



A newly released adult beaver finds some shelter under a willow. PHOTO BY: Jamie Utz/IDFG

## The Original Habitat Restoration Engineers: Tapping into the industriousness of Idaho's largest rodent

by Jamie Utz\*, Regional Wildlife Diversity Biologist  
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The surface of the water was misleadingly tranquil. My technician Daniel and I quietly approached the steep pond bank with the tools of our trade in hand: a catch pole, a piece of plywood, and a plastic dog kennel. If you didn't know where to look, you might easily miss the thin steel cable anchored to the bank that disappeared into the murky depths. On the other end of that cable was our target: *Castor canadensis*, the American beaver.

Daniel and I devised a plan of how we would coax the beaver into the kennel. As is so often the case when handling wild animals, our confident plan quickly became a 'fly by the seat

of your pants' situation as it became clear to us how large the beaver was. When we began gently reeling in the cable, an enormous, furry brown blob appeared briefly before surging towards deeper water with surprising power. The wrestling match had begun! The next ten minutes was an epic battle of wits and physical fortitude, the end result being two soaked humans and one hissing 49 lb. beaver intent on testing the tensile strength of the plastic dog kennel.

There's never a dull moment when I'm working with beaver. They offer up surprises at nearly every point in our project, whether

it's unexpectedly trapping a beaver in a shallow canal in the middle of dry sagebrush country, to keeping their male/female status internally concealed from the prying eyes of biologists. Perhaps it's no surprise that such an unusual rodent is capable of an outsized impact on our Idaho landscapes.

Beavers used to be so numerous in North America with an estimated 60-400 million before European settlement, compared to the 15 million today. The westward progress of Lewis and Clark was constantly checked

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**Top:** A double-door box trap placed in a travel corridor, like a path through dense brush or a favorite haul-out spot, makes for a safe and effective trapping method; **Bottom:** Many drainages chosen for beaver translocation are remote, which can make transport a challenge! Gone are the days of parachuting beavers into distant areas. Now, we use dog kennels fitted with makeshift handles to create a litter, so beavers will arrive to their new homes in comfort and style. **Photos:** Jamie Utz/IDFG



by rivers entwined with beaver complexes of dizzying proportions, leading to several passages of griping about beaver in Lewis' diary. Beavers were found in nearly every ecosystem in North America, with a few exceptions in the desert southwest. As the west was settled by Europeans, the species became a geopolitical tool; from about 1820 to 1830, the Hudson's Bay Company instructed fur trappers to create a "fur desert" in an effort to slow the expansion of American settlement into territory held by the British. Unfortunately, this effort had drastic consequences for the intermountain west. Just as beavers can quickly transform a landscape with complicated wetlands and lush vegetation, their abrupt absence can have the opposite effect. In dry ecosystems, water will often narrow to a single eroded channel which reduces the surrounding plant community to a smaller assortment of dry-adapted species.

Beavers are the original inspiration for the term "ecosystem engineers", a biological designation bestowed upon species that have the ability to modify, maintain, and/or create habitat. We're all familiar with the dams and associated ponds that beavers create. Water-dependent species like fish and amphibians are obvious beneficiaries of beaver activity. But the positive benefits of beavers go beyond this to a level that's nearly incalculable, especially in our drier ecosystems like the Owyhee or Danskin Mountain ranges.

Beaver activity can drastically alter hydrological patterns by slowing the passage of water and trapping sediment, which broadens wetted width and floodplains, and may help to recharge aquifers. Pooled water and vegetative decomposition rates shift nutrient cycles in favor of a diverse suite of riparian plants like willow, sedges, and grasses. The soggy nature of wetlands created by beaver means vegetation will stay greener for longer into drier months. These wet meadows offer tasty forage opportunities for local ungulate species like mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), and pronghorn (*Antilocapra americana*). Even cattle ranchers stand to benefit with more forage for their herds. Protein is a critical dietary component to Greater Sage-Grouse (*Centrocercus urophasianus*) chicks too, who take advantage of the greater and more diverse insect presence found in wetter environments. Migratory waterfowl species often key in on beaver ponds to rest and forage during their long journeys over water-scarce terrain. Saturated conditions created by beaver can act as a fire break and/or create temporary refuge from flames for wildlife



species. The cumulative, landscape-altering effects of water storage facilitated by beavers in upland landscapes even makes a strong case for climate change adaptation. Where water was once 'stored' in the form of consistent snowpack, now beavers help retain snowmelt and extend the length of time that water remains in a system.

At this point, you may be wondering why we don't celebrate beavers just about anywhere? Unfortunately, the same busy beaver behavior that can do so much good, can also cause big problems when they're in the wrong spot. Beaver range expansion into arctic regions of North America has hastened melting permafrost around beaver ponds, which consequently releases stored carbon into the atmosphere. As odd as it may sound, American beavers are invasive in southernmost Patagonia and are wreaking havoc in a landscape that didn't evolve with their presence. And back in our neck of the woods, beavers in urban settings can sometimes create a unique set of challenges.

