Aunt Molly FAS

Purchased October 5, 1979

1237.38 acres for $655,811.40

A portion of the purchase was made with Water and Soil Conservation funds

Grazing plan for Aunt Molly FAS requested by
Don. Hyppa
Administrator Parks Division

John Firebaugh
Regional Wildlife Manager
Region 2
Missoula Montana

Page (1)

Helena Sept 22/05
Hornsby

Aunt Molly FAA

Information needed

(1) { Total acres Department (F&G) lands
Area of each section and portions of sections covered by Department lands.

(2) Seasons of livestock use. Calendar dates

Summer range

Start season
When vegetation begins fast growth
Average calendar date (May ?)

End season
Taylor has need for pastures into the latter part of September
This year an example.
When does the Department want to end the season? Late September sometime? October 1? October 15? etc.

Winter range

Start
With beginning of calving
Average calendar date (March sometime)

End
a) Beginning of growth. Average date
b) or- Beginning of fast growth Average date
(Same as for summer)

How to find out whether Taylor wants to use the winter range over until fast growth begins

(7)

Page (2) Aunt Molly FAA Sept 22/85

Hormay

Information needed (Cont'd)

The beginning and ending dates of the "grazing seasons" are needed to calculate AUMs use and the grazing fee.

Winter feeding period (Start of calving to start of plant growth)

During this period the Department is furnishing Taylor a negligible amount of forage. Taylor is providing it in the form of hay. The Department is in essence providing Taylor land to do the feeding. I believe the charge for this should be in terms of a rental fee. So much per acre. There is no way to put it on an AUMs forage use basis.

Area, vegetation types and grazing capacity

Area Gross purchase area

Vegetation Type	Area Acres	%	factor → 82.64	Grazing capacity AUM's	%	84.39
Grass - (shrub)	248	20.5	20	225	19.0	19
Sagebrush upland	58	4.8	5	45	3.8	4
Sagebrush low land	44	3.6	4	44	3.7	4
Woodland riparian	264	21.8	22	134	11.3	11
Flood plain	538	43.6	44	660	55.7	55
Native hayland	14	1.2	1	23	1.9	2
Irrigated grassl'd						
Cultivated hayland	54	4.5	4	54	4.6	5
Total	1210		100	1185		100
Other cover						
Home site	6					
Stream	21					
Total	27					
Grand total	1237.48			1185		

Nov 15/85

PASTURE USE 1985

Received Nov 17, 18??

pasture 17 - 18

34 yearling Heifers + 1 BULL IN May 24 thru June 10
233 pairs + 6 BULLS IN June 11 thru June 16
233 pairs NO BULLS IN aug 6 thru aug 14

PASTURE 16 LOWER part

34 yearling Heifers + 1 BULL IN June 11 thru June 24
34 pairs + 1 BULL IN June 26 AM thru June 26 AM.
233 pairs + 10 Bulls IN June 28 thru June 29
233 pairs No Bulls IN Aug 15 thru aug 21

pasture 16 upper part

34 yearling Heifers + 1 BULL IN June 25 thru June 30
34 pairs + BULL (COMBINE TO ONE HERD) IN June 27 thru June 30
233 pairs + 11 BULLS IN June 30 thru thru July 1
233 pairs NO BULLS IN aug 22 thru aug 23

pasture 13 + pasture 11

34 yearling Heifers + 1 BULL IN July 1 thru July 16
34 pairs NO BULL IN July 1 thru July 16
46 pairs NO BULL IN July 2 thru July 16

pasture 5 - 6

34 yearling Heifers + 1 BULL IN July 17 thru July 31
80 pairs + 1 BULL IN July 17 thru July 31
34 Heifers - NO BULLS IN aug 3 thru aug 21
37 pairs NO BULLS IN aug 3 thru aug 21
284 pairs NO BULLS IN Sept 4 thru Sept 17

Area purchased

Jan 14, 1986
Longhand below

TABLE I

Lands Owned by FWP at Aunt Molly Fishing Access Site

Township 14 N - Rge 11 West

Sec. 29 - 57.80 acres - not grazed, adjacent to Brown Lake
57.80 Total Acres

Sec. 32 - 54.40 acres - hay land
(used by TBM)

3.70 acres - perpetual homesite lease to TBM

11.90 acres - "across the river" from hay field. These acres lie between the river and the county road and/or adjacent private property.

