

## 2018 - JCR Evaluation Form

SPECIES: Bison

PERIOD: 6/1/2018 - 5/31/2019

HERD: BI101 - JACKSON

HUNT AREAS: 2

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	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Trend Count:	656	484	500
Harvest:	217	91	100
Hunters:	266	182	125
Hunter Success:	82%	50%	80 %
Active Licenses:	266	182	125
Active License Success	82%	50%	80 %
Recreation Days:	1,478	1,893	700
Days Per Animal:	6.8	20.8	7
Males per 100 Females:	83	128	
Juveniles per 100 Females	52	38	

Trend Based Objective (± 20%)

500 (400 - 600)

Management Strategy:

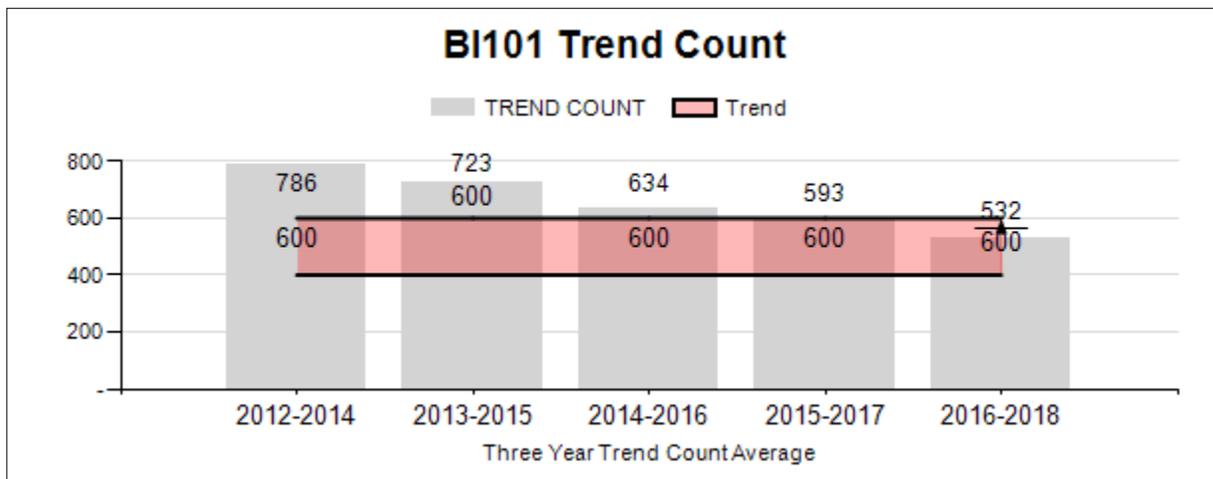
Recreational

Percent population is above (+) or (-) objective:

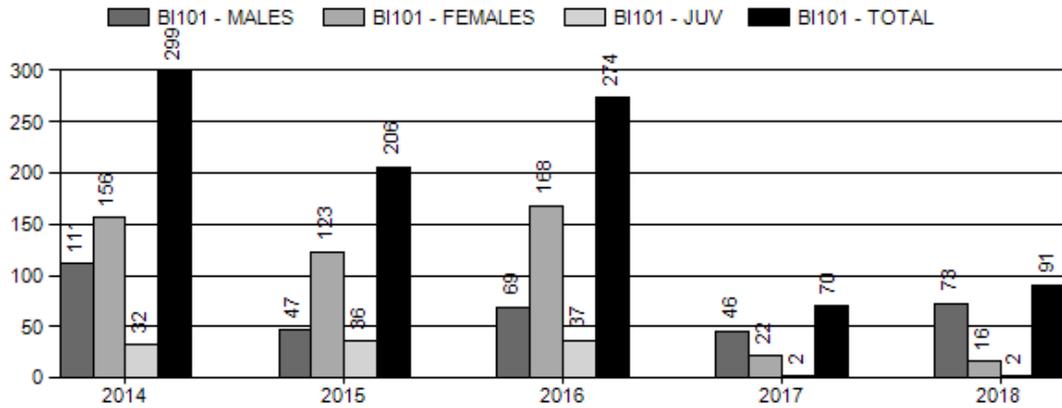
-3.2%

Number of years population has been + or - objective in recent trend:

