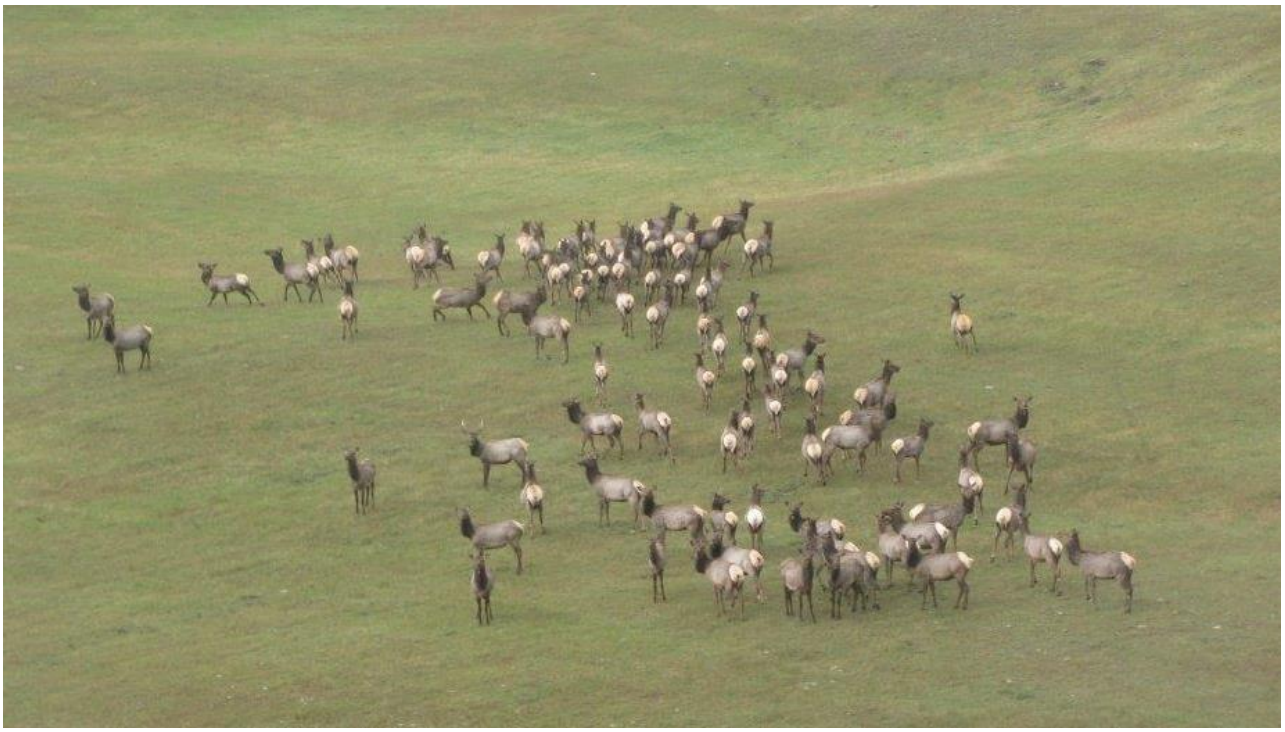
Region 1 Big Game Survey Results

Spring 2018



An aerial photo of an elk herd during spring surveys in FWP Region 1. Bruce Sterling | Montana FWP

Introduction

Montana Fish, Wildlife & Parks Region 1 biologists annually conduct spring surveys to evaluate recruitment rates of elk, white-tailed deer, mule deer and bighorn sheep. FWP also conducts annual telephone surveys amongst hunters to gather harvest information. Together, these surveys provide biologists with a picture of big game recruitment and population trends over time. FWP uses this information to recommend hunting season structures (e.g. whether to have a restrictive antlered-buck-only season or allow some antlerless harvest on a general license) and the number of antlerless licenses or permits issued. These recommendations are provided to the Fish and Wildlife Commission, which is responsible for establishing seasons and the number of licenses or permits issued. The Commission meets every other year to consider major changes to

season structures. Region 1 wildlife biologists can adjust the number of antlerless licenses or permits within a range established by the Commission.

Due to maintenance issues with the FWP helicopter typically used by Region 1 staff, not all aerial surveys could be completed, and the timing of surveys was impacted in spring 2018. If initial green-up is missed, it can severely affect the number of animals observed and our ability to obtain reliable estimates of recruitment, herd composition and trend data. Biologists take the quality of the survey into account when analyzing survey data. The data from some of the 2018 aerial surveys for elk and bighorn sheep, although useful, should not be used to evaluate population trends. Missing one year of population trend data is not critical for assessing population trajectory, but it does make interpreting survey results much more difficult.

FWP Region 1 personnel compiled this report summarizing the big game surveys conducted in Region 1 during the spring of 2018.

