6.8 BEAVER-CREATED OPENINGS

BACKGROUND

Beavers add to habitat diversity through their foraging and dam-building activities.

Openings created by beavers follow a predictable cycle of change. Beaver-created openings progress from newly flooded areas, to open water ponds, to open meadows containing scattered small trees and shrubs. Each of these stages provides habitat for a variety of wildlife. Frogs, turtles, waterfowl, great blue herons, swallows, otter, mink, and moose regularly use the open-water stage. Geese, grouse, woodcock, woodpeckers, common yellowthroats, yellow warblers, bog lemmings, bears, deer, and moose use the open-meadow stage. Through their damming activities, beavers have served a historically important role as a natural form of disturbance, creating young forest habitat required by many wildlife species.

Beaver flowages (i.e., flat water behind the dam) also influence water quality, as dams trap sediments, and open meadows slow seasonal run-off. As a result, beaver flowages play an important role in nutrient cycling. During the open-water stage, nutrients enter beaver flowages. Where flowages stagnate, nutrients drop out of the water and accumulate in the organic matter at the bottom. When beavers abandon flowages and water levels drop, organic matter dries and decomposes, allowing grasses and forbs to colonize. In time, shrubs and trees reoccupy these meadows. Beavers are attracted back to the site by this abundant food. Beavers create a dam, and the cycle begins again.

OBJECTIVE

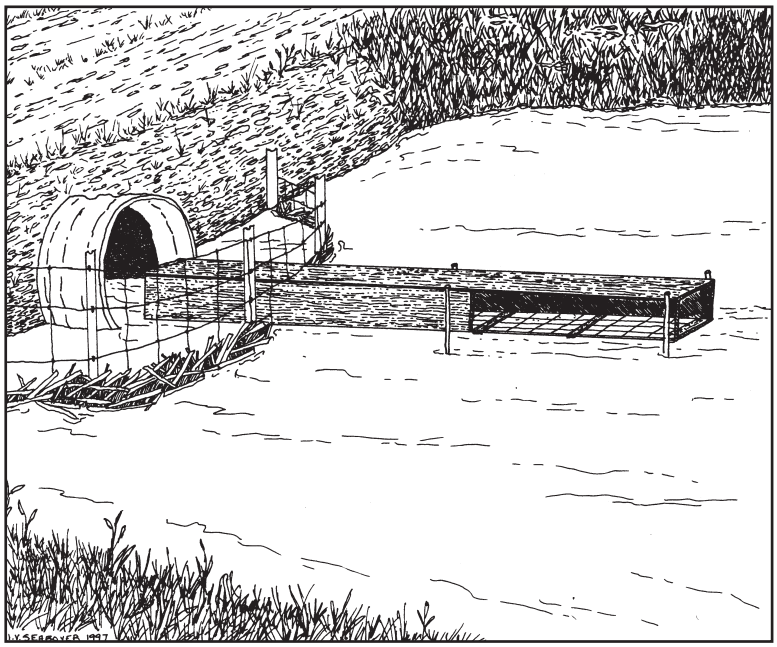
Maintain adequate food supplies for beavers along wetland drainages where beaver-dam-building and subsequent wetland openings are desired, and where water levels can be controlled to minimize damage to roads and personal property.

CONSIDERATIONS

- The highest-quality habitat for beavers occurs where shallow-gradient streams flow through wide valleys dominated by hardwood forests:
  - Stream gradients in occupied habitats are always less than 12 percent. Gradients less than 3 percent are optimal.
  - Valley (drainage) widths greater than 150 feet wide are optimal.
  - Hardwood buds, leaves, current annual twig growth, and cambium are required food for beavers. Streams and wetlands with hardwoods (especially aspen) growing within 100 feet of the water's edge are most suitable. Hardwood saplings less than 3 inches in diameter are preferred food from late summer through winter.
  - Aquatic plants including waterlily, duck potato (arrowhead), waterweed, pondweed, and duckweed are important foods in spring through summer.
- Large beaver flowages may be especially valuable for providing habitat for birds that require scrub-shrub habitats.
- Beavers can become a nuisance and have a negative economic impact to property owners when their tree-cutting and dam-building exceed acceptable levels. Numbers within a colony can grow to exceed the available food supply, resulting in starvation and site abandonment. Hunting or trapping can be used to remove nuisance beavers or to keep numbers within a colony low to extend the length of time beavers will occupy a site.

