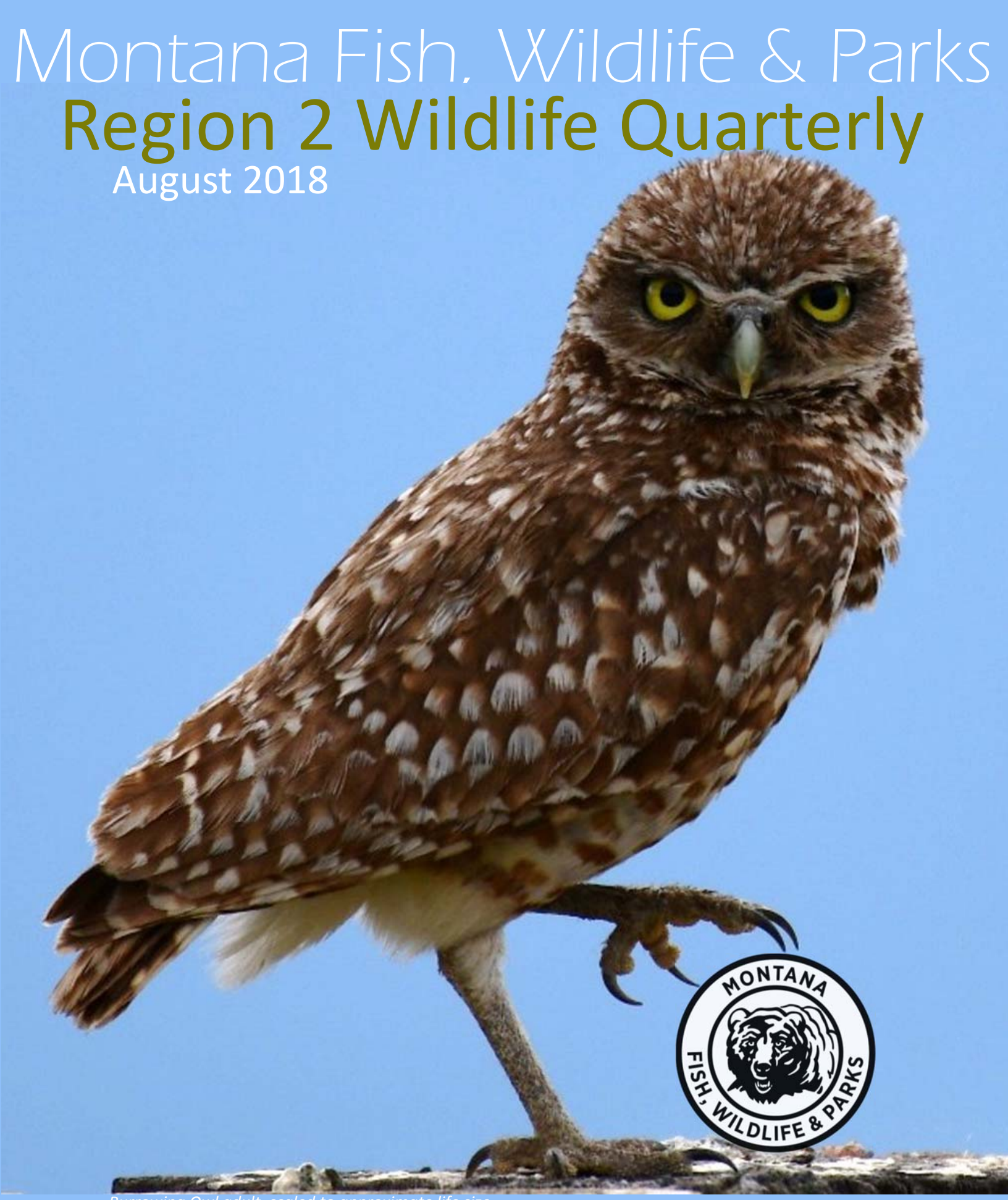
Montana Fish, Wildlife & Parks

Region 2 Wildlife Quarterly

August 2018



Burrowing Owl adult, scaled to approximate life size

Technical Bulletin No. 15

Montana Fish, Wildlife & Parks
Region 2 Wildlife Quarterly

August 2018

Region 2, 3201 Spurgin Road, Missoula MT 59804, 406-542-5500

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.

Five bighorn rams brought traffic to a halt along Highway 200 in the mid-afternoon of a hot July 16. This was one of the two biggest rams, while the other three were in the half-to-three-quarter curl category. FWP biologist, Liz Bradley, said that we could add these to her spring count of 35 sheep in the Bonner herd because she did not find the rams from the helicopter during that survey. A neighbor to the wild sheep has reported seeing lambs that were born this May—after the helicopter survey—as well. So it seems that the Bonner herd continues growing slowly. It was sobering to take this photograph after having passed a vehicular accident and ambulances upriver, minutes earlier. Only after spotting safe and wide places to turn around and park was this photo made possible. It's a busy and treacherous road through there and we hope everyone stays safe.

Figure 1.

