MEMORANDUM

TO: Warren Hansen, Regional Wildlife Manager

FROM: Adam Grove, Wildlife Biologist – Townsend

DATE: March 5, 2024

SUBJECT: HD 380 (Elkhorns) elk survey results – 2024

Aerial elk surveys (five flights) of hunting district (HD) 380 were flown on February 10, 16, 17, and 19 (2 flights). The slightly extended amount of time over which the surveys were flown was the result of weather and pilot availability issues. While the somewhat extended amount of time needed to get the HD's survey completed wasn't totally ideal, given how the survey was broken up between geographic areas, I didn't feel that we had groups of elk moving between the different HD 380 survey areas between surveys. Overall survey quality was rated as good.

All surveys were flown in a FWP supercub aircraft piloted by FWP pilot TJ Reynolds based out of Dillon. Total survey time for the five flights was approximately 15.9 hrs with a total flight time of approximately 26.1 hrs which includes 8.3 hrs of pilot ferry time.

The February 10 survey was flown in the morning. However, the start of the survey was delayed approximately one hour and twenty minutes due to fog/low ceiling. Survey conditions were sunny with light winds (winds were stronger aloft than on the ground), complete snow cover, and temperatures ranging from 12 to 26 degrees F (airport temps) during the survey. Most of the groups of elk were observed bedded given the late start. Survey run quality was rated as good.

The February 16 survey was flown in the afternoon because of poor weather conditions in the morning. Survey conditions were sunny with light winds, complete snow cover, and temperatures ranging from 18 to 14 degrees F (airport temps) during the survey. Bull groups were generally observed up and feeding while most of the antlerless groups were bedded in scattered timber. Survey run quality was again rated as good.

Survey conditions for the February 17 morning survey were sunny with light winds, complete snow cover, and cold temps ranging from 0 to 15 degrees F (airport temps) during the survey. Groups observed early in the survey were generally up and feeding while groups observed later in the morning were generally bedded out in the open. Survey run quality was rated as very good.

Survey conditions for the February 19 morning survey were sunny to partly cloudy with light winds, complete snow cover, and temperatures that ranged from 10 to 33 degrees F (airport temps) during the survey. The survey was delayed approximately 20 minutes because of early morning fog issues. Survey run quality was rated as good.
An afternoon survey was also flown on February 19 that covered the very southeast portion of HD 380 and the very southwest portion of HD 390 to account for large group of HD 390 elk that

had crossed U.S. Hwy 287 into HD 380 earlier in the winter. Flew both areas during the same survey to make sure the group didn't get double counted. The HD 390 group of elk was observed in HD 380, but it was felt that the group also contained a group of HD 380 elk that are normally observed in the southwest portion of HD 380, as the group was far larger in size than expected. Survey conditions for the flight were mostly cloudy with generally light winds (winds aloft were stronger in some areas), complete to partial snow cover, and temperatures that ranged from 40 to 37 degrees F (airport temps) during the survey. Survey run quality was rated as fair.

For elk that were counted to the HD 380 total, a total of 1,387 elk (168 BTBs, 37 yrl bulls, 964 cows, 218 calves) were observed in 69 groups during the overall survey (see attached tables and maps). The number of elk observed during the survey represents the **minimum** number of elk known to be in and counted toward the HD 380 total during the survey time-period.

While it was felt we got a pretty good count on brow-tined bulls overall this year with the survey conditions (fairly cold with good snow cover), based on tracks in the snow, it was felt that we probably did miss at least a few bulls in the timber here and there across the HD. It's also likely that on the west side of the HD, in the area between Alhambra and Boulder Hill, we had some elk cross I-15 into either HD 335 or HD 318 earlier in the winter, as I felt that we likely should have seen more elk in that area. For instance, a group of around 65 elk were observed from I-15 in the Boulder Hill area earlier in the winter, but we only observed 23 elk in that area during our aerial survey.

Felt that we might possibly have been missing anywhere from 100-150 elk on the west side of the HD along the I-15 corridor area based on past survey results. It's believed that in recent years we have often been losing some wintering elk (probably from the Prickly Pear and possibly south end of the Sheep Creek herd units) to the west side of I-15. So, more elk are believed to be in HD 380 during other parts of the year particularly on the west side of the HD than what we observe during our winter aerial survey.

