Dam Safety Fact Sheet

Burrowing Animals and Dams

STATE OF WISCONSIN • DEPARTMENT OF NATURAL RESOURCES • BUREAU OF WATERSHED MANAGEMENT

Rodents such as beavers, groundhogs, and muskrats are naturally attracted to areas of ponded water such as dams and reservoirs. Earth dams are most susceptible to the problems caused by these rodents. The burrowing nature of these animals can be quite dangerous to the structural integrity and performance of a dam. The tunnels these rodents construct can serve as pathways for seepage. It is essential that these animals and their activities be controlled to insure proper functioning of a dam.

Beaver

Beavers will instinctively try to block spillways and intake structures. Such actions can raise the water level in a reservoir, reduce the spillway discharge capacity, or produce sudden high outflows from the dam should the beaver structure suddenly fail. Beaver activity upstream of a dam may reduce or even halt the flow of water to the dam. Upstream beaver dams can also generate large quantities of floating debris that can clog a dam's intake and outlet structures. Beaver activity downstream can raise the tailwater elevation, which in turn can reduce the discharge from the dam or erode the downstream toe of the dam. Beavers have also been known to burrow into the upstream face of embankment dams, below the waterline.

- Beaver lodge

Periodic maintenance is the most basic way to insure against the adverse effects of floating beaver debris. Periodic maintenance may also discourage subsequent beaver activity in the general vicinity of the dam.

Groundhog

Groundhogs (woodchucks) burrow into the downstream face of a dam. Their burrows are usually a network of tunnels and chambers with multiple entrances. Groundhogs excavate above the phreatic surface (upper surface of seepage or saturation) in order to stay dry. Active groundhog burrows can be easily identified by mounds of fresh dirt located at the burrow entrances. Other telltale signs of groundhog activity are paths connecting the burrow to nearby fields and clawed or girdled trees and shrubs.

Groundhogs can be discouraged from inhabiting an embankment if the vegetation cover, which camouflages them from predators, is properly maintained.

Muskrat

Muskrats burrow into a dam's upstream face. Their burrows begin from 6 to 18 inches below the water surface and penetrate the embankment on an upwards slant. A dry chamber is constructed up to 15 feet from the entrance. If the water level of the dam rises, the muskrat will dig higher into the embankment in order to excavate a new dry chamber. Muskrat habitation can be discouraged by eliminating vegetation in and along the shoreline. A properly constructed riprap and sand/gravel filter, extending at least 3 feet below the water surface, may also discourage muskrat activity.

- Muskrat burrow

Eliminating a Burrow

The backfilling of burrows is a relatively easy and inexpensive way to insure proper operation of a dam. Dens should be eliminated immediately because damage from just one hole can lead to failure of the dam. The burrow should be excavated to eliminate all voids. The backfill should be placed in 4 inch to 6 inch loose lifts and well compacted by a heavy hand or mechanical tamper. The top surface of each compacted lift should be scarified (loosed to a depth of 1 inch to 2 inches) before the next lift of material is placed. After all voids and entrances are backfilled, vegetation should be reestablished.

Hunting and Trapping Regulations

Under Wisconsin law, the control or extermination of beaver, groundhog, or muskrat is subject to certain restrictions. Prior to taking any action against these rodents, the dam owner/operator is advised to contact the local wildlife conservation officer or the wildlife manager the local office of the Wisconsin Department of Natural Resources.

For more information on dam safety either go to the WDNR Dam Safety Program website: *http://dnr.wi.gov/topic/dams/* or write to:

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