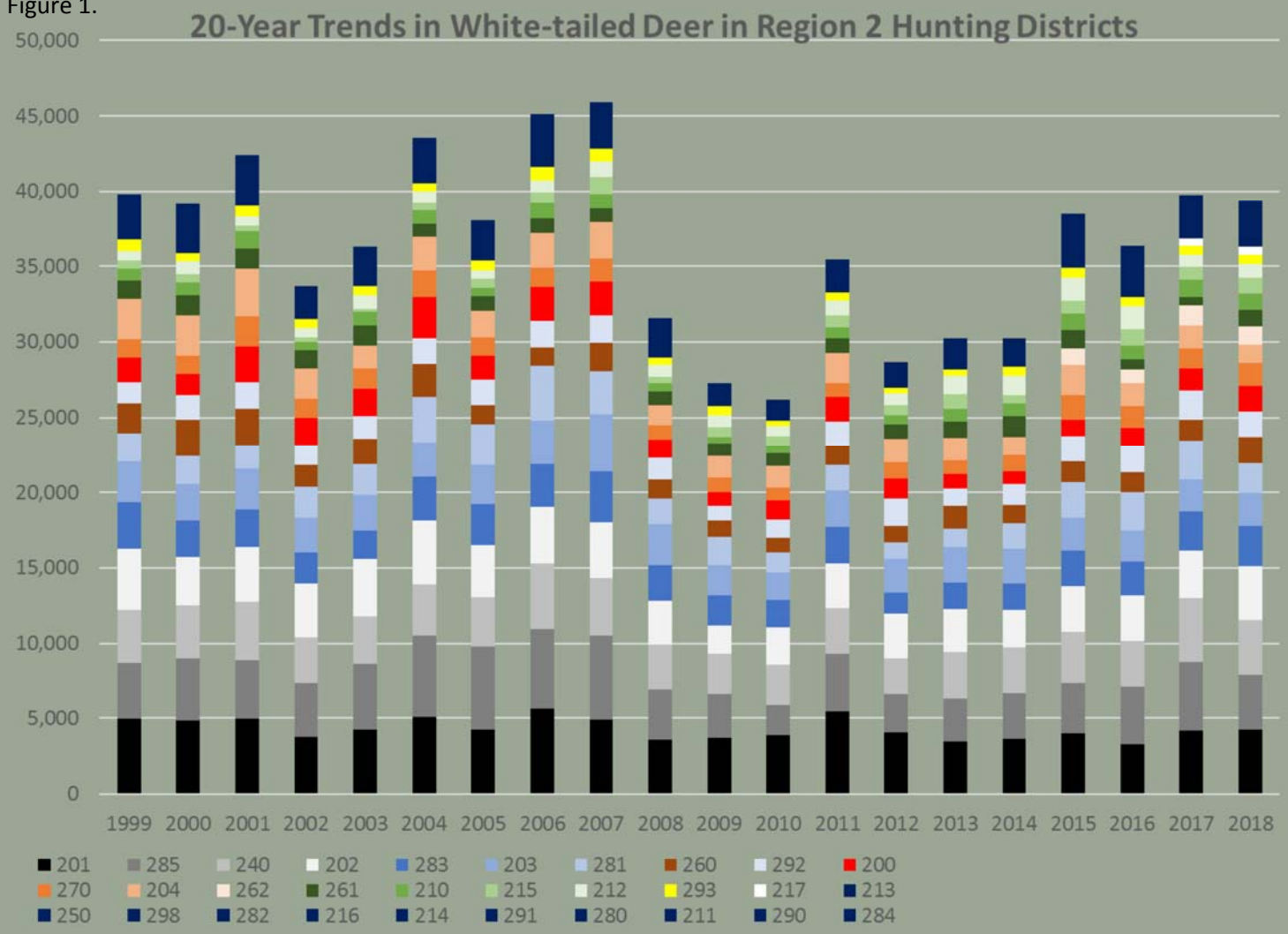
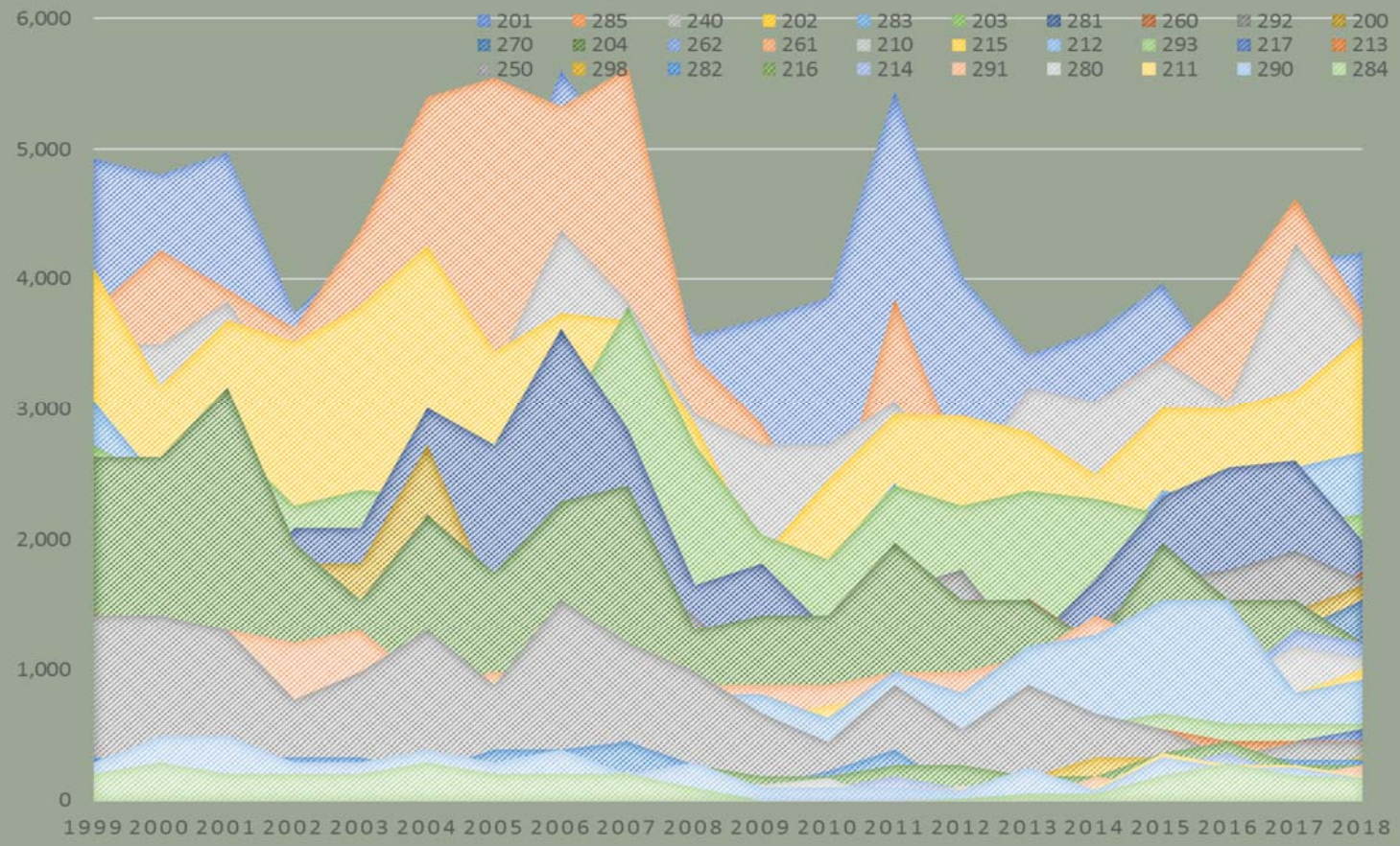


Figure 2.



How Many White-tailed Deer?