We also did not observe a large separate group of elk down on the south/southwest end of HD 380 like we normally do. In recent years this group has typically numbered around 150 or so elk. We did observe a single large group of 401 elk on the southeast side of HD 380. This group is believed to be a combination of a large group (250+?) of HD 390 elk that is known to have crossed U.S. Hwy 287 earlier in the winter (has occurred the last several winters now) into HD 380 and the group of HD 380 elk that we normally observe to the southwest of that location.

The number of elk observed this year in that group (401) compared to last year (213) was likely too big of increase to be accounted for by annual production in the HD 390 group alone. Since there is no way to know exactly how many elk in the group were potentially HD 390 elk and how many were potentially HD 380 elk, the entire group will be assigned to HD 390 for counting purposes this year, even though the group was observed in HD 380. The reason is that the majority of the elk in the group are known to be HD 390 associated elk.

Given the 200-300 or so elk that were believed to be 'missed' and not counted in this year's survey total, this year's survey numbers (minimum count) **are not** believed to be a totally accurate representation of the wintering elk population **trend** in the HD. While overall elk

numbers are believed to be down in the HD and likely slightly below the bottom end of the HD's goal range of 1,700-2,300 observed elk, overall numbers are believed to be somewhat higher than what was actually observed this winter.

Adding the believed 200-300 'missing' elk to this year's observed total of 1,387 would put actual elk numbers in the approximate range of 1,587-1,687 elk for the HD. While that number is much higher than this year's actual observed number, the number would still be below the desired elk goal range of 1,700-2,300 observed elk for the HD. As such, recommendations will be made later this spring to further reduce antlerless elk B-licenses in the HD for the fall of 2024.

At least some elk were observed and counted in seven (technically eight) of the current nine HD herd units this year (Tables 2 & 3). As a result of the boundary change implemented in 2022, what used to be the southeast portion of HD 380 between U.S. Hwy 287 and the Missouri River is now HD 390. As mentioned, a large group of elk from that area (HD 390) that were known to have crossed U.S. Hwy 287 earlier this winter into HD 380 (South End) were observed in HD 380 during our survey (2/19 afternoon survey). As noted previously, that group also likely contained a group of HD 380 elk that are normally observed to the south/southwest of that area. But again, since they were mixed with HD 390 associated group, they will be included in the HD 390 observed elk total and not the HD 380 total for this year, as there is no way to know for sure how many in the group were HD 390 or HD 380 elk.

This year the largest numbers of elk were observed in the North Crow, South Crow, and Devil's Fence herd units. The large cow/calf group that is often observed in the Kimber herd unit was observed to the south on the north end of the North Crow herd unit again this year. Elk that are often found in the Elkhorn herd unit were likely observed on the far west side of the Devil's Fence herd unit this year. As mentioned previously, we likely had some elk from the Prickly Pear and Sheep Creek herd units cross I-15 to the west earlier this winter, and thus were not observed during our survey.

This year's observed calves per 100 cows ratio was 22.6, which is down approximately 17% from last year's ratio of 27.1 calves per 100 cows. The low calves per 100 cows ratio was lower than was expected but was likely mostly a product of the impacts of last year's tough winter on this past year's calf production. This year's ratio was down about 15% from the long-term average of 26.6 calves per 100 cows. Some variation in calves per 100 cow ratios over the years maybe attributable to differences in observers over the years.

There has been considerable variation over the years on the number of bulls, especially the number of brow-tined bulls, observed on an annual basis – likely due to survey timing, weather/temperature conditions, etc. As mentioned previously, we got a pretty good count on the number of brow-tined bulls this year with the good survey conditions. The number of brow-tined bulls observed this year (168) was down approximately 27% from last year's observed total of 231. This year's total was approximately 146% of the long-term average of 115 observed brow-tined bulls.
The number of yearling bulls observed this year (37) was low for a second year in a row. This year's observed number was again likely a product to some extent of the impacts of last year's tough winter on over-winter calf survival. This year's yearling bull total was down

approximately 10% from last year's total of 41 yearling bulls, and this year's total was down approximately 36% from the long-term average of 58 observed yearling bulls. It should be noted that there is always the potential that some yearling bulls are misclassified as cows in the larger cow/calf groups, as even in photos yearling bulls can sometimes be hard to pick out.