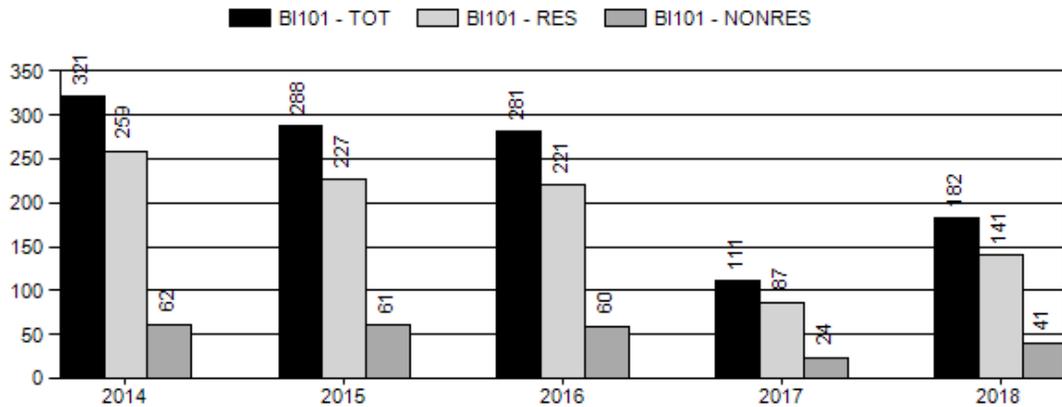
2



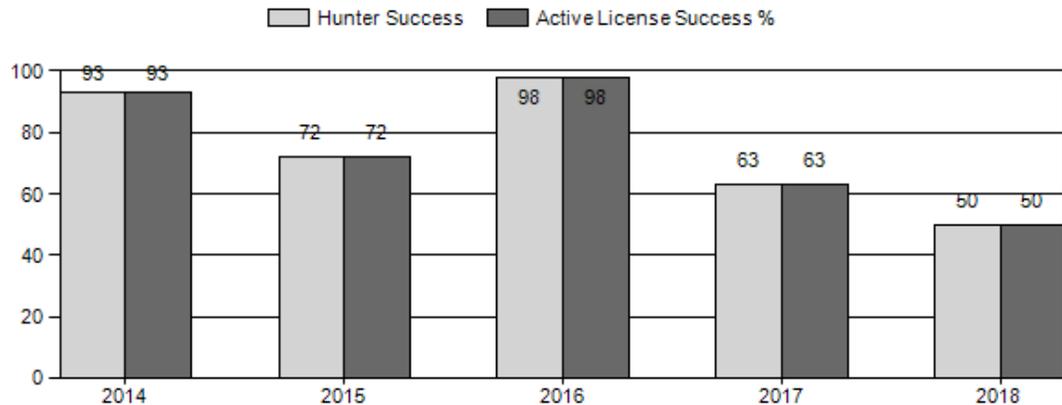
## Harvest



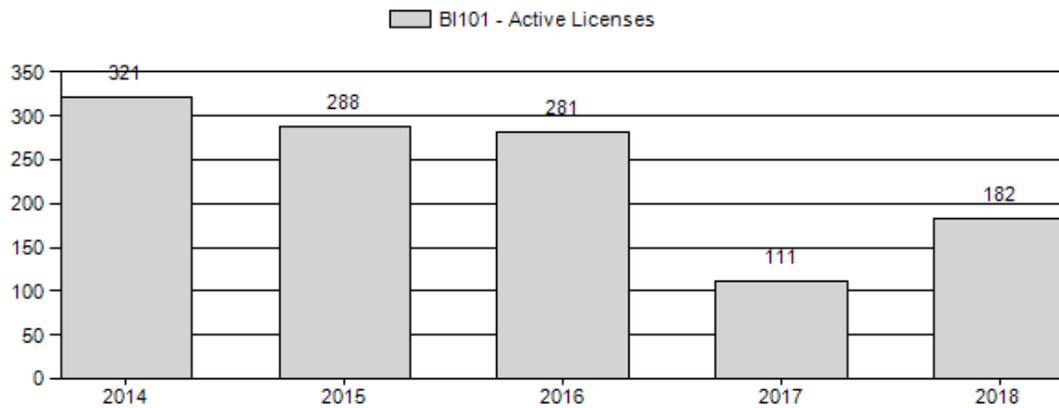
## Number of Active Licenses



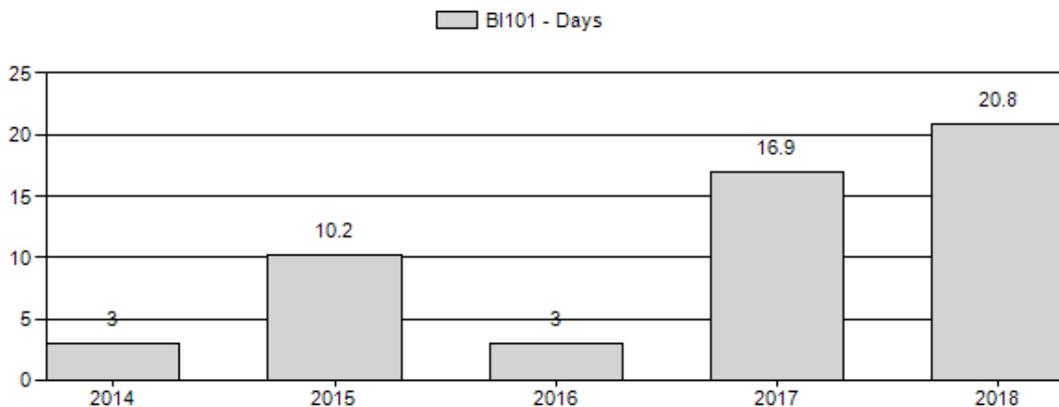
## Harvest Success



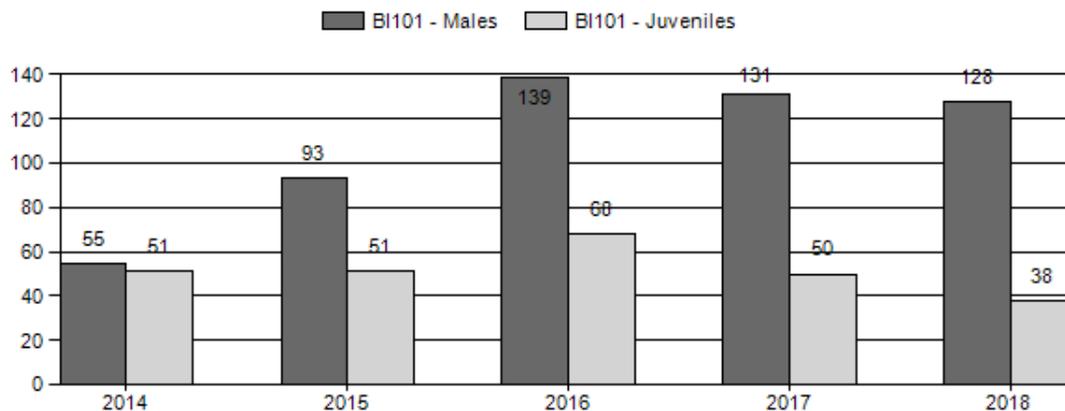
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



**2014 - 2018 Postseason Classification Summary**  
for Bison Herd BI101 - JACKSON

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls		Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%	Cls	Obj	Conf			100 Fem	Conf Int	100 Adult	
												Yng	Adult	Total				Int
2014		68	117	185	27%	336	49%	170	25%	691	0	20	35	55	± 0	51	± 0	33
2015		42	212	254	38%	273	41%	139	21%	666	0	15	78	93	± 0	51	± 0	26
2016		34	213	247	45%	178	33%	121	22%	546	0	19	120	139	± 0	68	± 0	28
2017		67	197	264	47%	202	36%	101	18%	567	0	33	98	131	± 0	50	± 0	22
2018		34	196	230	48%	180	38%	68	14%	478	0	19	109	128	± 0	38	± 0	17

