Missoula, MT to Bonner, MT
Current Map

Bonner Check Station – Allow 20 Minutes Travel Time

Time: 10:30 AM – 8:00 PM Weekends

Take I-90 East to Bonner – Highway 200 Off Ramp

North East on Highway 200 for about 1.5 miles PAST Bonner

Check Station is at Trailer along Blackfoot River
Missoula, MT to Darby, MT
Overview Map

Allow 1 1/2 hours travel

Times: 10:30 am - 8:00 pm
Take I-90 West
45 miles to Exit 66 - Fish Creek Road
Allow a minimum of 45 minutes driving time
10:30am - 8:00pm
Directions to Anaconda Check Station:

- Drive east on Interstate 90 to Drummond approximately 47 miles
- Take exit 153 at Drummond
- Drive Hwy 1 for approximately 35 miles toward Anaconda
- Check station will be a few miles before Anaconda on the right side of the road, across from a large rock quarry
Final Report Requirements

- Write a paper with the following sections: 1) introduction, 2) brief description of check station(s) and location(s) where you worked, 3) methods (how you collected and analyzed/summarized data, 4) data summary, and 5) discussion.

- The introduction should include a literature review that allows you to describe the purpose of check stations. What are the plus’s and minus’s for collecting harvest and biological data via check stations? What other techniques are used to get harvest data? Be sure to incorporate some literature citations.

- Methods: describe the methods you used at the check to collect data and briefly describe methods you used to analyze/summarize the data.

- Data: Collect check station data for this year (you must wait until all data forms are turned in at end of hunting season) and from 2019 for one of the check stations you worked. You can get the check station data from Debora in the Montana Cooperative Wildlife Research Unit office in Natural Science Building, Room 205.

- Data summary/analysis: Summarize harvest and hunter success data covering the entire season for both years and evaluate trends in the data between years. Use tables and figures to summarize each year’s data and illustrate trends between years, as much as you can. Interpret your data summary, tables, and figures by discussing populations and sex and age distributions in each year, and how they might have changed between years. A good thing to bear in mind is that raw data on numbers of animals coming through a check station over 2 years can be misleading about trends between the years, unless corrected for hunter effort. One way to handle this is to divide the number of animals for each species brought through a check station by the total number of hunters (both successful and unsuccessful) that came through the check station. This would not be useful for uncommon species (mountain lions, bighorn sheep, wolves, etc.) but could be informative for the more common species (elk, deer).

- Discussion: Building on your data summary, describe the strengths and limitations of the check station data. For example, how will it help managers? What should managers be cautious about when applying the data to make management decisions? Feel free to include thoughts on what you experienced and learned working at check stations, suggestions for improving the student experience, and the overall operation of check stations.

- Paper should be ~6 pages in length (which includes your data summary, tables and figures). It’s OK for the report to exceed 6 pages, especially if your tables/figures take up a lot of space. Also include a Literature Cited section for the literature references you cite in the introduction. The Literature Cited section should not count toward the page requirement.

- Report is due Friday, December 10.

- Submit an electronic copy only to: Chad Bishop at chad.bishop@mso.umt.edu
• Choose one check station to write your report  *(you can choose any station, it does not have to be one you volunteered at)*

• Take one copy of 2021 harvest forms for that check station

• Take one copy of 2019 harvest forms for that check station

• Use these data to write your report
HARVEST SUMMARY FORM

DATE: ____________________________ (Make a new sheet for each day)

STATION: ___________________________________________

Names of Students:

________________________________________________________________________

TOTAL NUMBER OF HUNTERS: ____________

<table>
<thead>
<tr>
<th>White-Tailed Deer</th>
<th>Mule Deer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fawn</td>
</tr>
<tr>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elk</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fawn</td>
</tr>
<tr>
<td></td>
<td>Calf</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Female</td>
</tr>
</tbody>
</table>

COMMENTS:
________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Turn in this form to MTCWRU, Natural Science Building, Room 205 by Tuesday following your volunteer day.
Contact Information and Hours of Operation for Check Stations

Note: Closing times are approximate and subject to change due to how busy each check station may be

Montana Cooperative Wildlife Research Unit

- Chad Bishop, Director, Wildlife Biology Program – Information, scheduling problems, etc.
  Office 406-243-4374 or 406-243-4388
  Cell 970-273-1769

MT Fish, Wildlife and Parks Biologists Contact Information and hours of operation

- Bonner Check Station 10:30 am – 8:00 pm
  Scott Eggeman - 406-542-5542 or 406-531-6759 (cell)

- Fish Creek Station 10:30 am – 8:00 pm
  Liz Bradley - 406-542-5515 or 406-210-2508 (cell)

- Anaconda Check Station 10:30 am – 8:00 pm
  Mike Thompson - 406-531-5378

- Darby Check Station 10:30 am – 8:00 pm
  Rebecca Mowry - 406-363-7141 Office 406-210-7384 Cell

Contact Taylor Haas in the Wildlife Biology office regarding mileage reimbursement (Darby, Anaconda, and Fish Creek only).