This year's total bulls per 100 cows ratio of 21.3 was approximately 18% below last year's ratio of 26.0, but it was still approximately 136% of the long term average ratio of 15.7. Bulls comprised 14.8% of the observed population this year with brow-tined bulls (bulls typically 2.5 yrs or older) comprising 82.0% of the bulls observed. The bull population goal for HD 380 is to maintain a post-season bulls per 100 cows ratio of at least 15 bulls per100 cows (2023 Elk Plan), so that population goal was met this year.

Table 1: Summary of HD 380 observed elk numbers.

ELK AERIAL TREND COUNT SUMMARY FORM

HUNTING DISTRICT 380 (data is for 'new' HD 380 effective 2022, result of boundary change with HD 390)

DATE	BTBs	YRLG Bulls	COWS	CALVES	Uncl Antler-	UNCL.	TOTAL	Bulls/ 100 Cows	Bulls/ 100 Antlerless	% Bulls of Total	% BTB of Total	% BTB of Bulls	Calves/ 100 Cows	Calves/ 100 Adults
2/10/2024*	168	37	964	218			1,387	21.3	17.3	14.8%	12.1%	82.0%	22.6	18.6
1/30/23	231	41	1,046	283			1,601	26.0	20.5	17.0%	14.4%	84.9%	27.1	21.5
2/25/22	174	63	1,173	384			1,794	20.2	15.2	13.2%	9.7%	73.4%	32.7	27.2
3/12/2021*	77	58	653	230		625	1,643	20.7	15.3	8.2%	4.7%	57.0%	35.2	29.2
3/16/20	100	64	996	281		877	2,318	16.5	12.8	7.1%	4.3%	61.0%	28.2	24.2
3/16/2019*	68	63	852	168		210	1,361	15.4	12.8	9.6%	5.0%	51.9%	19.7	17.1
2/13/18	242	47	1,291	438			2,018	22.4	16.7	14.3%	12.0%	83.7%	33.9	27.7
2/13/17	198	109	1,372	421			2,100	22.4	17.1	14.6%	9.4%	64.5%	30.7	25.1
3/18/16	59	64	1,402	507			2,032	8.8	6.4	6.1%	2.9%	48.0%	36.2	33.2
3/4/15	77	57	1,547	497			2,178	8.7	6.6	6.2%	3.5%	57.5%	32.1	29.6
3/24/14*	14	25	1,083	275		48	1,445	3.6	2.9	2.7%	1.0%	35.9%	25.4	24.5
1/21/13*	107	41	994	295		219	1,656	14.9	11.5	8.9%	6.5%	72.3%	29.7	25.8
2/15/12	155	68	1,206	310			1,739	18.5	14.7	12.8%	8.9%	69.5%	25.7	21.7
3/4/11*	41	26	792	171		82	1,112	8.5	7.0	6.0%	3.7%	61.2%	21.6	19.9
2/28/10*	85	33	1,025	282			1,425	11.5	9.0	8.3%	6.0%	72.0%	27.5	24.7
3/1/09	107	78				2,222	2,407			7.7%	4.4%	57.8%		
2/20/08	177	58	996	246		624	2,101	23.6	18.9	11.2%	8.4%	75.3%	24.7	20.0
2/25/07	165	71	1,387	373		33	2,029	17.0	13.4	11.6%	8.1%	69.9%	26.9	23.0
3/27/06	75	35	455	111		1373	2,049		19.4	5.4%	3.7%	68.2%	24.4	19.6
2/25/05	57	65	1,201	321		39	1,683	10.2	8.0	7.2%	3.4%	46.7%	26.7	24.3
2/12/04	153	45	1,314	279		20	1,811	15.1	12.4	10.9%	8.4%	77.3%	21.2	18.5
2/15/03*	115	21	1,158	191			1,485	11.7	10.1	9.2%	7.7%	84.6%	16.5	14.8
2/15/02	136	88	1,159	307		16	1,706	19.3	15.3	13.1%	8.0%	60.7%	26.5	22.2
2/23/01	136	24	1,373	241			1,774	11.7	9.9	9.0%	7.7%	85.0%	17.6	15.7
2/13/00	142	91	1,122	319		398	2,072	20.8	16.2	11.2%	6.9%	60.9%	28.4	23.5
3/6/99	51	33			1,636		1,720		5.1	4.9%	3.0%	60.7%		
2/6/98	103	80	1,373	258	23		1,837	13.3	11.2	10.0%	5.6%	56.3%	18.8	16.6
2/2/97	56	41			1,979		2,076		4.9	4.7%	2.7%	57.7%		
2/28/96	144	136			2,602	11	2,893		10.8	9.7%	5.0%	51.4%		
1/29/95	115	36			1,748		1,899		8.6	8.0%	6.1%	76.2%		
2/3/94	88	86			1,992		2,166		8.7	8.0%	4.1%	50.6%		
Ave	**115**	**58**	**1124**	**300**	**1663**	**453**	**1,871**	**15.7**	**11.8**	**9.2%**	**6.2%**	**64.4%**	**26.6**	**22.9**
('94-'23)														
HD 380 Obsered Elk Goal Range (1,700 - 2,300)														

