

Wildlife Health Protocol -- Bison Genetic Sampling: Tail Hair Collection 04.28.11

- I. Goal: Collect large hair follicles. The follicles contain DNA used in genetic analysis.
- II. Previous Training Required: Only personnel trained in bison handling should use this protocol if working with live animals.
- III. Items you will need:
 - Large forceps or pliers
 - Scissors
 - Small plastic recloseable bag (1 per animal)
 - Sample bag labeling; e.g. sharpie or preprinted label
 - Personnel who can visually confirm hair follicles
- IV. Procedures
 1. Ensure that animal is properly restrained, without airway restriction, and you have coordinated sampling with other personnel. The procedure involves rapid pulling of tail hair which may cause the bison to respond and injure unaware personnel.
 2. Straight Carmalt forceps (locking forceps with longitudinal grooves that prevent tail hairs from slipping through) are the best tool, but you can use a pair of pliers or a Leatherman. Because you will rapidly yank hair, tools with sharp edges or points can cut your hands or break the hair instead of pulling it. Don't use curved tools.
 3. Select a small bundle of 12-15 thick wiry hairs on the tail switch. These hairs are preferred because they have large follicles and produce more DNA per follicle.
 4. Grip this small bundle of hair 2- 3 inches from the roots with your extraction tool; close and grip the tool tightly, ensuring hairs are well within the device jaws. Locking forceps do not require any continued locking pressure while pliers need to be maintained tightly closed.
 5. Rotate the tool, long dimension facing you and parallel to the ground. The tool should NOT be pointing away from you. Roll the hair around the closed tool jaws once or twice.
 6. Grab the tool with both hands, one on each side of the hair bundle. Grip tightly and pull sharply towards your chest (not your face).
 7. Hold up the hair sample and carefully examine for small tissue pieces attached to the ends of the tail hair that look like small swollen hooks at the root of the hair – these are the follicles. If follicles are not present, discard the sample and try again with a smaller number of hairs.
 8. After you confirm at least 10 follicles, unwrap and cut excess hair, retaining only a couple of inches of hair attached to follicles locked in the tool jaws.
 9. Put the tool jaws into plastic baggie, release hair. Repeat steps 3-8 until you have collected at least 25-30 hairs with follicles.
 10. Seal and properly and legibly label sample bags

Tips:

- If you yank hard but don't get any hair pulled out, you have selected too large of a bundle; try again with less hair.
- If you yank and end up with hair but no follicles, you have likely broken the hair while pulling. Common causes include:
 - Hair was not properly wrapped completely around tool before pulling
 - You pulled on tool while it was pointed away from you, resulting in hair being twisted instead of rolled around pliers
 - Tool is too sharp or has sharp edges; try again with another tool
 - Calves may require extra effort to obtain enough follicles for analysis