White-tailed Deer

Surveys for white-tailed deer are conducted when vegetation is just beginning to green, commonly referred to as spring green-up. Deer are generally more visible during this time and concentrated in more predictable areas, improving our ability to observe, classify fawns and count deer. Biologist rely on recruitment rates more than total counts during the spring surveys as an indicator of the population trend. The late green-up this spring pushed aerial surveys back a few weeks from normal survey times.

Deer are classified into adults and fawns, when possible, and they are recorded as the number of fawns per 100 adults. Table 1 (see below) provides information on the surveys conducted in Region 1 during the spring of 2018. Recruitment rates varied greatly across the region, being lowest in the North Fork (HD 110), Thompson Falls (HD 121) and Swan Valley (HD 130). The long, harsh winter and heavy snowpack across much of Northwest Montana resulted in some fawn and adult deer mortality. Adult survival, even in severe winters, is generally good, although old, weak or injured deer may experience higher mortality rates. Based on the recruitment observed this year, the white-tailed deer population is likely to decline in some parts of Region 1, but it should continue to do well through the rest of the region. Areas where recruitment was near or above 35 fawns per 100 adults should remain somewhat stable in terms of population numbers compared to last year. Regardless, the last two winters have been severe with deep snowpacks and prolonged winter conditions, resulting in reduced recruitment.

Overall harvest declined last year in Region 1 (Figure 1), and the harvest is expected to be similar or decline slightly again this fall. White-tailed deer harvest has varied over the years, reaching highs in the early 1990s, in the mid 2000s and again in 2016. The overall harvest trend has increased since the 1970s.

Table 1. 2018 white-tailed deer spring green-up surveys for Region 1.

HD	Adult	Fawn	Unclassified	Total	Fawn/100 Adults	10-year average in Fawn/100 Adult ratios (2009-2018)
100	409	194	20	623	47	37
101	71	29	3	103	31	41
102	101	36	0	137	36	40
103	85	26	8	119	41	42
104	257	91	11	359	36	39
109	215	80	13	308	26	44
110	53	9	0	62	17	35
120	286	94	22	402	32	42
121	654	183	104	941	25	31
122	80	21	5	106	43	35
123	78	25	7	110	28	33
124	112	19	32	163	28	33
130	539	138	50	727	26	35
132	557	239	48	844	32	46
170	283	81	35	399	28	46
Total	**3,823**	**1,277**	**657**	**5,757**	**32**	**39**