**2019 HUNTING SEASONS**  
**JACKSON BISON HERD (BI101)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
2	1	Aug. 15	Jan. 1	125	Limited quota	Any wild bison; also valid in Area 1 within the Clark's Fork River and Soda Butte Creek drainages. Valid in other portions of Area 1 upon notification and authorization by the Department
2	1	Jan. 2	Jan. 31			Any wild bison. Limited alternate permits for the National Elk Refuge may be available through the Department's Jackson Regional Office on a first-come first-served basis until the season closes or forage/weather conditions dictate that supplemental feeding is necessary
2	4	Aug. 15	Jan. 1	50	Limited quota	Any female or calf wild bison; also valid in Area 1 within the Clark's Fork River and Soda Butte Creek drainages. Valid in other portions of Area 1 upon notification and authorization by the Department
2	4	Jan. 2	Jan. 31			Any female or calf wild bison. Limited alternate permits for the National Elk Refuge may be available through the Department's Jackson Regional Office on a first-come first-served basis until the season closes or forage/weather conditions dictate that supplemental feeding is necessary

### Summary of 2019 License Changes

Hunt Area	Type	Quota change from 2018
2	1	+8
2	4	-25
3	1	-3 (closed)

#### Management Evaluation

**Mid-Winter Trend Count Objective:** 500 ±20%

**Management Strategy:** Recreational

**2018 Mid-Winter Trend Count:** 484

**3-Year Mid-Winter Trend Average (2016-2018):** 532

**2019 Proposed Mid-Winter Trend Count:** 500

**Evaluation:** At objective

The mid-winter trend count objective for the Jackson Bison Herd is 500 bison. The management strategy is recreational and the objective and management strategy were last revised in 2014. The herd objective was publicly reviewed in 2014 and changed to a mid-winter trend count objective of 500 bison. The current 3-year average trend count is 532 bison, which is within 20% of the objective of 500. Annual harvest rates have successfully reduced the population to meet objective. Beginning in 2017, hunting seasons were restructured from the goal of reducing the population to stabilizing the population close to the 500 bison objective and reducing the bull to cow ratio. However, very late migration of bison to the open hunt area on the National Elk Refuge during 2017 and 2018 caused reduced hunter success. Although the population is still near the 500 objective, numbers are expected to grow if hunter success continues to remain low in the future.

#### **Herd Unit Issues**

The current objective and management strategy for this herd will be maintained based on internal discussions and conversations with our constituents. Population status was evaluated and it was determined a change is not warranted at this time. These objectives will be reviewed again in 2024; however, if a situation arises that requires immediate change, proposals will be developed and submitted as needed.

Management of this herd is complicated because occupied habitat includes Grand Teton National Park (GTNP), the National Elk Refuge (NER) and the Bridger-Teton National Forest (BTNF). Bison remain distributed in GTNP during much of the summer and fall and are not available for hunting until they migrate to either BTNF or the NER. Over the past several years, bison have become sensitized to the presence of hunters on the NER and will vacate the open hunt area. In 2017 and 2018, bison did not migrate to the NER until very late January due to mild winter conditions, which made harvest difficult. Some bull hunting occurs on National Forest land to the east of GTNP, but bison availability is intermittent and low in that area. During winter 2018/2019, the majority of the bison herd remained in northern GTNP and did not migrate to the

NER. This resulted in reduced sightability during the mid-winter trend count since bison had to be located from the air instead of from the ground while on supplemental feed.

## **Weather**

Spring and summer 2018 produced average moisture. Fall and early winter weather was very mild with warm temperatures and little snowfall at high elevations. However, several large snowstorms occurred in February that resulted in the rapid accumulation of a deep snowpack. Snowfall totals in February nearly surpassed the local record in Jackson Hole. At the time of the mid-winter survey in February 2019, winter snowpack was reported at 115% of average in the Snake River Basin. In general snow depths were greater in the low elevation valleys in Jackson Hole compared to areas farther north. Winter snowpack remained above average through March and April 2019, which made wintering conditions difficult for bison that stayed in GTNP. Please refer to the following web sites for specific weather station data.

