

Snohomish Beaver Project - Intake Processing Procedures

So, you have captured a beaver... congratulations! You are well on the way to watershed restoration! Here is a write-up of how to process this beaver and record data for consistency in our documentation. The Intake Documentation form should be filled out completely, and by following along and filling out all of the fields you should be good to go. If in doubt, take more notes and append them to the form as necessary.

HUMAN SAFETY

When processing beavers, some basic safeguards need to be in place. Beavers can transmit disease to humans, and this hazard needs to be minimized. Wearing gloves is a requirement. Wash your hands following handling beavers and before eating. Don't rub your eyes while working. Wash your beaver work soiled clothing separate from your other laundry.

Handling beavers freely should not be done. Beavers can bite and scratch. Beavers are stressed by handling. Do your work while beavers are in the trap or in the beaver bag.

Do not process beavers that are unusually aggressive, appear sick, or injured in such a way that you would be unreasonably exposed to blood or injury. Discuss this with your supervisor. Do not expose other beavers to a sick beaver.

We work with sharp syringes around beavers and each other. Some guidelines for working with "sharps":

- Keep syringes capped until use.
- Say "sharps" aloud when uncapping needles to alert those nearby to use extra precautions around you. Do not turn around suddenly with uncapped needles.
- Reusable needles such as the floy tag gun should be carefully sterilized with alcohol before and after use.
- Recapping syringes should only be done if required and if done should be done one handed- Use the needle to scoop up the cap which is laying on a flat surface, instead of depositing the cap on the needle with your free hand to prevent accidental punctures.
- Deposit needles in a hard sided sharps container with a screw cap. An old juice container will work. Dispose of the container properly with medical waste when full. If you have to shove needles in, it is way too full to use.

ANIMAL SAFETY

Some basic things, like working calmly to insure minimal stress to the animal, are very important. Beavers are stressed out by loud noises and quick movements. The health of our beavers is very important. Keeping beavers properly restrained will help protect them. Properly sterilize your tools and injection sites. Protect beavers from each other as required. Treat our wetland restorers with respect. If an animal appears to be suffering from great stress it is appropriate to postpone the intake until later, but remember that recapturing an animal in the raceway causes stress as well.

BEAVER ID and EAR TAGS

The first step in processing is assigning an ID. Make sure it is not a recapture by carefully scanning the tail with a pit tag reader. This can usually be done while the beaver is still in the trap upon arrival to the hatchery. The Beaver ID is a combination of several items together.

Ear tags (also known as Floy tags) are used to quickly and easily identify captive beavers in the hatchery. They are not designed as a permanent record, as they do fall out naturally and get pulled out by beavers. They are color coded to correspond with the Beaver ID capture number. **The first digit (tens column) color tag goes in the animals left ear, and the second digit (ones column) color tag goes in the animals right ear.** Below are the color codes:

Zero: No Tag	Five: Pink
One: White	Six: Fluorescent Green
Two: Blue	Seven: Fluorescent Pink
Three: Red	Eight: Yellow
Four: Fluorescent Orange	Nine: Dark Green

Examples: Beaver number 79: Left Fluorescent Pink, Right Dark Green
Beaver number 183: Left Yellow, Right Red
Beaver ID 12TROY201: Left No Tag, Right White

It is possible that in the future we may have recaptures that will conflict with new captures, such as having Beaver 12PEAR79 recaptured at the same time that 14TRFP179 is in captivity. This would create a situation where both beavers would have the same ear tags. Use your discretion to determine how to ID the beavers. Remember the Floy tags are simply there to help you – and the Pit tag is the ultimate identifier that really matters. We do not recommend ear clipping or other inflicted animal mutilation for identification.

Sterilize the floy tag gun with alcohol, and place the row of tags into the gun. You may need to slightly depress the trigger about halfway to allow the tags to seat fully into the gun, and again when removing the tags. Keep only the tags out that you need to reduce mistakes and keep the gun capped until use to reduce accidental stabbings. Pin the beaver into a corner of the trap by stepping or placing pressure on the trap. Try to immobilize the beaver but not stress it out too much. You want to get the ear available thru the mesh of the trap and massage it a bit with your fingers to locate an area free of cartilage, scars, and large veins (this may calm the beaver a bit as well). Rub an alcohol soaked cotton ball over the identified site to sterilize it. Grasping the ear with the beaver immobilized, quickly inject the needle into the ear fully, squeeze the trigger, and remove the needle. Wait as long as is necessary for the beaver to be in the right position, and immobilized, before attempting injection – then when placing the tag act with a decisive motion. You do not want to be timid and give the beaver a chance to wiggle around; this will cause mistakes, waste tags, force multiple injections, and quite possibly harm you and the beaver.

Check the tag to make sure it is fully through and that it is seated correctly. Place triple antibiotic on wounds that appear to need it. Sterilize the gun between injections, and before capping for storage.