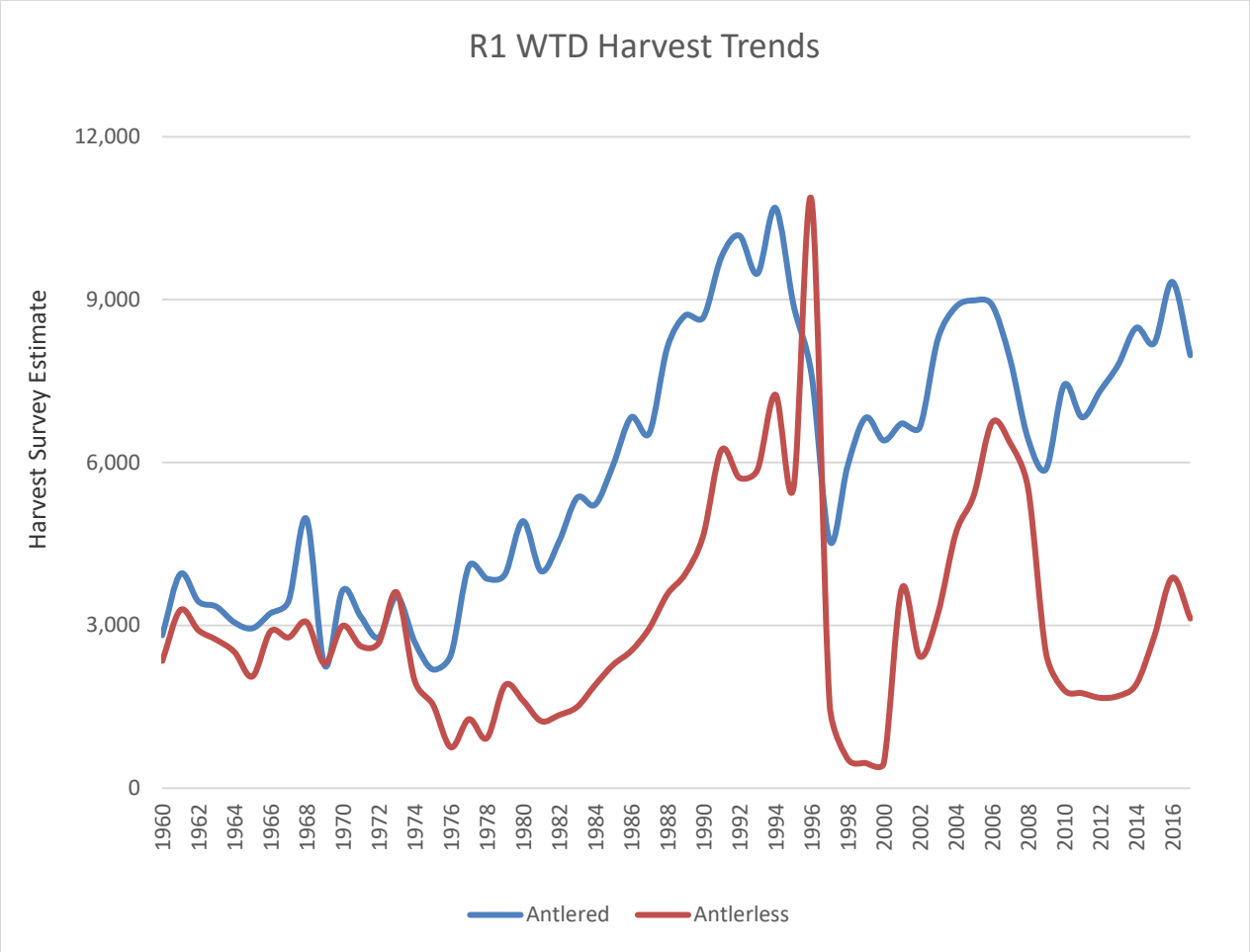


Figure 1. Region 1 estimated white-tailed deer harvest based on harvest survey results. Antlered deer harvest tracks populations and gives biologists an idea of population trend over time. Antlerless harvest is more variable due to changes in regulations and the number of antlerless tags issued.

Mule Deer

FWP staff survey five areas for mule deer in Region 1 when weather, funding and helicopter availability allow. These surveys are conducted during spring green-up and consist of the Galton Range (HD 109), Koocanusa (HD 101), Horse Range (HD 100), Fisher River (HD 103) and Cougar Peak (HD 121). Of these, the Fisher River is considered a census area, is a high priority for surveys, and is flown three times per year, when possible, to improve evaluation of observation data. This survey approach was developed in the Mule Deer Management Plan based on years of research in Montana. The survey approach also stipulates that age classification of fawns and adults was to occur during the first flight in order to maintain consistency and reduce overall flight costs.

The first year of multiple spring flights occurred in 2003. Since that time, multiple flights have occurred when possible, but in many years some of the survey data relied on one or two flights.

In 2018, helicopter availability limited flights to the Fisher River. Three replicate mule deer flights were conducted in the Fisher River area with the number of deer observed ranging from 317–360 and averaging 334. Since 2003, when replicate flights began, the average number of mule deer observed was also 334, ranging from 141–507, and on average 28 fawns per 100 adults were observed.

Unfortunately, fawn observability during the 2018 flight was poor and hampered the ability to identify age classes. Only 17 fawns per 100 adults were observed during the flight, but this likely underestimates the level of recruitment in the area. The number of deer observed in the Fisher River survey area was consistent with the long-term average.

Mule deer harvest has been on a downward trajectory for several years in Region 1 and in many areas across the West. Overall, the estimated buck harvest of 773 in 2017 was the lowest observed since the late 1960s and early 1970s. This followed a slight increase in harvest in 2016 (Figure 2). Early snow in October of 2017 made driving conditions difficult in the upper elevations, possibly limiting hunter access to mule deer, which tend to occupy higher altitudes. This likely reduced harvest to an even greater extent.

