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## Fens – the Rocky Mountain’s unique high altitude wetlands

By Anne Janik, Grand Mesa Uncompahgre and Gunnison National Forest

Sloshing through a wet meadow in ankle deep water, I am surrounded with thick mats of sedges, rushes and some beautiful wild-flowers. This saturated meadow lies in the shadows of the thirteen thousand foot peak, Sheep Mountain near Trout Lake, Colorado. It is a scenic spot, rich in plant diversity but also a unique habitat in Colorado. I am visiting this lush, high altitude wetland with the Grand Mesa Uncompahgre and Gunnison (GMUG) National Forests’ lead hydrologist, Gary Shellhorn who explains that this wet meadow is called a fen.



GMUG\_Fen\_01 - Beaver Skull Fen located in the West Elk Wilderness near Paonia, Colorado. This fen is described as a moat surrounding a floating mat. Photo Credit: U.S. Forest Service.

Fens are mostly a northern hemisphere phenomenon, occurring in the northeastern United States, the Great Lakes region, the Rocky Mountains, and much of Canada -- and are generally associated with low temperatures and short growing seasons where excessive moisture accumulates from rain or snow. Fens are peat-forming wetlands. Peat forms when wetland plants die creating mats of dead and decaying plant matter. Fens are sustained by mineral enriched groundwater which is less acidic. For this reason fens support a more diverse plant and animal community. In southern Colorado, it takes about 2,000 years to accumulate 8 inches of peat at a fen. This suggests that most fens are 4,000 to 10,000 years old.



Fen inventory team at work collecting plant data at a fen near Engineer Pass, Ouray Colorado (Red Mountain#3 in background) Photo Credit: U.S. Forest Service.

Ben Stratton, a hydrologist with the GMUG National Forests, was part of a team of specialists that inventoried the forest for the occurrence and condition of fens. The team searched for fens across the 3 million acre forest. It was estimated that about 1,700 fens covering 11,000 acres may occur on the GMUG National Forests.



Collecting plant data from a fen located at 11,000 feet near Mount Emmons, Crested Butte, Colorado. Photo Credit: U.S. Forest Service.

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Top: Preparing the channelized section of the fen for straw bale placement. Photo Credit: U.S. Forest Service.

Bottom: High elevation fen restoration project near Trout Lake. Installing “organic check dams” or straw bales to spread out surface flows over a de-watered fen. Photo Credit: U.S. Forest Service.

“About 90% of the fens found are between 9,000 and 12,000 feet in elevation and most fens are geologically associated with glacial drift or mass wasting,” Stratton explains.

In the late 1800s and early 1900s, many peat lands were flooded by reservoir construction or drained for farming and other land uses. Of the nearly 150 fens surveyed, six fens had no apparent disturbances. The majority had been disturbed by flooding, de-watering, grazing, off highway vehicle tracks, roads, and even campsites. Last summer the GMUG hydrologists experimented with a couple creative “fen restoration” projects. The surface flows to one fen had been channelized, partially drying up the area. By installing straw bales in channelized sections, the flows spread across the fen to inundate about 13 acres of the previously dewatered wetland.

“Our goal is to understand how to restore the function of impaired fens that took thousands of years to form” said Gary Shellhorn. Fens, like all wetlands, provide important benefits in a watershed. By slowing runoff, fens helps reduce flooding; the vegetation filters pollutants, improving water quality; and lush wetlands provide habitat for unique plants and animals. “Through the fen restoration efforts, our successes will improve the condition of our watersheds which will ultimately benefit the water quality and quantity for the public,” Shellhorn added.

For more information on the fen inventories, visit our web site:

<http://www.fs.usda.gov/goto/gmug/fens>

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