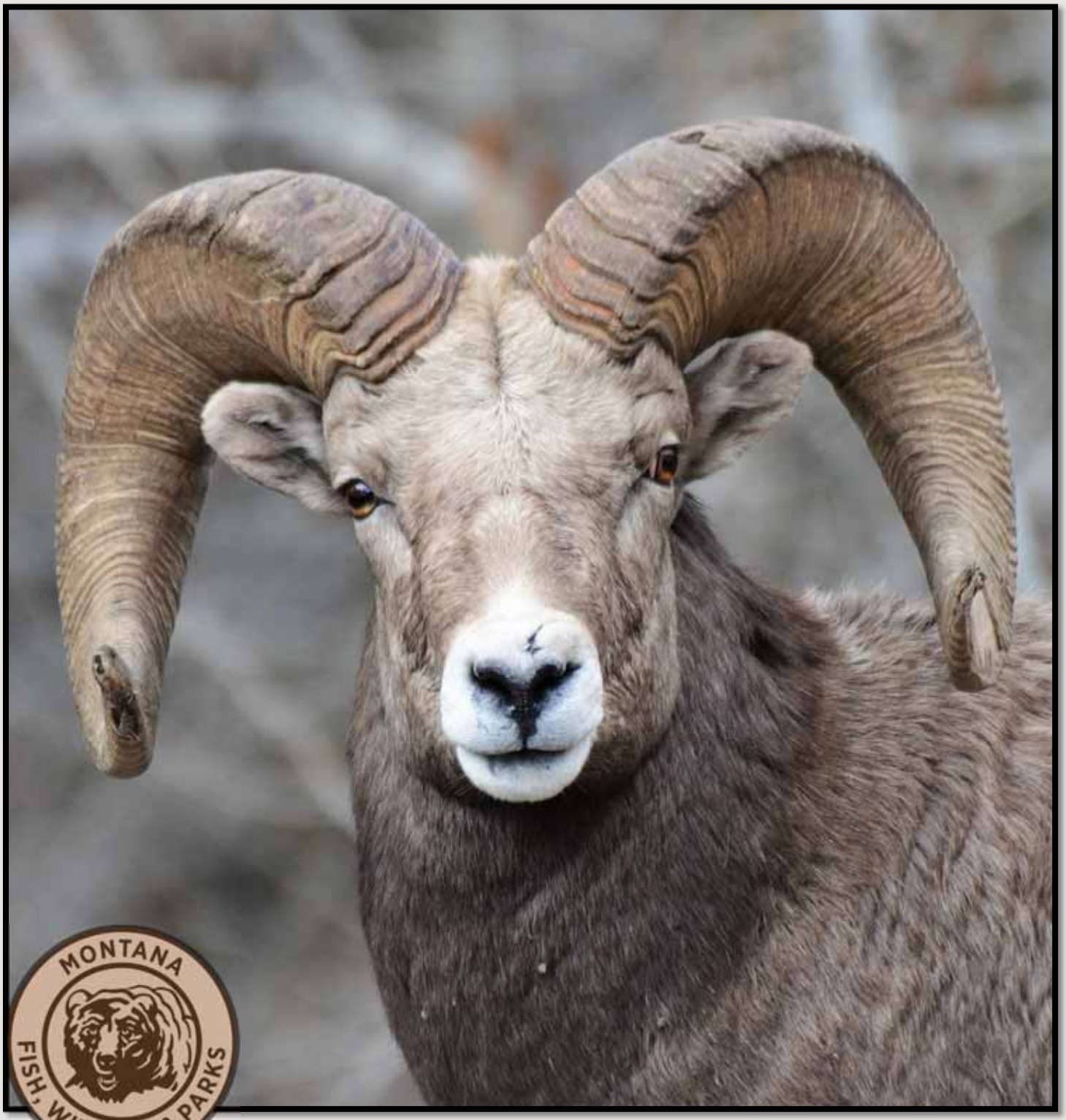
Montana Fish, Wildlife & Parks

Region 2 Wildlife Quarterly

December 2019



Bighorn ram up Petty Creek, November 16, 2019

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Find the Quarterly online at fwp.mt.gov/regions/r2/WildlifeQuarterly

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The Region 2 Wildlife Quarterly is a product of Montana Fish, Wildlife & Parks; 3201 Spurgin Road; Missoula 59804. Its intent is to provide an outlet for a depth of technical information that normally cannot be accommodated by commercial media, yet we hope to retain a readable product for a wide audience. While we strive for accuracy and integrity, this is not a peer-refereed outlet for original scientific research, and results are preliminary. October 2015 was the inaugural issue.