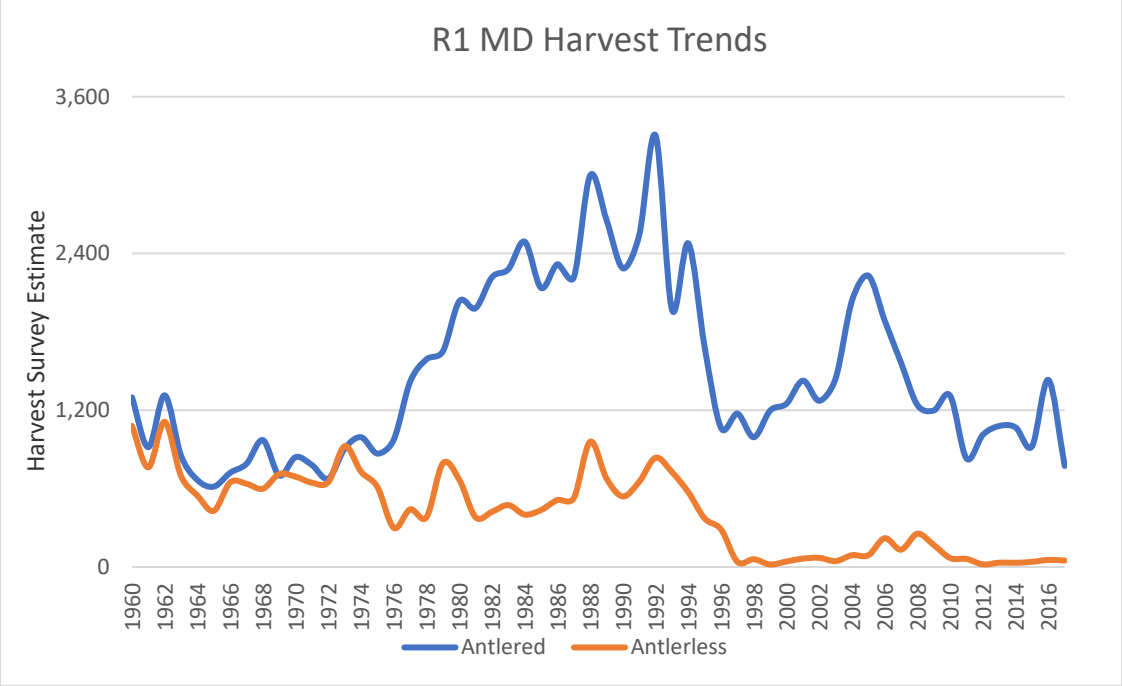


Figure 2. Region 1 estimated mule deer harvest based on harvest survey results.

In response to the declining mule deer populations, FWP initiated a mule deer research project in Region 1 in the Fisher River area (HD 103) and the Whitefish Range (HD 109), during the winter of 2017-2018. The goal of the study is to evaluate habitat use by deer and the nutritional quality of the range and its potential impact on reproduction and survival. Data collected from the project will also provide basic information on survival rates. This is a collaborate project with the University of Montana, and there are two masters-level graduate students assigned to this study.

Adult female mule deer were fitted with GPS Collars in the Fisher study area (N = 25) and the Whitefish range (N = 29). The attached maps indicate where deer were captured and the general movements from winter range to summer range (Figures 3 & 4). More detailed information will be available as the study progresses.

