



Wetlands and Fens

Fens are a type of wetland. Wetlands are ecosystems where the water table is at or near the ground surface for most of the growing season on most years, and as a consequence, the substrate is poorly aerated, and inundation or saturation last long enough that the dominant plants are those that can exist in wet and reducing conditions. The long duration anaerobic (little or no oxygen) conditions limit the decomposition of plant roots, leaves, and stems and over time this organic matter accumulates to form peat soil.

Fens

A fen is any type of peat covered terrain with an accumulation of at least 40 centimeters of peat within the upper 80 centimeters of the soil profile. Peat is organic matter (the dead remains of plants) that is deposited under water-soaked conditions as a result of incomplete decomposition. Peat accumulation occurs because the rate of organic matter production exceeds the rate of decomposition due to the soil being waterlogged. Peatlands form and are maintained only where the hydrologic regime produces perennial soil saturation.

The thickness of the peat is critical for the ecosystem to function. The peat must be thick enough that they hold a large volume of water and the plants root in the peat must derive all or almost all of their water and nutrients from the peat body. Fens receive significant water and nutrients from a ground source of water, usually springs or seeps. Ground water fed fens are widespread in the mountains of the Sierra Nevada, coast range and southern Cascades. Fens are particularly important for their biological diversity and as habitat for moss species including *Sphagnum*, *Meesia*, and others.



Figure 1. Forty centimeters of peat, a soil profile from the *Nartheicum* area, First Fen, Plumas National Forest. Photo by Catie and Jim Bishop.