Thin Ice

Muskrats making hay on a side channel of Rock Creek on Veteran's Day, 2019. In the case of muskrats, making hay is but an idiom. Rather than storing hay for winter, muskrats forage for fresh vegetation daily, winter or not.

Ice Fishing Georgetown Lake

Muskrat beaching a male brook trout on the ice of Georgetown Lake on November 9, 2019. The ice is safe enough for muskrats now. Next page: a second muskrat stakes its claim.

A spectacle akin to that which attracts tourists to Alaska's McNeil River State Game Sanctuary greeted us, quite by surprise, at Georgetown Lake, Montana on November 9th.

Crisp air, heavy clouds, spits of rain and snow, and the cries of bald eagles accompanied the events unfolding along Highway 1, west of Anaconda. Playing the role of chum salmon were brook trout-the-size-of-salmon, their swarming fins creasing the lake's surface at the edge of thin ice. And playing the role of grizzly bears were . . . muskrats. Muskrats.

There were three of them, on a brook trout big enough to serve all three at once, if only they could get along. Sometimes lost in intraspecific conflict was the slow departure of the trout, slipping off the ice, which more than once required the largest specimen of Rodentia to retrieve it, at extreme energetic expense.

Muskrats. From Boutin and Birkenholz (1987):

> *Muskrats are primarily herbivorous. They consume shoots, roots, bulbs and leaves of aquatic plants. Cattail and bulrush are always utilized when present and can consume as much as 80% of a muskrat's diet. Muskrats consume a wide variety of other aquatic plants. Cultivated crops such as carrots, corn, alfalfa and soybeans are also eaten. In some cases, muskrats will also consume clams, mussels, fish and other available animal material.*

Remarkable enough to see muskrats eating a trout much larger than themselves. Dare we wonder whether one or more muskrats killed the fish?

We dare. From Saunders (1988):

> *The flesh of dead animals is another component of the diet, especially dead fish exposed by the spring melt. However, muskrats capture and eat live animals, for example insects, crayfish and slow-moving fish, amphibians and reptiles. Fresh water mussels are an important part of the winter diet where they are available.*

So, we are faced with two possible scenarios, having failed to witness the act of bringing the fish to the table, as it were. One is perhaps the default—that the muskrat scavenged a dead fish. The other is the more intriguing—that muskrats might have killed such a big fish.

It would help to know more about the brook trout. On the day of the muskrats, large fish—presumably brook trout—congregated in the shallow water along the roadside edge of Georgetown Lake. We asked Regional Fisher-

-ies Manager, Pat Saffel, what to make of it.

"Brook Trout spawn in the fall but are usually done in October," Pat wrote. "However, Nov. 10 is pretty close to that and fish do remain in the area after spawning, and others come in to eat eggs. The area you are referring to has a lot of springs that attract fish for spawning because of the upwellings in the lake bed. The flows and upwellings are attractive because they provide oxygen and clean the nests of waste."

Does spawning mean that a lot of dead fish wash up for scavengers to eat?

"Looks like a Brook Trout with a kyped mouth, so a male. They aren't like kokanee and others salmons that have a life span defined by spawning, but the event can be stressful and exposing so mortality isn't unusual."

As we strive to do in FWP, Pat consulted our field biologist, Brad Liermann, for local insights:

"Yes, Pat is right on," Brad wrote. "Looks like a dead brook trout—likely post-spawn male—and the timing fits pretty well that those will be available this time of year. The only correlation with there being no ice and fish available is that brook trout and kokanee definitely use the springs in Georgetown to spawn and springs tend to create open water. Thus they happen to spawn around open water; they are not looking specifically for open water to spawn."

If we attempt to marry what we know about muskrats with what we know about brook trout at Georgetown, it seems that both possible scenarios remain in play. Most likely, we suppose, a muskrat found a dead fish and drug it onto the ice. But, it remains a possibility that a muskrat hastened the death of a stressed fish in the shallows.

Either way, it was an entertaining natural history lesson and a unique wildlife watching experience at Georgetown Lake.

References Cited:

Boutin, S., and D.E. Birkenholz. 1987. Muskrat and round-tailed muskrat. Pages 314-325 In: Nowak, M., Baker, J.A., Obbard, M.F., and B. Malloch, eds: Wild Furbearer Management and Conservation in North America. Ontario Ministry of Natural Resources, The Ontario Trappers Association, publisher.

Saunders, D.A. 1988. Adirondack mammals. State University of New York, College of Environmental Science and Forestry, 216 pages.