<http://www.wrds.uwyo.edu/wrds/nrcs/snowprec/snowprec.html> and

<http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html>

## **Habitat**

Habitat data have not been collected on bison summer and winter ranges. There are no established vegetation transects in this herd unit. Please refer to the 2018 Annual Report Strategic Habitat Plan Accomplishments for Jackson Region habitat improvement project summaries (<https://wgfd.wyo.gov/Habitat/Habitat-Plans/Strategic-Habitat-Plan-Annual-Reports>).

## **Field Data**

Only 155 bison were classified on supplemental feed on the NER during the mid-winter trend count in February 2019. The remainder of the herd (minimum of 329 bison) were scattered throughout native winter ranges in GTNP near Deadman's Bar, Cunningham Cabin, Spread Creek, Uhl Hill, Wolff Ridge, and east of Elk Ranch Reservoir. Many bison groups were located in forested areas during the aerial survey, making sightability difficult. A total of 484 bison were counted during the mid-winter trend count, which is approximately 100 bison lower than the expected population total. Managers estimate that approximately 578 bison are present in the population, based on previous trend counts, calf ratios, and harvest total. Managers attribute the lower count to difficult sightability conditions instead of a true population decline. Herd unit ratios were 128 bulls:100 cows and 38 calves:100 cows.

When the population was larger, prior to 2007, it was not uncommon for bison groups to spend the winter in the Elk Ranch area in GTNP, including cows and calves. However, this year over 60% of the herd did so, which is very unusual. Although the reasons for this are unknown, managers hypothesize that it could be due to a combination of 1) later migration behavior to avoid the open hunting season on the NER and 2) relatively mild to average winter conditions in January interrupted by a strong winter storm that resulted in very deep snow within a few days. This abrupt change in snow conditions seems to have trapped bison in northern GTNP and made movement to the NER extremely difficult.

In early February, a group of approximately 100 bison caused damage on the Moosehead Ranch, breaking fences and severely injuring several horses. Due to the likelihood of continued chronic damage for the rest of the winter, GTNP and WGFD staff attempted to move this group to the NER. Grand Teton National Park closed the highway for several hours, the bison were hazed onto the highway by WGFD using snowmobiles, and then were slowly pushed down the highway with vehicles. Near Hedrick Pond, the bison left the highway and moved south toward Antelope Flats. Staff from WGFD packed down a snowmobile path from Lost Creek Ranch to the south end of Shadow Mountain to encourage the bison to get to the plowed portion of Shadow Mountain Road. However, the bison were showing signs of exhaustion by the time they made it to the north end of Antelope Flats. The decision was made to not push them further and to let them find the path on their own overnight. Over the next several days, some bison moved back north toward the Snake River but stopped south of Cunningham Cabin. The rest of the group remained on the north end of Antelope Flats west of Lost Creek Ranch. They were observed in the same location a couple weeks later during the mid-winter helicopter survey. This effort was successful because it alleviated damage at Moosehead Ranch from this large group of bison, even though they did not go all the way to the NER. Throughout the month of February, GTNP responded to several groups of 5-20 bison that attempted to move south on the highway. In response, GTNP plowed the Antelope Flats Road from Blacktail Butte to Mailbox Corner and used this as a path to divert bison off the main highway. A group of approximately 15 bison spent most of the winter near Kelly Warm Springs. Another group of approximately 25 ended up on the Kelly Highlands Road. Despite efforts by WGFD and NER staff to provide cuts in snowbanks, pack trails, haze with vehicles, and lay down hay, this group of bison refused to move south onto the NER and away from private land. Managers were concerned that the several hundred bison in the Elk Ranch area in GTNP would cause chronic problems along the highway and on private lands later in the winter, however, the majority of these bison did not cause human conflict.

