

Division of Wildlife Refuges

Narrative Report Routing Slip

Refuge NATIONAL BISON

Year 1964

Chief's Office: Mr. Gilbert g

~~Mr. Ackerman~~ W

Mr. Fermanich _____

Miss. Baum W

Wildlife: Mr. Ballou _____

Mr. Webster _____

Mr. Stiles _____

Resources: Mr. Stollberg _____

Mr. Lamb _____

Mr. Britt _____

Interpretation: Mr. DuMont _____

Mr. Monson _____

~~Mr. Goldman~~ W

~~Planning: Mr. Crandall~~

10/12 A good report!

~~Job Corps: Mr. Regan~~

~~Mr. Huenecke~~

Mr. Hughlett 9-27

P.

Excellent report g

N A T I O N A L B I S O N R A N G E

Refuge Narrative Report

Calendar Year 1964

PERMANENT PERSONNEL

Cordia J. Henry, Refuge Manager
Watson E. Beed, Wildlife Biologist (Mgt.)
Jack L. Richardson, Assistant Refuge Manager
Victor B. May, Refuge Maintenance Foreman II
Grant Hogge, Mechanic
Ernest W. Kraft, Maintencenceman III
Gladys C. Young, Clerk-Typist
Forest L. Largent, Maintencenceman I, WAE
Edward G. Krantz, Maintencenceman I, WAE

TEMPORARY PERSONNEL

Robert E. Rogers, Laborer
James H. Putnam, Laborer
Keith H. Rankin, Laborer
Robert G. Neuman, Laborer
Wm. J. Lampshire, Laborer
George S. Coleman, Laborer
Edmond G. Priddy, Maintencenceman I
Grant J. Hovde, Maintencenceman I
Arnold A. Bauer, Maintencenceman I
Lester R. Winn, Maintencenceman I
Herbert L. Thompson, Maintencenceman, Foreman I
Carlyn L. Jakes, Clerk-Stenographer (Part Time)

In view of the fact that the 30 APW employees worked for only three weeks in January, their names are not being listed here. If any reference is necessary, please refer to our September-December 1963 Report for the listing.

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N A T I O N A L B I S O N R A N G E

Refuge Narrative Report

January 1 to December 31, 1964

I. GENERAL

A. Weather Conditions

	<u>Snow</u>	<u>Precipitation</u>		<u>Extreme Temperatures</u>	
		<u>This Month</u>	<u>Normal</u>	<u>Maximum</u>	<u>Minimum</u>
January	1.0"	.15	.95	55	3
February	.7"	.20	.66	56	9
March	1.5"	.33	.69	72	4
April		1.49	1.08	79	15
May	T	1.18	1.78	84	25
June		4.58	1.99	92	31
July		2.34	1.00	96	42
August		1.28	.87	90	37
September		.68	.98	83	25
October		.55	1.06	71	17
November	2.7"	.52	.80	62	11
December	<u>23.0"</u>	<u>2.15</u>	<u>.88</u>	54	-30
Totals	28.9"	15.35	12.74	Ext. 96	-30

January and February were pleasant and dry. March was cold, dry and windy. April produced the first decent rains of the year, most of which occurred during the last ten days of the month. This rainy spell continued through the first ten days of May; the rest of the month was dry. In June, the bottom fell out producing one of the worst floods in the history of western Montana. July was quite wet. August gave a bit better than average rainfall.

September, October and November were pleasant months, but rather on the dry side. December, on the other hand, dished out some real nasty weather, with the average temperature 6.2 degrees below normal. The temperature range was 84 degrees, from a minus 30 to a plus 54. The precipitation for December was 1.27 inches above the norm.

B. Habitat Conditions

1. Water

With the total precipitation better than two inches above the annual average, the water conditions were favorable during 1964.

2. Food and Cover

Cy Young, former refuge foreman, informed me that this is the second time in the 35 years he has lived here that the range vegetation was still green in August. Vegetative growth was good and considerable seed was produced.

In early autumn, Mr. Robert Ross, Range Conservationist with the Soil Conservation Service, conducted a range site and condition survey. The final report of this survey has not yet been received. Mr. Ross has informed us that three percent of the range area is in excellent condition, 42 percent is in good condition, 54 percent is in fair condition and one percent is in poor condition. This is based on a comparison of our range condition with the climax and the ideal for each site and particular soil type. In the past we have reported our range conditions as based on a comparison with previous years conditions on this area, and on a comparison with the average cattle ranges in the surrounding area.

For the first time since the so-called contour fence was constructed, it operated in the manner intended. The buffalo were restricted from the high country for periods ranging from two to five weeks (two in the West Pasture and five in the South Pasture). Ordinarily this would be longer, but we were at the same time going through an eight week period of deferred grazing in the North Pasture and were running into the danger of overutilization in the units being grazed. The results of the eight weeks of rest in the North Pasture were gratifying, not only in the excellent growth of forage, but in the production of new seedlings as well.

II. WILDLIFE

A. Migratory Birds

Production in the headquarters Canada goose flock has been quite poor this year. A combination of cold, wet weather and flood conditions were undoubtedly the cause for the poor production. One nest was found in early spring with the eggs frozen solid. Most of the young goslings which did hatch were not seen after Mission Creek flooded in early June. The highest number of geese actually counted at headquarters this fall was 67 on November 14. Not more than ten percent of these birds were young of the year.

Goose production in the Flathead Valley was fair where the geese nested on ponds, lakes and potholes. Flooding in early June undoubtedly caused some loss of goslings along streams and rivers, however.

Because of the mild weather this fall, less migrating geese appeared in the Flathead Valley and those that stopped, arrived later. As a result, hunting took a heavy toll from the Flathead

goose flock. The Montana Fish and Game Commission passed an early closure of the goose hunting season in Lake and Sanders Counties - December 14 - to protect the remaining birds. Some hard feelings have resulted from this closure, but the sportsmen who are familiar with the actual situation are supporting the Commission's decision.

Habitat suitable for ducks is extremely limited on the Bison Range. Broods of green-winged teal, blue-winged teal, mallards and redheads were seen on the Ravalli potholes through the summer, but the floods of early June apparently destroyed all duck production on Mission Creek as no broods have been seen since that time.

As a result of Central and Regional Office suggestion, a duck banding program was inaugurated on the Bison Range during the winter of 1963-64. Actual banding was carried on from December 17, 1963 through February 12, 1964. Only 325 mallards were banded during this period. Large numbers of birds were banded during the 1930's along Mission Creek, but numbers have not been as high and conditions have apparently changed since that time. We have received approval to drop the program for the winter of 1964-65.

Duck numbers on the Bison Range during 1964 have been normal with no concentrations of over 1,000 birds at any time, even during severe cold spells.

One unusual waterfowl observation was made during April when a single lesser snow goose spent several days with the headquarters Canada goose flock. A flock of approximately 70 whistling swans flew low over the refuge November 10, but did not land.

Mourning dove numbers were slightly lower than usual during 1964, according to the annual coo count taken May 28. We consider the Bison Range marginal habitat for doves and do not expect large numbers except during migration. One mourning dove has been seen at headquarters during the last half of December, feeding with the deer and the geese. Records this time of year are quite unusual in this area.

B. Upland Game Birds

Ring-necked pheasant numbers are low throughout the southern Flathead Valley at the end of the year. Cool and unusually wet weather during the nesting and brood periods caused very low production. Very few chicks have been seen during the year, and almost all of these were late and the apparent result of renesting attempts. Numbers on the Bison Range are lower than usual. Most of our pheasants are in the Mission Creek area and a good share travel to adjoining farmlands for food. Thus, we do not expect many birds, even during "good" pheasant years.

Gray partridge have done well, despite the cool, wet spring. It was not unusual to see 60-70 of these fine little birds on a trip around the range this fall. Nesting success was quite good and broods of 13 to 15 chicks were not unusual.

It must be conceded that the Bison Range is not suitable habitat for chukar partridge. Although the population builds up to fantastic numbers during good years, one or two winters with cold temperatures and deep snow causes heavy mortality and the population becomes almost nonexistent. Only four sight records and one sound record have been made of chukars during 1964. Eight adult birds were seen on January 23, five on April 7, two on April 20, and a brood of approximately 15 chicks was seen on August 15. It is significant that no chukars were seen during the buffalo roundup in October. The entire range is covered by horsemen at that time and nearly all wildlife species are seen by at least one rider.

Blue grouse have apparently done quite well this year. Sight records are frequently made in all areas of the high country where stands of coniferous trees are present. Though brood records are lacking, we feel our population is good and the birds are in a thrifty condition. Grant Hogge counted 13 blue grouse in one tree during roundup.

Ruffed grouse, though present along both Mission Creek and Jocko River, are not plentiful on the Bison Range. Several positive sight records were made this year, one in January and one in May, and four were noted by Mr. Beed in January while seeding the Mission Creek bottoms.

C. Big-game Animals

1. Buffalo

The buffalo herd came through the winter of 1963-64 in its usual good condition. There were no prolonged periods of snow cover and the little snow we did receive did not become crusted. Consequently, the buffalo had no difficulty getting adequate feed during the winter period.

Because of the unusually good moisture conditions experienced during the past spring and summer, abundant green feed of high quality has been available throughout the year and the buffalo have gone into the 1964-65 winter in excellent condition. Green grass lasting throughout the summer on dryland range in this area is almost unheard of and has exhibited itself in the condition of the animals at butchering time.

We have experienced a large number of mortalities during 1964. A total of 11 animals was found dead or in a sickened condition. All but one of these are contributed to disease. We were very concerned over the high number of mortalities and made concerted attempts to determine what was causing these losses. Material was sent to the Veterinary Research Laboratory in Bozeman, Montana and one animal, while still alive, was taken to the laboratory for a detailed autopsy. Although disease conditions were present in all of the mortalities examined, a relationship could not be drawn and we must now conclude that the deaths were largely

caused by different diseases. A more complete discussion of the disease problems encountered during the year is presented in the disease section of this report. A summary of the mortalities and the dates they were discovered follows:

- April 8 Mature bull found dead in Pauline Creek. Had been dead several months and cause of death could not be determined.
- July 15 Six-year old bull was found dead on Elk Creek.
- June 6 Yearling heifer was killed and autopsied.
- Sept. 3 Bull calf killed and autopsied.
- Sept. 10 Yearling bull was taken alive to Bozeman for autopsy.
- Sept. 22 Two-year old bull found in the south fork of Pauline Creek. Had been dead several weeks and cause could not be determined.
- Sept. 23 Six-year old cow found dead on Antelope Ridge.
- Sept. 24 Bull calf found dead in Alexander Basin.
- Oct. 8 Yearling heifer found dead in Pauline Creek. Cause could not be determined.
- Oct. 12 Three-year old cow found dead along Mission Creek. Cause could not be determined.
- Oct. 29 Bull calf found dead in Turkey Woman. Cause of death could not be determined.

A deferred grazing program was again followed during 1964. Nearly all of the buffalo were cleared out of the Sheep and North Pastures in early April. The animals were moved below the contour fence in the West and South Pastures at the same time. The gates were opened to allow grazing above the contour fence in the West and South Pastures when the soil had firmed and the grasses were ready for use. Grazing by buffalo was not allowed in the North Pasture until early June, and the Sheep Pasture was not used until the butcher herd was put in on October 14.

The annual roundup of the buffalo herd was carried out from October 8 to October 14. Thirteen paid riders were used for the roundup, and a few were allowed to ride as observers. These included writers and photographers.

The first day's activities centered in the West Pasture where only a scattering of bulls was present. The total bag for the day was 22 that were moved into the holding pen at the corrals. Some hard riding through rocky terrain was necessary to corral five of these bulls, but the rest of the animals were moved into the Elk Lane with little difficulty. Two bulls had to be left behind and were tallied in the range herd. One showed up south of the Snake Pit after all of the riders were on top of the hill; the other just plain refused to be driven anywhere.

The South and Sheep Pastures were cleared during the second day of riding. There was some excitement when the main buffalo herd spotted a group of photographers, but the herd milled long enough for riders to get in position and force them through the gates. One bull managed to get below the riders and was left on the range. The above mentioned photographers had a thrill when a small herd ran through their position.

After a weekend of rest, more for the men than horses(?), the herd was moved from Alexander Basin into the slaughter house corrals. This final day's ride on the range was hampered by heavy fog. Visibility was so poor that the riders could, in the words of one of our regular employees, only "follow the activity by the yells and cussings." Despite the fog, the entire herd, except one bull, was corralled and a few animals were put through the chute yet that afternoon.

Two near tragic accidents occurred on the final day of riding. A horse stepped on a sharp rock, causing a small but deep cut just below the fetlock on the front leg. An artery was severed so close to the joint it could not be reached with a hemostat. The wound was closed with sutures and a tight compress was applied to minimize subdermal bleeding. The horse is now doing fine and is almost completely recovered.

The other accident occurred while we were working animals through the corrals. Our mechanic, Grant Hogge, who has worked in the corrals for ten years without an accident, was trying to move a proddy four-year-old bull when the animal charged. Grant immediately started up the fence in the usual manner, but could not get high enough in time and was knocked to the ground. Luckily, Ed Priddy, another old hand in the corrals, was able to divert the bull's attention while Grant got out of the corral. Grant was quite shaken up by his experience and received some bruises, but came through in fine shape and lost no time from work as a result of the accident. We hope to have an entirely different system installed for the SAFETY of the men working this corral by roundup time next year.

As usual, the entire herd was worked through the chutes and tallied at roundup. Barring any unknown losses, our range herd at the close of 1964 is as follows:

RANGE HERD COMPOSITION, DECEMBER 31, 1964

<u>Age Group</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
10 years and older	3	3	6
4 to 9 years	40	68	108
3 years	13	21	34
2 years	27	17	44
Yearlings	40	30	70
Calves	<u>53</u>	<u>64</u>	<u>117</u>
Totals	176	203	379

A total of 117 calves, out of 120 born in 1964, survived to the end of the year, giving us a production figure of 94 percent from 124 eligible cows. The production figures from 1954 to the present are given in the following table:

ANNUAL CALF PRODUCTION, 1954 - 1964

<u>Year</u>	<u>Production</u>	<u>Year</u>	<u>Production</u>
1954	90%	1960	80%
1955	90%	1961	94%
1956	92%	1962	84%
1957	84%	1963	91%
1958	95%	1964	94%
1959	90%		

A glance at the above table and the pregnancy table should definitely rule out the erroneous idea, which we often hear, of cows being irregular breeders.

A number of buffalo were weighed during the roundup activities. Although the samples are quite small in all age groups but calves, we feel the average weights presented in the following table are indicative of the excellent condition of the buffalo herd this year.

LIVE WEIGHTS, ROUNDUP, OCTOBER 1964

<u>Age</u>	<u>Sex</u>	<u>No. Animals</u>	<u>Average Weight</u>	<u>Extremes</u>	
		<u>Weighed</u>	<u>(pounds)</u>	<u>Largest Animal</u>	<u>Smallest Animal</u>
Calf	M	48	343	435	150
1	M	2	733	810	655
2	M	6	1024	1120	890
3	M	3	1323	1385	1275
4	M	5	1504	1565	1480
5	M	2	1760	1870	1710
6	M	2	1788	1875	1700
7	M	4	1696	1845	1535
10	M	1	1750	--	--
Calf	F	54	335	415	150
1	F	1	660	--	--
2	F	1	910	--	--
3	F	5	961	1060	820
4	F	3	975	1055	890
5	F	2	928	970	885
6	F	7	978	1040	905
7	F	2	1040	1115	965
8	F	1	1060	--	--
9	F	4	1048	1120	960
12	F	1	1005	--	--
13	F	1	1205	--	--

For comparison, the table on the following page gives the average weights taken on 1513 buffalo since our stock scales were installed in 1957.