*Surveys not reliable indicators of trend because of survey quality or elk movement issues

Note: Table includes corrections to old survey numbers where errors were discovered, numbers reflect current (2022) HD 380 boundary

Table 2. Summary of elk observations in Hunting District 380 (2024) by herd segment.

Herd Segment	BTB	Yrl_Bulls	Total Bulls	Cows	Calves	Uncl.	Total
South Crow	34	6	40	227	51	0	318
North Crow	35	16	51	435	94	0	580
Kimber	20	0	0	0	0	0	20
Sheep Creek	28	4	32	107	14	0	153
Prickly Pear	9	0	9	30	4	0	43
Elkhorn	0	0	0	0	0	0	0
Devils Fence	36	11	47	165	55	0	267
Spokane Hills	6	0	6	0	0	0	6
South End	0	0	0	0	0	0	0
Total	**168**	**37**	**205**	**964**	**218**	**0**	**1,387**

Table 3. HD 380 observed elk numbers by herd segment.

Year	South Crow	North Crow	Kimber	Sheep Cr.	Prickly Pear	Elkhorn	Devils Fence	Spokane Hills	Southend*	Total
2024	318	580	20	153	43	0	267	6	0	1387
2023	66	550	22	208	44	115	410	31	155	1601
2022	20	77	417	262	187	18	467	0	346	1794
2021	23	258	290	236	139	0	555	0	142	1643
2020	459	327	301	213	269	97	358	0	294	2318
2019	304	253	247	163	3	31	86	0	274	1361
2018	70	444	257	204	113	155	614	18	143	2018
2017	423	475	188	333	153	82	285	3	158	2100
2016	376	284	344	277	341	139	110	0	161	2032
2015	387	165	291	633	193	76	270	0	163	2178
2014	58	163	344	432	1	0	447	0		1445
2013	0	373	272	311	174	96	430	0		1656
2012	255	229	333	386	319	49	168	0		1739
2011	244	249	257	229	45	57	31	0		1112
2010	314	317	357	217	36	124	43	17		1425
2009	412	635	228	387	368	118	259	0		2407
2008	471	502	367	234	264	6	257	0		2101
2007	261	494	390	277	157	30	359	61		2029
2006	460	514	388	290	309	22	7	59		2049
2005	349	163	442	193	393	60	23	60		1683
2004	439	348	422	209	137	89	147	20		1811
2003	336	244	312	210	182	62	89	50		1485
2002	342	302	301	166	277	122	110	86		1706
2001	541	334	467	97	85	106	91	53		1774
2000	477	423	412	271	296	33	92	68		2072
1999	353	261	448	296	255	2	105	0		1720
Ave	**298**	**335**	**324**	**269**	**190**	**68**	**233**	**21**	**204**	**1810**
('99-'23)										
*Any observations in this area (south of ECMA boundary) prior to 2015 would have been included in Devil's Fence total										