Since the majority of the bison herd stayed on native winter ranges in very deep snow this year, managers anticipate that calf survival could be significantly lower than previous years when bison received supplemental feed on the NER. Yellowstone National Park has documented substantial calf mortality during severe winters (up to 50%). Ground surveys will be conducted in spring and summer 2019 to estimate the yearling to cow ratio.

The population reached objective after the 2016 hunting season. The substantial reduction of cows in the herd through harvest (Fig. 1) has succeeded in significantly reducing the annual reproductive potential of the herd. As a result, substantially less harvest is needed each year to offset calf recruitment and prevent population growth than in the past. Despite two years of reduced harvest success in 2017 and 2018, total bison numbers have remained relatively flat. However, if low harvest success continues in future years, the population is expected to increase again.

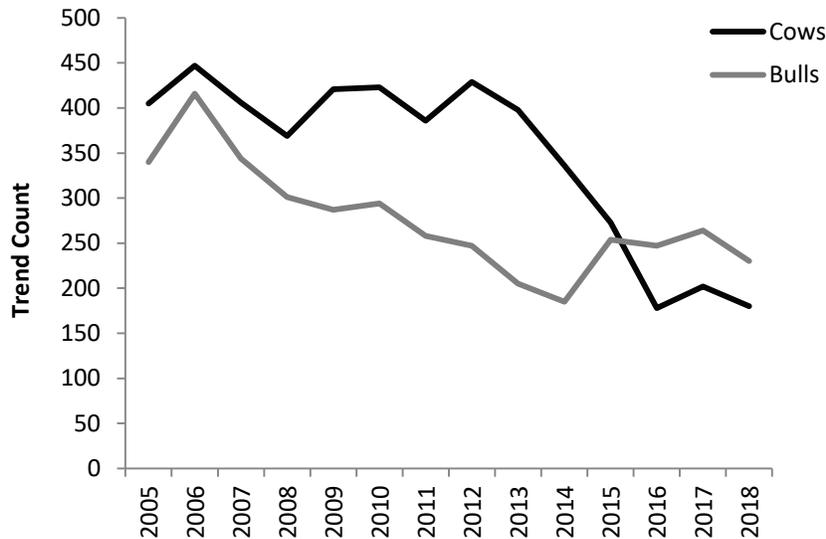


Fig. 1. Number of cows (black line) and bulls (grey line) in the Jackson Bison Herd, 2005-2018.

### Harvest Data

During the 2018 hunting season, 198 hunters in Hunt Area 2 harvested 73 bulls, 16 cows, and 2 calves, totaling 91 bison. Hunter success was 50%. Days per animal harvested (20.8) was the highest ever recorded for this hunt. This was due to extremely limited bison availability in open hunt areas, especially for Type 4 license holders. The majority of bison harvest occurred during two days near the end of January when a group of bison moved to the NER. In 2018, there were 5 Governor’s Licenses and 1 Super Tag holder who hunted in Hunt Area 2. There were an additional 3 hunters who harvested 3 bulls in Hunt Area 3.

When the population was high, the annual bison harvest had to exceed 200 animals to prevent population growth. This was due to the high number of cows in the herd and the consistently high reproductive rate; approximately 50 calves:100 cows during postseason classifications. As the population has been reduced toward objective, the reproductive rate remains high but the number of adult females has decreased, therefore fewer calves are recruited to the population each year. In recent years, approximately 100 bison need to be harvested to prevent population growth. Even though harvest success was low in 2018, 91 total bison were harvested, which was nearly enough to offset the annual recruitment.

### Population

The Jackson Bison Herd peaked at 1,100 animals in 2007, was stabilized by harvest from 2008-2010, trended downward in recent years, and was within 20% of the population objective after the 2016 - 2018 hunting seasons. The herd is currently within 20% of the 500 objective at an estimated 578 bison, even though harvest success was low during the 2017 and 2018 hunting seasons. However, hunting seasons in 2019 are structured to reduce to herd closer to the 500 objective.