AVERAGE LIVE WEIGHTS TAKEN AT ROUNDUP
OCTOBER 1957 - 1964

<u>Age*</u>	<u>Sex</u>	<u>No. Rep.</u>	<u>Av. Wt.</u>	<u>Age</u>	<u>Sex</u>	<u>No. Rep.</u>	<u>Av. Wt.</u>
Calf	M	381	334	Calf	F	380	316
1	M	94	677	1	F	44	595
2	M	93	1019	2	F	61	827
3	M	58	1283	3	F	69	891
4	M	41	1428	4	F	50	928
5	M	31	1613	5	F	30	928
6	M	34	1688	6	F	42	969
7	M	16	1748	7	F	31	1010
8	M	13	1711	8	F	12	1025
9	M	11	1738	9	F	17	1002
10	M	1	1750	12	F	3	1028
				13	F	1	1205

*10+ age class, shown in previous reports, has been discontinued so we can start getting weights on each age over 10 years to formulate an accurate age-weight curve when sufficient data has been collected.

A total of 99 buffalo was disposed of during the year. Twenty-three long-yearlings, eight bulls and 15 heifers, were sold alive and 76 animals were butchered. With natural losses, the 1964 herd decrease amounted to 110 animals.

The butcher herd was brought from the Sheep Pasture to the slaughter house on November 25 and butchering was started November 30. Seven and one-half days were required to complete the actual butchering this year.

All cows in the butcher herd were examined to determine whether they were pregnant and whether or not they were lactating. This information, and the data collected during butchering from 1951 to the present, is shown in the following two tables:

PREGNANCY RECORD 1964

<u>Age Group</u>	<u>Number Examined</u>	<u>Percent Pregnant</u>	<u>Percent Lactating</u>
3	12	75	58
4-9	<u>25</u>	<u>96</u>	<u>88</u>
Overall	37	89	78

PREGNANCY RECORD 1951 - 1964

<u>Year</u>	<u>No. Examined</u>	<u>Percent Pregnant</u>	<u>Percent Lactating</u>
1951	25	60	68
1952	22	63	50
1953	14	57	43
1954	19	84	74
1955	24	87	54
1956	17	82	82
1957	19	94	63
1958	24	96	75
1959	19	89	74
1960	24	88	49
1961	19	100	95
1962	25	100	76
1963	16	94	69
1964	<u>37</u>	89	78
Overall	304	85	67

It is noteworthy that the percentage pregnant is generally slightly lower than the production percentage. One factor that would have some slight bearing on this difference would be the tendency of the personnel to select dry cows where there is a choice. The other factor would be the calves produced by cows bred as yearlings (which are not considered as breeding age animals and not considered in the production figures).

Both live and dressed weights were taken on all but three of the buffalo butchered this year. These weights are given in the following table:

AVERAGE LIVE AND DRESSED WEIGHTS, 1964

<u>Age</u>	<u>Sex</u>	<u>Number</u>	<u>Average Live Weight</u>	<u>Average Dressed Weight</u>	<u>Percent of Live Weight</u>
2	M	19	939	510	54.3
3	M	6	1197	674	56.3
4	M	3	1422	764	53.7
5	M	3	1628	882	54.2
6	M	2	1650	904	54.8
7	M	1	1605	832	51.8
9	M	2	1740	932	53.6
<u>Av. for 36 Males</u>			1454	785	54.0
3	F	12	842	463	55.0
4	F	2	875	463	52.9
5	F	8	929	508	54.7
6	F	6	906	488	53.9
7	F	3	818	455	55.6
8	F	5	914	466	51.0
9	F	1	980	516	52.7
<u>Av. for 37 Females</u>			895	480	53.6
<u>Total Average</u>			1175	633	53.9

Certain measurements (in inches) were taken for the ninth year during butchering and are consolidated in the following table covering the years 1956 through 1964;

AVERAGE MEASUREMENTS TAKEN AT BUFFALO SLAUGHTER, 1956-1964

Age	Sex	No. Animals Represented	Total Length	Height at Shoulders	Length of Hind Foot	Length of Tail	Length of Ear	Horns	
								Tip-Tip	Greatest Spread
2	M	101	110.4	61.6	23.4	16.0	5.4	20.3	23.7
3	M	42	117.5	64.3	23.6	16.5	5.6	19.4	25.5
4	M	26	126.2	65.6	24.6	16.5	5.7	20.7	27.1
5	M	17	124.2	67.6	24.0	16.8	5.9	18.8	26.6
6	M	12	123.1	67.5	23.8	17.3	5.8	20.5	27.3
7	M	17	127.1	69.0	24.3	17.4	5.9	20.2	27.8
8	M	12	125.7	66.9	25.3	17.8	6.0	24.0	31.0
9	M	15	127.3	69.5	24.5	16.6	5.8	22.2	28.8
10+	M	8	128.4	70.7	25.0	16.9	5.9	24.0	30.0
2	F	2	101.5	54.0	--	14.5	5.0	--	--
3	F	18	105.8	58.8	21.6	15.0	5.3	13.9	19.5
4	F	20	109.4	58.3	22.0	14.7	5.5	12.8	20.0
5	F	16	106.1	58.6	22.0	15.5	5.5	11.7	19.4
6	F	20	106.9	58.6	21.7	15.4	5.4	11.3	19.2
7	F	18	108.0	58.3	20.6	14.1	5.3	12.8	19.9
8	F	26	107.2	58.2	22.2	15.5	5.3	11.2	19.1
9	F	9	115.3	58.3	23.0	15.7	5.4	12.0	20.0
10+	F	20	110.3	57.9	21.0	16.0	5.4	--	--

A total of 21.16 tons of dressed buffalo meat was either shipped or delivered to customers at the slaughter house during the 1964 disposal season. The following table shows the average weights of 216 quarters of meat which were weighed individually before shipping or delivery:

SUMMARY OF DRESSED QUARTER WEIGHTS, 1964

Age	Sex	Number Represented	Front	Hind
2	M	64	139	115
3	M	18	185	146
4	M	6	213	156
6	M	2	282	213
9	M	4	263	197

SUMMARY OF DRESSED QUARTER WEIGHTS, 1964 (Contt)

<u>Age</u>	<u>Sex</u>	<u>Number Represented</u>	<u>Front</u>	<u>Hind</u>
3	F	46	123	107
4	F	10	122	105
5	F	24	137	117
6	F	20	130	109
7	F	8	124	109
8	F	10	130	105
9	F	4	141	117

One buffalo with a pure white tongue (see photo) was butchered this year. This is, to the best of our knowledge, the first time a white tongue has been found in our buffalo. We do know that our herd carries a recessive albino gene from past records of albinism so we are not too surprised when these characteristics show up from time to time.

An orphaned buffalo heifer calf was brought in to headquarters on April 28. This calf was raised on a bottle until June 19 when she was loaned to the Montana Fish and Game Department for use in their wildlife exhibit, which appeared at many County Fairs throughout the state. Klunk was returned to the Bison Range on September 10 and has been a Major attraction in the headquarters area since that time. This calf has, in many ways, reminded us of Jezebel, who was raised on a bottle in 1961. Jezebel was given to the Portland Zoo and eventually ended up in Tokyo, Japan. We hope a similar fate does not await this animal.

2. Elk

The last comprehensive count of our elk herd was made during the annual big game census February 29. At that time, 59 elk were seen, but no large bulls were with these animals and it was assumed they had somehow escaped notice. On that basis, we placed our official estimate at 65 head.

We estimated an increase of 17 calves during 1964. Sixteen animals were removed during disposal, leaving our official estimate at the year's end at 66 head. There were no other known losses.

The main elk herd has spent nearly the entire year in the timbered areas on the steep, rocky south and west slopes. A few animals have ranged on Headquarters Ridge and a small herd of 10 to 15 animals was frequently seen along Mission Creek during the summer.

A summary of dressed weights taken on the 16 head of elk killed during disposal is shown below:

DRESSED WEIGHTS OF ELK, 1964

<u>Age</u>	<u>Sex</u>	<u>No. Animals Weighed</u>	<u>Average Dressed Weight</u>	<u>Extremes</u>	
				<u>Largest</u>	<u>Smallest</u>
1	M	2	235	270	200
3 & 4	M	5	346	362	320
1	F	1	226	--	--
2	F	3	281	309	245
3 & 4	F	5	288	296	272

The exhibition herd of elk maintained at headquarters has come through the year in good shape. The strength of this herd now stands at seven, with three cows, one yearling heifer, two heifer calves and a 3-year old bull represented. The two calves born this year came on September 23 and October 2, instead of during May or June which is the normal calving time for elk in this area. Both of these calves look good at this time and will probably make it through the winter without any difficulty. The ancestors of this herd were used in an estrus period study quite some years ago, which may possibly be the cause of the frequency of fall birth.

On February 7 we had quite a start when Maintenance man Kraft found a gate between the elk pen and the open range had been knocked off the hinges by one of the buffalo. All of the exhibition elk and two buffalo bulls, which we were keeping in the elk pen for the winter, were gone. Kraft, Hogge and May immediately saddled horses and went out in search of the animals. The elk were found about two miles up Mission Creek and returned to the pen with little trouble. The buffalo, however, were nowhere to be found.

3. Mule Deer

We have an estimated 152 head of mule deer on the refuge at the end of this year. There has been a slight increase in the herd during the year, but natural losses and disposal have almost cancelled it out.

A total of 37 muleys was taken during disposal. Twenty does and 17 bucks made up the kill. The tables on the following page give the weight relationships of those animals weighed during the 1964 disposal season and a summary of weights obtained during the period from 1952 to 1964. Many of the animals could not be weighed due to the inaccessible terrain in which they were killed. Although the sample is too small for positive statements, we feel the mule deer were somewhat larger this year than in the past. This condition is due entirely to improved range conditions during 1964.

AVERAGE WEIGHTS AND WEIGHT RELATIONSHIPS OF ROCKY MOUNTAIN MULE DEER

Disposal Season, 1964

Age Class	Sex	No. Samples Represented	Average Whole Weight	Average Hog-dressed Weight	Average Dressed Weight	Average Visceral Weight	Percent of Total Weight		
							Hog-dressed	Dressed	Visceral
1½-2½ Yrs.	M	3	170.0	133.3	99.7	36.7	78.4	58.6	21.6
3½-4½ Yrs.	M	4	230.0	197.5	157.5	32.5	85.9	68.5	14.1
1½-2½ Yrs.	F	3	138.3	108.3	78.3	30.0	78.3	56.6	21.7
3½-4½ Yrs.	F	4	162.5	121.2	90.5	41.3	74.6	55.7	25.4
Total Samples		14							

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AVERAGE WEIGHTS AND WEIGHT RELATIONSHIPS OF ROCKY MOUNTAIN MULE DEER

Disposal Seasons 1952 - 1964

1½-2½ Yrs.	M	192	143.3	108.8	85.4	34.9	75.9	59.6	24.4
3½-4½ Yrs.	M	131	194.2	157.3	120.3	39.4	81.0	61.9	20.3
5½-10 Yrs.	M	35	218.3	173.3	138.0	44.6	79.4	63.2	20.4
1½-2½ Yrs.	F	132	129.0	98.2	78.6	31.2	76.1	60.9	24.2
3½-4½ Yrs.	F	130	142.5	106.5	83.7	36.1	74.7	58.7	25.3
5½-10 Yrs.	F	32	150.6	110.5	88.1	38.7	73.4	58.5	25.7
Total Samples		652							

Eleven known mule deer mortalities were found during the year; in seven cases no cause of death could be determined. Two mature bucks died after becoming entangled in the boundary fence along the south side of the refuge. One 3 to 4-week-old fawn died near the Firegate, probably due to emaciated condition. One buck fawn died as a result of a skull fracture when he became excited and ran into a tree during buffalo roundup operations.

Carl Nellis collected three mature bucks on January 3rd to complete his research project.

As usual, our tame muleys have given us a lot of excitement and caused considerable concern during the year. Phantom, the perennial gentleman of nine to twelve years of age (we don't know just how old he really is) who is sought by, looked at by, petted by, photographed by, and fed by thousands of tourists each year, was involved in a near-fatal accident July 15. A dog entered the headquarters area during the afternoon and chased the Phantom into a fence in the picnic area. The unlucky animal received multiple and extensive abrasions and lacerations on his body, several points of his antlers were broken off, and his lower jaw was broken on both sides about two inches behind the symphysis. A local veterinarian, Dr. Read of Ronan, was called immediately and sewed the old man up and put two pins in his lower jaw. We held little hope for the Phantom's survival, but he surprised us by accepting hand-held feed one day after the injury and was actively grazing within a week. At the end of the year, his missing antler points are the only evidence that he was injured.

At the approach of the mating season, the Phantom was banished to the exhibition pasture to save him from his over-ambitious ideas. The pot-bellied old codger figures he is top-hand, capable of licking any buck on the place. Actually, he can't fight for sour apples. Last year he was badly injured in an encounter with another buck. As a tourist attraction we figure he is worth \$10,000, and well worth the extra effort.

4. White-tailed Deer

Because of the thick brush in our prime white-tail habitat and the secretive nature of the animals, an accurate census of white-tailed deer is extremely difficult, if not impossible. Our best count, made during the annual big game census on February 29, revealed 82 animals, not including the headquarters herd. We are certain more animals than this were present at that time and estimate the total population at 157 animals at the end of 1964.

A total of 42 white-tails was taken during the disposal season. Nineteen of these were does and 23 were bucks. Weights of the animals were taken when it was possible and are presented in the table on the following page. The weights accumulated from 1955 to the present are also shown.

AVERAGE WEIGHTS AND WEIGHT RELATIONSHIPS OF WHITE-TAILED DEER

Disposal Season - 1964

Age Class	Sex	No. Samples Represented	Average Whole Weight	Average Hog-dressed Weight	Average Dressed Weight	Average Visceral Weight	Percent of Total Weight		
							Hog-dressed	Dressed	Visceral
1 $\frac{1}{2}$ -2 $\frac{1}{2}$ Yrs.	M	5	149.0	117.0	89.0	32.0	78.5	59.7	21.5
3 $\frac{1}{2}$ -4 $\frac{1}{2}$ Yrs.	M	5	185.0	150.0	116.0	35.0	81.1	62.7	18.9
5 $\frac{1}{2}$ -10 Yrs.	M	1	245.0	210.0	157.0	35.0	85.7	64.1	14.3
1 $\frac{1}{2}$ -2 $\frac{1}{2}$ Yrs.	F	3	100.0	78.3	63.3	21.7	78.3	63.3	21.7
3 $\frac{1}{2}$ -4 $\frac{1}{2}$ Yrs.	F	1	120.0	90.0	70.0	30.0	75.0	58.3	25.0
5 $\frac{1}{2}$ -10 Yrs.	F	1	245.0	210.0	157.0	35.0	85.7	64.1	14.2
Over 10 Yrs.	F	<u>1</u>	145.0	105.0	80.0	40.0	72.4	55.2	27.6
Total Samples		17							

AVERAGE WEIGHTS AND WEIGHT RELATIONSHIPS OF WHITE-TAILED DEER

Disposal Seasons, 1955 - 1964

1 $\frac{1}{2}$ -2 $\frac{1}{2}$ Yrs.	M	81	134.4	101.0	81.1	33.3	75.1	60.3	24.8
3 $\frac{1}{2}$ -4 $\frac{1}{2}$ Yrs.	M	65	174.8	143.1	113.3	31.8	81.9	64.8	18.2
5 $\frac{1}{2}$ -10 Yrs.	M	17	196.4	159.7	124.9	36.7	81.3	63.6	18.7
1 $\frac{1}{2}$ -2 $\frac{1}{2}$ Yrs.	F	53	116.2	83.9	67.9	32.4	72.2	58.4	27.9
3 $\frac{1}{2}$ -4 $\frac{1}{2}$ Yrs.	F	43	143.2	95.0	68.7	48.3	66.3	48.0	33.7
5 $\frac{1}{2}$ -10 Yrs.	F	9	143.2	108.9	86.1	34.3	76.0	60.1	24.0
Over 10 Yrs.	F	<u>1</u>	145.0	105.0	80.0	40.0	72.4	55.2	27.6
Total Samples		269							

The earliest fawn was noted in the semi-tame headquarters herd May 21. At the year's end about 50 white-tails were coming in daily for a handout of rolled barley.