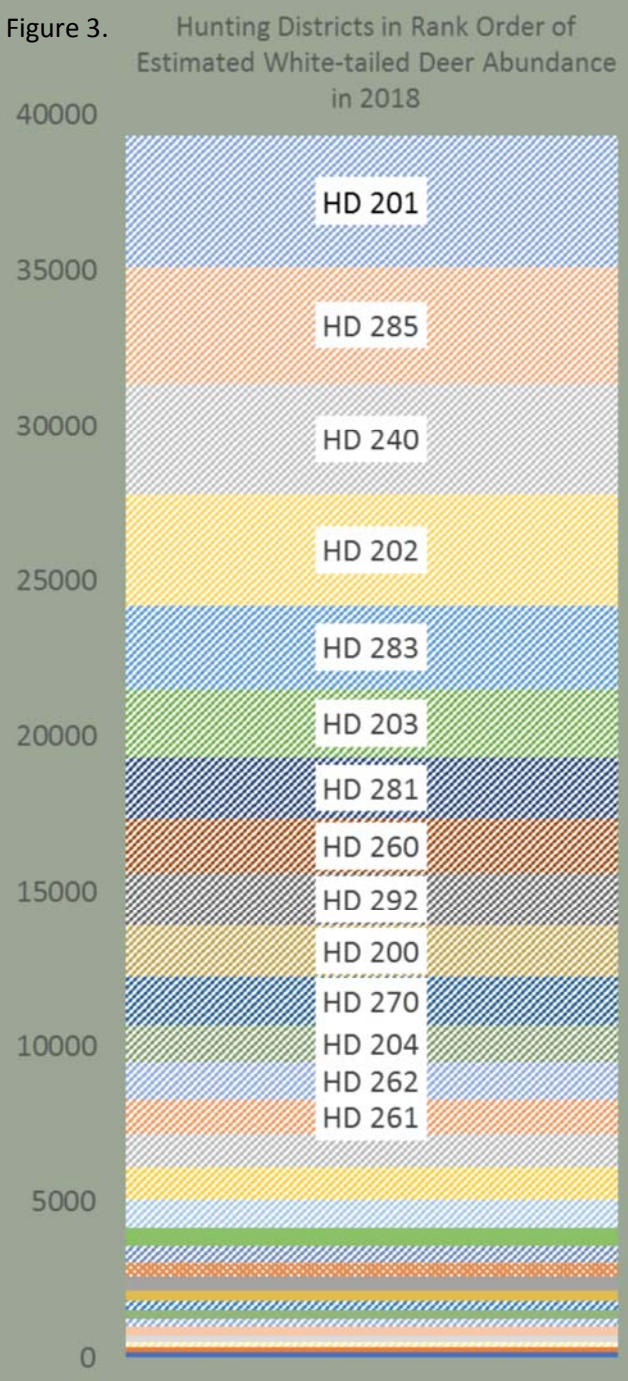
Might as well ask how many needles in the forest. But if an answer is required, we would estimate approximately, more or less, roughly:

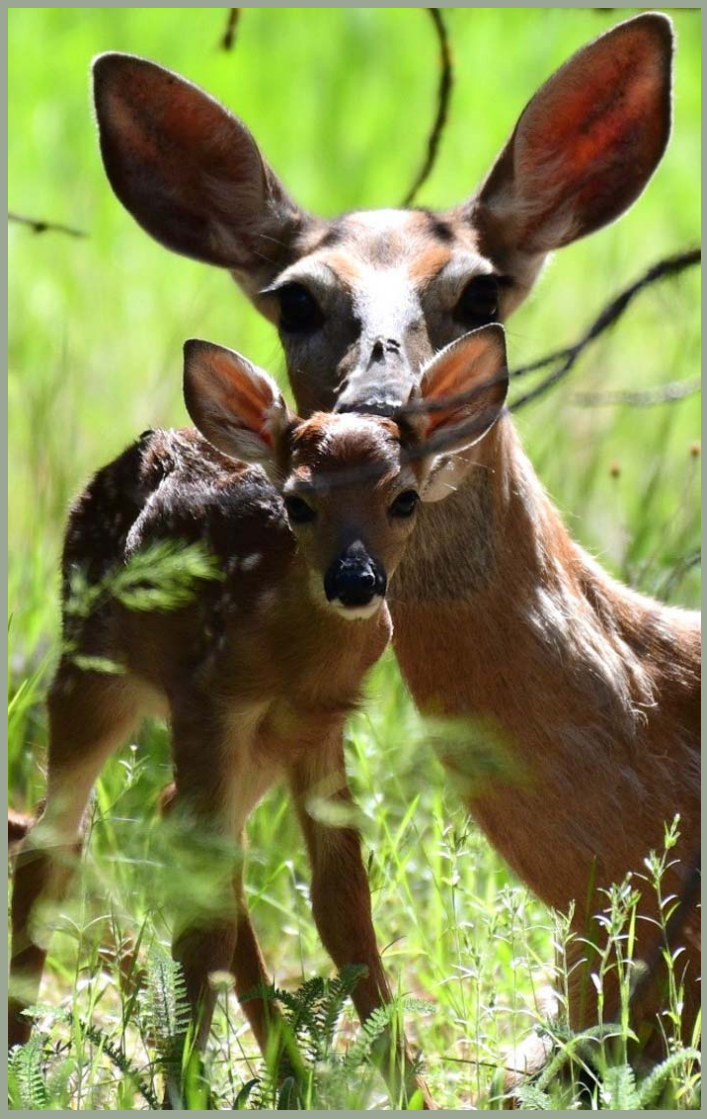
39,323 white-tailed deer in FWP Region 2.

How in the world? For those who really want to know where that number came from, it is the sum of bucks, does and fawns in January as shown in the fine print (below).

Whitetail Estimate Metadata: Annual buck mortality is (fawn: doe ratio/2)/(average buck: doe ratio + fawn:doe ratio/2). Total hunt mortality is the observed harvest from harvest surveys x 1.15. Buck estimate is (total hunt buck mortality)/(%annual buck mortality). Females is (buck estimate)/(observed postseason buck: doe ratio). Fawns is the number of does x the observed post-season fawn: doe ratio.

Figure 3.



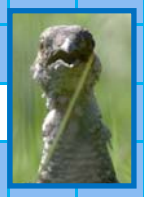
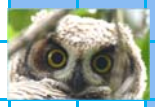


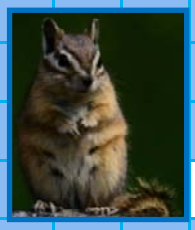
Truthfully, we don't know the number of white-tailed deer in the woods, but we have developed a method of arriving at a reasonable order of magnitude and a way to consider whether the population is declining, stable or on the upswing.

Figure 1 on the previous page would ask us to believe that the whitetail population in Region 2 is stable at a level higher than the 10-year average. Figure 2 on that page depicts the storm of trends across hunting districts in Region 2 over the past 20 years. Peaks are apparent in the mid-2000s, followed by a valley across almost all HDs in the late 2000s and early 2010s. White-tailed deer seem to be on firmer footing now.

Figure 3 on this page crowns HD 201 as the top white-tailed deer producing hunting district in Region 2 coming into this year, with HD 285 ranked second and HD 240 third, representing the Lower Clark Fork, Blackfoot and Bitterroot watersheds of Region 2, respectively. The Upper Clark Fork first appears in the rankings at number 15 (HD 210).

WILDLIFE CROSSWORD



Wish You Were Here . . .

Common Loons nested on Rainy Lake once again this year and raised one chick to July 22, as documented above. The adult male and female are virtually indistinguishable, although the male tends to be larger. The relative sizes and the fact that the chick affiliated with the adult on the right makes us think that the male is in the lead.

