Living with Beavers

Management Solutions for Nuisance Beaver Activity

Beavers provide benefits to streams, wetlands, wildlife, fish, and water supply. They also create opportunities for enjoyable wildlife viewing.

Unfortunately, beaver activity can also cost time and money in property damage and conflicts with land uses. Fortunately, there are strategies to managing these problems that go beyond trapping and lethal control. Trapping and lethal control can provide a temporary solution to nuisance beaver activity, but these methods are not a long-term solution, as beavers will generally re-colonize desirable habitat quickly.

Image from City of Westminster Beaver Management Plan (2008)

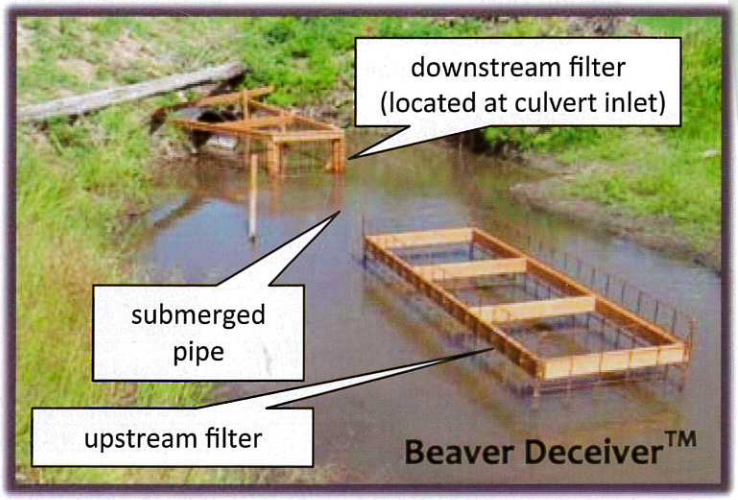
If removal is the only option, contact Montana Fish, Wildlife and Parks for a list of licensed trappers.

This pamphlet provides a summary of cost-effective and lasting beaver management strategies currently used on private and public land in Montana, with additional detail on how to implement some of the more complex structural solutions. Please recognize that this document is not comprehensive. These methods do have the potential to fail if inappropriately applied; before proceeding with a plan, we encourage you to consult someone with experience with these solutions. Local and regional experts are listed on the back of this document.

Below (and continued on page 4) is a list of possible solutions to address specific problems associated with beaver. Each solution incorporates typical beaver behavior into the management strategy.

Culvert Obstruction:

Beaver often choose road crossings as dam sites, which results in an increased risk of flooding and culvert failure. Upgrading the crossing to a bridge, repeated ripping out of the beaver dam, or removal of beaver are solutions that may not be favorable due to cost or the requirement of regular maintenance.



The Beaver Deceiver™, a design developed by Skip Lisle of Beaver Deceivers International, is the most durable and cost effective solution we have found to address culvert plugging by beaver and reduce maintenance costs. Construction of a Beaver Deceiver is described on pages 2 and 3. These structures are built to last at least 20 years with minimal maintenance.

------The discussion of beaver management solutions is continued on page 4 ------

Constructing a Beaver Deceiver™

These steps describe the construction techniques and necessary materials to assemble a beaver deceiver. Every site requires a specific solution, developed based on beaver activity and likely response, site conditions, flood tolerance for protecting property, and proximity of other beaver activity. We recommend a thorough site review to develop a beaver management plan and define success criteria prior to any installation efforts. It may be necessary to obtain permits from various local, state, and federal agencies before work is started. For sites in Montana, please refer to the Montana Stream Permitting Guide (http://dnrc.mt.gov/Permits/StreamPermitting), or contact your local conservation district for assistance.

Helpful Tips:

- **Use chainsaw or circular saw to carve a point on posts and braces.**
- **Pre-drill holes before installing extensions.**

Example Construction Method:

(1) Construct a frame upstream of the culvert. Depending on the height of the culvert, this may include installing a 2" x 4" cross brace perpendicular across the top of the culvert.

(2) Attach a horizontal extension to the culvert or roadfill. Secure with lag screws. Attach vertical post to the end of the extension.

(3) Repeat step 2 on opposite side. Keeping level with first extension, angle extension toward center of the channel to create a rectangular or trapezoidal structure. Connect extensions with a cross brace and secure.

(4) At mid-points along the extensions, install vertical posts and an additional cross brace. Use level to 'true' posts while installing.

(5) If the site has a sand bottom, install wire panel on bottom of the structure to prevent tunneling by beaver. Panel should stick outside of structure and wrap around vertical posts.

(6) Install diagonal braces to vertical posts. Pound into streambed through wire floor and attach with lag screws.

(7) Tack wire panel walls to sides and back cross brace using staples. Cut front panel but do not attach if a double filter and pipeline are used.