- Hunting or trapping beavers and disturbing beaver dams are activities regulated under RSA 210:9. Property owners can give written permission and access to licensed trappers during the regular trapping season. Outside the legal season, N.H. Fish and Game (NHF&G) can provide the name of a local trapper who can remove nuisance animals under state supervision. When beaver-dam removal is warranted, landowners can employ methods that remove dams gradually to release impounded water slowly without causing erosion and siltation.
- Harvesting more than 50 percent of the basal area near a beaver flowage may require a variance to the basal area law (RSA 227-J:9).

RECOMMENDED PRACTICES



✓ Whenever possible, allow beaver dam-building activities to occur unimpeded in order to maintain natural water flow and forest-disturbance patterns that maintain a high level of habitat diversity beneficial to a wide variety of wildlife.

✓ To control flooding by beavers:

- Determine the maximum acreage of flooding acceptable, and set an appropriate water-control device at that level.
- Maintain water depths at least 5 to 6 feet deep to allow beavers to access their lodge and travel under the ice during the winter. Beavers will likely abandon sites where water level is lowered to the point that ice forms to the pond bottom.
- A permit from the N.H. Dept. of Environmental Services (NHDES) may be required to install a beaver pipe.
- Consult with NHF&G or UNH Cooperative Extension for plans for water-control devices.
- Perform at least annual maintenance on any device to ensure it is working properly and that it hasn't become plugged or buried by beavers.

✓ Consider using stone fords for stream crossings when a solid maintenance-free base is needed. Consult with the Natural Resource Conservation Service or the NHDES for permitting requirements.

✓ Maintain beavers at an active flowage, or encourage beavers to colonize an unoccupied flowage, by regenerating aspen and other hardwoods in small patches or strips in and adjacent to flat, wide riparian corridors. Locate patches or strips up to 1 acre to maximize the amount of young forest growth within 100 feet of the water's edge (4.3 Forest Management in Riparian Areas). Create additional openings as needed to maintain an adequate supply of preferred food for beavers.

✓ If beavers are removing food faster than it grows, work with a local trapper to remove two to four beavers from the flowage annually to reduce the number of animals the food supply supports, thereby extending the length of time beavers are able occupy the flowage.

- ✓ Where safety allows, leave dead standing trees within and adjacent to beaver flowages.
- ✓ Consult with the NHF&G for additional information about RSA 210:9 and the N.H. Division of Forests and Lands about RSA 227-J:9.

CROSS REFERENCES

2.3 Regeneration Methods; 4.1 Water Quality; 4.2 Wetlands; 4.3 Forest Management in Riparian Areas; 4.4 Stream Crossings and Habitat; 6.5 Permanent Openings; 6.6 Temporary Openings Created by Forest Management; 6.7 Aspen Management; 6.12 Heron Colonies.

ADDITIONAL INFORMATION

Laramie, H.A., Jr. and S.W. Knowles. 1985. *Beaver and Their Control—Wildlife Fact Sheet 10*. UNH Cooperative Extension, Durham, N.H. 4 p.

RSA 210:9. *Protection of Beaver*.
http://www.gencourt.state.nh.us/rsa/html/NHTOC/NHTOC-XVIII-210.htm Accessed May 26, 2010.

RSA 227-J. *Timber Harvesting*. http://www.gencourt.state.nh.us/rsa/html/xix-a/227-j/227-j-mrg.htm Accessed May 27, 2010.

Smith, S. 2009. *Guide to New Hampshire Timber Harvesting Laws*, UNH Cooperative Extension, Durham, N.H. 37 p.

Williamson, S.J. 1993. *Forester's Guide to Wildlife Habitat Improvement* (2nd ed). UNH Cooperative Extension, Durham, N.H.