Three orphaned white-tails were brought into the range by outsiders during the year. "Kal" was brought in January 27. He proved to be quite a pet until spring when he went out on the range. He is still seen along Mission Creek occasionally, but has not returned to headquarters. "Julius" was brought in October 1. This fawn had been injured when quite small and had been raised by some farm children. Both of these bucks came from the Kalispell area and were brought here by State Fish and Game Department officials. James Ramsey, State Game Warden from Missoula, brought the third orphaned buck to the range August 7. "Charley" was about five weeks old when we got him and had been fed on straight cow's milk by the people who picked him up. He had a severe case of rickets and finally had to be destroyed when we decided nothing could be done to relieve his condition.

Known mortalities during the year were seven, including four fawns, two adult bucks and an adult doe. The cause of death was undetermined in all except the doe, which had been shot with a .22 rifle and left lying in the alfalfa field north of Mission Creek.

An adult buck was lost from the range September 9. This animal jumped the boundary fence near the Firegate proving a 7-foot-high fence is not completely big-game-proof.

5. Bighorn Sheep

The status of our bighorn sheep is somewhat in question at the end of 1964. Twenty-six animals were seen during the big game census February 29. We felt this was not all of our bighorns and placed our estimate at 50 animals. Subsequent observations have not given us sufficient information on which to base a better estimate. It is probably safe to say our bighorn herd numbers about 50 animals.

No more than three mature rams have been seen at one time during the year. Lambs have been conspicuous during 1964 by their complete absence. Not one lamb has been seen on the range during the year. Evidence as to why we have had a complete failure in lambing has not been found and anything we could say on the subject would be pure speculation.

No sheep carcasses have been found during the year. A piece of hide was found along the west boundary and the animal was presumed lost, but we were not able to locate the carcass.

6. Antelope

Our antelope herd has continued to thrive during the year. Censuses during the winter of 1963-64 indicated 142 head present

prior to kidding. A census taken September 25 revealed 67 kids. Because the animals were widely scattered, there were undoubtedly a few which were not counted. We estimated our total herd strength at that time at 210 head.

The above figures are not impressive when viewed alone, but when one considers we had only 38 antelope at the close of 1958, they take on more significance. Several animals have been removed for research and some natural losses have occurred, but we feel the tremendous increase in our herd during the past six years indicates excellent health and ideal conditions for these fleet-footed animals.

Five dead antelope have been found on the range during the past year. These included three kids, one yearling buck and one mature buck located on a flight over the range on September 8. The animals had been dead for too long a period of time in all cases for the cause of death to be determined.

The first case of kid abandonment by an antelope doe we have heard of occurred this year. The first kids seen this year were observed being born May 20. The old doe was chased away and the kids were photographed. A check of the area was made approximately seven hours later and revealed the doe had returned and taken one kid but left the other. Since the weather was quite cool and we thought there was very little chance of the doe returning to claim her, "Tanna" was brought in to headquarters and raised on a bottle. Although there was some trouble with scouring, Tanna is now doing very well and has been a major tourist attraction throughout the summer and fall.

A small group of antelope was trapped in the upper elk pen during April. Our exhibition antelope were sorted from these animals and moved into the exhibition pasture April 21 where they were held during the tourist season. This group consisted of one mature buck and three mature does which gave birth to six kids soon after being placed on exhibit. All ten were turned out on the open range September 29.

In November, an attempt was made to reduce the antelope herd which had become too large for the available range. A considerable amount of time was spent in setting up, moving and operating the state-owned antelope trap. Messrs. James McLucas and Bill LaFrambois of the Montana Game and Fish Department instructed and assisted us in carrying out the trapping operations. The first attempt at getting antelope into the trap was made at the east division fence, with Swede Nelson of Johnson Flying Service in Missoula driving the animals with a helicopter. Although the antelope approached the trap several times, they could not be forced through the gate. Consequently, the trap was taken down and moved to a new site near the slaughter house. Ninety-six antelope were finally trapped at the new location, and 84 of these were loaded out and sent to Kansas the evening of

November 17. Sixteen adult males, 35 adult females, 18 male kids and 15 female kids were included in the shipment. Six tagged animals and a doe, too exhausted to include in the shipment, were released back to the range. Five animals were injured so severely they had to be butchered.

Our antelope herd strength is estimated to be about 117 at the year's end.

7. Rocky Mountain Goats

Mountain goats were released on the Bison Range for the first time on May 22 when James McLucas and Bill LaFrambois of the Montana Game and Fish Department brought four goats, trapped in the Sun River country, to the refuge. The group included one 2-year old male, two 2 to 3-year old females and a yearling female. One of the older females was ready to give birth when she was released, but the offspring was apparently lost as it has never been seen.

The new goats were very conspicuous by the infrequency of observations during July and August. Several reports of a mountain goat, or goats, being seen on the Moiese Hill north of the refuge were received during that time, and confirmed on August 20 when Grant Hogge saw a goat about five miles north of the range. Subsequently, we were able to locate three goats on the refuge and decided the one located on the Moiese Hill was ours and was alone.

On September 16, a small task force consisting of two 4-wheel-drive vehicles, one horse, three Bison Range personnel and Dr. John Corcoran, U.S.D.A., invaded the Moiese Hill to attempt capturing the goat which had taken refuge there. The animal was located with no trouble and its movements were traced until it bedded down. A careful stalk of one and one-half miles over the extremely hot, dry and rocky hillside was made to within 20 yards of the goat. A shot was taken at it with a borrowed Cap-chur gun but a malfunction in the weapon had caused a gas leak and the dart, filled with tranquilizer, fell short. The last glimpse of the goat was a posterior view as it disappeared over the hill.

The next report on our wandering goat was received during the evening of September 30. The goat was reported near the north boundary of the range. All personnel who could be mustered at the time were called into service and an attempt was made to drive the goat through a gate in the boundary fence. Our efforts were to no avail, however, and the goat left the area heading east at a rapid pace. A light airplane was chartered the next morning and the goat was located along the east boundary. All personnel turned out and moved in from two directions. The goat, however, had found a hole in the boundary fence at the Sabine corner and had returned to the range on his own just minutes before our arrival.

At the end of the year, our goat population again stands at four with the hope of an increase during 1965.

8. Longhorn Steers

Our longhorn exhibition herd was doubled this year by the addition of two fine steers transferred to us from the Wichita Mountains Wildlife Refuge. The two new steers, one yellow yearling and a white 2-year old with a red head, are replacements for our two 15-year old steers, Tom and Jerry. These new animals are a welcome addition as Tom is going downhill and, at his age, Jerry will probably begin to decline before long. The steers are now in winter quarters in the horse pasture with a constant supply of hay. They are all doing quite well except for Tom's lameness.

9. Black Bear

Black bear reports have been more numerous this year than in the past, but we feel the bears seen on the refuge are transients and do not stay on the area long enough to have any appreciable effect. At least four bears were seen, and tracks indicated a fifth one was on the range for a short period of time.

Our assistance was requested by the Bureau of Indian Affairs on June 11 when a male black bear showed up at the Flathead Agency. This yearling was apparently forced from the Flathead River bottom by high water. When the bear entered the Agency area, he was immediately set upon and treed by children and dogs. The only drug we had at that time was a highly toxic nicotine alkaloid. A dose was administered to the bear with a borrowed Cap-chur gun, but this shot only made him sick and irritable. A second dose was given but proved to be too much and the animal succumbed. We have since ruled out the use of nicotine compounds on animals at the Bison Range because of the dangers they present to both animals and personnel.

D. Fur Animals, Predators, Rodents and other Mammals

Coyotes are seen throughout the refuge from time to time but are not plentiful and, so far as we can determine, cause little if any damage. In fact, the few coyotes we have are probably much more beneficial than harmful.

The status of our bobcats is about the same as for coyotes. A few have been seen during the year, and one was killed near Highpoint Lookout in February. We occasionally find a deer which we suspect may have been killed by bobcats but, since we have to remove excess deer every year in any case, we do not feel this is detrimental predation. Also the deer taken by predators are ordinarily considered to be those least fit to survive.

Dogs were known to be on the refuge at least six times during the year. Only one was killed, but this was only because we didn't have a chance on the others. As noted earlier in this

report, a tame deer was severely injured when a dog ran it into a fence in the picnic area.

Feral house cats have been seen less frequently this year. One cat was killed in the headquarters area and several others have been seen along Mission and Pauline Creeks.

Sightings of badgers have been made more frequently than usual this year. This was undoubtedly brought about by the die-off in meadow mice experienced during the spring. The holes left by badgers present a serious SAFETY hazard when we work with horses.

Skunks present no problem on the refuge except in the headquarters area. Seven were removed last winter to create a more suitable human habitat.

Both short-tailed and long-tailed weasels are seen occasionally, but neither is plentiful.

Porcupines, though not overly abundant, cause considerable damage to our ponderosa pines. For this reason, we practice control whenever the opportunity presents itself. Seven were killed this year. One young porcupine was found injured August 12. The evidence around this animal indicated it may have been trampled by buffalo. The usual removal of porcupine quills from a buffalo's face was accomplished at roundup.

Yellow-bellied marmot colonies are present at the Snake Pit and under post piles in the headquarters area. An individual was seen on lower Trisky Creek.

Mountain cottontails were seen on the refuge occasionally during the year but are rather scarce.

Colonies of Columbian ground squirrels are established in the east exhibition pasture, near the Sabine Creek corner and about a half-mile east of Highpoint along the tour road. Periodic control measures (with a .22 rifle) are taken to keep these colonies reasonably small and prevent excessive vegetative damage.

Pocket gophers are still present in reasonable numbers on some slopes, but numbers are not nearly so high as they were a few years ago and range damage by these digging rodents is at a minimum.

A population high occurred in the meadow mice during 1962 and continued on through 1963. A die-off occurred during the spring of 1964, however. The exact time of the die-off was missed in spite of a careful watch, but it was welcome as the mice had become so plentiful that they were causing considerable damage in some range areas.

Beavers and muskrats are both present on the refuge. Neither species cause any damage or concern. The beaver which moved into

the lower pond on Elk Creek during the fall of 1963 abandoned the area during the past summer. Muskrats are frequently seen in watered areas such as the elk pen slough at headquarters.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

Hawks have been present in normal numbers during the year. Most species were more active after the mouse die-off in the spring when the birds had to put more effort in their foraging.

A red-tailed hawk nest was examined May 26 by Hogge and Kraft. Two young birds were in the nest. One was alive and active; the other had two porcupine quills in its body (see photos) which had killed it. Only mouse and chipmunk remains were found in the vicinity of the nest and it was assumed the porcupine had entered the nest for some unknown reason and the young hawk was impaled.

Several prairie falcons were seen during the year.

Golden eagles are commonly seen throughout the range area but are not plentiful. We doubt that more than four have been present at any one time. A mature golden eagle was watched on June 25 as it plummeted about 100 feet and took a Brewer's blackbird in mid-air. Two red-tailed hawks, one with a small rodent in its talons, immediately set upon the bird. There was considerable screaming and wing-beating but, when last seen, there had been no exchange of prey between the birds.

Bald eagles were seen on the refuge four times during the year, on January 2, May 22, June 19 and November 9. These majestic birds are not residents on the refuge, but are seen passing through from time to time.

Great-horned, long-eared and short-eared owls have been seen occasionally during the year but are not overly abundant. One burrowing owl was seen.

Crows and ravens were present but not common. Magpies have been present in their usual large numbers.

F. Other Birds

Although the opportunities for bird studies in this area are tremendous, the time for this work is infinitely scant. Following are a few observations:

- Pygmy Owl - Henry heard and saw more pygmy owls last winter (1963-64) than in any similar period since coming to this refuge in 1958.
- Pine Grosbeaks - Six seen by Victor May on Mission Creek January 16.
- Red Crossbills - Five immatures worked over the dried flowering crab apples at headquarters on January 8.

Black-chinned Hummingbird - On June 8 we had them around headquarters all day, as many as 8 or 10 at a time. None seen before or since during this year.

Lark Bunting - A female noted by Watson Beed on June 9, and a male seen by Beed and Henry on June 10. This is a new record for the National Bison Range.

Wood Duck - A family of young wood ducks seen near headquarters in July; almost full grown.

Mourning Dove - One present most of December 1964.

G. Fish

Nothing to report.

H. Reptiles and Amphibians

As usual, rattlesnakes have received more attention than other reptiles, but were present in about the usual numbers. A total of 15 rattlers was removed from the refuge during the year. Six were killed within one-quarter of a mile of the headquarters area.

Other reptiles commonly seen were gopher snakes, yellow-bellied racers, common garter snakes and painted turtles.

Amphibians commonly seen during the year included the slender-toed salamander and tree frog.

I. Diseases

Blood samples were taken from all but one buffalo and most of the deer and elk killed during the 1964 disposal season. These samples were tested for the presence of antibodies for brucellosis. Of the 75 samples from buffalo, one gave a suspicious reaction and the others were negative. This is not too uncommon and is attributed to vaccination rather than the presence of brucellosis in the herd. The results from deer and elk samples have been negative on all reports received to date.

Considerable time was spent examining the viscera of butchered buffalo for the presence of Setaria, sp., a cerebrospinal nematode which spends the adult stage of its life in the peritoneal cavity of the host animal. Two of these worms were found and collected for Dr. Chuzaburo Shoho, a parasitologist of Takarazuka, Japan. Dr. Shoho needed the specimens to determine which Setaria is native to the bovine of North America.

An unusually heavy tick population was present this year. All animals, which were examined, had large numbers of ticks on them. There were, to the best of our knowledge, no cases of tick paralysis, however.

As pointed out under "Buffalo" in this section, there was an unusually high incidence of disease in our herd this year..

Those cases which could be diagnosed are outlined below.

Two cases of scouring in calves were treated. Klunk, the orphan heifer, scoured shortly after she was brought in to headquarters. This appears to be a regular occurrence in orphaned calves and causes little concern as treatment with antibiotics readily corrects the disorder. A bull calf in the exhibition herd also had a severe case of scours. This calf was captured and treated with anticiotics and was given a liter of saline intravenously to compensate for his dehydrated condition. The animal recovered completely.

A mature cow in the exhibition herd which failed to clean properly after giving birth to a calf finally cleaned after about one week and apparently suffered no ill effects.

On June 6, a yearling heifer was killed and autopsied by Dr. Raymond Keyser, local veterinarian. This animal had been seen for several weeks and appeared to be quite tame. The winter hair had not shed properly and the animal had a general unthrifty appearance. It was also blind at the time of autopsy and seemed depressed. The above, and other signs and symptoms, pointed to an encephalitic condition. The autopsy showed nothing out of the ordinary except enlargement of the parotid lymph nodes. Specimens of brain and lymph tissue were sent to the Veterinary Research Laboratory, Bozeman, Montana. Bacterial cultures showed the presence of Flavobacter, Escherichia Coli and Aerobacter aerogenes. These are all normal intestinal bacteria, but become pathogenic when introduced into the general body.