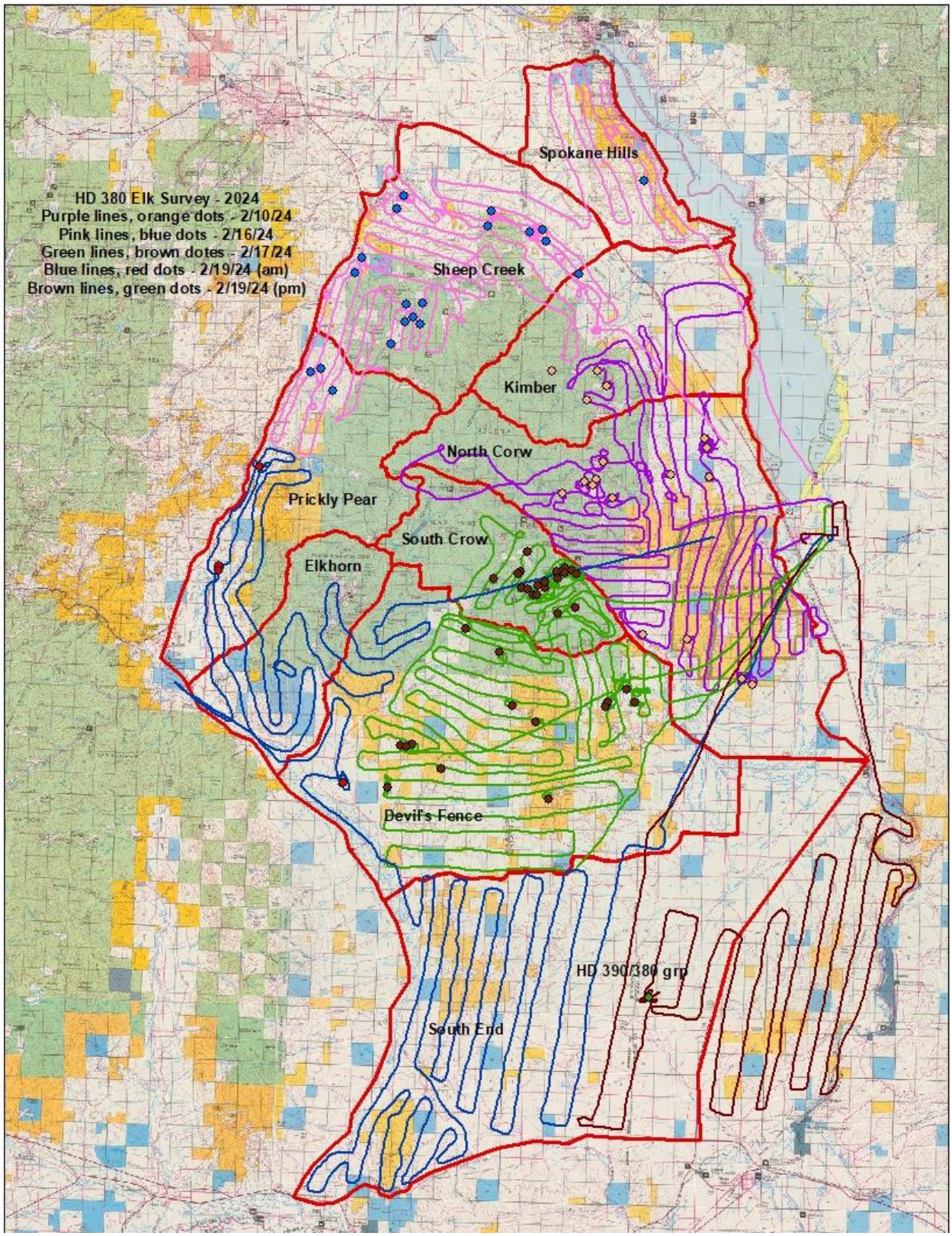

Figure 1. HD 380 flight track (colored lines) and waypoint (colored dots) locations of observed elk groups.