WEIGHING BEAVERS

Now that you have the ID figured out get a weight. Keep the beaver in the trap and hang it on the scale at the hatchery. Keep your hands off the trap and weigh it several times, until you are sure of a consistent number. Subtract the trap weight and record the number. Snared beavers will have to be weighed by difference in an appropriate enclosed container, probably the transport cage.

COLLECTING HAIR SAMPLE

We take a hair sample from every beaver captured, usually done at the same time as ear tagging. This was initially done to verify sex using mitochondrial DNA, but now we take the sample because this could be useful for future studies. The hair sample should be taken in such a way to prevent cross contamination with human DNA or any other contaminants, as much as is possible. While the beaver is in the Hancock trap, grasp a lock of hair with pliers and quickly tug it out. You want to get some guard hair AND underfur to insure that you get some hair follicles with the sample. Place the hair sample into a small manila (coin) envelope with the pliers. Do not mash the hair around in with the pliers or stick your fingers into the envelope. Staple the envelope shut and write the Beaver ID and the date on the envelope. Ultimately the hair samples will be stored in a clearly labeled ziplock in the samples freezer at the Tulalip lab.

BEAVER BAG

Now that you have the beaver weighed, ear tagged, and a hair sample taken, everything remaining is done from the posterior of the beaver. This is done by immobilizing the beaver in a "beaver bag", or if not available (this is written for other projects) wrapped in some sort of cloth. We highly recommend to other projects obtaining or sewing a large bag of a 45°-45°-90° triangle of Cordura cloth open on one end adjacent to the 90° corner with a small breathing hole in the opposite 45° corner. Place the beaver

in its trap into a dry raceway to prevent escape during transfer. Prepare all materials you will need to finish processing before transferring beaver to the bag. Open the Hancock trap up and place the beaver bag over the open end of the trap. Lower the trap to its side and lay the bag out so the beaver can crawl into it. Laying the trap folded frame side down is awkward but allows the beaver to “step up” out of the trap and is useful, especially with larger animals. Extend the bag so the beaver can see the breathing hole or “the light at the end of the tunnel”. Rustling the Cordura material of the bag is a frightening sound to many beavers, so minimize it. As the beaver enters the bag, use your hands outside the bag to guide the beaver into the end and prevent it from turning around. The beaver will squeeze down into the end and you can have an assistant hold the beaver still while you work.



Picture

Move the bag away from the tail and take a digital photo of the dorsal side of the tail. Record the picture number on the intake sheet. This may be useful data and help in identification in the future.



SEXING

Sexing beavers accurately is very important to our project and we feel it is a keystone part of successful beaver restoration. By accurately sexing beavers, we can:

- Reduce peer-induced conflicts and death in captivity
- Maximize chances of establishing breeding colonies
- Help predict whether beavers remain at a trapping location
- Infer beavers demographics about our watershed

Sexing of lactating or reproductively receptive females can be done by simply checking for enlarged teats, but it is recommended that the sex is confirmed by anal gland secretions as well.

Sexing beavers is done while the beavers are restrained in the beaver bag by manipulating the cloacal area and examining anal gland secretions. The 2 anal glands of beavers are located inside the cloaca on the left and right, slightly anterior of the vent. They need to be manually protruded from the vent and “milked” gently to express secretions for examination. This is a tricky, slippery, and somewhat messy process. Don’t worry, you can do this, and it gets easier with practice.

You and your assistant should wear gloves for this procedure. Have your assistant cradle and restrain the beaver on its back, in the bag. Beavers do not like to be on their back, and will thrash around if you let them. Pinning the beaver forcefully against the flat hard ground on its back can cause spine injury, and should be avoided. Cradling, as is done with an infant, can be a good way to go. You may be able to kneel on the ground, and position the beaver on its back with its tail away from you and its body rested on your thighs. You may also be able to access the cloaca with the beaver right side up, by lifting the tail. It is not recommended that you lift the animal off the ground by pulling the end of the tail in the air, but if necessary lift gently by the base of the tail with a firm grasp. The cradling method is by far the safest for most animals.

Now that you have a clear, stable, and unimpeded access to the cloaca, press your fingers GENTLY along the exterior of the vent just anterior and to the side of the vent. You should feel a lump. Pressing too far forward may cause castor oil to be expressed; a thin, brown, strong smelling liquid (if this incidentally occurs you may wish to save it on cotton balls to use as a trapping lure). You may also cause beaver to excrete feces or gas with force applied in the wrong area, too far forward or central. This may be a good time to mention that this procedure should be done with your face a reasonable distance from the cloaca, with your mouth shut, and perhaps safety glasses on. When you feel one of the anal glands (either one is fine) you can direct it to emerge from the vent for manipulation. The gland will look like a swollen bulb with a pointed tip, free of hair and usually quite slippery. Use one hand to maintain the steady, gentle pressure that was required to emerge the gland. Use your other hand to massage the gland to get the secretion from the tip. Steady, firm, and gentle pressure may work. Perhaps a milking motion will work better. You will need to vary your technique to find what works best for you, and some animals will be easier to work with than others. Be patient and gentle, this animal under your care needs to be protected. You may have the anal gland withdraw and be forced to start over multiple

times. Once some of the secretion has been emitted, wipe it onto a clean finger on your glove for inspection and compare to the chart below.