Example Materials *(quantities will vary by site and size of structure)*	**Recommended Equipment for Construction**
Pressure treated 2" x 4" boards	Chainsaw, Cordless Drill, Cordless Impact Driver, Cordless Circular Saw
7' x 20' wire mesh panels: 4 gauge, 6" x 6" or 4" x 6" cell	12 lb. Sledgehammer
14' x 8" schedule 35 PVC pipe	Speed square, 2' and 4' levels, Bolt cutters
1/4" x 3' aluminum rod	1/2" and 3/8" drill bits, 1" x 6" pipe nipple
T-Star lag screws: 3", 4", and 5"(high quality)	Rakes
1.5" galvanized fencing staples	Nail apron, Marking Pens, Ear/ eye protection, Leather gloves, chest or hip waders

Detail Work:

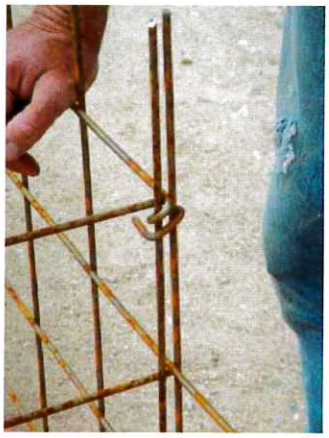
Attention to detail, such as making sure posts and braces are level and straight will ensure the structre is more durable.

Cut fencing so a metal runs along the top and outside edges, with 6" stakes on bottom for anchors.

Block vertical posts flush with extensions.

Constructing a Filter:

Construct a rectangle of appropriate size and at equal intervals install cross braces. (In this photo the filter is upside down during construction.)



Attach walls together by twisting prongs using pipe nipples.

Cut a hole in the wire large enough to insert the PVC pipe.

Installing a Filter and pipe:

Place pipe into stream with one end running two feet into the filter frame.

Place filter and insert PVC or double-walled poly pipe. Note: drill two holes in top of pipe to attach pipe to fencing.

If using double-walled corrugated pipe, prepare pipe by cutting slits of outler layer to allow air to escape.

Attach PVC pipe to filter box using aluminum rod.

Final Steps:

Anchor filter box by embedding the 6-inch wires on the bottom of the filter into the streambed.

Install front wire panel on the filter frame. Cut a hole that will fit tightly around the pipe.

Inspect filter boxes for any gaps or holes.

Solutions for Nuisance Activity (Continued)

Cutting of Valued Trees:

Beavers prefer deciduous trees (particularly aspen and cottonwood) for food and construction material. Beaver moving into an area often means that valued trees are cut down. Stiff wire fencing installed around individual trees or groups of trees is the most effective solution to prevent cutting. Tree fencing typically needs to only be four feet high, and should be one foot from the tree trunk. Conifers are usually not used by beaver, although they are sometimes cut. Trees closest to beaver dams are the most vulnerable; therefore some trees may not require fencing.

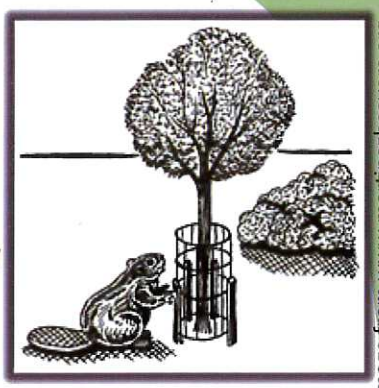
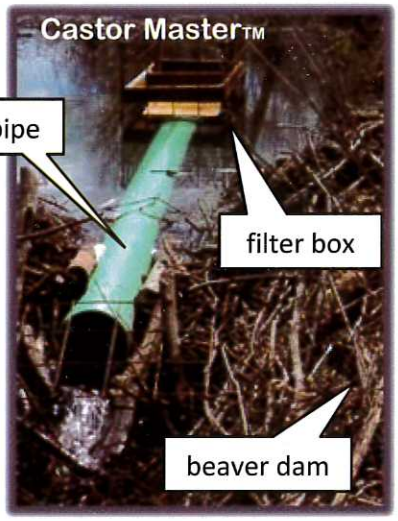


Image from www.martinezbeavers.org

Some tree-cutting can be beneficial: Trees felled into the stream provide fish habitat and support the aquatic food chain.

Flooding:

Beaver ponds and flooding from beaver cannot be tolerated in some areas (e.g., near a road, structure, or hay meadow). Water levels within a beaver pond can be managed using a structure called a Castor Master™. This structure consists of a pipe that passes through a beaver dam and wire-fenced filters at the inlet and outlet of the pipe. The filters prevent beaver from accessing the inlet and outlet of the pipe. The pipe itself controls the water level within the pond. It is important to recognize that flooding is still possible at any site on the floodplain due to spring runoff, regardless of beaver activity.



Damming Irrigation Ditches or Head Gates:

Beavers can interrupt flow along irrigation ditches and plug head gates by constructing dams. Focusing the management solution near the head gate often will help prevent beaver from moving down the ditch. This solution may need to be combined with low fencing if the ditch runs parallel to the stream.

Burrowing:

Beavers often burrow into streambanks and sometimes burrow through ditch walls. Where ditches parallel the stream beavers can drain a ditch of water and cause a blow-out. Ditch walls can be fenced with hog panels or other stiff wire to prevent burrowing near the headgate.

Remember that beavers do not necessarily need to be managed unless there is an unacceptable cost from beaver activity. When choosing a method to manage for beaver, first consider both the risk and the potential benefits of living with beavers. We encourage you to consider where beaver can be tolerated; the surface water storage and increased groundwater storage associated with beaver dams may provide a higher benefit than cost by supplementing summer stream flows, sub-irrigating crops and pasture, reducing bank erosion, and improving habitat and water quality.

For further information and technical assistance, contact
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