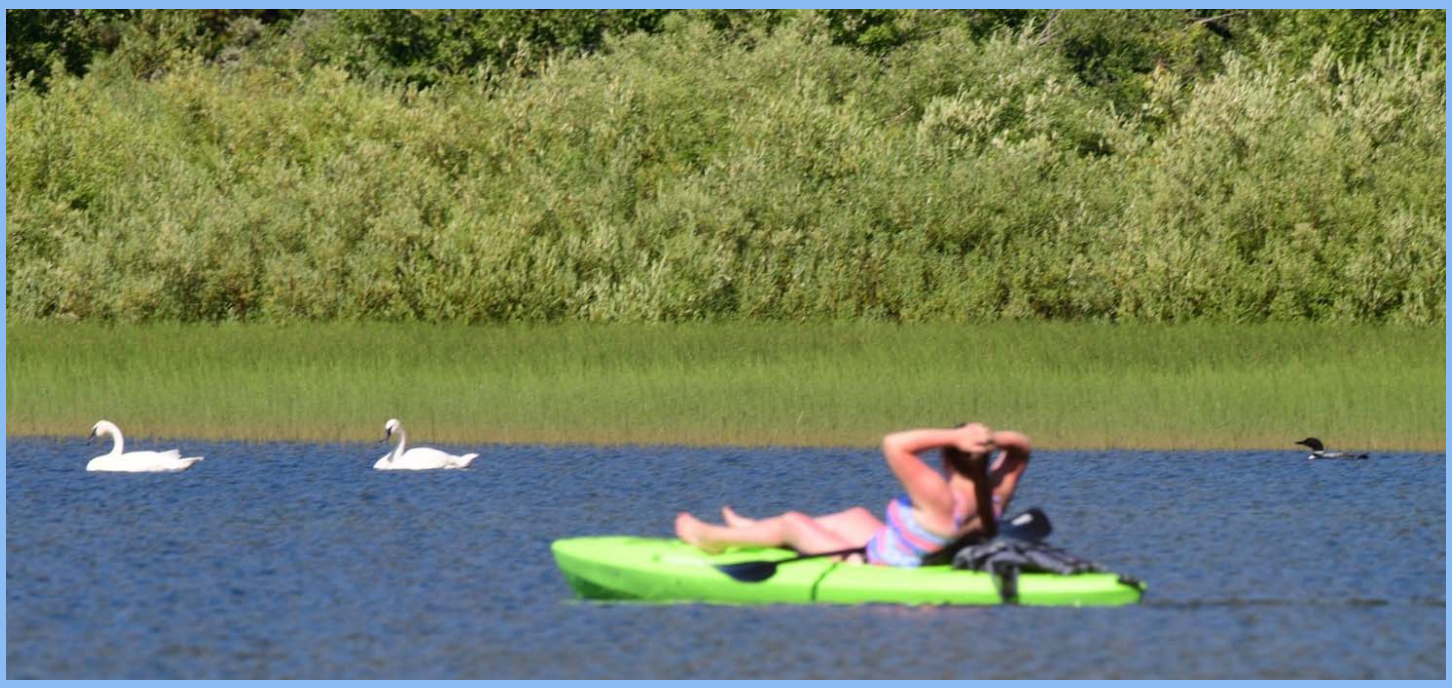
Keely Benson is an undergraduate student of wildlife biology at the University of Montana, Missoula, and is completing her third spring and summer as the Region 2 Loon Intern. In 2017, Keely reported that 2 chicks survived until at least July, and that the male at Rainy was banded on each leg in 2011. But, the birds kept their legs under water on this particular day.

During the nesting season (late April to mid-June), floating signs are placed to form a buffer from human disturbance, helping recreationists identify the distance that adult loons need in order to feel secure and stay on the nest, rather than spooking off the nest and leaving the eggs exposed. The public's voluntary compliance, encouraged by Keely's helpful information, has been great overall.

The floating signs come down in mid-July when the chicks are mobile and the loon family is no longer behaviorally tethered to the nest. Now that the lake is wide open to people and loons alike, what is an appropriate distance for wildlife watchers to respect?

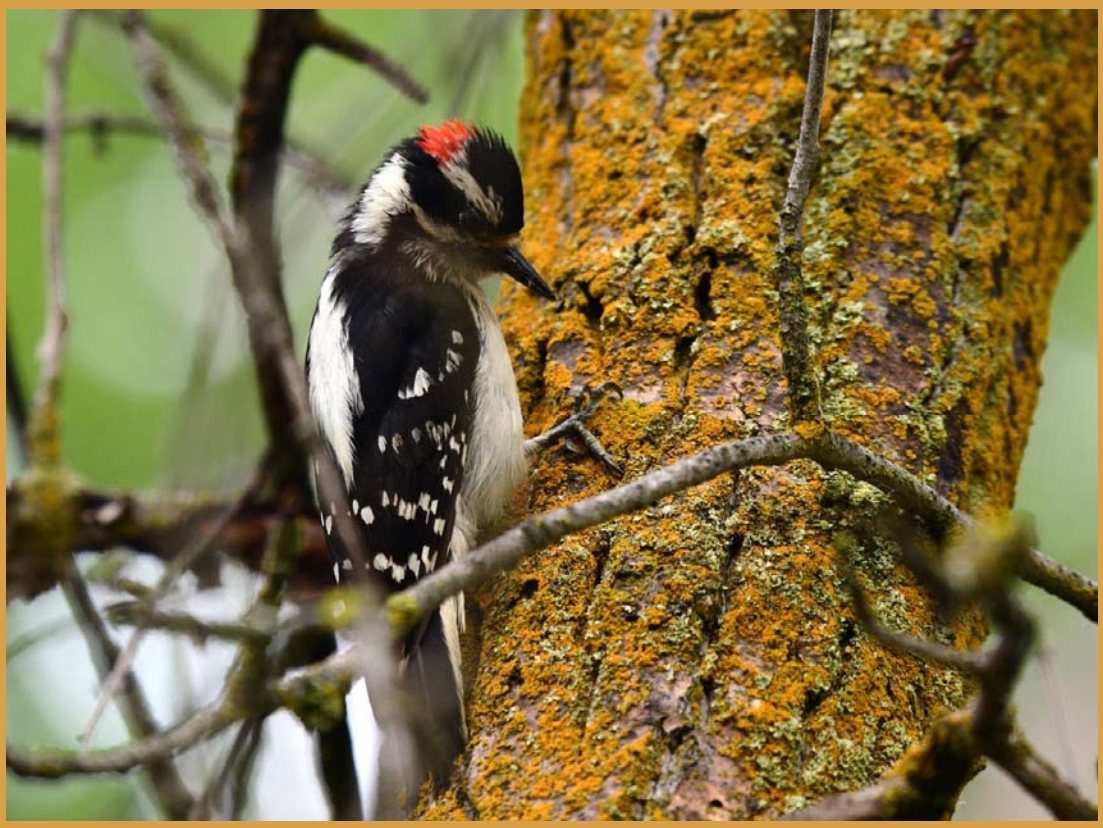
It turns out that the loons will tell you. When they rise up out of the water, flap their wings and present their white chests to you, they are saying, "this is my territory." And when they cut loose with that wild yodel—a tremolo, it's called—they are agitated and you are too close. We witnessed both behaviors when people intruded closer than the scenes depicted here. Based on what the loons had to say, these two boaters were right on the fringe of the comfort zone for these particular loons. One hundred yards is a good rule of thumb.

. . Rainy Lake



Downy
Woodpecker

We're normally alerted to the presence of a Downy Woodpecker by the soft tapping of its beak on bark, but in this case we were attracted by its call—an excited *pic* that brought an agitated squirrel to mind. The mystery was solved with the bird's flitting all around at close range. In this case, the bird rarely tapped, but was shown to be gleaning insects from the surfaces and creases in bark and on branches. We often think of habitat in the form of vegetation, but vegetation often won't produce certain wildlife without first producing insects.



