

Managing Artificial Environments with RTE Species

Editor's Note: Ever since Eden, mankind has had to deal with choices. Having to decide is nothing new. But the ethical dimensions facing us at every turn now – whether we're looking inward to the human womb or outward to the National Park System – are a whole new and distressing ball of wax. For National Park resource managers, a question even more important than "When does life begin?" is "What is natural?" Charged as we are by our mission to maintain natural areas in a state of "naturalness," we are increasingly beset by situations that challenge us to define that sticky term.

Following are two articles that deal with this dilemma. Whatever the outcome in these two cases (deer vs. plants and beavers vs. plants), we can be sure that the overarching question of where to draw lines and on which side to "rule in favor" will remain with us. In the meantime, we can take pride in the human ingenuity shown at Delaware Water Gap, where a delicate human finger is trying to balance the scales.

By Elizabeth Johnson

The only limestone fen in Delaware Water Gap National Recreation Area and in this part of the Pennsylvania occupies a 3-4 acre site, partially in a powerline right-of-way. The area under the wires is cleared periodically of woody vegetation allowing for the development of dense herbaceous growth. Populations of three plant species cataloged as rare, threatened and endangered in Pennsylvania grow in the treeless portion of the fen. Each species has special requirements for its survival which are met here by the periodic clearing. Open area must be maintained to perpetuate capillary beaked-rush (*Rhynchospora capillacea*), it is not tolerant to shading. Brook lobelia (*Lobelia kalmii*) reaches the southern limit of its range at the site, and may be declining due to competition from other herbaceous species. Shrubby cinquefoil (*Potentilla fruticosa*) (pictured in *Park Science*, Fall 1988, p. 21), also occurs at the southern limit of its range and is a vigorous population at present, probably because powerline clearing activity reduces competition from canopy species.

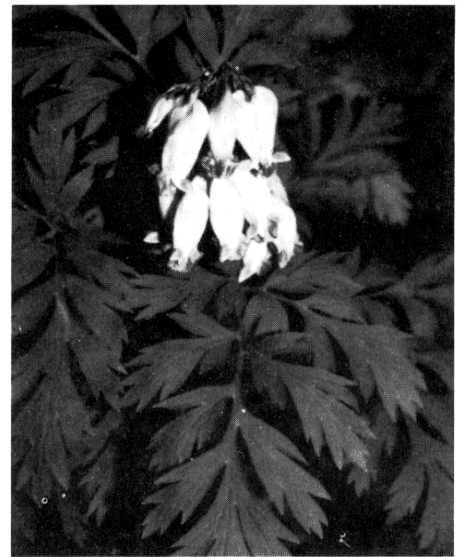
All is well. The powerline right-of-way is kept clear without herbicides, the fen is frequented by few besides botanists and black bears. Enter the beaver (*Castor canadensis*). The beaver were particularly industrious, excavating and constructing a 2 foot high earthen dike, that extends a horizontal distance of almost 200 feet to create an artificial impoundment. The beaver-created wetland has artificially raised the water level in the fen area, creating new habitat for the state endangered bog turtle (*Clemmys muhlenbergi*), which is found in the area, as well as for other reptiles, amphibians, mammals, birds and insects, many of which may be rare, threatened or endangered.

While the plant species in the fen may adjust to the new water level, they may not be able to compete with other wetland species that will benefit from the influx of nutrients brought by the additional water.

The question becomes: How can we have it all – rare plants, bog turtles, wetlands, beaver? The scales appear to be somewhat balanced in this artificial-natural situation. Beaver have created additional wildlife and plant habitat that may impact fen habitat artificially maintained by human clearing activities. The answer at Delaware Water Gap NRA has been to install a "beaver fooler" in the dam (See *Journal of Wildlife Management* 27(3): 471-476). These consist of several lengths of perforated PVC pipe inserted at a level that will maintain enough water to satisfy the beaver while avoiding impact to the fen. Continuous monitoring of the situation and constant adjustment to the system are vital. Local volunteers and State Natural Heritage Program personnel provide assistance. We doubt that the beaver will stay in this area long,

since their food source is finite, and we want to insure that the rare plants remain when they move on.

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Dicentra eximia



Lobelia kalmii



Potentilla fruticosa

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