Juvenile muskrats often remain with or near their parents through their first winter. From top to bottom, it looks like an adult, the adult with one young, and the adult with two young feeding on the brook trout, with room on the tail fin for yet another rodent.

Several other muskrats spaced themselves at approximately 100-200 yard intervals along the ice edge at Georgetown, but none of these were observed on fish. Like the muskrats on Rock Creek (pictured on page 3), they all seemed to be feeding on vegetation in water kept open by the upwellings. The fish was just a bonus, if we had to judge.

Sheep Fence

Wildlife-friendly fencing for bighorn sheep comes in various forms. This year we've had camera at the ready on several occasions to document sheep negotiating a variety of wooden fences in Region 2. People who drive up the East Fork of the Bitterroot will recognize the fence at the bottom of the previous page, while the other pictures were taken in Lower Rock Creek. Wire fences can be harder on bighorn sheep, and vice versa, as seen below.

Bighorn Sheep on Babcock Mountain
November 2019

Little did we know at the time that this ram was over 13 years old. The ewe broke from the group that the ram was tending in Lower Rock Creek on November 3, and the ram responded with the vigor and skill of a herding dog in its prime.

Thirteen Years' Reflections

The intersections of lives that wildlife make for us are things we treasure. The path we walk is forever altered when wild things cross it, and even more so when we follow that crossing in a direction that we wouldn't have chosen on our own. It's probably that thing we can't explain when asked, "Why do you hunt?" It's walking a mile in the tracks of something—someone, really— that you hold in esteem. "Wow. I'm actually walking in the footsteps of a bighorn ram." You are not quite the same person after that. You are richer.

When a hunter presented his hard-earned bighorn ram, taken in Lower Rock Creek, to FWP in Missoula on November 20, we perked up and grabbed a camera on the way out the door. Some of us have a lot of history with the bighorns in Lower Rock Creek, dating back to 1987 for at least two of us. And we've been keeping an eye on them ever since, besides the annual helicopter survey.

So much so that we were moved to scour our latest photo archives to confirm whether we'd seen this sheep on the mountain this fall, and to our eyes, yes we had.

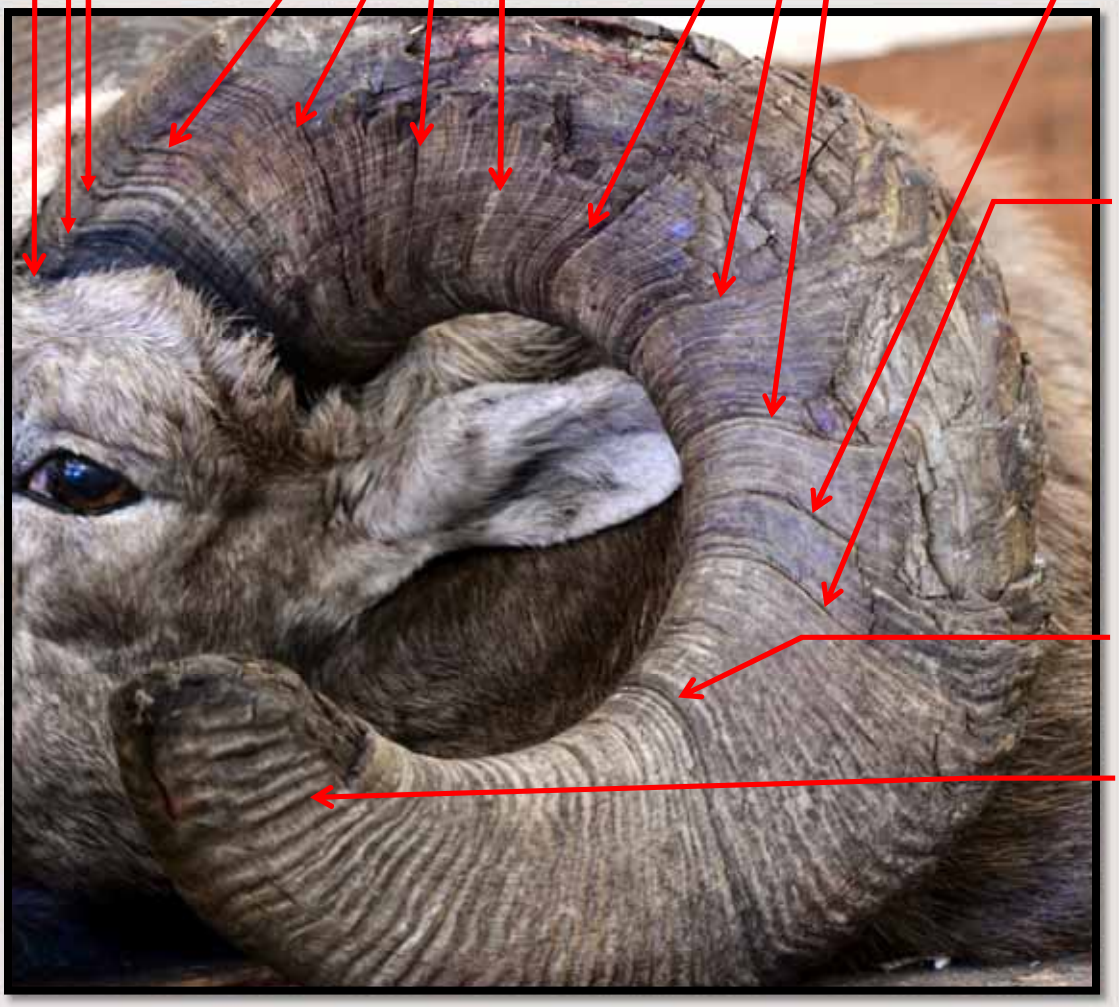
The photos on pages 12, 13 and below-right depict this 13-year-old ram as we observed it on November 3, tending ewes and turning a stray one, on a steep, lower slope of Babcock Mountain. The broomed tips, the tight curl, the heavy horns with chips and chunks broken-out are consistent with the horns we later handled to estimate the age.