June 9 & 17, 2018

The Downy Woodpecker excavates its nest cavity in trees such as the one pictured, though we failed to score a photo of the cavity that this bird briefly visited. They incubate eggs and feed nestlings throughout June and we suspect that this is what we witnessed, judging from the bird's agitated greeting, its reluctance to leave the near vicinity of this tree, and the stacking of multiple meals in its beak, presumably for delivery to nestlings.

Identification

The Downy Woodpecker male is distinguished from the female by a red spot on the back of its head, like the male pictured here. The white on the upper back is characteristic of both the Downy and Hairy Woodpecker, but the Hairy is larger. The Downy is the smallest woodpecker species in North America, but is several times larger than an earwig, as these photos prove!

Lewis's
Woodpecker

For the longest time, there are none, and then one day they're everywhere. A friend says they return in Spring as the buttercups bloom. They are Lewis's Woodpecker and they winter in the Southwest United States. While the Lewis's is thought to be one of the less abundant woodpeckers that nest in Montana, in the right habitat they seem to be everywhere, possibly mistaken for any number of other little dark birds.

May & July, 2018

Although larger than the Downy Woodpecker, Lewis's Woodpecker is a poor excavator and will nest in other cavities as well as its own. In May and July we observed them interacting with one another, catching winged insects, and flashing their colors. In good light Lewis's boasts a brilliant red mask that is otherwise invisible. The gray-white ring around its neck seems to show best from behind, when the back appears black until touched by the sun. The pink belly is startling.

Read More: To learn more about Lewis's Woodpecker in the Clark Fork and Bitterroot Valleys, browse the web for a master's thesis by William Blake at: *https://scholarworks.umt.edu/cgi/viewcontent.cgi?article=12250&context=etd*

Peculiarities

North America's most unusual woodpecker feeds by fly-catching rather than by excavating in trees, flies like a corvid, and has a splash of color on its belly that recalls the inside of a ripe watermelon. Its resemblance to a crow derives from its dark dorsal coloration and unique flight style, which consists of much gliding and slow flapping. -Marks et al. 2016. *Birds of Montana*.

Figure 1.

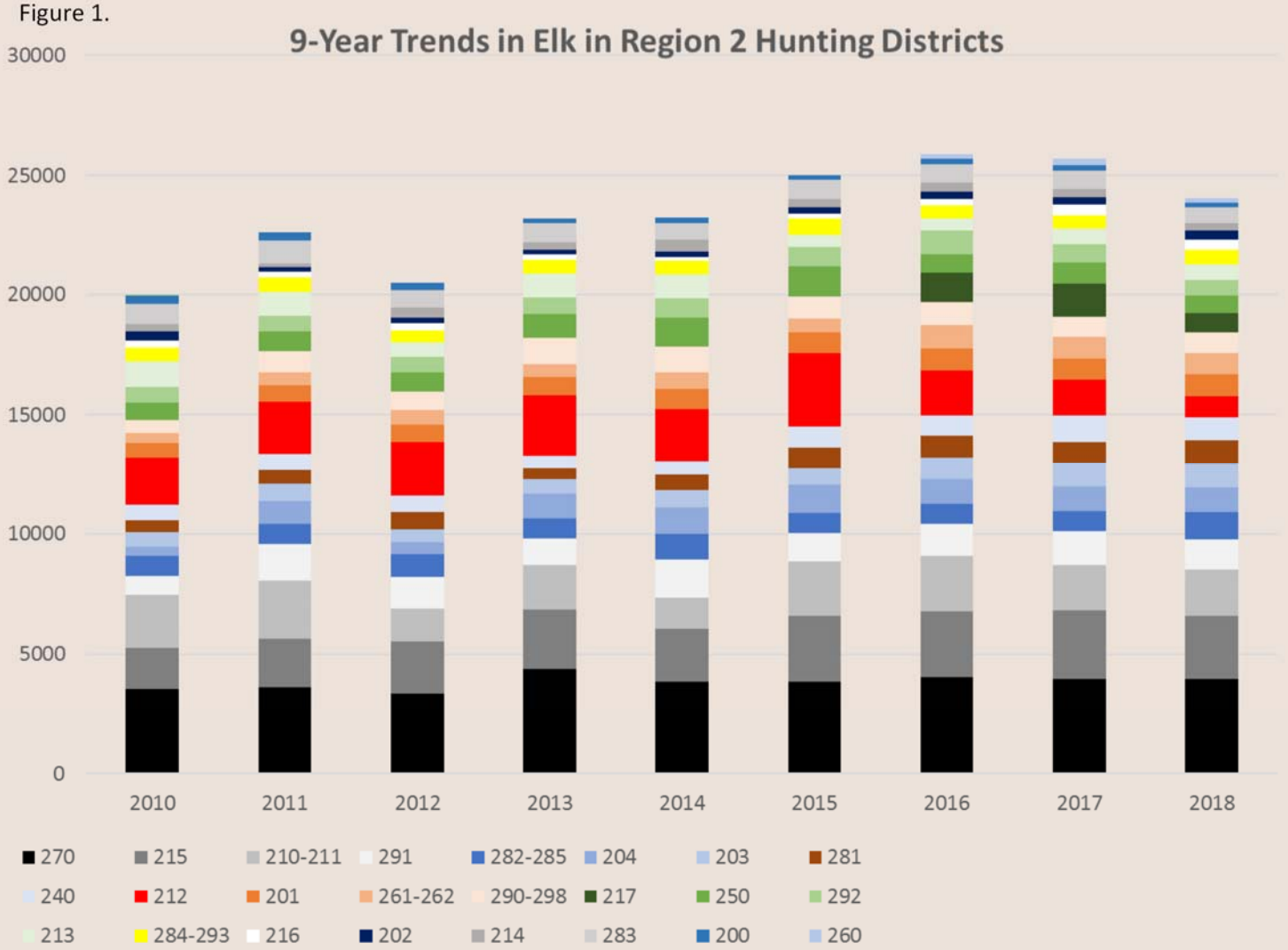
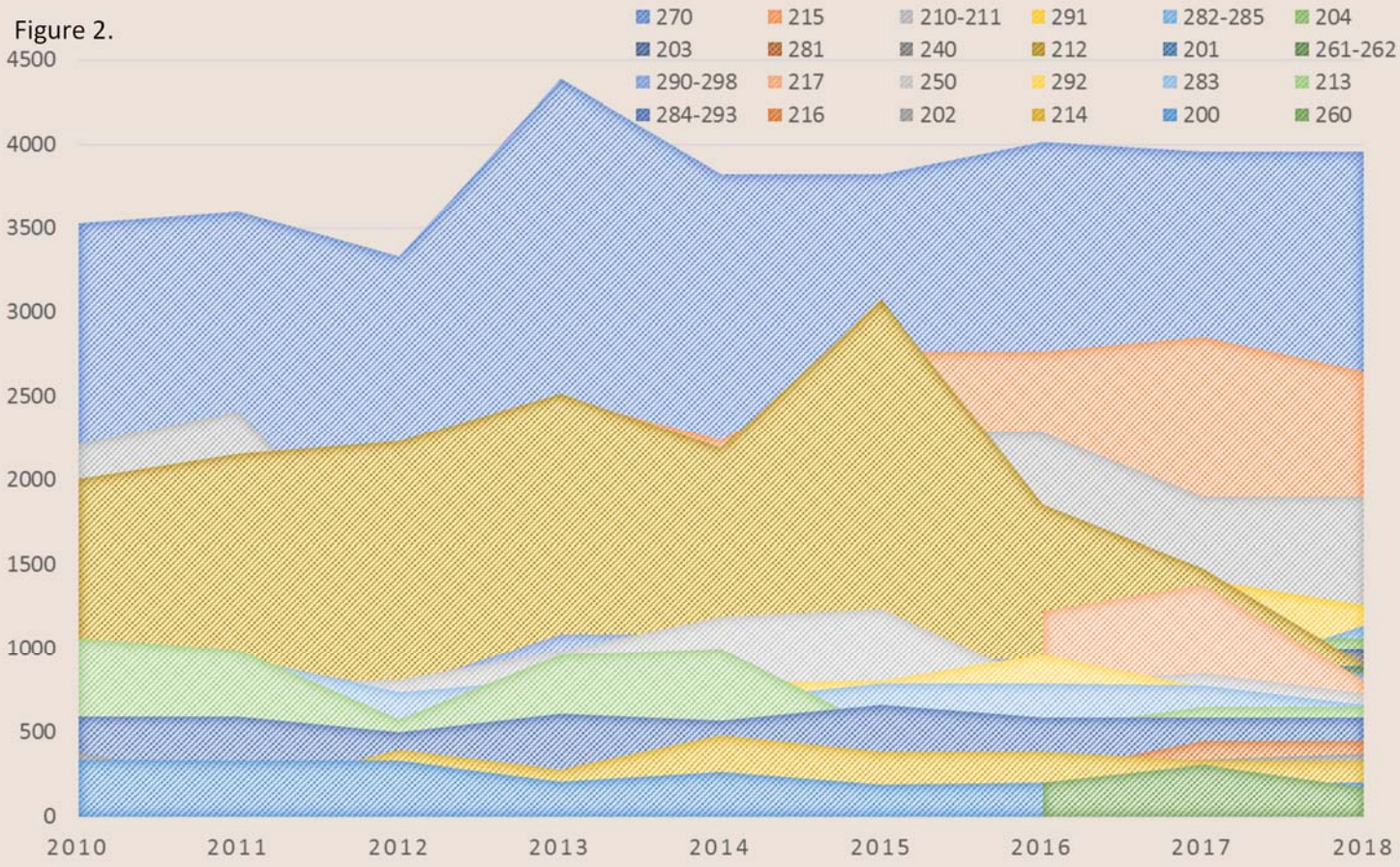