70.00 Total Acres

Sec. 33 - 66.50 acres - leased to Pocha
2.00 acres - around buildings
219.43 acres - grazed by TBM Ranch (Taylor)
~~287.83~~ Total Acres
287.93

Township 13 N - Rge 11 West

Sec. 5 332.00 acres - grazed by TBM
9.75 acres - lie north between county road and river and/or north of river
341.75 Total Acres

(The N½, NE¼ of this section contains 81.75 acres.)

Sec. 8 480.00 acres - grazed by TBM
480.00 Total Acres

Total ~~1237.38~~ acres Purchased from TMB Ranch
1237.48 October 5, 1979

Area administered by Parks division
Don Hyppa Administrator

Area in Region 2
John Firebaugh, Regional Wildlife Manager
Missoula, Montana.

EXHIBIT "A"

The following described real property situate in Powell County, Montana, to-wit:

Township 14 North, Range 11 West, M.P.M.

Section 32: E1/2 SE1/4 SE1/4; E1/2 NE1/4 SE1/4; SW1/4 SE1/4 SE1/4; S1/2 SW1/4 SE1/4

Section 33: NE1/4; NW1/4, excepting therefrom the following described property, to-wit: A tract of land located in the NW1/4 of Section 33, Township 14 North, Range 11 West, Principal Meridian, Montana, Powell County, Montana, more particularly described as follows: Beginning at the section corner common to Sections 28, 29, 32 and 33, Township 14 North, Range 11 West, P.M.M.; thence along the line common to said Sections 28 and 33, N.89°23'07"E., 1647.89 feet; thence, S.31° 03'26"W., 585.29 feet; thence, S.47°13'07"W., 478.84 feet; thence, N.76°44'12"W., 252.90 feet; thence S.77° 53'19"W., 236.81 feet; thence S.30°04'45"W., 883.33 feet; thence, S.03°31'55"W., 144.87 feet; thence S.10°12'04"E., 507.28 feet; thence, S.54°00'44"W., 191.46 feet; thence along the line between said Sections 32 and 33, North, 2321.35 feet to the point of beginning. Containing 32.07 acres, more or less, being subject to all easements or rights-of-way as shown, existing or of record, according to Certificate of Survey No. 158.

Township 13 North, Range 11 West, M.P.M.

Section 5: Lots 1 and 2; SW1/4 NE1/4; NW1/4 SE1/4; N1/2 SW1/4 SE1/4; SW1/4

Section 8: W1/2; SE1/4

SUBJECT TO easements, rights-of-way, reservations, and patent reservations of record.

Aunt Molly FAS

Jan. 1986

Final Estimates

Grazing capacity of vegetation types
Land area basis

Type	Acres/AUM
Grass-low shrub	1.1
Sagebrush upland	1.3
Sagebrush lowland	1.0
Woodland riparian	2.0
Flood plain grass-low shrub	0.8
Native grass hayland	0.6
Irrigated pasture	0.4
Cultivated hayland (after math)	1.0

Info. from Don Taylor Feb 15± 1986

Area of Taylors present holdings 1803 acres
Livestock on ranch

Commercial herd	240	head
Registered Simental	160	"
Total	400	"

Don Pocha leased land
Cultivated hayland (alfalfa - grass cover)

Savory grazing
Started 1984?
Now being applied on 320 acres in Sec. 9
160 " " Sec 9
480
Plan apply on 140 acres in Sec 5
N of headquarters

Land cover and uses

Land cover on Department and TBY Ranch lands and on the ~~whole~~ entire Aunt Molly site is shown in table ___.

~~Present~~ Disposition and planned of Department lands are shown in table ___ and on Map ___

Table 3 Disposition ~~and planned~~ use of Department Lands

	Acres	%
Leased to TBY Ranch		
Hay ~~production~~	54	4
Grazing	1091	88
Leased to Pocha (grazing)	69	6
Set aside for recreation	23	2
Total	1237	100

Jackson. 8084

REST-ROTATION
GRAZING MANAGEMENT PLAN

Aunt Molly Fishing Access Site

Montana Department of Fish, Wildlife and Parks

April 1986

CONTENTS

REST-ROTATION
GRAZING MANAGEMENT PLAN

AUNT MOLLY FISHING ACCESS SITE
(Montana Department of Fish, Wildlife and Parks)

August L. Hormay, Range Management Consultant

INTRODUCTION

In summer of 1984 Mr. Joe Egan of the Wildlife Division of the Department, asked me to help resolve a grazing problem on the Aunt Molly Fishing Access Site, located near Helmville, Montana. He explained the Parks Division responsible for administering the area, had sought the help of the Wildlife Division on this matter.