Several of us agreed on 13-1/2 years old. The lower incisors (shown here) testified to every bit of it, their wear and loss making feeding more difficult.

This individual lived beyond the normal lifespan of 9-12 years for a bighorn ram. In fact, it lived beyond the lifespan of almost any ram that FWP has handled in recent history, whether hunter-killed or found dead. FWP's 2,181 records dating back to 2007 show that this ram is tied with 8 other rams as the second-oldest recorded in Montana during that time period. The oldest ram is listed as 15 years old, and was taken this year in Hunting District 340.

This was an important ram and an important ram to know about near the end of its natural lifespan. It is a ram that apparently carried a resistance to the pathogens that caused a pneumonia die-off in 2009-10, and if genetically transferrable, this ram passed its disease resistance to dozens of lambs born in this decade, contributing to the long-term recovery and resilience of this herd. We were not personally aware of a ram of this age in Lower Rock Creek, and it offers encouragement that others have done and are doing as well—that the habitat and environment continue to support such health and longevity.

Bighorn sheep horns grow out from the bases, meaning that the oldest portions of the horn are found at the tips. Periods when horns don't grow, such as winter, cause rings to form in the horns, while periods of growth add length between the rings. Horns grow more when the animal is young than when older, and in years when the animal is most healthy and in good forage years.



Nov. 2017
Following the Goat Creek Fire of 2017

Nov. 2018

Nov. 2019

Nov. 2016
Winter before the Goat Creek Fire of 2017

Nov. 2015

Nov. 2014

Nov. 2013

Nov. 2012

Nov. 2011

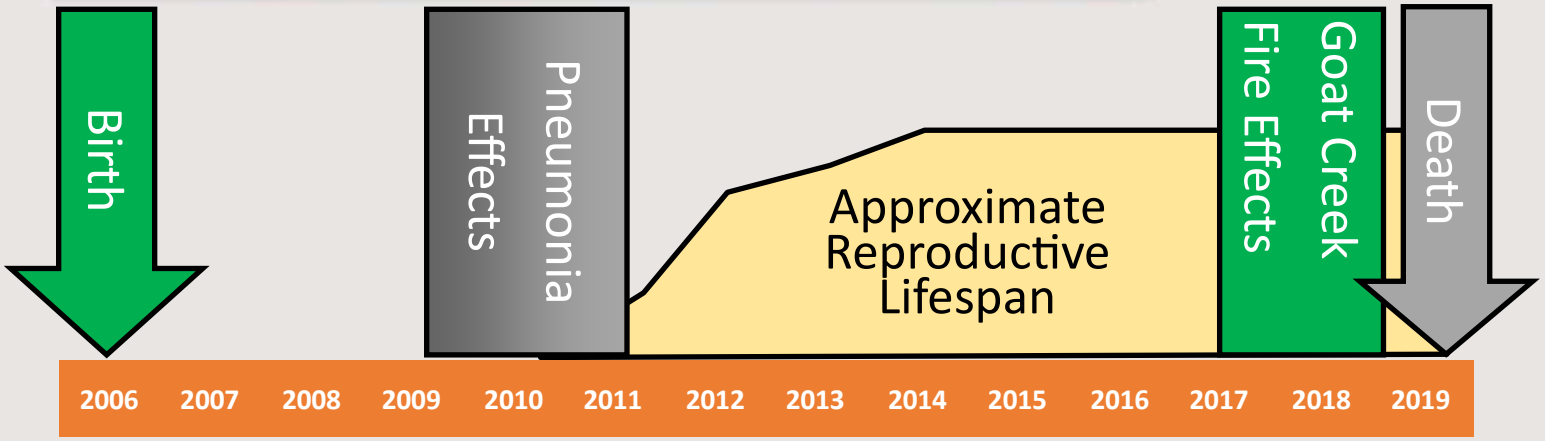
Nov. 2010
First winter after pneumonia die-off