Figure 2.



How Many Elk?

We don't know exactly, but we can tell you how many elk we can account for in Region 2, before calves were born, from our winter-spring counts in 2018:

24,028

There are more elk than that, and they are especially hard to count and easy to miss in a hard winter and a slow spring, when deep snow drives more elk under the trees than normal in the northern and western parts of the region. But the number of elk unseen is likely not huge. The top end of actual elk numbers in Region 2 is probably at or below 30,000, before calving season.

Presenting the raw data in the charts on this page and the previous page are fraught with caveats. There have been changes in hunting district boundaries that have accounted for different elk counts between some years, and there are almost always survey units that aren't counted in any given year, often because of weather patterns that keep our aircraft grounded. In the latter case we display the most recent representative count for that survey area, which may be from the previous year. But for the purposes of comparing relative elk abundance across hunting districts over time, on a gross scale, these data are worthy.

Figure 3.

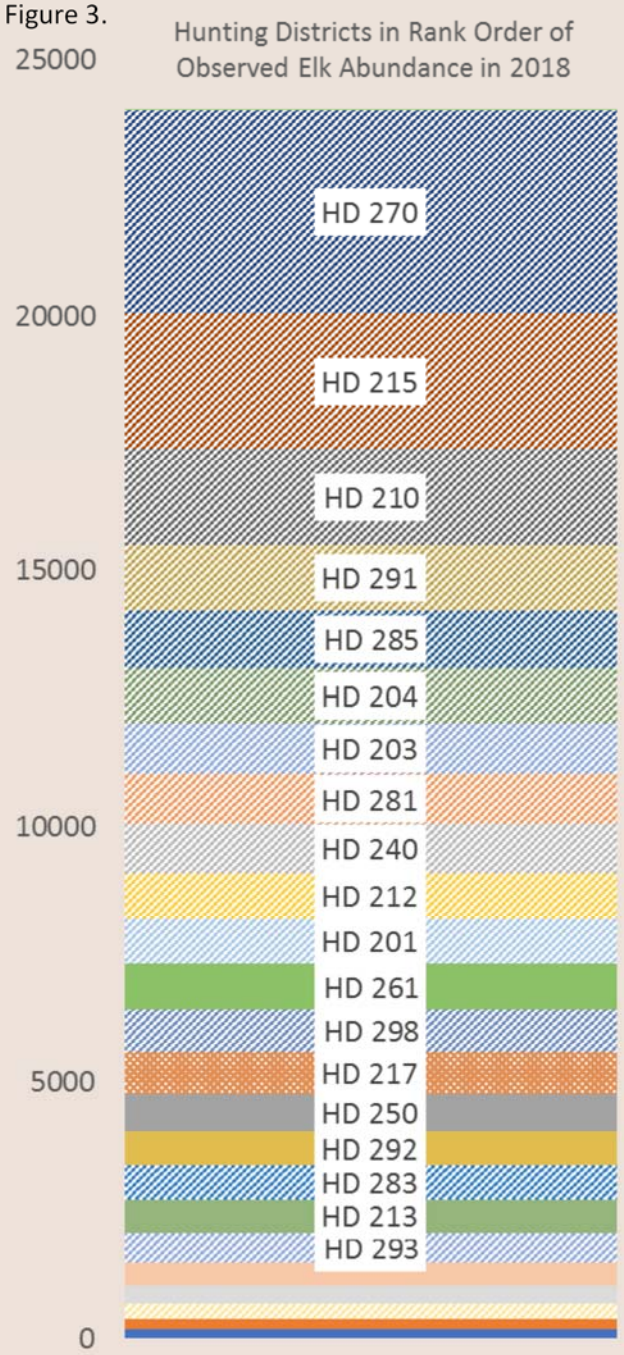


Figure 1 on the previous page suggests that elk numbers in Region 2 have stabilized, if not begun to dip, in the last two years, from a record-high count in 2016. The challenge of elk recovery and restoration has long been met, and our focus now is in the management of elk numbers to achieve a balance in the eyes of a diverse public. Figure 2 on the previous page illustrates how perceptions of elk numbers vary across Region 2. Our magic wand, if we had one, would bring regional elk numbers back toward 2012 or 2013 levels overall, and would rearrange them among hunting districts!