The area was part of the TBM Ranch owned by Donald and Patty Taylor. It was purchased by the Department in 1979 to provide public access to the Blackfoot River and Nevada Creek for fishing and recreation and to provide for wildlife. All but a small portion of the area was leased back to the Taylors for grazing. Conventional continuous grazing, practiced by most ranchers in Montana and throughtout the west, was continued as in the past.

Heavy use of the vegetation with this type of grazing raised the concern of members of the Parks Division and others in the Department, that wildlife and other renewable values important to the Department were being jeopardized.

I examined the area with Joe Egan, John Firebaugh, Regional Wildlife Manager, Region 2 and Don Taylor on September 17, 1984 (figs.1,2).* I found it heavily grazed and deteriorated.

I recommended change to rest-rotation grazing. With this type of use, vegetation and land production capacity are improved to site potential and much of the yearly growth is left ungrazed and available for wildlife and other uses.

Mr. Taylor was agreeable to having some of his land managed along with Department lands under rest-rotation grazing. So I prepared a grazing plan and sent it to him on April 25, 1985 asking him to try it and see if it would fit into his ranch operation.

---

* See appendix for photograph locations

26249

Don Taylor John Firebaugh Gus Hormay Joe Egan

Figure 1. Aunt Molly Area, September 17, 1984

26217A

Figure 2. Patty Taylor getting ready to cut hay.
Aunt Molly Area, September 17, 1984.

I checked with him on the ground, together with Joe Egan, later in the year, on September 21, and found he had not tried the plan. Instead he had gone forward with earlier plans of his own, to graze some of his land under the Savory system; and plow and seed the rest (sagebrush land), to improved forage species.

He started with the Savory system in 1984 and had a large area under the program by fall of 1985. Also, by this time he had treated 160 acres of the sagebrush land.

It became clear that none of his land would be available for rest-rotation grazing and that Department and Ranch land would have to be managed separately. So I prepared a second plan which is described here. It involves Department lands only.

I want to express my thanks to Joe Egan for the help he has given me on this project. He showed me out on the ground, rounded up and furnished me with much information essential for the preparation of this and the earlier plan and in other ways facilitated this effort throughout (fig. 3).

27178A

Figure 3.—Joe Egan and Don Taylor heading for the car and Home after a long cold day on Aunt Molly. They kept warm throughout the day with heated discussions of Aunt Molly problems, September 21, 1985.

OBJECTIVES

Principal objectives of this grazing plan are:

(1). Improve plant cover to site capacity.

(2). Leave a substantial amount of yearly growth unqrazed for wildlife and other uses.

Objective (1) is paramount. It should be appreciated that vegetation is the basis of wildlife and all other renewable resources. Production and quality of these resources are largely determined by the amount and kinds of plants on the land. Vegetation controls soil erosion and land production capacity.

SETTING

Location and ownership

The Aunt Molly Area is located in Nevada Valley about 65 miles northwest of Helena and 3 miles north of Helmville, Montana. (fig. 4,5). It is made up of Department and Ranch lands as follows:

Department (Aunt Molly F.A.S.) - - -	1237 Acres
Ranch (T.B.M.) - - - - - - - - - - - -	1803
Total	3040 acres