A live yearling bull was hauled to the Laboratory in Bozeman, killed there, and autopsied September 11. This animal was first noticed September 4. Emaciation, bloody diarrhea, bloody nasal discharge, apparent pain and reluctance to move were the general outward appearances. At the autopsy, hemotological examination showed neutropenia. A fecal egg count of 1500 per grain, including 25 Nematodirus sp., was made. Many lungworms, Dictyocaulus viviparus, were present in the bronchi. Extensive necrotic ulceration of the nasal mucosa, tongue, esophagus, rumen, omasum and, to a lesser extent, abomasum was present. The rumen was perforated at a place where the wall was completely necrotic. Necrotic abscesses were present in the kidneys. Bacterial cultures of Clostridium nouyi and Actinobacillus lignieresii were obtained. Spherophorus necrophorus was apparent in gram stains. The lesions and symptoms strongly resemble the mucosal disease in cattle. Actually, this case was probably advanced necrotic stomatitis which has been diagnosed in our buffalo herd before - the most recent previous case having occurred in June 1963.

As pointed out earlier in this report, the diseases of the various animals cannot be tied together and we must conclude that several different diseases were responsible for our losses.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Accelerated Public Works Program

In the last Narrative Report, we gave a description of this Forest Preservation work, along with a collection of photos to illustrate the scope and character of the job. Additional photos are included in this report.

During the entire project, which ended on January 21, 1964, a total of 600 acres was improved, and the residual trash burned on 500 of those acres. Where feasible, the by-products of this work were saved, processed and hauled to headquarters. This included an estimated:

- 1900 - 7-foot wood posts (Juniper)
- 2000 - 10-foot wood posts "
- 160 - logs, juniper (for lumber or miscellaneous)
- 150 - ricks (50 cords) of firewood

Wooden Post Transfer

As a side result of the A.P.W. project, we were able to transfer a sizeable amount of posts to another area. Refuge personnel helped load out 1536 of the wooden posts for the Charles M. Russell Refuge. These included 1301 of the 7-foot and 235 of the 10-foot posts. They were all cut from Rocky Mountain Juniper (J. scopulorum), one of the best post woods known.

Flood

Heavy rains on June 7 and 8 caused one of the worst floods in the history of western Montana. Prior to the deluge, much of the accumulation of winter snow still lay on the Mission Range. Another important factor was the dry weather during May. Irrigation in the surrounding country was being conducted at full capacity. The heavy rains caused the melting of much snow and inspired everyone to dump their irrigation water in the quickest manner possible. The result was a considerable flood in Mission Creek (see photo section).

Although much of the cleanup and repair work still remains to be done, there were certain jobs that had to be done immediately --especially some of the essential fence and road repairs. As a result, over \$2,000 of the \$13,000 flood damage money allotted us was spent before we got it.

Fence Rehabilitation

This work continued whenever the opportunity presented itself. Most of the work was done in the Elk Lane at the head of Pauline Creek. The east and south sides of the elk exhibition pasture were fenced. After the flood, repairs were necessary to

fences in the elk exhibition pasture, the steer pasture, the horse pasture and the picnic area fence (see photos). An estimated two miles of fencing was accomplished. At one location in the elk pasture, it was necessary to haul 120 cubic yards of fill to establish a firm footing for the fence.

Roads

All refuge roads were graded once during the spring season. This serves the dual purpose of getting the roads in shape for the busy season and of removing the vegetative growth to reduce the fire hazard. The roads should have been worked again in the fall, but time did not permit.

An application of 50 cubic yards of crushed gravel was placed on the Ninepipe entrance road.

The lower portions of the Bison Range exhibition pasture road were gravelled, and a large arch culvert installed to replace one of the old bridges in the irrigation canal. A total of 85 cubic yards of rock fill and gravel was hauled to complete this job.

The main bridge across Mission Creek at headquarters was repaired, and running planks installed.

Buildings

Two new fiber glass overhead garage doors were installed at Quarters 2 to replace the old wooden sliding doors.

A new fully enclosed entry-way was constructed at the back entrance to Quarters 63.

A new furnace was installed in Quarters 64 to replace the old worn out and obsolete model. This was accomplished by informal bid invitations.

New florescent light fixtures were installed in the Ninepipe office and in the Bison Range back office.

The interior of the old cow barn was remodeled to provide storage racks for stocks of G.S.A. plywood. This is more efficient and economical than having to run in to town every time one needs a piece of plywood.

Much miscellaneous repairing, cleanup and reorganizing of buildings was accomplished.

New electrical wiring was installed in several of the buildings, such as the horse barn, cow barn, equipment buildings and slaughter house. This was done to replace obsolete or deteriorating wire, BX cable and the like. A total of \$700 was expended on this activity.

The slaughter house was painted and new roofing put on. This building was also improved by the addition of stainless-steel sink and sterilizers.

New plank steps and landings were installed on the Highpoint Lookout Tower.

Metal numbers were placed on all buildings showing the correct real property number of each.

In order to improve the appearance of the headquarters grounds, the lawn area was enlarged. The largest addition was a strip between the office and the exhibition pasture. The other was an idle space east of Quarters 3. This improvement required the hauling of 112 cubic yards of top-soil, considerable leveling, rolling, fertilizing and seeding. The office lawn irrigation system had to be changed entirely.

Hay meadows and exhibition pastures were fertilized and irrigated as needed. The first irrigation was necessary on April 16.

Surplus Animal Disposal Program

As usual, the fall season was almost completely taken over by this activity. First the preparations for, and then the annual roundup of the buffalo and sale of live animals. Then came the antelope, deer and elk disposal, followed by the buffalo butchering. A total of 283 animals was disposed of; live buffalo 23, butchered buffalo 76, antelope 89, deer 79 and elk 16.

Soil and Moisture

During the spring period, a considerable amount of weed spraying was done. This is more fully described under "D. Control of Vegetation." A great deal of seeding was accomplished, and this is summarized under "B. Planting."

No soil and moisture work was accomplished during the current fiscal year because of the personnel ceiling.

Travel

Richardson travelled to the Wichita Refuge in Oklahoma during the period October 15 through 24, in company with Norman Warneke of the Charles M. Russell Refuge, and brought back eight Texas longhorn steers for refuges in Region I. Three of these were for the C. M. Russell Refuge, two for the Bison Range, and three for the Malheur Refuge in Oregon.

Miscellaneous

Constructed a herbarium (see photos).
Shop work and mechanical maintenance.

Distributed range salt.
Care and conditioning of horses.
Assisted University students with research as needed.
Phone line repairs and installed spacers.
Wrapped and shipped hides, heads, meat, etc.
Repaired and/or painted signs.
Installed new intercommunication system between office and shop.
Peeled and treated fence posts.
Banded ducks on Ninepipe and Bison Range.
Installed new irrigation headgate for hay meadow.
Hauled five pickup loads of waste apples from Polson for deer feed.
Patrol and maintenance of fences and flood-gates.
Put up winter hay supply.
Sorted, mounted colored slides.
Usual office routine, property inventory, and so on.
Conducted daily tours in season.
Cleanup, mowing and care of headquarters grounds and picnic area.
Moving, feeding, doctoring and care of animals.
Much snow removal in late December.
Hauled wood and water to Highpoint.

B. Plantings

Largely as a result of the A.P.W. program, a greater than usual amount of range reseeding was accomplished. A total of 115 acres was planted to the seeds of a variety of grasses and legumes. This 115 acres breaks down as follows: $12\frac{1}{2}$ acres of rangeland which was covered predominately with cheatgrass were spring-toothed and seeded to grasses in an attempt to get a stand of more desirable vegetation started. Five acres in the horse pasture were reseeded. The remaining $97\frac{1}{2}$ acres of seeding on disturbed areas in timber stands and creek bottoms following A.P.W. timber stand improvement work.

Twenty-five pounds of Kentucky bluegrass, white Dutch clover and redtop were used to seed new lawns developed in the headquarters area.

Five pounds of buffalo grass (Buchloe dactyloides) seed were planted in buffalo wallows (see photos) in an experimental attempt to establish some vegetation on these bare areas. This grass is not native in this area but, if successful, it will serve a very useful purpose.

An experimental planting of bear grass seed was made in the Sheep Pasture.

C. Collections and Receipts

None

D. Control of Vegetation

Vegetation control has mainly been limited to Canada thistle and arrowleaf balsamroot. Thistle spraying was primarily

in the Mission Creek bottoms, Elk Creek and other drainages. The balsamroot spraying was a continuation of experimental work with this plant and is covered more completely in Section V of this report.

Several small patches of butter and eggs (Linaria vulgaris) were treated to prevent the spread of this noxious weed.

Annual Spraying Summary

Canada thistle (Cirsium arvense)

Total acreage treated:	98		
Treatment dates:	5/22/64 to 6/29/64		
Growth stages treated:	Early leaf to bud		
Chemical used:	2,4-D Amine		
Rate of Application:	2 lbs. acid equivalent per acre		
Method of application:	Truck and Tractor mounted sprayers		
Results of spraying:	Variable, generally good kills		
Cost analysis:			
Materials	\$102.00	Total Cost	\$664.92
Wages	474.22	Cost per acre	6.78
Equipment	<u>88.70</u>		

Butter and eggs (Linaria vulgaris)

Total acreage treated:	1/5 acre		
Treatment dates:	5/13/64 to 7/29/64		
Growth stages treated:	Full leaf to full bloom		
Chemical used:	2,4-D Amine and Telvar		
Rate of application:	2# a.e./acre 10-50 lbs/acre		
Method of application:	truck mounted and hand sprayers		
Results of spraying:	Apparent kill good		
Cost analysis:			
Materials	\$ 1.00	Total Cost	\$ 22.40
Wages	19.40	Cost per acre	112.00
Equipment	<u>2.00</u>		

Arrowleaf balsamroot *(Balsamorhiza sagittata)

Total Acreage treated:	225		
Treatment dates:	5/18/64		
Growth stages treated:	Just emerged to full bloom		
Chemical used:	2,4-D Amine		
Rate of application:	2 lbs. acid equivalent per acre		
Method of application:	Aerial		
Results of spraying:	Apparent 100% kill; actual ?		
Cost analysis:			
Materials	\$217.15	Total Cost	\$485.39
Wages	43.24	Cost per acre	2.16
Equipment	<u>225.00</u>		

* See Section V of this report

E. Planned Burning

None

F. Fires

Only one fire occurred during the entire year, on April 20, 1964. A farmer on the south side of the Jocko River was burning brush and permitted the fire to get away. It crept into the Bison Range in the west triangle, south of the Jocko River. It burned over about one-half acre of river-bottom brush and cottonwood trees. The fire was extinguished by refuge personnel. Damage was not significant.

IV. RESOURCE MANAGEMENT

A. Surplus Buffalo Disposal Program

1. Live Sales

As usual, there was no lack of applicants for live buffalo this year and about the middle of August, letters were sent out with a firm offer of sale to enough applicants to cover the number of live animals available. It had been determined that 30 buffalo would be sold alive. Many of these applicants failed to respond to our letters or wrote to cancel their orders, and it was then necessary to write another batch of letters to other applicants. Eventually, we had sold 26 animals. Before the animals were ready for delivery, however, one of the purchasers met with a bad farm accident and found it necessary to cancel his order because he would be unable to take care of them during the many months of hospitalization facing him. His money was refunded. Following is listed the essential information on the 23 buffalo, 8 bulls and 15 heifers, sold alive:

<u>Consignee</u>	<u>Number</u>	<u>Sex</u>	<u>Age</u>
Stanley Girtler			
Box 245, Pleasant Valley	1	Bull	
Winona, Minnesota 55987	1	Heifer	Long-yearlings
Darrell Maulding			
Star Route, Box 66	1	Bull	
Silverton, Oregon	2	Heifers	Long-yearlings
Mrs. Dorothy Rubino			
1095 Hillsdale Avenue	1	Bull	
San Jose, California	1	Heifer	Long-yearlings
Elwyn West			
Route 3	1	Bull	
Waupaca, Wisconsin	1	Heifer	Long-yearlings
L. R. Houck			
Triple U Enterprises	1	Bull	
Pierre, South Dakota	2	Heifers	Long-yearlings

<u>Consignee</u>	<u>Number</u>	<u>Sex</u>	<u>Age</u>
Jack Hash Roscoe, Montana	2	Heifers	Long-yearlings
Don Murphy Box 188 Eatonville, Washington	1 2	Bull Heifers	Long-yearlings
Art Nutting Eureka, Montana	1 2	Bull Heifers	Long-yearlings
Robert F. Harkinson 2166 El Camino Real San Mateo, California	1 2	Bull Heifers	Long-yearlings

2. Meat Sales

As stated in Section III of this report, a total of 76 buffalo was butchered this year. These consisted of the injured cow slaughtered immediately after roundup in October and 75 animals butchered in early December. The age and sex composition of the butchered buffalo was as follows:

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
4 to 9 years	11	26	37
3 Years	6	12	18
2 Years	<u>21</u>	<u>0</u>	<u>21</u>
Totals	38	38	76

This year all the requests from clubs were filled first and these amounted to 13-3/4 animals. Then a drawing of individual and commercial applications was held and the remainder of the meat was allotted in accordance with the names drawn. Figuring on a percentage from the number of applicants in each category, it was determined that approximately seven animals would be sold to commercial sources and the remaining animals would be sold to individuals. Two carcasses were reserved for Washington Office disposal but not used, and were released to us on October 1. Likewise two other carcasses were reserved for the Regional Office. They sold one-half carcass to a club in Elmo, Washington and the other one and one-half carcasses were released to us on November 25. Three carcasses were donated through the Superintendent at the Flathead Indian Agency to schools on this reservation having Indian children in attendance.

It is interesting to note that, although the applications seem to remain about static for clubs and commercial establishments, there has been a decline in applications from individuals in recent years. For instance, in 1962 we received 662 applications, in 1963 this figure dropped to 506, and in 1964 we received only 462 applications. This is a drop of 200 applications in three years. For

the past several years, we have been able to fill only one out of five or six applications in this group, and we believe this might be the explanation for the reduced number of applications received. Many people lose interest after applying for several years and never receiving any meat. By subjecting the commercial applicants to a drawing this year, many of these orders did not get filled and that released more meat for individual purchasers. This resulted in our being able to fill practically one out of two applications in this category this year.

The following figures show the breakdown of applications received and orders filled. The two orders not filled in the club category resulted from cancellations.

<u>Category</u>	<u>Applications Received</u>	<u>Orders Filled</u>	<u>Total Animals Sold</u>
Clubs	32	30	13-3/4
Commercial	31	14	6-3/4
Individuals	462	208	52
Donation to schools w/Indian children in attendance			3
Sold by Regional Office			<u>1/2</u>
		Total Animals	76

The drawing for the meat was held this year on October 1, according to new directives, and was accomplished by Mrs. Joyce Lott of Moiese, Mr. Francis Wamsley of Charlo, and Mr. A. W. Makinster, Bureau of Indian Affairs, St. Ignatius, Montana. In previous years, the drawing has been held following the buffalo roundup and the census figures for this event were used to determine the number of animals to be butchered. Commencing this year with the earlier date for the drawing, the number to be butchered is determined by the previous year's census figures.

After notices were sent out to successful applicants in the drawing to send in their remittances and shipping instructions for the meat, a total of 64 cancellations occurred. Last year the number of cancellations was only 27. This required sending out another flood of notices to the next names on the list. In many cases, it was necessary to send out still a third notice before all the quarters of meat were sold. Each of these delays absorb just so much time and the result is that we generally start butchering before all the meat is sold. This was the case this year, as usual, but we did manage to finish the sales before butchering was completed. There is a limit to the amount of time we can keep meat hanging in the slaughter house without any artificial refrigeration. The weather was quite ideal this year, however, so there was no concern.