Urban dwellers often express surprise in learning that there are beavers in their midst. Some residential areas are practically tailor-made to host beavers, with close river access, deep ponds that act as refuge from predators, a wide variety of tasty trees, and numerous canals threading through neighborhoods that allow for easy movement. Given the nocturnal or crepuscular (active at dawn and dusk) nature of beavers, their presence is usually detected too late by spotting chewed or felled trees. Beavers don't take property destruction into account when felling a tree or damming water. Falling trees can damage fences, houses, or power lines. In more rural locations, beavers can dam irrigation canals or flood access roads which can lead to potential crop or road damage.

For the past two years, IDFG regions around the state have implemented a beaver translocation program. Here in the Southwest Region, our source for relocation candidates is often 'nuisance' beavers, those that are causing serious headaches for humans and might otherwise be lethally removed. Beavers are instead live-trapped, fitted with radiotransmitter tags on their tails to track their survival and movement, and released into sites where they can act as engineers of riparian habitat restoration. Release site locations are chosen using many criteria, including presence of deep pools to provide a safe haven from predators, enough vegetation to eat and for dam building, ease of follow-up monitoring, and overall maximum positive impact to surrounding habitat and wildlife.

Not every nuisance beaver issue provides a live-trapping opportunity, though. Each circumstance is different with regards to proximity to people and

domestic animals, complexity of the habitat, ease of transport, time of year, etc. IDFG cannot respond to every call about beavers causing problems. Plus, beavers don't always cause property damage or create hazards; beavers and people can and do coexist on good terms in urban settings. If beavers are causing damage to trees on your property, try the following solutions first. Wrap trees with welded wire fencing – not chicken wire, as a determined beaver can get through it! Keep the fencing propped away from the trunk and with plenty of room between the fence and trunk. Even if neighboring trees have no evidence of chewing just yet, stay on the safe side by wrapping the trees you want to keep. If you have too many trees to wrap, try mixing 1 cup of masonry sand into 1 quart of latex paint and painting the bottom 3' of a tree trunk, while sprinkling extra sand onto the wet paint. Beavers don't like to chew things that could damage the enamel on their teeth.

The particular beaver that opened this story was residing in a quarry pond on commercial property in west Boise. An enormous cottonwood tree fell prey to the beavers' powerful jaws and was completely girdled (which will kill the tree), with deeper gouges potentially posing a felling threat to a small office just 25' away. With skill, patience, and dogged determination, Daniel managed to live-trap an additional adult, plus two 'teenager' sub-adults and one kit. During the 2021 season, nuisance beavers were live-trapped from campgrounds, businesses, farms, ranches, and neighborhoods throughout IDFG's Southwest Region.



Protecting your trees from beavers is easy to do. Placing wire fencing around the base of tree trunks will keep beavers from getting to the tree - sturdy galvanized welded wire fencing with 2-4" x 2-4" mesh openings is best (do not use chicken wire). Fencing should be at least 3' high. Be sure to give the tree plenty of space around the welded wire. **Photo:** MKNC/IDFG



Once beavers are trapped, they're transferred to an IDFG holding facility complete with a small pool, makeshift lodge, and all the willow, sweet potatoes, and rodent chow they can eat. Before release, beavers are weighed and sexed - a messy, smelly process that involves expelling a fluid from their cloacas. Then, it's



some for some new jewelry. The radiotags attached to their tails emit a silent signal with a frequency that's only picked up by radiotelemetry equipment. Beavers naturally make radiotracking a challenge, as their preference to be safely tucked away in a lodge or bank burrow during daylight hours can weaken the tail tag signal. When the animal doesn't move for more than eight hours, the tag broadcasts a faster beep that indicates a possible mortality.



After all the hard work of finding a suitable new home, followed by trapping and tagging a beaver family, releasing them into a new home is very satisfying. In early July, the family from the quarry pond were trucked to a drainage in the Danskin Mountains. When we opened the kennel door on the bank of their new pond and quietly stepped back, the adults cautiously emerged. With a quick sniff of their new surroundings, they waddled down the bank and slipped into the water, followed in quick succession by the younger ones. The whole family began diving and resurfacing while cruising the perimeter of their new digs. There's no question that the road ahead will be challenging for these animals, and some may not survive. But I consider it a win-win when beavers facing certain doom in an urban environment get a second chance in a landscape that could benefit immensely from their legendary industriousness.

