

## FEN

A fen is a rare, low shrub- and herb-dominated wetland that is fed by calcareous groundwater seepage. Fens almost always occur in areas influenced by carbonate bedrock (e.g., limestone and marble), and are identified by their low, often sparse vegetation and their distinctive plant community. Tussocky vegetation and small seepage rivulets are often present, and some fens have substantial areas of bare mineral soil or organic muck.



### TYPICAL PLANTS

- Grasses and sedges such as spike-muhly, sterile sedge, porcupine sedge, yellow sedge, and woolly-fruit sedge
- Shrubs including shrubby cinquefoil, alder-leaf buckthorn, and autumn willow
- Wildflowers including grass-of-Parnassus and bog goldenrod

### SPECIES OF CONSERVATION CONCERN

- More than 12 state-listed rare plants are found almost exclusively in fen habitats, including handsome sedge, Schweinitz's sedge, bog valerian, scarlet Indian paintbrush, spreading globeflower, and swamp birch
- Rare butterflies such as Dion skipper and black dash
- Rare dragonflies such as forcipate emerald and Kennedy's emerald
- Bog turtle (Endangered in New York)
- Spotted turtle, ribbon snake
- Sedge wren, northern harrier

These are just a few of the species of regional or statewide conservation concern that are known to occur in fen habitats. See Kiviat & Stevens (2001) for a more extensive list.



Fringed gentian

## THREATS TO FENS

Fens are highly vulnerable to degradation from direct disturbance and from activities in nearby upland areas.

**Nutrient and salt pollution** from septic systems, fertilizers, or road runoff, **disruption of groundwater flow** by new wells or nearby excavation, **sedimentation** from construction activity, or **direct physical disturbance** can lead to changes in the character of the habitat, including a decline in overall plant diversity and invasion by non-native species and tall shrubs. Such changes can render the habitat unsuitable for bog turtle and other fen animals and plants. Fens appear to be somewhat resilient if their chemical and hydrologic conditions are kept intact, which makes restoration of these habitats possible in some cases.



**Grass-of-Parnassus**  
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## CONSERVATION RECOMMENDATIONS

- ❖ Establish a 300 ft buffer zone around fens to help prevent or minimize the effects of human activities. Avoid activities such as development, mining, application of herbicides, pesticides, or fertilizers, overgrazing, and stream bank stabilization within this zone.
- ❖ Assess potential impacts within at least 2500 ft (750 m) of the fen. Development activities occurring within the drainage basin of the fen or within one-half mile (800 m) from the boundary of the buffer zone may adversely affect bog turtles and their habitat. Land development within this area may also sever important travel corridors between wetlands occupied or likely to be occupied by bog turtles, thereby isolating populations and increasing the likelihood of road mortality as turtles attempt to disperse.
- ❖ Thoroughly review all activity proposed within this 2500-ft zone, in consultation with the Endangered Species Unit of the New York State Department of Environmental Conservation, using the most up-to-date scientific information on the bog turtle and its sensitive habitats.

### References

- Kiviat, E. and G. Stevens. 2001. Biodiversity assessment manual for the Hudson River estuary corridor. New York State Department of Environmental Conservation, Albany. 508 p.
- Klemens, M.W. 2001. Bog turtle conservation zones. Appendix A in Bog Turtle (*Clemmys muhlenbergii*) Northern Population Recovery Plan. U.S. Fish and Wildlife Service. Hadley, MA. 103 p.