3. Sale of Buffalo Hides

In January 1964, there were still 26 hides left from the 1963 buffalo disposal. Sixteen of these were sold for established

prices and brought \$265.00. The remaining ten were included in the hide bid in February and sold for \$166.00. Adding these figures to \$705.00 received during December 1963 for 36 hides, we come up with a total of \$1,136.00 for the 62 buffalo hides from the 1963 disposal, or an average return of \$18.32 per hide. We consider this very good.

The demand for hides from the 1964 disposal was nothing short of sensational. Even before butchering was completed, we were turning purchasers down for the bull hides. At the end of December, we had sold 65 of the hides from the 75 buffalo butchered that same month. These brought a total of \$1,170.00 for an average of \$18.00 per hide. Five of the hides were shipped to Germany and 13 were sent to Banff, Alberta, Canada. Eleven hides remain to be sold, and these are composed of one large bull hide for head mount, one hide taken in October and not prime, and nine cow hides, most of which would be classed as "seconds".

4. Sale of Skulls

The price of bull buffalo skulls was doubled this year in an effort to discourage the casually interested persons from purchasing them. The demand is such that year after year we sell every available skull, whereas we would like to retain several of the larger skulls at least to weather and bleach. We often get requests for skulls for some particular need, such as photographic work, which we would like to supply, but generally the skulls have all been sold and none is available when requested. The increase in price, however, failed to dampen purchasers' interest and, once again, less than one month after our annual buffalo disposal, every bull skull has been sold, along with most of the cow skulls. Our price now is \$3.00 for cow skulls, \$5.00 for 2 and 3-year old bull skulls, and \$10.00 for 4-year and older bull skulls.

During 1964, 45 buffalo skulls were sold for \$191.00. In the case of hides which have been skinned for mounts, the skulls are included in the cost of the hides and therefore do not come under this income shown for skulls alone.

B. Surplus Elk and Deer Disposal

1. Meat Disposal

Sixteen elk and 79 deer were removed during the fall disposal season. These big-game carcasses were shipped to schools in Montana for use in the hot lunch program for a handling charge of \$25.00 per elk carcass and \$5.00 per deer carcass. Arrangements for this program are made through the State Department of Public Instruction, Helena, Montana. They contact the schools and furnish us a list of the schools wishing to receive the meat. We ship direct to each school, but bill the Helena office for payment and they collect from the individual schools.

Two of the deer were either under-size or some of the meat had been trimmed away from a misplaced shot, and there was no

charge made for them although they were included in the shipments. The State Department was charged for 77 deer and 15 elk for a total of \$760.00. One elk was sold to the County Extension Office in Ronan, Montana for use in the Lake County 4-H Council Junior Fair which is held annually in August. Authorization for this sale was made many years ago and they repeat the request each year. The regular charge of \$25.00 is made for this elk carcass.

2. Sale of Elk and Deer Hides

The 39 deer hides and 15 elk hides from the 1963 disposal were sold in February 1964 at our annual bid sale. The deer hides brought \$82.90 and the elk hides \$56.50.

One deer hide has been sold from the 1964 disposal for \$2.50. The sale of 40 white-tailed deer tails brought a return of \$14.00. This is the third year in succession the tails were requested by purchasers for use in making fishing flies.

3. Sale of Antlers

Only four sets of deer antlers were sold during the year for \$2.00 a set, bringing a return of \$8.00.

C. Proceeds of Sales

Listed below are the receipts from sales for the period January 1 through December 31, 1964:

Live buffalo	\$4,600.00
Butchered buffalo	16,720.00
Deer and elk meat	785.00
Buffalo hides	1,601.00
Deer and elk hides	141.90
Buffalo skulls	191.00
Deer and elk antlers	8.00
Deer tails	14.00
Marsh concession	552.19
Sale of used batteries	20.80
Sale of used vehicles	1,380.60
Sale surplus bldg.-Pablo	25.00
Sale surplus, used property	<u>424.82</u>

Total Sales \$26,464.31

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Mule Deer Study

The study of our mule deer herd by Carl H. Nellis, graduate student at Montana State University, which was started in November 1962 was completed in January of this year. Mr. Nellis has since completed his thesis and received his M.S. from the University and is now working on his Phd. at the University of Wisconsin. The thesis from this project is entitled "Mule Deer of the National

Bison Range" and contains 147 pages of excellent information on the productivity, population dynamics, skeletal size, food habits and physical condition of our mule deer herd. This study was handled better and produced more good information than any research project carried out on the Bison Range in recent years. Although 33 mule deer were sacrificed for the study, the information received was well worth the animals taken. It is a pity more researchers cannot make such complete use of collected animals.

B. Buffalo Weight Loss Study

This study, usually carried on by our student trainee, was not active this year.

C. Buffalo Age, Weight and Longevity Study

This study has evolved from our buffalo weight loss study. At the present time, we have 20 buffalo branded in such a manner that makes them readily identified as individuals. We plan to mark an additional four animals, two bull calves and two heifer calves, each year. These animals will be allowed to live out their lives with their weights and general condition being noted at every opportunity.

D. Experimental Balsamroot Spraying

This project was carried on for the second year. A 215-acre area was laid out in Alexander Basin during the spring. Five plots of 1/100 acre each were established in the sprayed area. A control plot was established adjacent to the sprayed area. Counts were made of the individual balsamroot plants in each of the plots and photos were taken of each plot before spraying.

In addition to the density plots, two modified Parker three-step-transects were installed in the experimental area, and six exclosures - three in the spray area and three in the control area - were put out to check differences in forage production.

The plots, transects and exclosures are to be checked annually to determine the effects of the spraying. No further large scale spraying projects on balsamroot will be carried out until the information has been gathered and analyzed.

E. Experiment in Tranquillizing and Anesthetizing Drugs

This study has received the approval of the regional and central offices. An unexpected delay in obtaining equipment, however, has held up actual field work and we can report nothing beyond having a good stock of drugs on hand and a Paxarm gun on order.

F. Chrysolina Beetles

Our Chrysolina beetle population has not done well at all the past three years. We suspect, though we can't be certain, that backward spring weather has been the most important factor in holding down our beetle numbers. Our last good population which exhibited good control on goatweed occurred in 1961. At the present time, goatweed is not being controlled and is spreading rapidly. We hope to introduce more beetles from a northern source next spring in an attempt to revitalize our population. If this does not work, we may eventually have to start spraying again. It is hoped that this will not become necessary as spraying is an expensive, time-consuming job, and it kills off a vast number of valuable forage plants along with the goatweed. The goatweed spraying is a never-ending job.

G. Refuge Plant Collection

Our refuge herbarium now contains 138 mounted plant specimens. We have about 40 more specimens to be mounted and will continue collecting until a representative sample of our flora is included in the herbarium.

Our herbarium (see photos) is patterned after that designed at Shiawassee National Wildlife Refuge. We have, however, made several changes which we think are improvements. The boxes are constructed of 3/4 inch plywood with the hanging rails attached permanently to the sides. Hanging file folders are split and a standard herbarium sheet with mounted plant specimen is stapled to each half. The specimen is then covered with a sheet of adhesive-backed acetate to protect and preserve it. Color coding for order, family, genus and species is used for ease in locating specimens.

H. Duck Banding

This project is covered in Section II of this report.

I. Ticks

The spring of 1964 was one of our worst for ticks. To the best of our knowledge, we had no actual cases of tick paralysis although the high population may have been an important factor in the higher incidence of disease this year. Our estimate of the tick population at its peak "runs about five bushels to the acre."

J. Hemlock Loopers

An outbreak of the false hemlock looper (*Nepytia*)* was first discovered by the U.S. Forest Service on August 2, 1963 during the course of an aerial survey for detecting insect and disease damage. This was carefully watched by that Agency during the rest of 1963, and in the spring of 1964 a request was made by them to spray the infested areas. This request was refused. The infestations caused some concern because of the possibility that the Bison Range might serve as the nucleus for a severe outbreak. Our Service, however,

felt that natural controls should terminate the infestation before it ever left the refuge. As far as actual damage to the range is concerned, we do not feel that the Loopers are anything to be alarmed about. They feed on the Douglas fir exclusively, and the rapid increase of this tree has not been a cause for happiness here. Our main aim is for good range land.

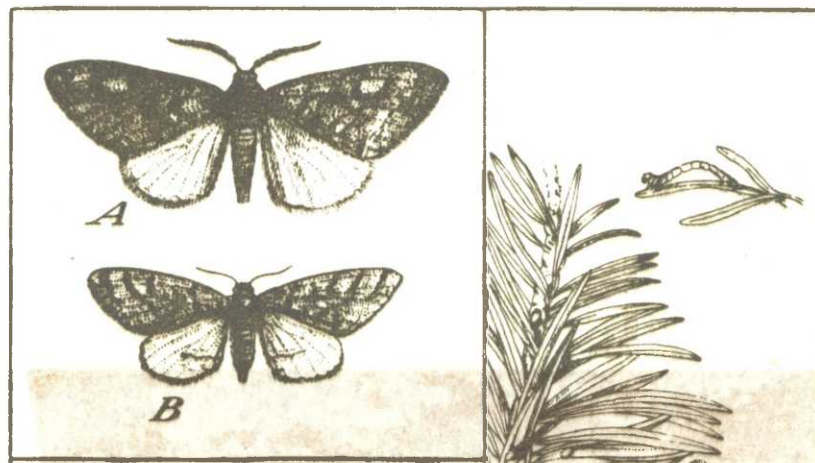
There is no way of forecasting what will happen in 1965, but the infestation should be carefully watched. There is always the possibility that it will continue, and if it becomes severe we might even lose a few trees, but the end result could even be an improvement to the range.

*(This insect was first tentatively identified as Nepytia canosaria, but subsequent work showed that it could be N. freemani.)

INSECT ENEMIES OF WESTERN FORESTS

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The Monterey pine looper (*Nepytia umbrosaria* (Pack.)) in the larval stage is a light-green, smooth caterpillar, which ties the needles of young Monterey pines together at the tips of branches and feeds on them in central California. The adult moth is mottled gray with a wingspread of about 1½ inches. **The phantom hemlock looper** (*Nepytia phantasmaria* (Stkr.)) feeds on western hemlock in Washington and British Columbia, often occurring in large numbers in outbreaks of the hemlock looper or blackheaded budworm. The moths are white with numerous black markings on the wings. **The false hemlock looper** (*Nepytia canosaria* (Wlkr.)) feeds on hemlock, Douglas-fir, larch, and spruce in the Northwest and Canada.



VI. PUBLIC RELATIONS

A. Recreational Uses

After Labor Day the visitor pressure began to decline but remained moderately heavy through Thanksgiving. The mild fall weather, plus more newspaper publicity than usual, kept good numbers of people coming. We had no really cold weather until mid-December, and snowfall was light.

Mobs of people came in during the Annual Roundup. The increasing popularity of this event continues to make it more cumbersome to handle. With the forthcoming Saturday Evening Post coverage of the event, it is anticipated that we will be completely overwhelmed with visitors next year. A grandstand and revision of part of the catwalks is becoming a dire necessity.

The daily conducted tours began on June 18 and ended on Labor Day, September 7. There was a slight increase in the number of participants. A detailed account was carried in the Student-Trainee Narrative Report. A summary for the past five years follows:

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Number of Tours	57	62	68	82	82
Number of Cars	248	232	397	539	554
Number of People	1,115	1,030	1,792	2,451	2,501

B. Refuge Visitors

Jan. 28 Mr. Mel Ruder, Hungry Horse, Montana (information and photographs for newspaper)
Jan. 30 Mrs. Elizabeth Hannum, MSU (information for article on Bison Range)
Jan. 30 Mr. Gene Grand; P. & R.C., Billings (courtesy call)
Feb. 3 Mr. Ash Brann; G.M.A., Helena (enforcement instruction)
Feb. 17 Mr. Walt Allen; B.S.F.&W., Kalispell (to borrow saddles)
Mar. 5 The van Dykes, a family of missionaries en route to Africa
Mar. 17 Mr. Ash Brann; G.M.A., Helena (courtesy call)
Mar. 24 Mr. Arnold Tyler; St. Ignatius, Montana (arrange for Annual Saddle Club ride)
Mar. 26 Messrs. Scott Tunnock and Ken Keefe; U.S.F.S., Missoula (contact regarding Hemlock Loopers)
Mar. 31 A "group from England" given range tour by Mr. Beed
Apr. 5 Missoula County Search & Rescue Association (30) (range tour)
Apr. 17 Biology students & teachers; Elk River, Idaho (15) (range tour)
-18
Apr. 18 Professor Bailey and Ecology Class (25) MSU (range tour)
Apr. 20 Professor Larry Barsness, MSU (information for buffalo book)
Apr. 30 Messrs. Tunnock & Keefe; U.S.F.S., Missoula (checking on Loopers)

May 6 Mr. Ash Brann; G.M.A., Helena (courtesy call)
 May 10 Mr. Maurice Hornocker; Wildlife Research Unit; MSU (range tour)
 May 10 Annual Saddle Club Ride (144) Sponsored by Mission Range Riders,
 St. Ignatius, Montana
 May 16 Grantsdale School (26) Grantsdale, Montana (talk and tour)
 May 17 Boy Scout Group (150) (picnic and tour)
 May 20 Ronan School (130) (picnic and tour)
 May 20 Messrs. George Wiseman and Mervin Cross; Regional Office, Port-
 land (inspection)
 May 20 Messrs. Krest Cyr, Attorney; John Mack, Manager, Right-of-Way;
 Don Olson, Engineer, Montana Power Company (in to see about
 R/W across the Bison Range)
 May 20 Mr. Don Ryerson; Range Management School, MSC, Bozeman (tour and
 photos, and arrangements for range management short course)
 May 21 Camas Prairie School (25) Camas Prairie, Montana (tour)
 May 22 Messrs. Si Kambo and Don Olson, Montana Power Company (regarding
 right-of-way)
 May 25 Mr. Don Cooper; DeBorgia, Montana (photography)
 May 26 Home Demonstration Club (40) Missoula (talk and tour)
 May 27 St. Francis Xavier School (45) Missoula (talk and tour)
 May 28 Dixon School (100) Dixon, Montana (tour and picnic)
 May 29 Moiese Valley Community picnic (150)
 Jn. 12 Mr. Bob Millhouse with two groups of advanced biology students
 & 19 (25) Polson, Montana (range tours)
 Jn. 15 Mr. and Mrs. Franz Reid; Switzerland (range tour)
 Jn. 19 Miss Mary Meagher, Biologist; Yellowstone National Park (tour
 and information)
 Jn. 20 Mr. Jed Wilson and group of Boy Scouts; Drummond, Montana (tour)
 Jn. 20 Mr. Jim Rice; California (photography)
 Jn. 20 Messrs. Ash Brann and Donald Combs, U.S.G.M. agents for Montana
 (introduce Combs)
 Jn. 21 Mr. and Mrs. Jean Piatt; Media, Pennsylvania (birders)
 Jn. 21 Messrs. George Wiseman, Regional Office, Portland; Wm. Berry and
 Elroy R. Lumb of the Washington Office (inspection, Soil and
 Moisture)
 Jn. 21 Messrs. Herbert Krause, Augustana College, South Dakota, and
 Wayne D. Duenow, Fergus Falls, Minnesota (after information for
 book on the bald eagle)
 Jn. 21 Tunnock and Keefe again, to check up on the Looper infestation
 Jn. 25 Mr. Don Adkins; U.S.G.S. (regarding mapping of area)
 Jn. 25 Mr. Elmo See; Regional Office, Portland (in to audit Marsh
 concession)
 Jn. 27 Mr. Roland Rotty; U.S.F.S., Washington D. C. (information and tour)
 Jn. 29 Extension Agents Range Management School held on Bison Range.
 -30 Participants included the following: Don Ryerson and Jack
 & Jy.1 Taylor, Leaders, MSC, Bozeman; Richard Bauer, Vo-Ag, and Ed
 Bratton, County Agent, Ronan, Montana; Virg Dutton, Rancher,
 Libby; John Wicks, County Agent, Superior; Max Stark, Vo-Ag,
 Polson, Montana; Noble Dean and Allen Nelson, County Agents,
 Kalispell; Louis Rollman, County Agent, Libby; Howard Strobel,

