depends somewhat on weather, particularly, how much snow has fallen during the previous winter and how long it lingers at higher elevations. In general, from early July (mid-elevations) through mid-September (high elevations) is the best time to find mature plants. Like nearly all sedges, it is more easily identified when its fruits (perigynia) are fully mature.

Dangly fen sedge is a delicate little plant that will reward you – if you are lucky enough to find it – with its subtle beauty during your light-footed treks through montane wetlands. While you are botanically fascinated by a fen, perhaps a sandhill crane will startle you as it takes off from behind a willow copse across the way, and as your heart slows to normal, you may notice something down at your feet. Voilà! As you smile and drop gently onto your knees, there it will be with its dangling spikelets dancing a bit in the breeze.

## Acknowledgements

Eminent botanist Peter Zika fostered my initial attraction to graminoids. Peter showed me how interesting it could be look close and study the tremendous plant diversity in the smallest plants around and under my feet. Over the ensuing years, the *Carex* Working Group (Dick Brainerd, Nick Otting and Barbara Wilson) furthered that appreciation. I now find sedges to be “familiar old friends” when I travel in the Northwest and beyond (despite my trouble with that challenging Section, Ovals). I extend special thanks to Thea Cook of the Oregon Flora Project (Atlas), Barbara Wilson for initial editing, and Dana Visalli, Nick Otting, Fred Weinman, Barbara Wilson and Peter Zika, for responding to my request for information.

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Dangly fen sedge occasionally grows in patches, as seen here at Swamp Lake, Washington. Photo by Bruce Newhouse.

## Wetlands: Bogs, Fens and Poor Fens<sup>1</sup>

Although fen, poor fen and bog have been defined in many different ways throughout the world, the terms here follow definitions in the recent US Environmental Protection Agency publication EPA 843-F-01-002b, Types of Wetlands, March 2002, available on line at [http://www.epa.gov/owow/wetlands/facts/types\\_pr.pdf](http://www.epa.gov/owow/wetlands/facts/types_pr.pdf). Whether the water, soil or substrate is acidic or alkaline greatly influences which plant species thrive in a given wetland. A fen is a wetland in which the water is alkaline to only slightly acid and has been in contact with mineral soil; the substrate is accumulated organic material derived primarily from graminoids (grasses, sedges, rushes) and bryophytes other than sphagnum. Fens may be flat or sloping, including relatively steep slopes. A bog is a wetland in which the water is acidic and comes only from precipitation, which is relatively mineral-poor compared to groundwater; the substrate is accumulated organic material derived primarily from sphagnum, graminoids, and ericaceous shrubs. Bogs may be flat or sloping and are characterized by a sphagnum peat layer that lifts the vegetation above contact with mineral-rich ground water. In Oregon, there are apparently no true bogs, and the acidic wetlands with sphagnum are classified as poor fens. The modifier comes from the relatively poor nutrient levels and acidic conditions. Peat refers to the amorphous or partially decomposed organic remains of plant materials found in a bog, fen, or other wetland. Peat found in bogs derives from sphagnum, so it is acidic and has special characteristics related to the antiseptic properties of the moss. It is often used as an additive to make garden soils more acidic and increase organic content. Peat formed from graminoid organic matter may not be acidic. –Frank Lang and John Christy

<sup>1</sup> Adapted from sidebar in *Kalmiopsis* 11:31.

## About Sedges

*Carex* is the largest genus in its family, Cyperaceae, and one of the largest plant genera in the world. In a field guide to Oregon and Washington sedges, Wilson *et al.* (2008) noted that Linnaeus used the classic Latin name, *Carex*, for the genus; the Latin word means “cutter,” in reference to knife-like leaf edges. Another recent, in-depth treatment of the genus can be found in the Cyperaceae section of the Flora of North America (Ball and Reznicek 2002).

Sedges are wind-pollinated monocots that produce achenes. In *Carex*, the achene is contained within a membranous bract (perigynium) that is open only at the tip. The mature perigynia fall, or are easily knocked loose from their spikelets and disseminated by water, wind or wildlife (especially waterfowl). Birds flying between wetlands probably transfer achenes among remote montane habitats, so that sedge populations do not remain genetically isolated.

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