Figure 3 on this page crowns HD 270 as the top elk hunting district in Region 2 coming into this year, with HD 215 ranked second, representing the Bitterroot and Upper Clark Fork watersheds. A Blackfoot district, HD 282-285, first appears in fifth place. And a Lower Clark Fork district, HD 203, first appears in seventh place.

The tan-colored shark's fin in the waters of Figure 2 on the previous page, merits mention. It may be hard to tell that this depicts the trend in elk counts for HD 212, which prior to 2016 covered the north half of the Flint Mountains, from Philipsburg to Racetrack. The sharp decline in 2016 coincides with the year that new HD 217 was sliced from the center of HD 212, between Drummond and Garrison. HD 217 appears in pink in 2016.

Science Review

Factors Influencing Elk Recruitment Across Ecotypes in the Western United States

Lukacs et al. 2018. *The Journal of Wildlife Management* 82(4):698-710.

Every month, our wildlife biologists in Region 2 gather together informally for a couple of hours at the end of a day to review and discuss a relevant scientific paper. Tasked with reviewing the paper and simultaneously producing a *Quarterly*, we decided to combine the two related tasks for the sake of efficiency. *Italics* indicate direct quotes from the above referenced source.

The paper's authors are of note locally. Paul Lukacs, Mike Mitchell, Mark Hebblewhite and Josh Nowak are with the Wildlife Biology Program at our own University of Montana. Matt Kauffman and Mark Hurley were graduate students here, who have since moved on to the University of Wyoming and Idaho Department of Fish and Game, respectively. Kelly Proffitt is a Research Biologist with FWP in Bozeman, who works extensively in Region 2. Included as well in the authorship of this paper are researchers from Oregon, Colorado, British Columbia, Utah, Washington, Yale, Wisconsin and Yellowstone National Park.

This month's paper . . *examined changes in elk recruitment across 7 states and 3 ecotypes in the northwestern United States during 1989-2010, while considering the effects of predator richness, forage productivity, and precipitation.*

. . *Age ratios varied substantially across the 7-state region. Southern mountain units* (CO and UT) *tended to have the highest average elk ratios* (i.e., 46 calves per 100 cows at the end of the calves' first winter)*, shrub steppe units* (WY, CO and UT) *were intermediate relative to other ecotypes* (i.e., 40 calves per 100 cows)*, and northern mountain units* (WY, MT, ID, OR and WA) *had the lowest average ratio* (i.e., 31 calves per 100 cows).

. . *Throughout the 22-year study, elk age ratios declined by 0.48 calves/year* (i.e., calves per 100 cows). *Over the period of our evaluation, 74 elk units had declining age ratios* (i.e., declining calf/cow ratios)*, whereas 23 units had increasing age ratios.*

. . *There is evidence for a long-term, broad decline in elk recruitment that is of strong concern to elk managers in the northwestern United States. This decline exists in areas with and without wolves and grizzly bears, and across a wide range of weather and forage conditions. By combining long-term data across multiple states, we were able to separate effects of predators, weather, and forage on elk recruitment, providing important context for management decisions intended to address the decline.*

Why?

What factors exert the greatest influence on elk calf survival?

Table 1. Adapted from Lukacs et al. 2018. *The Journal of Wildlife Management* 82(4):698-710.

Hypothesis	Predictions	Variables Evaluated	Result
Maternal cow body condition hypothesis			
A. Previous growing season.	A. Calf survival increases with increasing growing season precipitation one year before birth.	A. Precipitation in early and late growing season.	A. Unsupported by the data.
B. Previous winter	B. Calf survival decreases with increasing winter severity in the winter before birth.	B. Precipitation measured across the whole winter.	B. Weak support by the data.
Calf survival hypothesis			
A. Increasing winter severity	A. Calf survival will decrease as the calf faces increasing early-winter severity.	A. Precipitation in early winter (because calf/cow ratios are obtained in mid-late winter).	A. Unsupported by the data.
B. Favorable summer habitat	B. Calf survival will increase as the calf experiences increased summer precipitation.	B. Precipitation in early and late summer.	B. Weak support at low values of summer precipitation.
Forage productivity hypothesis			
A. Increasing forage productivity	A. Calf survival will increase as the calf finds increased forage.	A. Average nutritional index (NDVI) from satellite imagery.	A. Supported for winter range.
B. Increasing variability of forage productivity	B. Calf survival will increase as the calf encounters variation in forage productivity (such as a pulse in early greenup).	B. Residual nutritional index within a unit and year for summer and winter range.	B. Supported for winter range.
Predation hypothesis			
A. Presence of wolf and grizzly bear	A. Calf survival will decrease as the number of predator species increases.	A. Black bear, coyote, mountain lion, wolf and grizzly bear	A. Supported in the presence of wolves and grizzly bears.

. . Comparing the effects of environmental factors and large carnivore communities provides potential insight to the relative importance of habitat, climate, and large carnivore communities. Abundant and diverse predator populations had a larger effect on elk recruitment than summer or winter precipitation. The effect of wolves alone that we observed was relatively small (reduction in calf/cow ratio of 5) compared to effects of forage productivity (reduction in calf/cow ratio of 15), but if wolves and grizzlies were both present the decline in recruitment was equal to the change across the entire range of observed variation in forage productivity indexed by NDVI.

Bottom Line

What are some implications of this research in Region 2?

Lukacs et al. (2018) found scientific support for the idea that winter severity and winter forage affect calf survival. They also found that the effect of winter forage was more pronounced in southern elk populations than in Montana, presumably because southern winter ranges are more productive of forage and, therefore, forage production on winter ranges in Colorado and Utah may actually have the capacity to put weight on elk.

Such is not the case in Region 2. Winter ranges used by the northern elk populations in the study generally are incapable of producing dense stands of palatable shrubs. Instead, elk winter ranges in Region 2 serve the purpose of providing security, moderated snow conditions and weather stress, and a maintenance diet of bunchgrasses and comparatively scattered shrubs. In Region 2, elk go to winter ranges to wait for spring.

With that caveat, the study offers support for the notion of maintaining and enhancing elk forage on winter ranges for elk to access when winters come late or melt away early—to supplement their annual energy balance on the edges of mid-winter as the weather may allow.

The study also offered glimpses of a strategy to maintain and extend the greenup period in response to habitat and climate changes that have already occurred and will continue. Elk responded positively to moisture levels that produced and extended the availability of green forage after snowmelt. Years like some we've seen—when a hard winter turns into a hot summer within the span of only a few days—are hard on elk and other wildlife. We can expect more of that in the future.

Elk adapt by migrating, either short or long distances. They begin the spring on winter range where greenup first occurs as the first holes melt in the snowpack. When the winter range dries out in a few weeks the elk drift to the low parks where greenup has only begun—and then to the timber. In some years, moving up in elevation can extend the growing season even longer.

We need to have our eyes open to opportunities for managing habitat in ways that improve forage production under the forest canopy, with an eye toward the forage that is suited to the site. Is it rough fescue or elk sedge, and does that make a difference in the forest thinning prescription? The goal, simply stated, would be to provide enough light through the forest canopy to stimulate the desired forage, while providing enough shade to extend the period of green growth. As the climate changes, forage in the partial shade of a forest will become more important as the years go by.