- County Agent, Deer Lodge; Jim DeBell, County Agent, Hamilton; Thad Wajiechowski, County Agent, Missoula; Olaf Johnson, Vo-Ag, St. Ignatius; and Mike McGousky, Soil Conservation Service, Klamath Falls, Oregon
- June 30 Primary group, (50) L.D.S. church, St. Ignatius (picnic)
- July 1 Half-day tour to following group: Dr. Gene F. Payne, Technical Leader, Mr. Bill Hay, Driver and Ass't. Leader, and Mr. Bill Breeden, Driver and Ass't. Leader, all of Bozeman, with the following Foreign Trainees: Messrs. Neophyton, Cyprus; Tankymanyire, Uganda; Ogunboya and Laryea, Ghana; Conteh, Sierra Leone; Khatami, Iran; Alwahayyib, Iraq; Taraore, Traore, Bolij, and Cire-Ba, Upper Volta; Mordant, France; Gareba, Nigeria; Bodawi, Sudan; and Ibran, interpreter, Spain and Washington D. C.
- July 2 Dr. J. J. Shebl; Salinas, California; sculptor (study buffalo)
- July 2 Drs. Phil Wright, MSU, and W. R. Eadie, Cornell University, Ithaca, N.Y. (tour)
- July 7 Messrs. Samuel Ipoot, Uganda, East Africa, and Daniel Sindiyo
-18 Kenya, East Africa (practical training in wildlife management)
- July 7 Drs. Bailey, Twente, and Stein with 33 students from MSU biological station at Yellow Bay (field trip on range)
- July 8 Mr. E. J. Gaclitz and family; Bureau of Commercial Fisheries; Seattle (tour)
- July 9 Dr. Stein and 18 students; MSU biological station (birding trip)
- July 10 Mr. Rolf Kaltenbach, lecturer-photographer, Stuttgart, Germany
- July 12 Captain and Mrs. Woods; Annapolis, Maryland (birding)
- July 12 Pacific Northwest Travel Association group including Dorris Stalker and Ashley Roberts of Montana Highway Department; Miss Nancy Pennington of Sunset Magazine; Mr. John Holdgren of Motorland Magazine, and Miss Francis Murphy of the Akron Beacon
- July 13 Dr. W. R. Eadie and ten mammalogy students from MSU biological
-14 station (annual microtus study)
- July 14 Mr. and Mrs. Laurence H. Coffelt, artist, Emporia, Kansas (study
-15 of buffalo for mural)
- July 14 Mr. and Mrs. Allen D. Cruickshank; Audubon Society, Indian River,
-17 Florida (bird photographs)
- July 14 Mr. Wm. N. Preusse and family; Department of Justice, Washington D. C. (tour)
- July 18 Mr. Merle L. Bassett; Safety Officer, B.P.A. Portland, Oregon, (tour)
- July 19 Mr. Carl Nellis with group from MSU, Missoula (tour of range)
- July 22 Mr. Kenneth G. Johnson; Van Nuys, California (photography)
-23
- July 23 Mr. Russell Hoffman and family; Bowdoin Refuge (visit and tour)
- July 23 Mr. Cecil E. Guvser and family; Missouri River Basin, Billings, (visit and tour)
- July 24 Mr. and Mrs. Ed White; Sheldon Refuge (visit and tour)
- July 25 Drs. R. A. Solberg, director of MSU Biological Station and Majeed Ahmad, Department of Botany and Dean of Faculty and Science, Dacca University, Pakistan (tour)

- July 25 Mr. Don Cooper, lecturer-photographer, DeBorgia, Montana
(photography)
- July 28 Mr. James A. Dolph, Denver University (information for thesis
on American Bison Society)
- July 29 Mr. Wm. Hertler and party; Delaware Water Gap, Pa. (tour and
photography)
- July 31 Mr. Robert Fields and family and Mrs. Linda Wicks and daughters,
C. M. Russell Refuge (visit)
- Aug. 1 Mr. Curt Halvorson, B.S.F.&W., Missoula (courtesy call)
- Aug. 2 Charlo Lions Club (40) (picnic)
- Aug. 3 Mr. and Mrs. P. C. Cummin, Philadelphia, Pa., (birders)
- Aug. 7 Dr. and Mrs. Bailey, Cornell University (birders and tour)
- Aug. 8 Mr. Lloyd Ramalli and Mr. Bob Fields and family, C. M. Russell
Refuge (visit)
- Aug. 8 Mr. Hal Kanzler, writer-photographer; Kalispell, Montana (photo-
graphy)
- Aug. 12 Mr. Bob Scriver and Miss Mary Strahan, artists, Browning, Montana
-13 (painting bison)
- Aug. 12 Mr. Les Pengelly with six students from MSU, Missoula (tour)
- Aug. 12 Mr. Duane Toomsen, entomologist, MSU Biological Station (study
insects)
- Aug. 12 Mr. and Mrs. Owen H. Vivion, Medicine Lake Refuge (visit)
- Aug. 12 Mr. and Mrs. D. Haines Webster, artist; Wenatchee, Washington
(painting bison)
- Aug. 13 Dr. and Mrs. Durward L. Allen, Purdue University (photography and
-17 research for article on bison)
- Aug. 14 Group as follows, consisting mainly of some of the governing council
of the National Wilderness Society: Messrs. Ted Swem, N.P.S.,
Washington D. C.; Harvey Broome, president of the Wilderness
Society, and Mrs. Broome; George Marshall; Bob Cooney; Mike
Nadel; and Messrs and Mesdames Dick Leonard and K. D. Swan
(tour of range)
- Aug. 17 Messrs C. H. Lostetter, Portland R. O., and P. H. Lostetter,
Minneapolis (visit and tour)
- Aug 20 Approximately 100 cattlemen consisting of O'Brien County Cattle
Feeders, Pringhar, Iowa, and Lake County Cattlemen's Ass'n.
(picnic and range tour)
- Aug. 25 Mr. Walter Leuthold, Switzerland; presently research assistant at
W.S.U. (range tour)
- Aug 27 Rainbow Motion Picture Co., Denver, Colorado, under direction of
Mr. William N. Turnbull, Jr. (in to obtain pictures of wildlife
that they had been unable to get on the National Parks for a
contract film on our National Parks)
- Aug. 27 Messrs. Neil Reid, N.P.S., Omaha, Nebraska, and Francis Jacot, N.P.S.
Washington D. C. (courtesy call and short visit)
- Aug. 29 Messrs. Jean-Paul, Edward, and Philippe Foucault; Paris, France
(range tour)
- Aug. 30 Charlo Little League baseball team (40) (picnic)
- Aug. 30 Western Montana State Highway Department employees' and families'
picnic (70)
- Aug. 31 Montana Education Association (60) (picnic)

Sept. 5 Mr. and Mrs. Kenneth MacDonald, Regional Refuge Supervisor,
 R. O., Portland (courtesy call)
 Sept. 6 Messrs. Reginald H. Barrett, Wildlife Aide, C. M. Russell Refuge;
 and C. Fred Zeillemaker, Wildlife Aide, Medicine Lake Refuge
 (visit and tour)
 Sept. 7 Mr. Phil Johnson, U.S.F.S., Missoula (photography)
 Sept. 7 Mr. Peyton Moncure, writer-photographer, Missoula (photography)
 Sept. 8 Mr. George Devan, Ravalli Refuge, Stevensville (surplus property)
 Sept. 12 Mr. Bill Browning, Montana Chamber of Commerce, Helena (after
 movies)
 Sept. 25 Dr. William Jellison, Hamilton Laboratory, Hamilton, Montana, and
 Dr. Sixto Coscaron and family, La Plata, Argentina (tour of
 range)
 Sept. 29 Mr. John Rhea; Boone & Crocket Club, Charlottesville, Virginia
 (visit)
 Sept. 28 Mr. Bob Ross, S.C.S., Butte, Montana (several days' work and several
 visits in making a Range site and condition survey and analysis)
 Sept. 30 Mr. Bob Carpenter, Chief Naturalist, Lassen Volcanic National Park
 in California (visit and tour)
 Oct. 5 Mr. Bob Twist and family, Camas Refuge, Hamer, Idaho (deliver
 truck-load of grain)
 Oct. 7 Mr. Jona and Amelia Borgens, Ritzville, Washington, photographers
 -13 (photographing Roundup)
 Oct. 10 Mr. and Mrs. Roy Bongartz, writer, Foster, R. I., and Mr. Joern
 -14 Gerdts, photographer, Aspen, Colorado (to do an article for
 the Saturday Evening Post)
 Oct. 10 Dr. Phil Wright, head of the Zoology department, MSU (regarding
 antelope roundup)
 Oct. 14 Freshman class, Arlee High School (35) (to view roundup activities)
 Oct. 13 Mr. Leon Stumph, Park Ranger, State of Oregon (photographing
 -15 roundup)
 Oct. 15 Mr. Samuel J. Hutchinson, Regional Director, Bureau of Commercial
 Fisheries, Seattle (courtesy call)
 Oct. 18 Dr. Lloyd Keith, Dept. of Wildlife Mgmt., University of Wisconsin,
 and Mr. Curt Halvorson, B.S.F.&W., Missoula (one day field trip
 on range)
 Oct. 22 Mr. Richard Munding, Regional Office, Portland (quarters
 -23 appraisals)
 Oct. 24 Baptist Church group from Missoula (60) (picnic and range tour)
 Oct. 26 Mr. Kenneth MacDonald, Regional Refuge Supervisor, (inspection and
 -27 refuge evaluation team)
 Oct. 27 Refuge Evaluation Team consisting of Messrs. Eugene Crawford,
 Boston Regional Office; Charles A. Hughlett, Minneapolis
 Regional Office; and John Sincock, Laurel, Maryland
 Oct. 28 Mr. Joe Mazzoni and family, Malheur Refuge (in after Longhorns)
 Nov. 1 Marten, Gerd, and Reinhold Nordquist, Svedala, Sweden (range tour)
 Nov. 8 Mr. Gerry Atwell, Wildlife Research Unit, MSU, Missoula, with Dr.
 Hugh F. Lamprey, Principal, College of African Wildlife Manage-
 ment, Moshi, Tanganyika (range tour)
 Nov. 9 Mr. Jim McLucas, Montana Fish and Game Department (several visits
 during November in connection with trapping surplus antelope)

- Nov. 16 Dr. Chuzaburo Shoho, Takarazuka, Japan (arrangements to look for a certain internal parasite during butchering operations)
- Nov. 16 Mr. Robert Twist, Camas Refuge (deliver second load of grain)
- Nov. 19, Messrs. Bill Browning, Montana Chamber of Commerce,
23-24 Helena, and Hector LaCasse, Photographer for Montana Fish and Game Dept. (to photograph antelope trapping)
- Nov. 21 Boy Scout Troop #7, Missoula, with leader and six adult instructors (34) (Range tour)
- Dec. 4 Group of 60 from Charlo School (watch butchering operations)
- Dec. 6 Mr. Rex Rieke, Artist, Montana State University (study animals)
- Dec. 12 Mr. Kenneth MacDonald, Regional Refuge Supervisor, Portland; Mr. & Mrs. George Devan, Ravalli Refuge; and Mr. Bob Fields and family, C. M. Russell Refuge (here for Watson Beed's retirement party)

C. Refuge Participation

- Jan. 4 Richardson gave slide-talk to approximately 200 students at Ronan Grade School.
- Jan. 13 Richardson attended SAFETY Seminar at Fairchild Air Force
-14 Base, Spokane, Washington.
- Jan. 4 Henry and Richardson attended Inter-Agency Fire Control
-5 meeting in Missoula sponsored by U.S. Forest Service.
- March 3 Beed attended Soil Conservation Service meeting in Polson on classification of wetlands.
- March 16 Henry attended noon luncheon-meeting of Federal Business Men's Association in Missoula.
- March 23 Henry gave slide-talk to Gay Gardeners Flower Club in Polson with approximately 25 members in attendance.
- March 24 Beed and Richardson attended 13th Annual Conservation Day at Polson.
- April 2 Henry gave evening slide-talk to Mission Valley Sportsmen in St. Ignatius with 35 in attendance.
- April 16 Henry gave slide-talk to approximately 50 members at the district meeting of the Federated Garden Clubs in Ronan.
- April 18 Henry attended annual banquet of the Flathead Wildlife, Inc., sportsmen's association in Kalispell.
- April 20 Henry attended noon luncheon-meeting of Federal Business Men's Association in Missoula.
- April 25 Henry attended annual banquet of Polson Outdoors, Inc. in Polson.
- May 26 Henry gave slide-talk to approximately 125 students at the Ursuline Convent School in St. Ignatius.
- Sept. 22 Henry gave slide-talk to Lake County Home Extension Club near Polson, with about 50 persons in attendance.
- Oct. 12 Kraft gave slide-talk to Dixon P.T.A. with 30 members in attendance.
- Oct. 24 Henry attended the Buffalo Management Workshop at the
-31 Wichita Mountains Wildlife Refuge in Oklahoma.
- Nov. 19 Henry participated in Federal Career Day activities at Montana State University in Missoula.

- Dec. 12 Henry acted as M.C. at the Watson Beed retirement party in the Moiese Valley Clubhouse (see other items).
Dec. 23 Henry gave slide-talk to an estimated 150 people at the Moiese Valley Christmas Party.

D. Hunting

There is no public hunting on the Bison Range. The hunting in the surrounding area is governed by the Tribal Council of the Flathead Indian Reservation. The Indians can hunt any game (except migratory waterfowl?) at any time, and without restriction on the numbers taken. Everyone can hunt waterfowl and introduced upland game birds in season, and in accordance with State Fish and Game Department regulations, but the white people cannot hunt anything else on the reservation.

Pheasants were down in 1964. It was generally conceded to be one of the poorest seasons on record. Some hunters refused to hunt these birds at all. Success was varied, but for the most part was poor to fair.

Waterfowl hunting was good. The Flathead flock of Canada geese was especially hard hit with an estimated 700 being removed. The heavy kill prompted the Montana Fish and Game Department to close the season 10 days before the regular closing time in Lake and Sanders Counties. The kill on ducks was also good, but the mallards were present in greater numbers and could stand the pressure much better. The protection offered by the Ninepipe and Pablo Refuges afforded them the needed sanctuary whenever the pressure became heavy.

E. Violations

A dead white-tailed deer doe was found in the alfalfa field lying along the highway north of Mission Creek. It had been dead too long to be positive, but it did appear to have been shot in the head with a .22 rifle.

No other indications of violations or serious vandalism were found.

F. SAFETY

Scheduled SAFETY meetings, with the main topics as described, were held as follows:

- Jan. 8 Slides shown on use of hand tools.
Feb. 12 SAFETY film, SAFETY Attitude, was shown.
Mar. 11 Used "Safetygraph" entitled "Does your Accident Show".
Apr. 8 Meeting devoted mainly to analysis of recent efforts to handle buffalo.
May 13 Went over contents of recent SAFETY Messages and SAFETY Sentinels.
June 10 Showed movie "Signal 30" on highway SAFETY. Also thorough coverage of head injuries, snakebite, flood, lightning and chemicals.