**Top left:** Two beavers await release in their new home. We make sure that beavers stay wet during transport, especially when moving them during hot summer months. Their incredibly dense fur serves as an excellent insulator against cold air and water temperatures, so heat stress must be carefully monitored; **Middle:** A radiotransmitter tail tag attached to adult beavers allow us to track movement and survival. Most beavers won't move far after release, but every now and then we'll have a beaver move miles away; **Bottom:** The vertical posts are part of a beaver dam analog (BDA) installed before beavers were released onto a ranch in the Owyhees. The mud and sticks packed in under the posts are the handiwork of translocated beavers, who immediately began making improvements to the structure. Their efforts doubled the size of the original pond.





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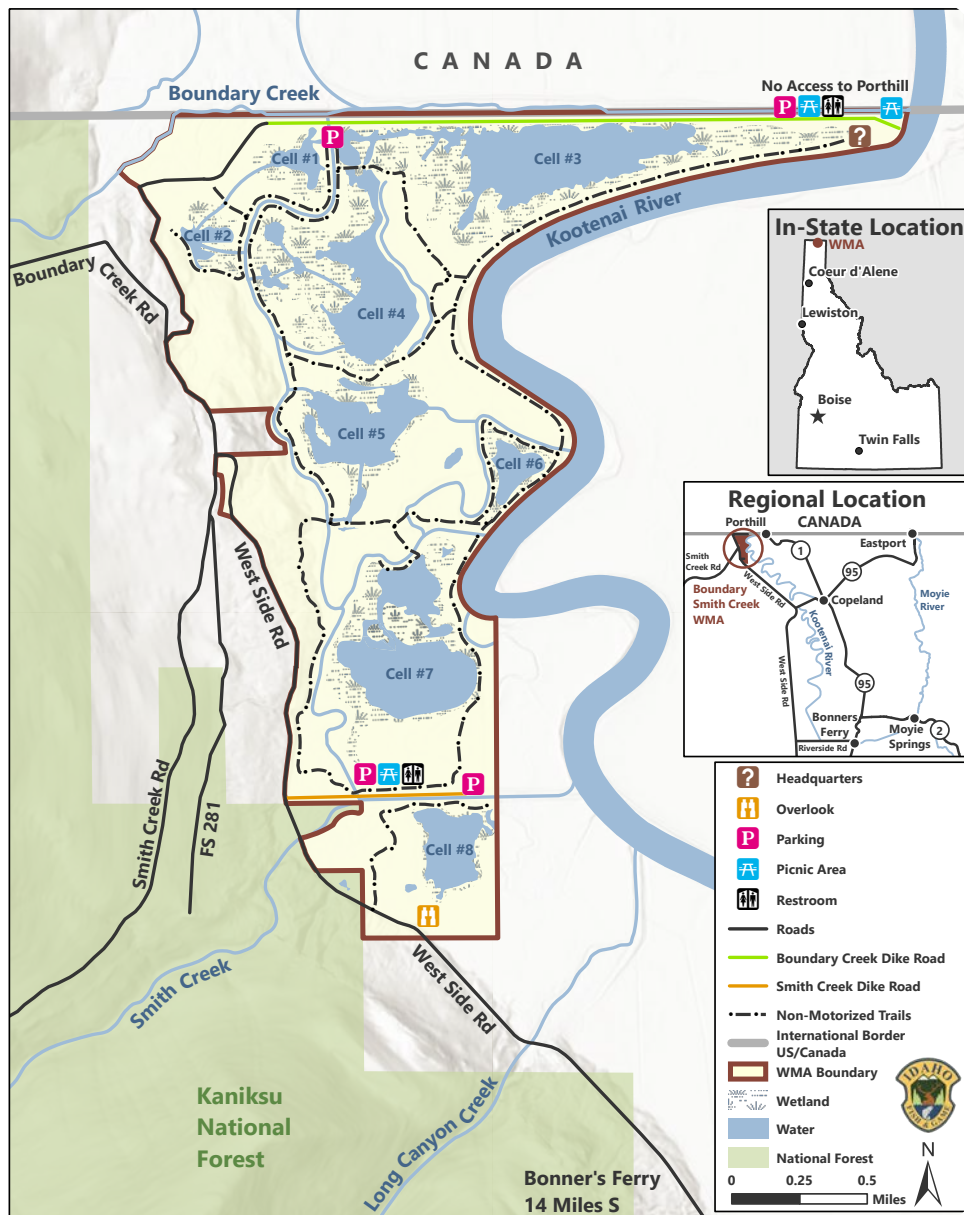
LAT/LONG: 48.9975643,-116.5518093



**IDAHO BIRDING TRAIL**  
**Site# N2**

**DIRECTIONS:** From Bonners Ferry, US 95 N; at junction of US 95 and Hwy 1, turn onto Hwy 1; proceed N to Copeland; a paved rd crosses river at Copeland and intersects with West Side Rd; turn R (N) on West Side Rd; go until it turns into gravel rd at intersection of Boundary Creek Rd and Smith Creek Rd; R on Boundary Creek Rd until the county rd on top of S dike of Boundary Creek; dike rd runs approx. 3 mi due E, ending at Kootenai River and is the main access rd for the property.