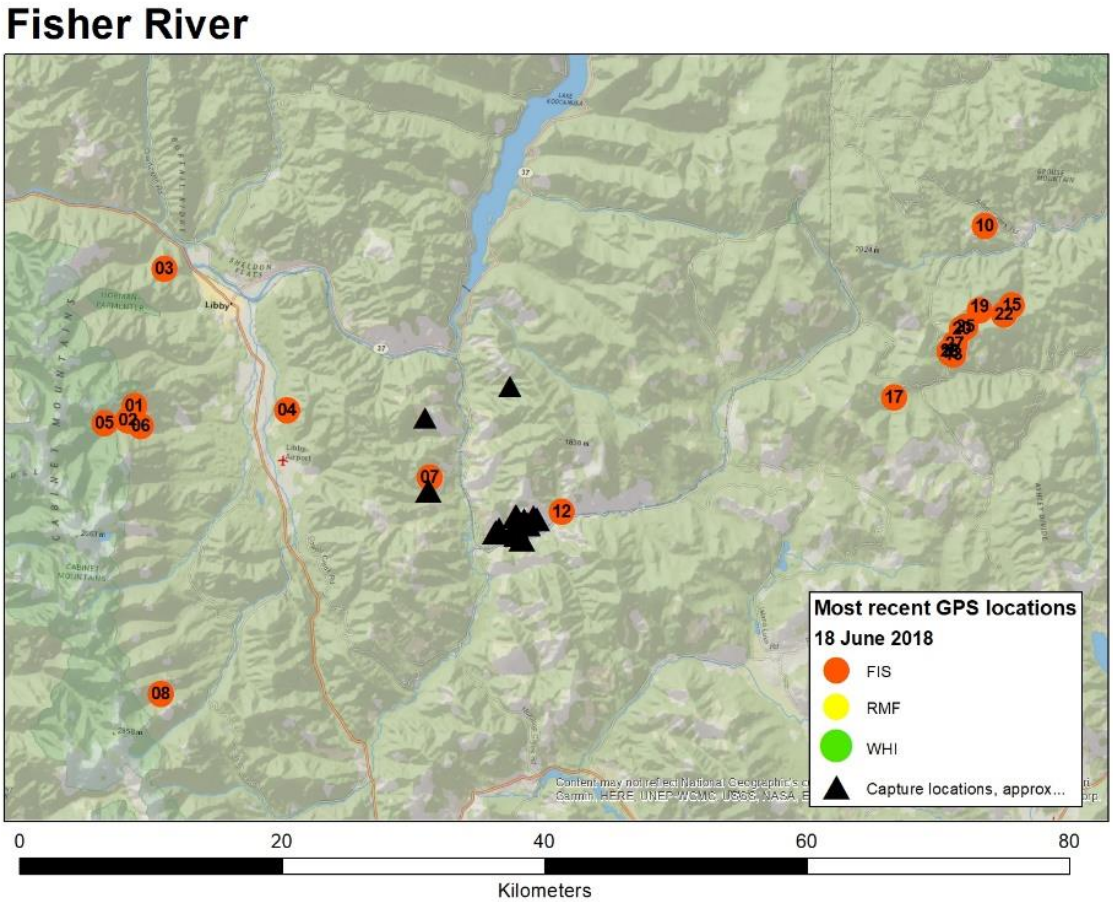


Figure 3. Original capture sites (triangles) in the Fisher study area and recent GPS locations of adult female mule deer radio collared as part of a Region 1 research project. The circles are deer locations that were recorded June 18, 2018.

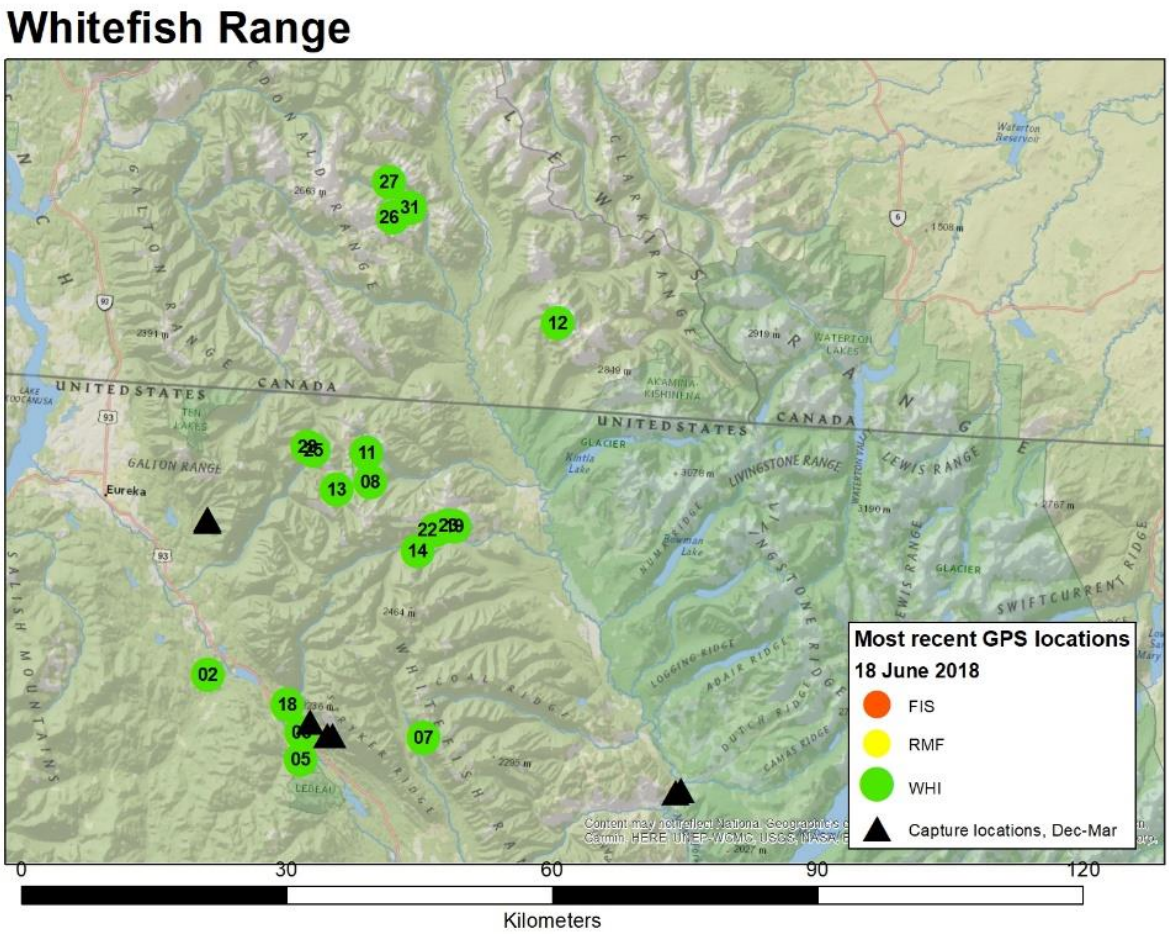


Figure 4. Original capture sites (triangles) in the Whitefish Range study area and recent GPS locations of adult female mule deer radio collared as part of a Region 1 research project. The circles are locations that were recorded June 18, 2018.

