Methow Beaver Project – Some Steps of Beaver Restoration

Here are a few items we have learned are important components of ours and other beaver reintroduction programs. Obviously, each project will have different areas of emphasis.

Establish goals and objectives

Evaluate a boundary of the project area and a time frame for activities. Determine the reasons for beaver restoration (Our goals include water quality improvement, water storage as climate change adaptation, improving stream complexity, seasonal flow attenuation, salmon habitat improvement, wetland enhancement, and riparian habitat expansion). Activities for beaver management will be very different if the goal is development of one or two wetland areas in a small basin versus the expansion of beaver populations in a whole watershed. Determine the amount of time needed for the project to succeed. We follow a written Implementation Plan that defines our goals.

Assemble appropriate partners

Creating a cooperative effort helps diversify the tasks at hand. Some partners have access to solutions that others don't. For example the requirement for handling beavers is optimally a State agency task. They are equipped and permitted to trap and move beavers where others might face logistic hurdles. The holding facility here is managed by another partner – the US Fish and Wildlife Service. They donate unused raceways for caring for beavers. Ours is a five partner project.

We have written and implemented cooperative agreements and funding instruments that are essential to allowing the project to function.

Pursue a broad education campaign

Generating understanding and support though clear, honest communication is one of the most essential cornerstones of a beaver restoration project. We have used all media sources and all venues for sharing ideas and listening to community thoughts.

Identify suitable beaver habitat

Consider the ecological and social suitability of the site. Where are the places where all life history requisites are provided? Are there potential human conflicts nearby (homes and yard trees, orchards, culverts, irrigation ditches, potential flooding issues)? Beaver dams fail and there are sometimes major downstream effects. What stressors would act on released beavers (predators, human trappers, heavy winter conditions)?

Assess current beaver population status and evaluate individual sites.

Field visits to a sample of suitable sites to see which are active, recently inactive, or completely absent of beaver activity or sign can help determine how intense the gap is between historic populations and current distribution. It can also highlight potential issues that need to be solved prior to initiating a release effort. We use a site evaluation score card to prioritize the best locations for reintroduction.

Determine the appropriate progression for delivery to release sites

Beavers tend to occupy larger river systems and lakes first where escape cover is provided with little energy expenditure needed. If those are occupied then tributaries are the secondary habitat that is available if unoccupied. Establishing (or retaining) colonies in places where offspring can expand to other desirable sites is the obvious first step. Working with landowners to mitigate issues before removal is ideal since the beavers have already located in a site that is suitable. Select sites based on their ability to meet the project goals and objectives considering dispersal and population growth. One of our purposes is to support salmon recovery in the face of a changing climate, so the juxtaposition of anadromous fish habitat and sources of spring snowmelt (or rainfall) that can be captured is one factor we examine. Consider the logistics of travel and monitoring in planning where to release beavers over the course of each season and over the course of the project.

Interact with landowners to establish a dialog about beaver benefits and evaluate options

Willing cooperative landowners are good sources for trapping. However, if leaving them in place is an option, additional benefits are gained by providing for population function in the watershed. Bringing beavers from another area is possible, but could have potential risks that are not well understood. The effects of beaver removal from one part of a watershed in order to repopulate another should be considered carefully. The importance of helping landowners realize the benefits of beavers cannot be over stated.

Pursue capture or acquisition

Beaver trapping is not difficult, but there are many subtle techniques that can enhance success. Learning from experienced trappers is very valuable. Knowing and following local, State, and Federal regulations is important. Securing permits and reporting on results is required in all States. Some trappers or damage specialists may be potential beaver sources. One issue is safe handling of beavers knowing that some beavers are carrying disease and/or are vectors of aquatic organisms. Another issue is dealing with beavers that are injured during the trapping process. Above all, thoughtfully insuring that trap injuries are minimized will provide more beavers available to release where desired.

Provide a facility for secure, healthy, short term husbandry

Usually the aggregation of several beavers of both sexes is desirable prior to release. An adult beaver pair is sufficient to establish a site. If an entire family (adult pair and young) is captured, these make the ideal release group. Often circumstances are not conducive for this outcome and adults from different locations are paired. A holding facility that has abundant water, no escape routes, ability to be cleaned weekly, housing that is dry and has shade, a place to provide food that is not available to other animals (rodents, birds), no access for predators or domestic dogs, and sufficient water depth to allow beavers to defecate while swimming is a key cornerstone. A place where the beavers can be viewed by visitors can provide for excellent interpretation and education. A variety of foods, including apples, rodent pellets, some kind of herbaceous food, and woody branches – especially aspen and willow – is needed to insure an adequate diet.

Consider the data needed for the beavers captured and provide for good record keeping

Data on location captured, intake date, weight, sex, age, and condition are standard records we collect. Photos of the tail and tagging ears with colored Floy tags are useful in sorting captive beavers and later recapture efforts. PIT tags placed in the tail or elsewhere are inexpensive and permanent individual markers. Release location, date, weight, and condition are standard release records taken. Sexing beavers is possible if they can be restrained and the cloaca examined. Secretions from oil glands are distinctive for each sex in color, viscosity, and odor. Hair DNA analysis is definitive for determining sex. Determining the sex of beavers captured is obviously essential to allowing a male/female pair to establish in a new location.

Prepare the release site

Release to a new location is likely a stress inducing action. The degree to which a "flight" response can be avoided is one consideration for the success of a release. Allowing released beavers to discover food, shelter, and escape cover (water > 1 m deep) with other beavers with whom they are accustomed (since they are social animals), is possibly another contributor to establishment success.

Some aspects to consider

A place to hide from predators

Abundant food, building material, bedding that smells like them

Beavers are inactive during the day. It is not clear what diurnal timing is better for release, but it could be that evening is more suited for allowing released beavers to be less stressed. Modifying the stream to improve the depth of escape cover could enhance the site. This may require permits and analysis.

Some sources indicate that female beavers are the dominate member of the social structure and guide the activities of the colony. If this is true, helping females be comfortable enough to stay at the desired location is an area where more research is needed.

Deliver beavers to the selected location

Gathering the appropriate group for release, delivering them safely, and limiting stressors as much as possible during transportation are factors. Some sources indicate that release later in the season is better. However, this has not been the experience of other sources including the team in the Methow. Establishment has been successful with releases during all ice-free months.

Monitor and record beaver use

After release, delivering chewed sticks from the holding facility and freshly cut aspen branches are ways to monitor if beavers are present after release. If the aspen is moved at the next visit, it is likely by beavers. Because beavers are scent oriented, the sticks they were associated with at the holding facility and bedding from their houses could provide an inducement to remain in the vicinity of the release site. We visit the site weekly to document the success or lack of success. We look for scent mounds, chewed trees and shrubs, tracks, fecal material, and dam building. Consider a photo monitoring effort at establishment sites including motion sensor cameras. Use a process to follow each beaver, each release site, each trapping location, and if possible, movements from the release site.

Document and report progress toward project goals. Keep good records.

Documentation of what we have done is critical for reporting our efforts, sharing with others, and conducting analyses later on. Frequent formal and informal information sharing with partners, shareholders, funders and constituents is valuable to maintain broad support. Photographs are a necessary component.

Some things we have written down

Project Purpose, Goals, and Benefits
Project Implementation Plan
Partnership Memorandum of Understanding
Collection Agreements
Education and Outreach Plan
Beaver Handling Precautions
Intake Processing Procedures
Beaver Husbandry Protocol
Volunteer Orientation
Release Site Score Card
Beavers and Livestock Strategy

METHOW BEAVER PROJECT
Storing water for the future-one beaver at a time
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