Boundary-Smith Creek WMA hugs the Canadian border in the northernmost part of Idaho. Restored wetlands and floodplain habitats support a broad range of wildlife. Up to 6,000 migrating waterfowl visit this WMA each spring and fall. Managed and natural fluctuations in wetland water levels provide diverse, productive habitat for a variety of shorebirds and waterfowl during migration and breeding seasons. Ruffed Grouse, Downy and Pileated Woodpeckers occur in both the coniferous forest and the floodplain forest along Boundary Creek. During spring and fall, managed wetlands alongside the lower Kootenai River support thousands of migrating waterfowl, including Tundra and Trumpeter Swans, Canada and White-fronted Goose, Black Tern, American Wigeon, Redhead, Hooded and Common Merganser, Wood Duck, Common Goldeneye and Northern Pintail. Look for Red-tailed and Rough-legged Hawk, Northern Harrier, Bald Eagle and Great Horned Owl.





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# Bat Week is October 24 – 31!

Visit <http://batweek.org/>

to learn more about bats and special events.

## Bats in Idaho

1. Pallid Bat

2. Townsend's Big-eared Bat\*

3. Big Brown Bat

Photo CCBY Bat Conservation International and Minden Pictures on Flickr

4. Spotted Bat

Photo CCBY Bureau of Land Management on Flickr

5. Silver-haired Bat\*

6. Hoary Bat\*

7. California Myotis

Photo CCBY Alan Harper on Flickr

8. Western Small-footed Myotis\*

9. Long-eared Myotis

10. Little Brown Myotis\*

Photo CCBY Dave Riggs on Flickr

11. Fringed Myotis

12. Long-legged Myotis

Photo CCBY JN Stuart on Flickr

13. Yuma Myotis

Photo CCBY Daniel Neal on Wikipedia

14. Canyon Bat

\* Idaho Species of Greatest Conservation Need

Photos CCBY IDFG unless otherwise noted





# Spotlight Species of Greatest Conservation Need

Species of  
Greatest  
Conservation  
Need

## Merriam's Ground Squirrel

Adapted from the *Idaho State Wildlife Action Plan* and *The Ground-dwelling Squirrels of the Pacific Northwest*

**M**erriam's ground squirrels (*Urocitellus canus*) are one of eight species of ground-dwelling ground squirrels found in Idaho. All are active during the day searching for food above ground, but spend their nights and take refuge in burrows.

Not too long ago, Merriam's ground squirrel, Piute ground squirrel, and Townsend's ground squirrel were all classified as one species. Researchers determined that their chromosome counts were different: Townsend's had 36 chromosomes, Piute 38, and Merriam's 46; that was enough genetic difference to classify them as three separate species!

### Description

Merriam's are medium brown with cream-colored flecks and a gray cream belly. They are slightly orange behind the ears, with a lighter (slightly rusty) back. Their nose is rusty and their tail is rusty brown above and below.

### Range and Habitat

Merriam's occur in the lower Snake River Valley south and west of the Snake River in Owyhee County, Idaho and Malheur County, Oregon.

### Diet and Habits

The diet of Merriam's consists of a variety of grasses and forbs, as well as flowers and seeds, when available. Additional food items may include insects and berries.

Merriam's emerge from their burrows in March/April, after almost eight months of hibernation, to breed, rear their young, and gain weight only to go back into hibernation by mid-summer. Burrow entrances are often under bushes or rocks; they provide ground squirrels with cover from severe weather and extreme temperatures, protection from predators, and shelter for rearing young.

### Conservation and Importance

Merriam's has a small population size and extremely limited distribution in southwestern Idaho. For these reasons, they are classified as a species of greatest conservation need in the Idaho State Wildlife Action Plan. To more accurately assess their conservation status, IDFG is currently conducting research to better understand their distribution and abundance in the region.

Merriam's, like other ground-dwelling squirrels, serve an important ecological role. For example, they:

- Loosen, move, mix, and aerate soils.
- Bring nutrients from deep soil layers to the surface.
- Increase the rate of water infiltration into the soil.
- Increase plant diversity by bringing buried seeds near the surface.
- Serve as a prey base for predator food chains (raptors, badgers, coyotes, and snakes).



**Above:** A Merriam's ground squirrel watches researchers from the safety of its burrow. **Photo:** Jamie Utz/IDFG



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Your contribution provides important funding for wildlife and habitat conservation in Idaho.

Long-eared myotis  
PHOTO BY: Randy Babb

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