Elk

Aerial surveys for elk are conducted in the spring during early green-up to determine calf recruitment, bull-to-cow ratios, and overall population trend numbers. Hunting Districts 103, 121, 140 and 150 are priority herds that FWP staff try to fly annually. Other districts — HDs 100, 101/109 (flown in conjunction), 123, 124 — are flown when funding and helicopter availability allow.

In the spring of 2018, surveys were completed in Hunting Districts 101/109, 121 and 140/150 (Table 2). HD 103 was not surveyed due to limited helicopter availability. Helicopter availability also resulted in a delay in conducting surveys in the Bob Marshall Complex (HD 140/150) and the peak survey time was missed. As a result, the total count and bull-to-cow ratios were probably impacted due to elk occupying upper elevations and timbered habitats where observability was

poor. Green-up in the valleys of HD 121 was good, but the hillsides just started to green up and there was deep snow at higher elevations during the survey. Typically, this results in reduced observability of bull groups, which tend to use higher elevations than cows, calves and young bulls.

In general, cow-to-calf ratios were lower this year in Hunting Districts 121, 140 and 150 than are typically observed. The 2018 spring surveys mark the second year of reduced calf recruitment in these districts. The survey in HD 101/109 was conducted at high elevation due to concerns about running elk through fences and residential areas. Because of the high altitude, classification of sex and age groups was not accurate and not recorded here.

Table 2. 2018 aerial spring green-up surveys for elk in Region 1. Survey conditions in both areas likely reduces the observability of elk or some elk groups. Survey conditions were poor in the Bob Marshall districts (HDs 140/150), resulting in poor counts and classification.

Area	Total Count	Cows	Calves	Bulls	Unclassified	Calves/100 Cows	Bulls/100 Cows
HD 101/109	596	NA	NA	NA	NA	NA	NA
HD 121	1510	1186	218	100	6	18	8
HDs 140/150	202	166	13	10	13	8	6

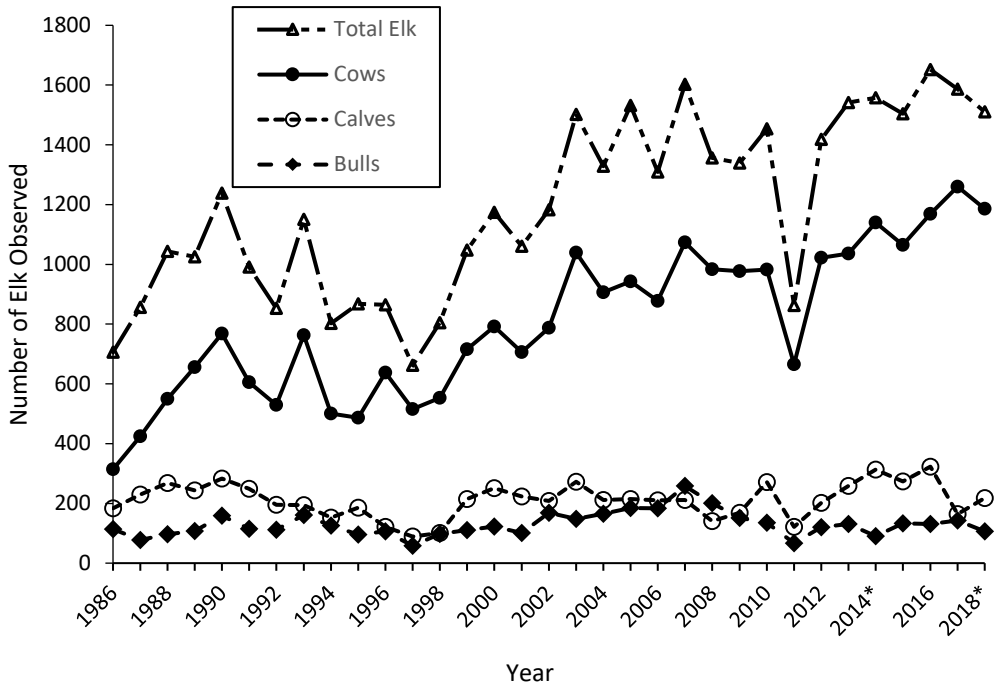


Figure 5. Number of elk observed in HD 121, 1986-2018. The * indicates survey years where observability was limited by green-up conditions and total counts or classifications may have been reduced.