Sex	Male	Female
Odor	Smells like petroleum (motor) oil	Smells like funky cheese
Color	Yellowish-Brown	Whiteish
Viscosity	Thicker, more slippery	Thinner, less viscous
Ease of "milking"	Challenging	Easier
Amount of discharge	Less	More



Use a combination of these indicators to formulate your decision on the sex of the animal. Using just one clue increases the chance of a mistake. Remember these are general guidelines, and that individual animals can differ, although the color and odor are quite distinct and probably the best indicators. This sexing process may need to be repeated for a good sample to be obtained. Have your assistant evaluate the sample as well, and both of you should make independent decisions about the sex of the animal before comparing answers. It is better to admit you cannot tell than it is to make unsure decisions. Try again, later if necessary. This technique, when done correctly, can give you an unmistakable sex ID.

RELEASE INTO RACEWAYS

By now your beaver is probably fairly stressed out and is ready to get loose. Putting the beaver into a raceway is the next step. First though, double check your intake sheet, because now is the time to catch omissions and errors, not after you release. The person already holding the beaver can bring the animal to the water and let it go, or hand it off carefully to someone else. Place the beaver bag into the water and pull it off the animal carefully. If necessary grasp the beaver by the base of the tail to pull them out of the bag. Do not drop the beavers from any height into the water - place them gently.

We build beaver groups in the hatchery for release, and every situation is a bit different. Who to release them with as you build groups is pretty important, as is immediate monitoring following release. Here are some general guidelines to help your beaver matchmaking a success:

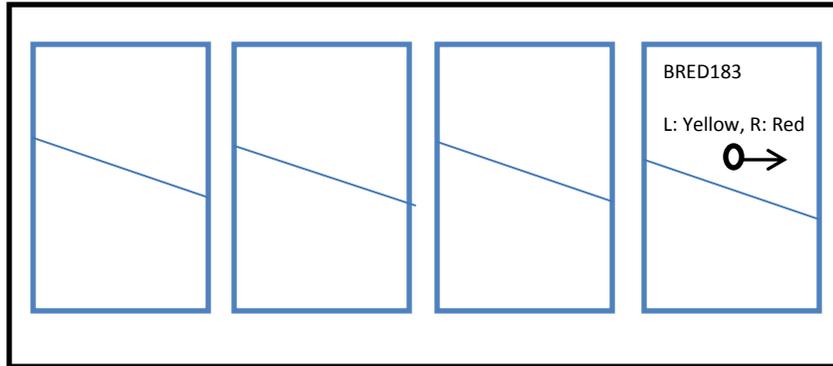
- Intact family groups are usually a good way to go, but still should be observed.
- Keep an eye on the beavers for initial meetings, and interactions between them until you are confident that they are friendly.
- Have a plan to physically separate beavers safely and be in position to do so quickly.
- Release into the water, so that victims of aggression can flee quickly.
- Stressed beavers may need time to calm down before true reactions can be observed.
- Kits are especially vulnerable to attack, and should be protected from aggression, even from parents if necessary.
- Remove the aggressor, not the victim.
- Use caution placing unrelated males together.
- Have multiple houses available for the first night or two, so if a beaver is rejected from a lodge it does not need to spend the night swimming.
- Observe if beavers are lodging together upon subsequent arrivals to the hatchery.
- Take good notes on unusual interactions.
- Males may attempt to breed with new, unreceptive females and occasionally other males.
- Make sure you know who is who before releasing.

CONDITION NOTES

Condition notes are a good way to keep track of the health, behavior and location of each beaver under your care. There should be a binder with the condition notes that stays at the hatchery at all times. The condition notes should be used for making notes about when or if the beavers are eating (aspen, pellets and apples). The condition notes are also used for making notes about injuries and behavior. Keeping track of all of the beaver's health is really important. Beavers tend to behave differently, so it's important to get to know each of them so you can tell when they aren't acting normal. The condition notes are really helpful for weekend feedings especially. It will allow you the opportunity to write down any observations and notes you find when you are alone. It is REALLY important to communicate with your crew any concerns you may have with the beaver's health. Also use this binder to make good notes when you are moving beavers from raceway to raceway. Make sure you are moving the correct beaver. They all look the same so double check the ear tags and pit tag. Make sure you pay close attention when you move beavers into a new raceway. In the conditions binders you can make notes so you can about how they are getting along. For example are they sleeping in the same house? These things are all really important and will help you figure out if the beavers are going to do well together when you release them into their new home.

WHITEBOARD

The whiteboard is used for keeping track of what beavers are in each raceway. It can be really helpful if you keep it up dated. We draw the four raceways and write the beavers ID, sex and ear tag colors on the board.



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