## Management Summary

When the herd is at the 500 objective (and assuming a maximum of 100 bulls:100 cows ratio), the classification goal would be 200 cows, 100 calves, and 200 bulls. By the beginning of the 2019 hunting season, managers expect there will be approximately 262 cows, 119 calves, and 267 bulls for a total of 648 bison in the herd (Table 1). This is 148 bison above the objective of 500. This “surplus” of 148 animals is expected to be comprised of approximately 62 cows, 67 bulls, and 19 calves (Table 1). Due to the extremely limited hunting opportunity for Type 4 license holders (cow/calf bison) in 2017 and 2018, managers have scaled down the number of Type 4 licenses and scaled up the number of Type 1 (any bison) licenses (Table 1). If bison availability is challenging again in 2019, we anticipate that some Type 1 license holders will choose to harvest cows.

Table 1. Estimated 2018 post-season herd numbers and sex/age composition, anticipated over-winter calf mortality, predicted 2019 pre-season herd numbers and composition, surplus numbers over objective, and 2019 license quotas.

	<b>2018 Post-season (estimated)</b>	<b>Anticipated winter mortality</b>	<b>Predicted Pre-season 2019 (after parturition)</b>	<b>Herd Objective</b>	<b>2019 Surplus</b>	<b>2019 License Quotas</b>
<b>Total</b>	578		648	500	148	<b>175 Total</b>
<b>Cows</b>	237		262	200	62	<b>50 (Type 4)</b>
<b>Bulls</b>	242		267	200	67	<b>125 (Type 1)</b>
<b>Calves</b>	99	-50%	119	100	19	
<b>Bull:cow</b>	102:100			100:100		
<b>Calf:cow</b>	42:100			50:100		

License quotas for 2019 are 125 Type 1 and 50 Type 4, for a total of 175 licenses. In addition, 5 Governor’s license holders and 1 Supertag holder are likely to hunt bison. This would be similar to the 2018 hunting season when 123 Type 1 and 75 Type 4 licenses were issued. Under an average harvest success scenario, the 2019 hunting season will reduce the population to 497 bison (Table 2). Under a low harvest success scenario, the population will be slightly reduced to 554 bison (Table 2).

Table 2. Projected 2019 harvest numbers and 2019 post-season classification under an average harvest success scenario\* (90% success for Type 1 licenses and 75% success for Type 4 licenses) and a low harvest success scenario^ (65% success for Type 1 licenses and 26% success for Type 4 licenses).

	<b>2019 License Quotas</b>	<b># Harvested with <u>average</u>* harvest success</b>	<b>Projected 2019 Post-season with <u>average</u>* harvest success</b>	<b># Harvested with <u>low</u>* harvest success</b>	<b>Projected 2019 Post-season with <u>low</u>^ harvest success</b>
<b>Total</b>	<b>175</b>	151	<b>497</b>	94	<b>554</b>
<b>Cows</b>	<b>50 (Type 4)</b>	38	224	13	249
<b>Bulls</b>	<b>125 (Type 1)</b>	113	154	81	186
<b>Calves</b>			119		119
<b>Bull:cow</b>			69:100		75:100
<b>Calf:cow</b>			53:100		48:100

The season dates will remain the same as 2018 with the regular season remaining open through January 1 and continuing on a provisional basis from January 2 to 31 with alternate permits available for the NER until either forage/weather conditions dictate that elk supplemental feeding is necessary or January 31 is reached.

### **Bibliography**

Berger, J. and S.L. Cain. 1999. Reproductive synchrony in brucellosis-exposed bison in the southern Greater Yellowstone Ecosystem and in noninfected populations. *Conservation Biology* 13:357-366.

National Elk Refuge and Grand Teton National Park. 2007. Final Bison and Elk Management Plan and Environmental Impact Statement for the National Elk Refuge/Grand Teton National Park/John D. Rockefeller, Jr., Memorial Parkway. U.S. Fish and Wildlife Service, Region 6, Denver, CO. 605 pp. <http://www.fws.gov/bisonandelkplan>

Williams, E.S., Thorne, E.T., Anderson, S.L., and J.D. Herriges, Jr. 1993. Brucellosis in free-ranging wild bison (*Bison bison*) from Teton County, Wyoming. *Journal of Wildlife Diseases* 29:118-122.