

BEST PRACTICES



The Beaver: Nature's Greatest Engineer

Beaver (*Castor canadensis*)

Beavers are North America's largest rodent and can weigh up to 60 pounds and measure up to three feet from head to tail. Beavers are semi-aquatic and have a characteristically large, flat, paddle-shaped tail and webbed hind feet. The front paws are smaller and unwebbed with claws. The tail can be as long as 15 inches long and 6 inches wide. The tail is not furred but has leathery scales and sparse coarse hairs, and it serves the beaver as a counterbalance while on land and as a steering rudder in water. Beavers also use their tails to sound an alarm to warn of danger and to frighten away predators. A beaver's tail stores fat and helps to regulate body temperature by releasing body heat.

Beavers have a thick layer of subdermal fat that helps to insulate them in cold water. Their nostrils and ears seal when they submerge in water, and their eyes have a transparent third eyelid or "nictitating membrane" which they can close, allowing them to see underwater. The beaver's incisors (front teeth) are harder on the front surface than on the back, which causes the back to wear faster. This creates a sharp edge that enables them to easily cut through wood. Beavers are herbivores and prefer to eat leaves, bark, twigs, roots and aquatic plants. They can live up to 24 years in the wild.

Beavers, like many rodents, construct nesting dens for protection against predators and for shelter. When available, they burrow into the sides of stream banks and lakes. In less suitable habitat, they will transform the area by cutting down trees with their strong teeth. Using wood and mud, they will build a dam that blocks the pond or stream and creates large ponding pools. Beavers also construct large, domed lodges from branches and mud. They are usually constructed towards the middle of the pond, where they can only be reached by an underwater entrance, deterring predators. For more information about beavers, visit: <http://tinyurl.com/WDFWBeavers>



In the past, beavers were abundant and ranged over the entire North American continent, creating ponds and wetland habitats used by many species. It is estimated that before the fur trade, beaver populations were from 100 to as high as 200 million individuals. In the 1800s, trapping was so profitable that beavers were nearly extirpated from much of their range. It was not until the 1930s that regulations governing trapping came into effect and limited beaver eradication.

Historically, the importance of beavers was not understood. As a result of this lack of understanding, society relegated the beaver to the category of a "nuisance species," an animal to be eradicated if conflicting with human land use interests. This conflict has greatly affected our landscape, altering natural wetland areas. Beavers are considered to be a key species that serve a vital role in maintaining the health of our watersheds. Throughout North America, beavers are associated with wetlands, helping to create areas

that are nature's water reserves. Wetlands are one of the most important ecosystems on the earth. They increase natural water storage capabilities, stabilizing water supplies both in times of flooding and extreme drought. Wetlands also provide flood attenuation and provide valuable habitat to fish and wildlife. It is estimated that 50% of the threatened or endangered species in North America rely upon wetlands.

In the northwest, Pacific salmon have closely evolved with beavers and wetland ponds. With the control of beaver slow water features and ponds have significantly decreased. Recent studies have documented that the extensive loss of beaver ponds has greatly reduced coho smolt production. Restoration efforts related to watersheds and salmon populations are now utilizing beavers as a restoration tool for recreating slow water refuge habitats, providing rearing habitat for young salmon.

As our population grows, land becomes more developed, habitat loss increases, predators that control beavers decrease and beaver conflicts increase. Since beavers are essential in maintaining and restoring our watersheds, it is likely that our best option is to find ways to coexist.

Solutions

Some of the ways that we can coexist with beavers are by engineering our own structures to dissuade them. Such measures may include installing barriers, such as wrapping trees in wire mesh so that beavers cannot cut them down. Another solution is to build flow control devices to maintain water levels to keep beavers from blocking stream crossing structures. For the past 50 years, live trapping and relocating of beavers has successfully restored and maintained stream ecosystems. Today beavers are being reintroduced into watersheds as a "restoration tool."

Beavers and Climate Change

Climate change will have an effect on our natural systems. Rising stream temperatures, declining summer flows, decreased ground water storage and availability and changes in flood timing are predicted. Reestablishing beavers can play a critical role in climate change adaptation strategies. There would be ecological benefits to beaver dam building by slowing snowmelt and extending summertime stream flows. The creation of beaver ponds would maintain and create wetlands that provide water storage, recharge ground water, expand riparian vegetation and maintain or increase essential habitat for fish and wildlife.

Source: Stream Team News, Fall 2014