Taylor Haas Wildlife Biology Office, 243-5292 – Forestry 312
Hunter Check Station Materials:

- **Name Tags** – please wear them when you are working.

- **Supplies to take to Game Check Stations**

- **Contact Information Sheet**

- **Final Report Requirements**

- **Aging Forms**

- **Harvest Forms** – One person from your group is responsible for turning these completed forms in at the MTWCRU office by Tuesday of the week following your volunteer day. Only one sheet per day will need to be completed at each Check Station. It is mandatory that every volunteer who shows up MUST sign this sheet. It is very important to turn this sheet in as soon as possible. It will contain the data you will need to complete your final report.

- **Maps**
Supplies for Game Check Stations

- Warm clothing, gloves, boots, rain gear *(expect the worst!)*
- Lunch, dinner, snacks
- Name Tag – in training packet – please wear them!
- Pencils - #2 (soft lead)
- Map to your station (in packet)
- Harvest Forms – supplied by Coop Unit – in your packet.
- Aging Sheets – in packet
- Game Check Schedule – Will be emailed to you and periodically updated on the Coop Unit website under the “Mitchell Lab tab”
- Drivers should have winter tires or chains in their vehicles especially for the late and distant stations.
AGE CLASSIFICATIONS

Fawn

1. Fawns - A fawn usually has four cheek teeth, but can have only three if less than four months and five if it is over seven months. The 3rd tooth will always have three cusps or peaks. Notice the second molar is just beginning to erupt.

2. 2½ Year Old
   2.5 - At this age the three milk teeth are replaced with permanent teeth; therefore, sharp peaks are present on all teeth. The 3rd tooth now has only two cusps. Enamel is wider than the dentine on teeth 4, 5, & 6.

3. 4½ Year Old
   3.5 - When a deer is three, the 4th tooth begins to show wear and the dentine is as wide or wider than the enamel.
   4.5 - At four the dentine of the 4th and 5th teeth is as wide or wider than the enamel.
   5.5 - The dentine of the 4th, 5th, and 6th teeth is as wide or wider than the enamel.

Yearling

1. Yearling - A yearling still has the first three baby teeth along with the 4th, 5th, and 6th teeth that are permanent. The first three teeth, or milk teeth, will be heavily worn & replaced within a year.

2. 2½ Year Old
   2.5 - At this age the three milk teeth are replaced with permanent teeth; therefore, sharp peaks are present on all teeth. The 3rd tooth now has only two cusps. Enamel is wider than the dentine on teeth 4, 5, & 6.

3. 4½ Year Old
   3.5 - When a deer is three, the 4th tooth begins to show wear and the dentine is as wide or wider than the enamel.
   4.5 - At four the dentine of the 4th and 5th teeth is as wide or wider than the enamel.
   5.5 - The dentine of the 4th, 5th, and 6th teeth is as wide or wider than the enamel.

6½ Year Old

6.5 - In a six year old, the 4th tooth is beginning to look polished & the dentine in the 4th, 5th, and 6th teeth continues to become even wider than the enamel.
7.5 - This age class has so much wear on the premolars they may appear flat & the dentine of the forth tooth is about 70% of the chewing surface.
8.5 - The wear is slightly greater than a 7.5 and the dentine of the 3rd premolar is beginning to blend into the dentine of the 1st molar.

9½ Year Old

9.5 and Older - Around 9.5 years old and older the 3rd, 4th, or 5th tooth may begin to show signs of cupping and appear polished.
How to Age An Elk

Elk in North Dakota are primarily born in late May and early June. Therefore, when most animals are harvested in October and November they are considered either six months, 1 1/2 years, 2 1/2 years, 3 1/2 years, etc., in age. This guide is designed to block elk into these age categories.

Although elk may live to 16 years in the wild, the overall age structure of a hunted elk population is younger than most people think. Of elk harvested in the badlands that biologists have examined, more than 70 percent of cows and 90 percent of bulls were 4 1/2 years old or younger.

Antler and body size can indicate an elk's age, but physical characteristics are often misleading. The number of antler points do not correspond to age. Even if it did, it wouldn't help in aging cows, which make up a considerable proportion of the harvest each year.

Antler size in bulls and physical development in both genders is greatly affected by diet, which may account for differences between animals of the same age taken from different locations.