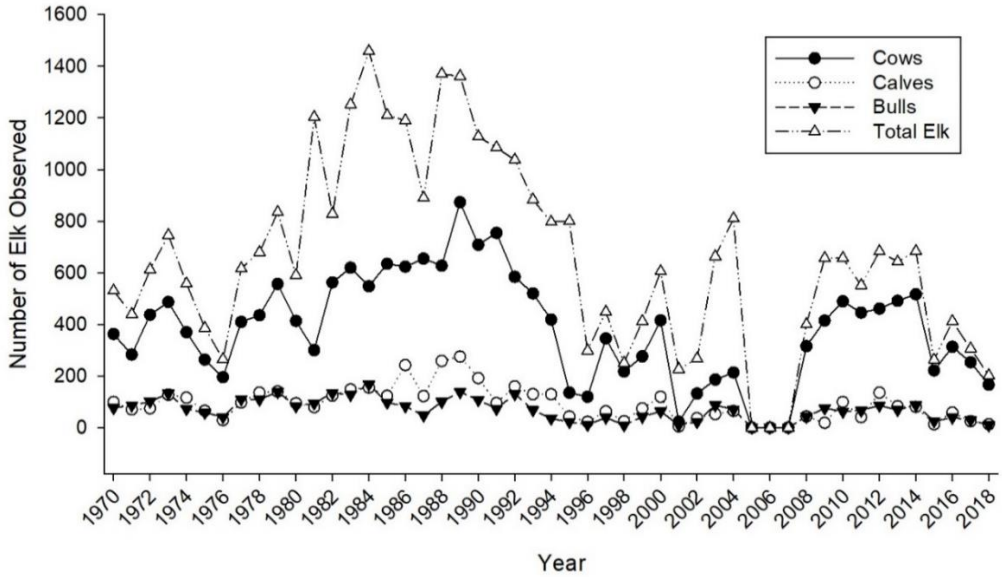


Figure 6. Number of elk observed in HDs 140 & 150, 1970-2018. The 2016 effort was a partial survey and the timing of the 2018 survey was poor, so numbers should not be used in trend analysis.

Bighorn Sheep

Aerial surveys for bighorn sheep are routinely conducted in Hunting Districts 100, 121, 123 and 124. Additional surveys are completed in Hunting Districts 102 and on Wild Horse Island as budgets and helicopter availability allow. Surveillance of Hunting District 124 alternates between Confederated Salish and Kootenai Tribes Division of Fish, Wildlife, Recreation and Conservation (CSKT) staff and FWP staff. The range of this herd includes Flathead Indian Reservation land and lands outside the reservation. FWP and CSKT work collaboratively to survey and manage this herd. In 2018, CSKT covered the cost of the survey in HD 124, but FWP staff performed the flight. CSKT staff conducted the survey on Wild Horse Island.

Surveys for bighorn sheep are conducted to evaluate reproduction and population numbers relative to objectives established in the Montana Bighorn Sheep Conservation Strategy. Bighorn sheep are highly susceptible to respiratory disease. Often this disease affects lamb survival. Although many factors can affect lamb survival, when lamb recruitment is low, it raises concerns of a disease issue within the population.

Table 3 provides a summary of the spring bighorn sheep flights conducted in Region 1 during 2018. The 2018 surveys in Hunting Districts 121, 122 and 123 occurred in late April. Spring green-up had already occurred and ewes were already separating for lambing. Overall counts and lamb-to-ewe ratios were likely impacted by decreased observability. The numbers of sheep observed in these districts should not be used for evaluation of population numbers related to objectives.

Lamb recruitment is occurring at high-enough levels to suggest that the herds in Region 1 are relatively healthy.

Hunting District 122 was augmented with 20 sheep from the Missouri Breaks in December of 2017, increasing the number of sheep in that district.

Hunting District 122 underwent a die-off with only 18 sheep being observed in 2015, and FWP is currently in the process of trying to recover that herd.

Hunting District 102 was surveyed from the ground to obtain recruitment information. Observability was restricted to what could be seen from the road. Rams tend to use areas away from the road, so the count is not representative of the ram-to-ewe ratio in the herd. Only 35 sheep were counted but there are approximately 80 sheep in the Galton herd, which is shared with Canada.

Spring survey total counts can also be utilized to evaluate trends. Bighorn sheep surveys can be highly sensitive to spring green-up and flight conditions. As can be seen if Figure 6, there is much variation in the total count between some years. The overall trend of a population can be gleaned from the graph by looking at the general slope of the line. Some of Region 1's population have gone through a decline in recent years. Hunting Districts 121 and 122, in particular, have experienced significant declines. Although it could not be verified, it is believed that HD 122 went

through a disease event that severely impacted numbers. It is less clear what happened in HD 121. Highway 200 passes through this herd and hundreds of sheep have died over the years due to collisions with vehicles. It is also likely that a disease event may have impacted the herd. HD 124 has gone through a series of peaks and seems to be stabilizing around 225–275 observed sheep.

Table 3. 2018 spring bighorn sheep survey results.

