

North American Beaver



ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS

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North American Beaver (*Castor canadensis*, Family Castoridae) are keystone species. Their dams, lodges, and autumn/winter caches of woody vegetation are conspicuous features on watershed landscapes throughout Colorado.

Species Description

Identification

Beaver are large rodents, with adults growing up to 3—4 feet long and usually weighing 40—70 lbs. They have thick fur in shades of brown, webbed hind feet, dexterous hands, and a broad, flat, scaly tail. Their prominent front incisors are long and chisel-like.

Preferred Habitats

Beaver occupy numerous aquatic habitats but prefer to build dams on low gradient streams in unconfined valleys. If the stream is large, they tend to use off-channel features. They prefer well developed riparian areas with easy access to vegetation for food and dam construction materials. They also occupy lakes and wetlands and almost any aquatic habitat that they can modify to their liking.

Diet

Beaver are generalist herbivores but show a strong preference for cottonwood, willow, and aspen. They consume leaves and tuberous roots of grasses, forbs, and aquatic plants as well as leaves, twigs, bark, and cambium of woody plants. Their diet changes with seasons and availability. During the summer, when the widest variety of foods are available, they eat primarily herbaceous plants. When those become mostly unavailable, during the fall and winter, they switch to consuming the bark and cambium of woody trees and shrubs, preferring smaller trees and stems.

Conservation Status

Federal: Not listed. The U. S. Fish and Wildlife Service and National Oceanic Atmospheric Administration recognize the critical importance of beaver ponds to endangered and threatened species. **Colorado:** Wetland Program Priority Species (Tier 1).

Species Distribution

Range

After extensive population declines in the 18th and 19th centuries, beaver populations rebounded, but they still do not occupy all of their former range. The current distribution is best known at local or regional levels. In Colorado, beaver populations are considered robust but below historic levels.

Beaver occur throughout Colorado but are more abundant in the mountains than the plains. See Colorado Beaver Activity Mapper (<https://www.arcgis.com/apps/webappviewer/index.html?id=1051266316f0449f8d657ac3bf9a53ed>) to view recent and historical beaver pond distribution in the state.



Map courtesy of Cassola (2016) and Lanman et al. (2013). <https://www.arcgis.com/home/item.html?id=1e915f60965f4bb0bebdbb3021a2f903>.

Preferred Habitat Conditions

Size of stream	Small to medium
Gradient of stream	<6%, prefer <2%, but known to use 10%
Larger streams	Presence of side channels, sloughs, and other off-channel features
Ponds and lakes	Presence of areas where >3 feet (0.9 m) of water can be retained
Valleys	Unconfined
Vegetation	Presence of woody and herbaceous vegetation nearby, the closer the better
Vegetation density	The denser, the better
Dominant vegetation	Aspen, willow, and cottonwood

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The Benefits of Beaver

As a keystone species, beaver provide profound benefits to ecosystem functionality by expanding and enhancing wetland habitat, including riparian areas and wet meadow. They can help moderate some negative effects of climate change by contributing to resiliency against drought and wildfire. The wetlands they create improve water quality and reconnect streams to their historic floodplains. Beaver activity can increase biodiversity and provide high-quality habitat to other species, including threatened and endangered species.

Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. Biologists with expertise in beaver have suggested numerous practical steps that can be taken to improve habitat quality for this species.

Vegetation

Manage land use patterns that negatively affect growth and availability of riparian vegetation.

Plant cottonwoods and willows.

Habitat Restoration

Create deep water refugia to encourage beaver occupancy.

Think creatively about how to restore beaver habitat; know available tools; identify the most appropriate site-specific methods.

Contamination

For the sake of other wildlife using beaver ponds, minimize the use of pesticides and reduce agricultural chemicals and other toxins.

Coexistence with beaver

Protect desirable trees.

Use non-lethal, humane methods (e.g., beaver flow devices, exclusionary fencing where they block culverts) to manage beaver where they have negative effects, such as flooding.

Use relocation where other methods cannot work.

Conservation

Preserve all potential beaver habitat.

Protect stream flow.

Habitat Scorecard for Beaver (v. Mar 2025)

Assessment of habitat before and after restoration or management actions

Project Name: _____ Project Area (acres): _____ Habitat Area (acres): _____

Size of Contiguous Habitat outside Project Area (acres): _____ Ownership (circle): Same / Different / Conservation Easement

Scorecard Instructions: Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. **If condition is outside range or is not described, enter a zero.**

Project Area and Habitat Area: The project area includes the entire area affected by the project. The habitat is the area that will provide (in case of pre-project) or does provide (post-project) habitat for each potential target species within the project area. The habitat area may be the same size as the project area, or it might be smaller, and it may be defined differently for different target species. If there is contiguous habitat area outside the project area, note the size and whether the ownership of the contiguous areas is the same or different and whether it is under conservation easement or other habitat protection. If the habitat area within your project area is noncontiguous and/or if sections are in very different conditions, consider using multiple scorecards so that each scorecard represents the general conditions. If you use multiple scorecards, identify each habitat area on a map.

Beaver Scorecard for Small Streams and Wetlands

Key habitat variable and conditions	Value	Pre-Project	Expected Post-Project	Actual Post-Project
Date of assessment				
Water availability				
Perennial	10.5			
Intermittent	3.5			
Gradient of stream				
<3%	10.5			
4-6%	7.0			
>6%	3.5			
Confinement				
Unconfined	10.5			
Partially confined	7.0			
Entrenched	3.5			
Dominant woody vegetation for food				
Aspen, willow, or cottonwood	10.0			
Other native deciduous species (e.g., alder and birch)	6.7			
Non-native deciduous species	3.3			
Herbaceous food (grasses, sedges, forbs, aquatic vegetation)				
Abundant	10.0			
Moderate	6.7			
Sparse	3.3			
Woody vegetation availability				
Abundant	9.5			
Moderate	6.3			
Sparse	3.2			

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Beaver Scorecard for Small Streams and Wetlands, continued

Key habitat variable and conditions	Value	Pre-Project	Expected Post-Project	Actual Post-Project
Water depth potential				
>3 ft (0.9 m)	8.9			
2–3 ft (0.6–0.9 m)	3.0			
Woody vegetation density in a 328-foot reach (100 m). Look beyond your project area if needed.				
Hundreds	8.9			
Approximately 20-100	6.0			
Less than 20	3.0			
Beaver presence				
Established living colony	8.9			
Signs of historical activity (dams, canals, and chewed trees)	6.0			
Woody vegetation: distance from water				
< 30 yds (27 m)	6.8			
31--110 yds (28–100 m)	4.6			
> 110 yds (100 m)	2.3			
Potential for beaver-human conflicts				
Unlikely	5.3			
Moderately likely	1.8			
Total (of 100 possible): add all numbers in before or after columns				