It's All in the Teeth

The science of aging elk is based on tooth development and wear. Like humans, elk replace their "baby teeth" with permanent teeth at a relatively set rate. As surely as a 6-year-old child will soon get her two front teeth, and 18-month-old elk will have its central two permanent incisors. By the time an elk is 3 1/2 years old, all permanent teeth are in. At this stage, estimating age is based largely on the rate of tooth wear. Diet and soil types may accelerate tooth wear, but generally, estimating the age of adult elk is straightforward through age 3 1/2. In animals 4 1/2 years and older, estimating age by tooth wear is less reliable.
Central front teeth all permanently in place.
This elk is at least 3\(\frac{1}{2}\) years old.

Cheek Teeth

Premolars: The first three teeth on each side of the jaw are called premolars. Elk grow two sets of premolars. The first set appear in calves and last until the animal is about 2 1/2 years old, when permanent adult premolars push out the baby premolar teeth. An important characteristic of the first set of premolars is that the third premolar has three crowns or cusps. When permanent teeth come, all premolars have just two cusps.
Elk basically have two groups of teeth. The front teeth, or incisors, are used for collecting food. The back teeth or cheek teeth - molars and premolars - are used to chew and grind food. Between the incisors and molars is an open space along the jaw that has no teeth. (Note: In all photos, black line indicates the gum line.)

Your basic elk jaw. Incisors in the front, premolars and molars in the back, and a big space between.

**Front Teeth (Incisors):** These are the front teeth of an elk jaw. When an elk is 15-18 months old, the central two incisors are replaced. The rest of the front teeth - lateral incisors and canine teeth are replaced during the second and third year of life. Unlike horses, elk do not have upper incisors.

*Front teeth of a six-month old elk (calf).* Width of incisors less than 1 3/4 inches. Yearling jaw with permanent central two front teeth fully emerged.

*Small canines*

2 1/2 year-old elk have central six permanent front teeth fully emerged. Temporary canine teeth may still be small, or permanent canines are emerging.
3 1/2 Years: All permanent front teeth and cheek teeth are fully erupted and in place (see incisor photos). Last cusp of sixth cheek tooth shows little or no wear.

4 1/2 to 8 1/2 Years: Aging elk 4 1/2 to 8 1/2 years is difficult. Wear on the lingual crest and cupping of molars becomes more pronounced. By 8 1/2 years the dark portion (dentine) of the first molar (four cheek tooth) nearly surrounds the pit, or infundibula, of the tooth. In older animals the infundibula of the first molar will be completely worn away.

WILLIAM JENSEN is a big game biologist in the Game and Fish Department Bismarck office.

This project was conducted with the cooperation of the Sybille Wildlife Conservation and Research Unit, (Wyoming Game and Fish Dept). Support was provided by the Rocky Mountain Elk Foundation.
**Six Months:** The nose or muzzle of the elk appears short or stubby, when compared to older elk. All the immature incisors are still present. Generally, only four cheek teeth are showing. The third premolar has three cusps.

**1 1/2 Years:** Central two permanent front teeth are in place (see incisor inset photos). Five cheek teeth have erupted in the lower jaw. The third premolar still has three cusps and is well worn. Elk harvested later in the season may be in the process of losing this three-cusped molar. Third molar may just be starting to erupt through the gum. Lingual crest of molars have sharp points.

**2 1/2 Years:** Central six permanent front teeth are in place (see incisor photos). Look closely at the third cheek tooth (third premolar). The permanent tooth is two cusps, unstained, sharp, and shows little or no wear; enamel (white portion) of the lingual crest shows well above the dentine (brown portion). Third molar (sixth cheek tooth) may still be erupting.
Each premolar and molar shows white and dark portions. The white portion is the enamel. The dark portion is dentine. The pits in the tooth are called infundibula.

**Molars:** The fourth, fifth, and sixth cheek teeth are the molars. Elk grow one set of molars. Generally, six-month-old elk have only one molar when they enter the fall hunting season. Therefore, six-month-old animals usually have only four cheek teeth. By 1 1/2 years of age - the second fall - the second and third molar have erupted through the gum, though the last cusp of the third molar may still be below the gum line. All six molars and premolars are fully erupted by 3 1/2 years. To determine the age of animals in older age classes we need to look more closely at tooth wear.

**Through the Ages**

While it is possible to determine whether an elk is six months, 1 1/2 or 2 1/2 years old by looking at its incisors or front teeth, it is the cheek teeth of the lower jaw, that harbor the most reliable clues for older animals.

To get a good look at the cheek teeth (premolars and molars), you need to cut back the lip and cheek skin. If you plan to have the elk head mounted, let your taxidermist skin out the head and remove the jaw for you.