Area	Population Objective	Total Count	Ewes	Lambs	Rams	Lambs/100 Ewes	Rams/100 Ewes
121*	250	40	24	6	10	25	42
122*	115	60	35	6	19	17	54
123*	105	32	15	7	10	47	67
124	325	223	109	28	96	26	88
WHI	110	134	65	26	43	40	66
102 ** (ground survey)	150	35	23	8	4	35	NA

*Surveys occurred late in April. Counts were affected by timing of flight and advanced green-up.

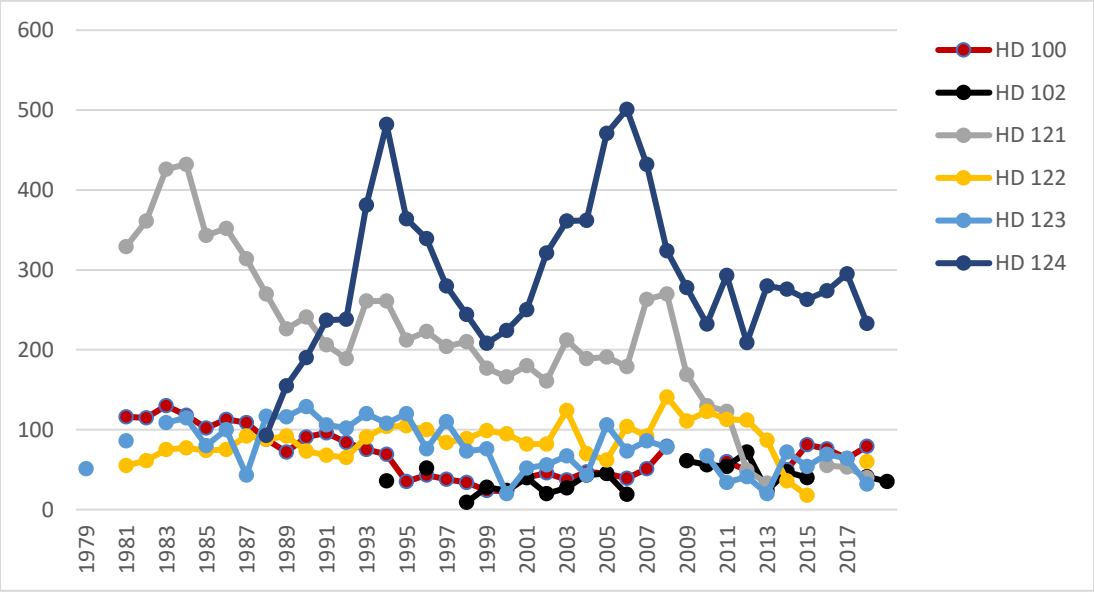


Figure 6. Spring survey counts for HDs 100, 102, 121, 122, 123 and 124. Surveys in HD 102 were conducted from the ground.

FWP Region 1 Wildlife Division Staff

Neil Anderson, Regional Wildlife Manager, Kalispell, nanderson@mt.gov, (406) 751-4585
Kim Annis, Bear Management Specialist, Libby, kannis@mt.gov, (406) 293-4161 x 207
Dwight Bergeron, Mitigation Wildlife Biologist, dbergeron@mt.gov, (406) 751-4587
Diane Boyd, Wolf-Carnivore Specialist, Kalispell, dboyd@mt.gov, (406) 751-4586
Tonya Chilton-Radandt, Wildlife Biologist, Libby, tchilton@mt.gov, (406) 293-4161 x 209
Jessica Coltrane, Wildlife Biologist, Kalispell, jcoltrane@mt.gov, (406) 751-4584
Cecily Costello, Research Biologist, Kalispell, ccostello2@mt.gov, (406) 751-4583
John Grant, Wildlife Area Manager, Ninepipe, jgrant@mt.gov, (406) 644-2510
Chris Hammond, Wildlife Biologist, Kalispell, chammond@mt.gov, (406) 751-4582
Franz Ingelfinger, Restoration Ecologist, Kalispell, finglefinger@mt.gov, (406) 751-4580
Tim Manley, Grizzly Bear Management Specialist, tmanley@mt.gov, (406) 250-1265
Jesse Newby, Research Technician, Kalispell, jnewby@mt.gov, (406) 751-4588
Lori Roberts, Research Technician, Kalispell, lroberts@mt.gov, (406) 751-4581
Bruce Sterling, Wildlife Biologist, Thompson Falls, bsterling@mt.gov, (406) 827-4389
Tim Thier, Wildlife Biologist, Trego/Eureka, tthier@mt.gov, (406) 882-4697
Erik Wenum, Bear and Mtn. Lion Management Specialist, Kalispell, ewenum@mt.gov, (406) 756-1776
Alan Wood, Mitigation Program Manager, Kalispell, awood@mt.gov, (406) 751-4595

Region 1 Communication and Education Division

Dillon Tabish, Information and Education Program Manager, Kalispell, Dillon.Tabish@mt.gov, (406) 751-4564