Nov. 2009
Start of winter in the early stages of the pneumonia die-off, when the ram was 3-1/2 years old

Nov. 2008
Start of winter before the summer of 2009, which was a summer of poor horn growth for this ram. The period of poor horn growth coincides with the early onset of the pneumonia outbreak in this herd.

Nov. 2007
Start of winter between two normal growth years

Nov. 2006
Start of winter in the ram's birth year of 2006. The first growth has been broomed-off from wear and tear over the course of 13-1/2 years.



Petty Creek Rams
November 2019

Petty Creek Rams

On the basis of FWP biologist Liz Bradley's count of 53 rams during her annual helicopter survey on April 18, 2019, Petty Creek boasts the highest number of rams documented in any of the bighorn herds in Region 2. The Petty Creek herd was spared the pneumonia outbreak that plagued all other sheep herds in Region 2, except perhaps the Painted Rocks herd, in the early 2010s.

As such, Petty Creek sheep demonstrate "what might have been" elsewhere, though some other herds , such as the East Fork Bitterroot and Upper Rock Creek herds, have bounced back well.

In November, Petty Creek rams were on the Petty Creek Road, which was paved in 2012 as a project by the Western Federal Highways program. Sheep are vulnerable to traffic strikes and require drivers to be alert and go slow.

East Fork Bitterroot Bighorns, November 2019

Macy Dugan works seasonally with FWP as a Hunting Access Technician and she shared these photos of Bohemian Waxwings on the Upper Clark Fork Block Management Area.

Bohemian Waxwings usually arrive for the winter in mid-October and are gone by early April to summer in Canada and Alaska. In winter they concentrate wherever they find fruits, such as mountain ash and snowberry.

Musical Chairs

While the *Montana Bighorn Sheep Conservation Strategy* (FWP, January 2010) attributes 45,000 acres in Lower Rock Creek as occupied sheep habitat, the sheep in that expansive landscape sometimes behave as if there aren't enough places to lay a body down.

Recently, we spent an hour with about 50 sheep alongside the Rock Creek Road. They had been feeding in green fields across the road before taking to the rocks when the landowner's dog appeared.

At first the sheep stood and kept watch (previous page), but it wasn't long before they settled down to ruminate on their options (below).

Thus began a curious and entertaining behavior.

One sheep wasn't satisfied with its bed, but rather than make a fresh indentation in the scree, it arose, stretched, and made its way toward a seemingly random cohabitant, to which it directed a nudge and a soft kick. Not much discomfort was required to displace the unfortunate target animal, which would have no choice but to replicate the same transgression upon another of its kind.

This sequential behavior played out calmly and at a leisurely pace. Sometimes every sheep had a bed and just as the casual observer might conclude that the band had achieved satisfaction, a ewe or a ram couldn't leave well enough alone. Nor was it apparent that the disturbing sheep gained any comfort as a result of displacing the disturbed sheep; often the position assumed by the conqueror appeared to be more awkward than before. But, discomfort, not comfort, seemed to be the name of the game.

It was fascinating to observe on an autumn afternoon. Behaviors were not limited to this sedate adaptation of musical chairs. Ewes scratched their backs with their horns, lambs and young rams went on walkabout, and a couple of ewes even sparred with their heads and horns. A few young and coming-of-age rams had joined the ewes and with the rut approaching, a tension could be imagined.

Behavioral ecologists are fond of ascribing adaptive advantages to such restless activity. Why does one sheep roust another out of its bed? Perhaps to obtain the same adaptive advantages as the sibling humans who pick on each other. Your guess is as good as ours.

Lumpy Beds

"Pardon, please."

Above: "Wouldn't you be more comfortable elsewhere?"

Below: Ewes letting off a little steam.

Above: So much opportunity, so little time.

Left: Lookin' for trouble.

Below: "I can do this for longer than you can."

"Petty Creek, November 2019

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