Lukacs et al. (2018) demonstrated that predation by wolves and grizzly bears, on top of black bears, coyotes and mountain lions, decreased elk calf survival. They pointed out that elk harvest could be managed—reduced— to compensate for the effects of predation, and we do that in Region 2. Their study did not look at effects of carnivore harvest on elk calf survival and they were appropriately silent on that topic. In Region 2 we have harvested carnivore populations at moderately increased levels with the goal of tempering the predation effect, and research is coming to a close, which will evaluate that tactic.

Perhaps the greatest insight by Lukacs et al. (2018) on the predation variable is their recognition of the interaction between environment—weather, habitat, forage—and the effect of carnivores on elk calf survival. For example, weather beneficial to elk forage can counteract predation effects somewhat, and weather detrimental to elk forage can exacerbate predation effects.

Now that we have the full compliment of large carnivores in elk habitat across much of Region 2, along with the responsibility for conserving and managing them, it will be important to integrate elk habitat enhancement with elk and carnivore harvest management to maintain a balance between predator and prey, particularly on public lands in Region 2. As we so often see, it will be a series of beneficial inputs that carry the day, rather than a focus on any single factor, such as harvest.

Wildlife Crossword

Answers for page 6:

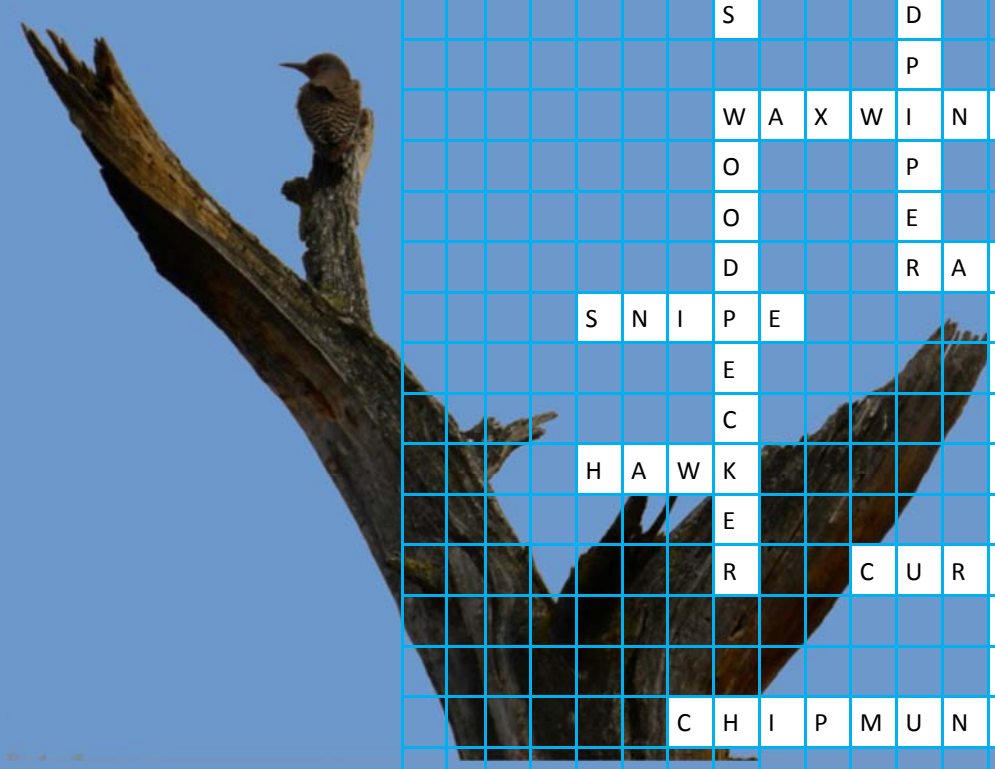
Clues:

No spaces between words.

No punctuation.

May be all or part of a name.

May be something—a life stage, for example—suggested by the pictured wildlife.



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Elk B-License 002-00

Important Clarification!

If you plan to hunt elk in these Hunting Districts:
210
211
212
215
216

Elk B License. Purchase beginning August 6.

002-00: Unlimited. Must purchase before the start of the general season.

Only valid on private lands, excluding Weyerhaeuser, Stimson, &

Nature Conservancy lands. Valid in all Region 2 hunting districts

(HD) except HDs 200, 202, 203, 240, 250, 280, 281, 282 & 284.

- Aug 15 – Oct 19 – Antlerless Elk. Only valid on the above-described private lands.
- Oct 20 - Feb 15 - Antlerless Elk. Valid on the above-described private lands AND ALSO VALID on DNRC lands outside National Forest Boundary and outside the boundaries of FWP WMAs. In HD 212, ALSO valid on Montana State Prison Ranch, in compliance with Prison Ranch access regulations.

This is a CLARIFICATION and rewording of the language that you will find in the printed hunting regulations for these five Hunting Districts.

We've had a lot of questions from hunters who didn't understand the regulations as printed, and from our own employees who couldn't explain what the regulations meant to say. We're sorry for all the confusion and we hope this fixes the problem!

FWP proposed and the Fish and Wildlife Commission adopted a Regional Elk B-License for the 2018 hunting season. Known as 002-00, the new Regional Elk B-License is valid in most, but not all Region 2 Hunting Districts (HDs).

- Restrictions on the use of the 002-00 License differ from HD to HD. Hunters are responsible for reading and complying with the regulations for each HD as they move across HDs.
- The purpose of the 002-00 License is to help hunters and landowners become more successful in harvesting elk on private land.
- The 002-00 License is never valid for the use of rifles on public land during the Archery Only Season. Question any interpretation of the hunting regulations that suggests otherwise.
- The 002-00 License is never valid on Forest Service or BLM lands.
- The 002-00 License is never valid for use on any Region 2 Wildlife Management Area (WMA), including DNRC lands leased by FWP within the outer boundary of the WMA.
- The 002-00 License is never valid on Weyerhaeuser, Stimson & Nature Conservancy lands.
- The 002-00 License is not valid for use on DNRC or Montana State Prison lands except in HDs 210, 211, 212, 215 and 216, and then only as described on the previous page.
- The corrected wording for use of the 002-00 License may be found in the 2018 hunting regulations that are maintained online at *fwp.mt.gov*
- With the permission of the private landowner, the 002-00 License should give hunters less restricted access to harvest antlerless elk on private land this fall. Any exceptions in the regulations that include some State Lands in some HDs are only intended to help hunters and landowners access elk across checkerboarded private and State Lands.
- Bottom line: Hunters who are not coordinating their hunt with a private landowner on the landowner's property are at greatest risk of running afoul of the regulations governing the use of the 002-00 License.
- Know the regulations and a landowner before you purchase the 002-00 License. No purchases after Oct. 19.
- Call FWP at 542-5500 when questions arise.

White-tailed deer fawn along Rock Creek Road, Montana, on June 17, 2018.

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