June 26 Special meeting on boating SAFETY.
 July 8 Mechanics and safe practices in fighting fires. After meeting, the fire-fighting equipment was tested and demonstrated.
 Aug. 13 Discussion on the annual SAFETY Report.
 Sept. 10 Coverage included SAFETY in travel, in use of horses and in use of firearms.
 Oct. 7 Combination of regular SAFETY meeting and Fire Prevention Week. We showed U.S.F.S. film "Horse Sense" and had thorough discussion on roundup hazards and precautions (annual roundup started October 8). Also held fire drill and discussion on Fire Prevention Week.
 Nov. 4 Covered contents of October SAFETY Sentinel, held analysis of recent roundup, discussed gun, knife and vehicle SAFETY in disposal work.
 Dec. 16 Thorough analysis of disposal operations just concluded. Crew congratulated on processing of almost 200 animals without a knife cut of any consequence.

Two additional meetings were held on March 2 and May 21. The March meeting was devoted largely to work planning and the May meeting was a staff meeting conducted by Mr. George Wiseman.

On July 21 and 22, SAFETY Demonstrations were conducted at the Indian Agency and the Indian Irrigation Service by Mr. Merle Bassett, B.P.A., Portland. Half of our crew attended on the 21st, and half on the 22nd.

Station fire drills were held on March 12, June 26, September 11 and October 7.

We have had a total of 370 days without a lost-time accident. The last such accident though, on December 27, 1963, was an exceedingly questionable back injury by an A.P.W. worker. In this case we are certain in our own minds that he strained his back the night before the alleged accident while packing a deer out of the woods on his back. He never admitted as much to us, but we received the report from reliable witnesses. We are sure that he is much too lazy to ever work hard enough to hurt himself. Without doubt, he was trying to capitalize on the "injury" in order to draw compensation.

Shelter cabs were constructed and installed on both bulldozer tractors as a SAFETY precaution in timber work (see photos).

SAFETY clothing is purchased periodically to keep adequately stocked with all items needed. As will be noted by photos, the employees have readily accepted and adapted to the use of helmets.

A newer and better version of SAFETY guards for power saw and jointer have been purchased and installed. These are the R. E. Peterson Company, REPCO Jointer Hold-down and Saw Guard.

Because of one breath-taking near-miss during the annual roundup in October, plans are being formulated for methods of handling the buffalo in Corral No. 2 from catwalks and islands. Another thing that is sorely needed is a small grandstand to be used by spectators. As it is now, someone is always getting in someone else's way.

VII. OTHER ITEMS

A. Personnel Transfers, Retirement and Awards

On October 18, Mr. Leon Littlefield was promoted and transferred to the Minidoka Refuge. His replacement, Mr. Frank Kenney and family, from the McNary Refuge, arrived to take over the Ninepipe assignment on November 25. The Kenney family consist of Frank, his wife Mary, and two sons aged 16 and 11.

Wildlife Management Biologist Watson E. Beed officially retired on December 30. He lives on his 80-acre farm a mile east of the Ninepipe Refuge where he is apecializing in black Angus cattle. On the 12th of December, a retirement party was held in his honor at the Moiese Valley Clubhouse. At this time he was presented with a "Refuge Permit", a bound book of letters, a beautifully inscribed belt buckle from Region I biologists, an outboard motor with gas can, a framed picture of the Mission Range, a pocket-size tackle box with a dozen select spinning lures, and a decanter of choice bourbon. Henry acted as M.C. and Regional Refuge Supervisor Kenneth F. MacDonald was the guest speaker.

Refuge Manager Henry received his 30-year pin in early November.

B. Trespass

On July 13, a group consisting of Dr. W. R. Eidie and 10 advanced mammology students from the M.S.U. biological station arrived to remain overnight at the slaughterhouse. The purpose of the visit was to trap mice in continuation of a long-term mouse population study. During the evening the group left the range and went into town, returning to the slaughter house shortly before midnight. A short time later, one of the students, Denny Gibson, came out of the latrine and was accosted by four prowlers. He scuffled with one of the men and received deep scratches on both arms - he thought they had been caused by a knife. During the encounter, he called out for help, but by the time some of the other students arrived, the men had taken off. The next morning they discovered that a window of the hide house had been opened and one of the students found a miner's axe out in the field that had been inside the hide house.

The above was not reported to us until 1:45 P.M. the following day when the professor and students were leaving the refuge. We suggested it would have been better to call someone on the phone when the incident happened and we might have been

able to catch the invaders before they were able to leave the refuge. Apparently they had climbed over the fence and walked to the slaughter house as there was no evidence of an automobile being involved. A later check of the buildings could not uncover any missing articles. It is our belief that the prowlers had not arrived at the slaughterhouse until the students returned from their outing, as bags, cameras, binoculars, etc. belonging to the students had not been disturbed.

After an unbiased and deliberate consideration of all the facts in the case, some of us wondered if this could have been a hoax.

C. Unwanted Publicity

In the January 1965 issue of the Good Housekeeping Magazine, in a section entitled "Every Day is Mother's Day", by Marjorie Brophy, the verifaxed article on the following page was published. This example of careless and untimely reporting brought on a deluge of letters - right at Narrative Report time. A few examples are included following the article.

The Washington Office announcement came out in August, and our live sales were made in October. Instead of having 228, we had only 30; the 228 figure was for all refuges, including Wichita and Niobrara. This, the author never mentioned. I shudder to contemplate the results of the forthcoming Saturday Evening Post article!

D. A Windfall of Windfalls

As a result of a remark made during a slide-talk, and a considerable amount of newspaper publicity, the people of Polson donated five pickup loads of surplus apples as food for the headquarters deer herd. By judicious sorting and feeding, these can be made to last through a good part of the winter. Everyone knows how deer like apples. The tame and semi-tame deer in the refuge headquarters area are our greatest visitor attraction.

E. Buffalo Management Conference

In late October, Henry journeyed to the Wichita Refuge to attend the third annual Buffalo Management Workshop. Three days, October 26, 27 and 28, were devoted to the meeting. This was an immensely interesting and profitable workshop that included rather complete coverage of the more important phases of buffalo management, some of their roundup and disposal activities, as well as a good look at the Wichita Refuge. I consider this a refreshing and valuable endeavor, well worth the time and money spent.

F. Credits

Sections I, III-A, VI and VII by Henry
Sections II, III-B, C & D and V by Richardson
Section IV by Young

Considerable editing efforts and reciprocal contributions
were made by all.

G. Photographs

The photographs in this report were taken by Victor B. May,
Jack Richardson and C. J. Henry.

Respectfully submitted,


C. J. Henry
Refuge Manager

January 22, 1965

Approved:


~~Acting Chief, Division of Wildlife~~
for JNM



I don't know how many people will care about the following information, but I wouldn't want it said that I didn't pass along news like this. I know where you can buy a live buffalo. To prevent crowding on the ranges, the government is selling 228 of them for \$200 each. Write to the National Bison Range, Moiese, Montana. P.S. If anybody who reads this buys one, please write me and tell me why!

637 Boquest.
Paradise Calif.

National Bison Range: Jan 3 - 1965
Moiese Mont.

Gentlemen:

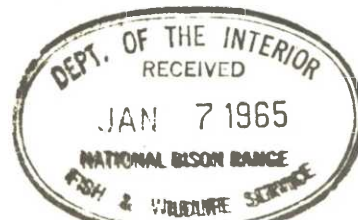
I just read an article in Good-Housekeeping magazine where the Government has 228 buffalo for sale, to prevent "Crowding on the range". Don't tell me there is a population explosion there too?

What I'd like to know, "Has Los Angeles city limits reached the ranges in that direction?"

and, oh yes, are these animals house-broken?

I live in a small apartment but I may have as much room for one as on the range when it gets, —
Crowded?

Sincerely
Mrs. J. Stephenson



sarasota. florida.
aug 19 1964

dear sir how are the elk meat for
now is it on sale now let me know by return mail
send price list please
so i will look to here soon yours truly.

frank franklin
7510 midnight pass road
sarasota. florida.





Aug. 27/1964
Faith, S.D.

Dear Sir

I would like some more information about the annual surplus big game sale. the date of the sale time & etc.

about the elk & buffalo meat how is it sold, whole half or quartered?, and how much a lb.

I am also interested in 200 head of heifer calves or year old heifers of buffaloes.

Yours Truly

Lynne Farnham
Faith, S.D.

738 S. Mariposa - Apt. 407
Los Angeles, Calif. 90005
January 4, 1964

National Bison Range,

Moiese, Montana

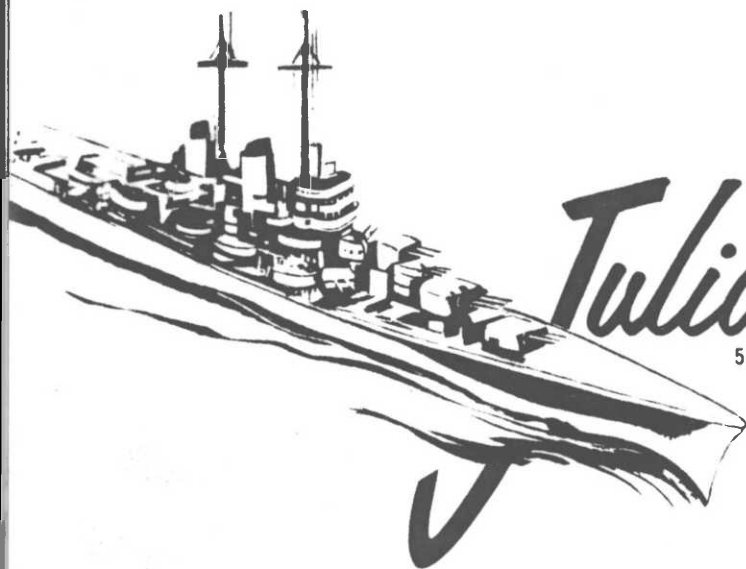
Gentlemen:

There was a small item in the January Good Housekeeping Magazine that the government is selling ranges for \$800. Can you please send me more information about this, such as, size of range, location, and any other details which are available.

Thank you very much.

Sincerely,

C. A. Long
C. A. Long



Tulian

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GROCERIES
PRODUCE
FRUITS

August 13, 1964

National Bison Range
Mojave, Montana.

Gentleman:

It has come to my attention that you are selling
228 Buffalo for \$200. each to the first come. Would
you please send me more information on this such as
date etc.

Very truly your

Julian B. Martinez
JULIAN B. MARTINEZ

The following is a sample of Range Ramblings, a weekly column concerning the Bison Range, written by Mrs. Lott, the daughter of former Bison Range Supt. Dr. Robert Norton.

Range Ramblings . . .

African men visit Bison range; tell of wildlife in their home

By Joyce B. Lott

Daniel Sindiyo of Kenya and Samuel Ipoot of Uganda left Saturday for Yellowstone park, after having spent a couple of weeks at the Bison Range.

While they were here, Jack Richardson took them to the university at Missoula where they visited the Wildlife Research unit, Department of Zoology, which engages in those interesting studies of grizzlies and other animals. In the afternoon they also visited the Forest Service headquarters, the Smoke Jumper center and Research laboratory.

One day was spent at Glacier park, where they were taken on a guided tour of the park headquarters and over the "Going to the Sun" highway by a park naturalist, John Mohlenrich. They were impressed by the park scenery, "very beautiful," and were pleased to see a moose at close quarters, which they described as "half gone in water." The men said that they haven't any antlered animals in Africa.

For the week-end, Richardson took them to a rodeo which they definitely didn't like. "It is all right for you, if you like it, but for me—no good." "Riding on the backs of bulls looks like punishment."

They were very interested to see how the Indians live and on Thursday morning Ernie Kraft took them to visit nearby ranches owned by Indians. They asked many questions. Seems the American movies and TV programs had given them the impression that Indians and white men of the west are as uncivilized as they were a hundred years ago.

While taking a look at ranching operations in the Moiese valley, they expressed surprise at the large number of cattle that were pastured on the small acreages, due to irrigation.

On Friday, they were shown slides at headquarters, submitted to this interview, and were shown the range machinery and equipment. They seemed fascinated by the power lawn mower (sittin' type) and wanted pictures of themselves taken on it. They were also photographed astride some of the range horses.

Our buffalo seem much more tame to the Africans than their comparable animal, the Cape buffalo; our other animals also seem more tame to them.

When asked about accidents or near misses involving African animals, the men explained that wounding a cape buffalo is dangerous business, as he will hide and the "hunter becomes the hunted." Hunters from other countries are protected by professional hunters. An elephant will charge directly (how could he hide?) Mr Ipoot told of having to hold his fire when down to his last bullet until a charging buffalo was almost upon him to be sure that last one counted. It did and the buffalo "jumped over my foot and fell." Another time a riled-up rhino charged the vehicle in which he was riding but they managed to outrun the beast.

Mr Sindiyo said that he was attacked by a leopard, "before I was even born." His mother was mauled by a leopard and gave birth to him soon afterward. She recovered but was hospitalized for a week before she was able to return to her home to care for her child.

The men mentioned that they have several species of antelope, which range in size from a "very small" animal up to about the size of our elk. The small ones are more tame than the other African animals.

The high powered rifles, such as the 375 magnum, are used for the thick-skinned animals. It is also a good idea to use one for the dangerous cape buffalo. Though they have been killed with a 30-06 it is not recommended. Less powerful weapons are used for smaller animals and all guns are furnished by the professional hunters association. When it was mentioned that men from Kalispell, the Bitterroot and Spokane had hunted in Africa during the last year, the Africans said that there had been more foreign hunters in their countries last year than ever before.

Hunters take time off now and then to fish. There are many species including bass, perch, trout and "the whiskers" (catfish). As to size, a fisherman recently hauled out a perch weighing 210 pounds.

Loss of animals in Africa, aside from those taken by legitimate hunters and by poachers, are mostly due to predators, falling and sudden heavy rains causing flooding.

An American movie company has been making a film in Kenya this year. Mr Sindiyo wasn't sure of the title of the movie, "I think it was something like Mr Moses."

It takes three months for a cargo ship to reach America from Africa, the trainees were not sure how long it would take by liner but they made it in sixteen hours by plane.

continued

Before coming to Montana, they visited refuges in North Dakota, including a refuge where Range Manager C. J. Henry had been stationed. They mentioned the terrible winds in North Dakota and, surprisingly, they were bothered by the heat in America. Mr Sindiyo explained that the altitude where he lives is 6,200 feet and that some snow capped peaks can be seen the year around in Africa.

Mr Ipoot is a game warden at Saroti, Uganda, and Mr Sindiyo is with the Game Department administration headquarters, Kenya. They especially enjoyed their time spent at the Bison Range.

One unfortunate incident marred their trip to Montana; they were refused service at Great Falls. When asked what they liked best about America, the reply was, "The best part of America is the Rocky Mountains."

—o—
Dr. W. R. Eadie and ten advanced mamology students from the MSU Biology station on Flat-head lake were here Monday and Tuesday. They trapped mice, using the same plots, the same number of traps, and checking them at the same time, each day.

Other visitors this week were Mr and Mrs Allen Cruickshank, National Audubon Society, N. Y. and Florida (Mr Cruickshank is an author and lecturer); Mr and Mrs Laurence Coffelt (Mr Coffelt, an artist along the lines of Charlie Russell, is painting a large mural at Emporia, Kan.); and Mr and Mrs William Preusse of Washington, D. C. (He's with the FBI but relax, they came to tour the range.)

Phantom, the popular mule deer buck, was chased by a dog the other day and driven into the fence. He has a broken jaw and three spikes were broken from his antlers. He also had several cuts into the flesh and some hair scraped off the right side. Dr. Read of Ronan was called in to treat him and it is hoped he will be all right, as he was one buck that never got mean, not even with children. He is also Mrs C. J. Henry's special pet.

Kal, a white tail buck featured in this column some time ago, was missing for about two weeks, causing some concern, but he was seen this week along Mission creek in the range.

FORM NR-1 NOT APPLICABLE TO THE BISON RANGE

DISCONTINUANCE AUTHORIZED IN MR. GRIFFITH'S MEMORANDUM OF APRIL 18, 1946.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge National Bison Range

Months of January

to April

, 19 64

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Common Name										
Ring-necked Pheasant	16,000 acres grass- land, shrub and browse	107							150	
Chukar Partridge	" " "	320							50	
Gray Partridge	" " "	80							200	
Dusky Grouse	3,000 acres pine, fir & coulee	50							60	
Ruffed Grouse	300 acres brushy creek bottom	30							15	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

Refuge National Bison Range

Months of May to August, 19 64

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificioally requested. List introductions here.
Ring-necked Pheasant	16,000 acres grass- land, shrub & browse	160	2	50	33:66				100	
Chukar Partridge	" " "	213	1	50	50:50				75	
Gray Partridge	" " "	46	25	200	50:50				350	
Dusky Grouse	3000 acres pine, fir & coulees	35	2	40	50:50				80	
Ruffed Grouse	300 acres brushy creek bottom	30	-	-	50:50				15	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge National Bison Range

Months of September to December, 19 64

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	M:F Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	16,000 acres of grassland, shrubs and browse	160	-	-	1:2	-	-	-	100	Populations determined by general recon. patrols.
Chukar Partridge	" "	320	-	-	1:1	-	-	-	50	
European Gray Partridge	" "	64	-	-	1:1	-	-	-	250	
Dusky Grouse	3,000 acres of pine, fir forest	43	-	-	1:1	-	-	-	70	
Ruffed Grouse	300 acres of brushy creek bottoms	30	-	-	1:1	-	-	-	10	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge National Bison Range Calendar Year 1964

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number												M:F
Bison	15,000 acres bunchgrass range	120	-	-	99	6	-	11	-	-	-	489	379	7:8
Elk	5,000 acres timber, brush and forest openings	17	-	-	16	-	-	-	-	-	-	82	66	4:5
Mule Deer	10,000 acres timber, brush and range land	50	-	-	37	-	-	1	-	-	-	200	152	1:1
White-tailed Deer	4,000 acres timber, brush and range land	50	-	-	42	-	-	-	-	2	Mont. G&F Dept.	208	157	1:1
Bighorn Sheep	8,000 acres timber and range land	0	-	-	-	-	-	-	-	-	-	50	49	1:1
Antelope	6,000 acres open range	67	-	84	-	-	-	-	-	-	-	210	117	4:5
Mountain Goat	3,000 acres timber	0	-	-	-	-	-	-	-	4	Mont. G&F Dept.	4	4	1:3
Texas Longhorns	40 acres pasture	0	-	-	-	-	-	-	-	2	Wichita Mtns. NWR	4	4	4:1 *

Remarks:

* All neutered

Reported by _____

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1754
Form NR-4
(June 1945)

SMA. MAMMALS

Refuge National Bison Range

Year ending April 30, 1964

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Coyote	18,541 A. all habitat	1854												10
Bobcat	" "	927			1									20
Striped Skunk	2500 A. creek bottom	25			25									100
Badger	10,000 A. grassland	250			1									40
Beaver	50 A. Jocko River & Mission Creek	5												10
Mink	100 A. drainages	10												10
Muskrat	50 A. wetlands	1												50
Marmot	10,000 A. rocky hills	100												100
Porcupine	4500 A. timber & brush	90			5									50
Col. ground squirrel	5000 A. grassland	25												200
Pocket gophers	10,000 A. grassland	1												10,000
Dogs	18,541 A. all habitat				2									transients
Meadow voles	" " "	1/27												500,000

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Reported by _____ Refuge Manager

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge National Bison RangeCalendar Year 1964

1. Visits

a. Hunting None b. Fishing None c. Miscellaneous 101,500 d. TOTAL VISITS 101,500

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game			
Other			

Number of permanent blinds _____

Man-days of bow hunting included above _____

Estimated man-days of hunting on lands adjacent to
refuge _____

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes		
Streams and Shores		

1c. Miscellaneous Visits

Recreation 101,000 Official 400Economic Use 100 Industrial _____

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge		Off Refuge	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs			<u>1</u>	<u>35</u>
Bird and Garden Clubs			<u>2</u>	<u>75</u>
Schools	<u>12</u>	<u>595</u>	<u>2</u>	<u>325</u>
Service Clubs	<u>3</u>	<u>110</u>	<u>4</u>	<u>120</u>
Youth Groups	<u>4</u>	<u>240</u>		
Professional-Scientific	<u>5</u>	<u>195</u>		
Religious Groups	<u>2</u>	<u>110</u>		
<u>Daily Scheduled tours</u>	<u>82</u>	<u>2501</u>		
<u>Annual Saddle Club Ride</u>	<u>1</u>	<u>144</u>		
Other	<u>3</u>	<u>225</u>	<u>1</u>	<u>150</u>

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	<u>3</u>	Radio Presentations	
Newspapers (P.R.'s sent to)	<u>40</u>	Exhibits	
TV Presentations		Est. Exhibit Viewers	

Several magazine articles featured Bison Range.

3-1756 Note: In addition to the press releases we gave out a great deal of information, interviews, etc. that resulted in much newspaper publicity.

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

Refuge National Bison Range Year 19 64

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Ladak & Grimm Alf.	200	R	4/16	Transfer	-	200	-	-	-	-	-	-	-
<u>Buchloe</u> <u>dactyloides</u>	5	R	4/26	Purchase	\$12.00	-	Wild Horse & Alexander Bas.	5#/ac.	1 ac.	5# seed	4/28	T.B.D.*	-
Kent. BG	-	-	-	-	-	-	Hq. Lawn	50#/ac.	1/2 ac.	17# seed	May	Exc.	-
White Dutch Cl.	-	-	-	-	-	-	"	10#/ac.	"	5# "	"	"	-
Redtop	6	-	-	-	-	-	"	6#/ac.	"	3# "	"	"	-
Timothy	-	-	-	-	-	-	Pauline Drain	8-10#/ac.	115 ac.	830# "	** 1/13 to 8/26	T.B.D.	-
Big Bluegr.							Indian Sprs.						
Perennial Ryegrass							Alexander Bas.						
Tall Wheat.							Mission Cr.						
West. "							Horse Past.						
Smooth Brome													
Alta Fescue													
Hard "													
Monad Alf.													
Ladak "													

Alsike Cl. & Strawberry Cl.

- (1) Report agronomic farm crops on Form NR-8
- (2) C = Collections and R = Receipts
- (3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: * To be determined later.

** Mixtures of the various species listed were used to seed
areas of unstable soils.

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge National Bison Range

County Lake

State Montana

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
None									
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations None Haying Operations None Grazing Operations None

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Grass - for use as feed	18	20	None	1. Cattle				
				2. Other	2 horses	24	24.00	
				1. Total Refuge Acreage Under Cultivation				40
Hay - Wild				2. Acreage Cultivated as Service Operation				40

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge National Bison RangeMonths of January through April, 1956⁴

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Oats	160		160			30	30	130		130	
Wheat	15	80	95			85	85	10		10	
Barley	190		190			95	95	95		95	

(8) Indicate shipping or collection points Wheat received from Minnekahta Refuge 1/20/64 and 3/30/64(9) Grain is stored at Bison Range headquarters and barn

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

REFUGE GRAIN REPORT

Refuge National Bison RangeMonths of September through December, 1964

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Oats	120	-	120	-	-	10	10	110	-	110	-
Wheat	5	220	225	-	-	20	20	205	-	205	-
Barley	75	204	279	-	-	100	100	179	-	179	-

(8) Indicate shipping or collection points 204 bu. barley and 210 bu. wheat from Camas NWR, 10 bu. wheat from Hinespipe NWR.(9) Grain is stored at Headquarters granaries.

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

ANNUAL REPORT OF PESTICIDE APPLICATION

National B. Range

Proposal Number

Reporting Year

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5/22-6/29	Canada thistle	Mission & Elk Creek bottoms, Hq. area and roadsides.	98	2,4-D Amine	49 gals.	2# a.e./ac.	Water 1:200	Power sprayer
5/13-7/29	<u>Linaria vulgaris</u>	Small patches as they were discovered.	1/5	2,4-D Amine	1/10 gal.	2# a.e./ac.	Water 1:200	Power & Hand Sprayers
5/18	Arrowleaf Balsamroot	Alexander Basin & South Pasture.	225	2,4-D Amine	113 gals.	2# a.e./ac.	Water 1:1.5	Aircraft

10. Summary of results (continue on reverse side, if necessary)

Apparent kill on Canada thistle was quite good. Many new plants have come in since spraying, however.

Approximately 95% kill on Linaria.

Effects on balsamroot can not be determined before next spring.



Winter scene on the Bison Range. The sun is sinking fast, leaving only the upper half of the Mission Range in sunlight. Mission Creek in foreground.



Buffalo bull "on the prod." When one of these animals goes contrary, it takes a king's ransom to put him where we want him. Grant Hogge at left -- Edmond Priddy at upper right.



Buffalo herd in Alexander Basin.



White-tailed deer fawn, "Perky," an orphan that was raised on a bottle.



Habitat scenes. Upper (Quil-c-e) Red Sleep Mountain, better known as Hi-Point, in center. Lower: Twin Canyons along the Jocko River. Sheep Mountain upper left.





A white buffalo tongue -- in all the years of butchering surplus animals, to the best of our knowledge, this is the first occurrence of a white tongue at this station.



A three-month old buffalo grass plant showing characteristic stoloniferous growth.



After trying a number of different ideas for a herbarium, we have one that we like real well. This was originally found in a traveling narrative report from Shiawassee, and they kindly provided us with the details. We use $3/4$ " plywood, with piano hinges. On this first box we used a chain to hold the lid, but on the second a storm window arm which is better. (First of three photos)



Instead of using the Verti-swing hanger, we use a steel bar, 1" x 1/8" mounted on a 1" x 1 1/2" wood strip. This is absolutely solid. The top labels are green -- family, blue -- genus, yellow -- species.



Close-up of one mounted plant. Each plant is covered with a plastic sheet. This was obtained in the GSA catalog, page 272, No. 9930-618-7216, in 50-foot rolls. This plastic is pressure-sensitive clear plastic, adhesive coating, backed with treated paper scored every three inches for easy application. This makes it possible to remove and handle the specimens without danger of damage. We use a little paradichlorobenzene to keep out insect pests.



Different views of a young red-tailed hawk, found dead in the nest. Two porcupine quills protruded from the abdomen. Another perfectly healthy nestling was present in the nest. Your guess is as good as ours as to how the bird came by these quills.





daniel Sindiyo, Kenya, East Africa, tries his hand on a lawn mower and a buffalo pony.





Samuel Ipoot, Uganda, East Africa, with horse and mower.





Here the Africans try their hand on the TD-18.





The annual Saddle Club Ride attracted riders from many areas of the Northwest.





Two of the crew; Ernie Kraft above, and Grant Hogge below.





As with motorized equipment, horses require constant care and attention to keep them in top-notch condition.





A black bear treed by dogs at the Flathead Indian Agency. At their request we removed the animal with a Cap-Chur gun. (See text) Bottom photo - Babe May trying to find a hole in the branches through which to get in a shot.





Newly installed three-way headgate in one of refuge hay meadows.



A pair of bison along north boundary. Hi-Point upper right. Mission Creek in foreground (tree-tops). Alexander Basin at right of arrow.



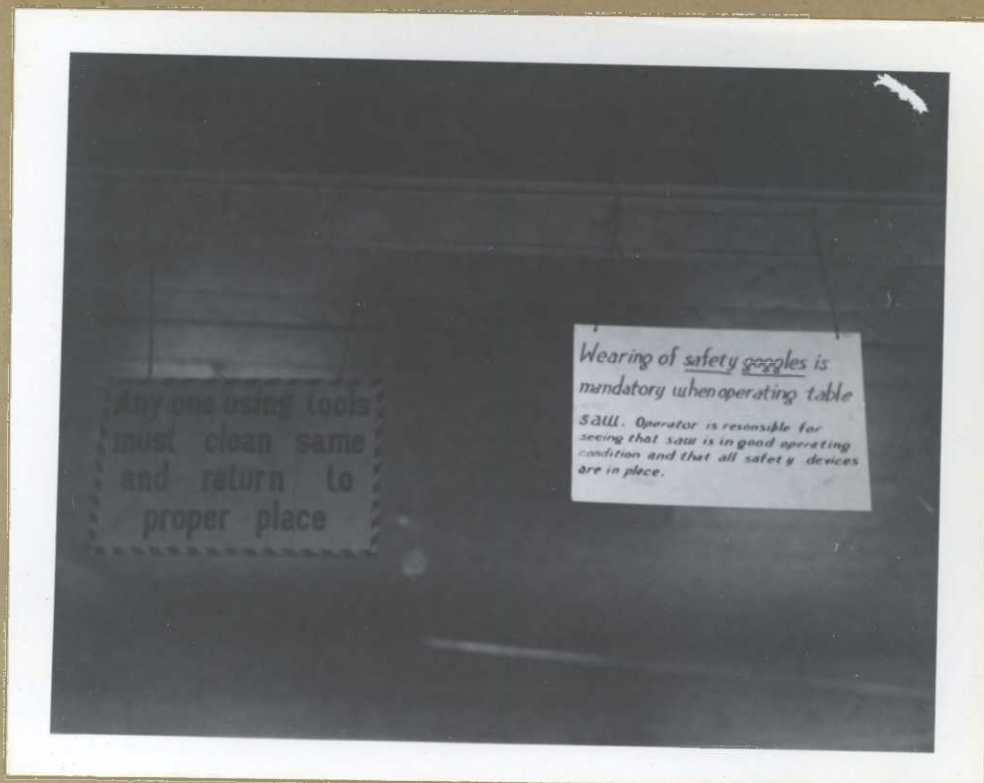
Experimental spraying of balsamroot.





Ditching with dynamite. Upper -- the blast. Lower -- the result.





SAFETY





The start of the buffalo butchering operation. Herb Thompson, Wood Lake, Minnesota, with knife, is the head butcher.





Making progress.





The finished product. Frosty Largent in upper photo.





After the snows piled up in the high country, the main A.P.W. activities shifted to the Mission Creek bottoms.



A vast accumulation of dead or down Juniper was dragged to central points where it was cut into posts, firewood, or junked.



Thousands of posts were salvaged.



Chain saws speeded up the work -- but like so many modern innovations required lots of tender loving care.



Even the loading of the logs was simplified.
(Note buffaloes in background.)





Tractors also came in for their share of efficiency.
(Note SAFETY cabs)





Flood damage (see text). Above: Mission Creek at head-quarters near peak. Lower: same spot after the flood.





Six inches of water flowed through the horse barn.



Corral fence in front of horse barn.



Bank erosion and rip-rap loss.



The channel was clogged with uprooted trees -- these had to be removed to avoid aggravated damages.



The end of a control structure.



The end of a heavy-duty big game fence.



Road damage.





Damage to new picnic area fence -- previous to the flood a road had existed on the outside stream of this fence.