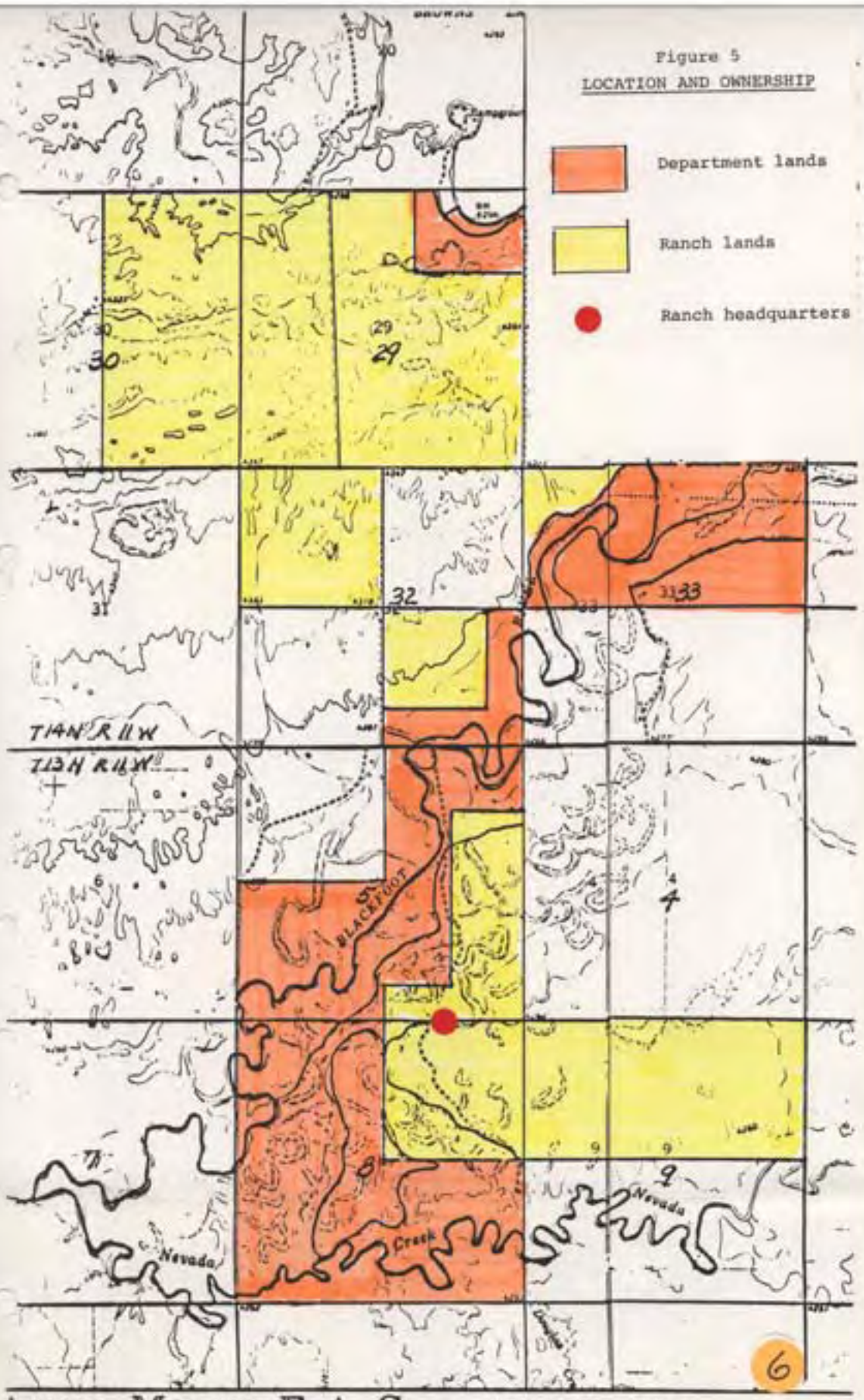
Department lands are located in section 29,32,33 T14N R11W and in sections 5,8 T13N R11W and Ranch lands in sections 29,30,32,33 T14N R11W and in sections 5,8,9 in T13N R11W.

Climate and growing season

Summers are warm and dry except for occasional thunderstorms. Winters are cold and snowy.
Plant growth usually starts in late April and is completed in late July. Seeds of most species ripen by early August. Growth of herbaceous species dries progessively to lowest level by early October. Some plants dry completely, others retain some greenness into winter.

26217

Figure 4.—West across Nevada Valley from Highway 141, along county road (right) to Aunt Molly Area, which lies in the dark line of trees in the flat, September 17, 1984.



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Vegetation

Five native vegetation types occur on Aunt Molly Area (fig. 6).

1. Woodland-shrub-grass type lies along the Blackfoot River. It consists of a complex of woodland and shrub-grass type areas (fig. 7). In the latter type, the proportion of shrubs to grass, varies from area to area—from heavy grass-light shrub to heavy shrub-light grass (figs. 8,9).

2. Semi-wet grassland type occupies low-lying areas subject to periodic flooding by the Blackfoot River and Nevada Creek (fig. 10).

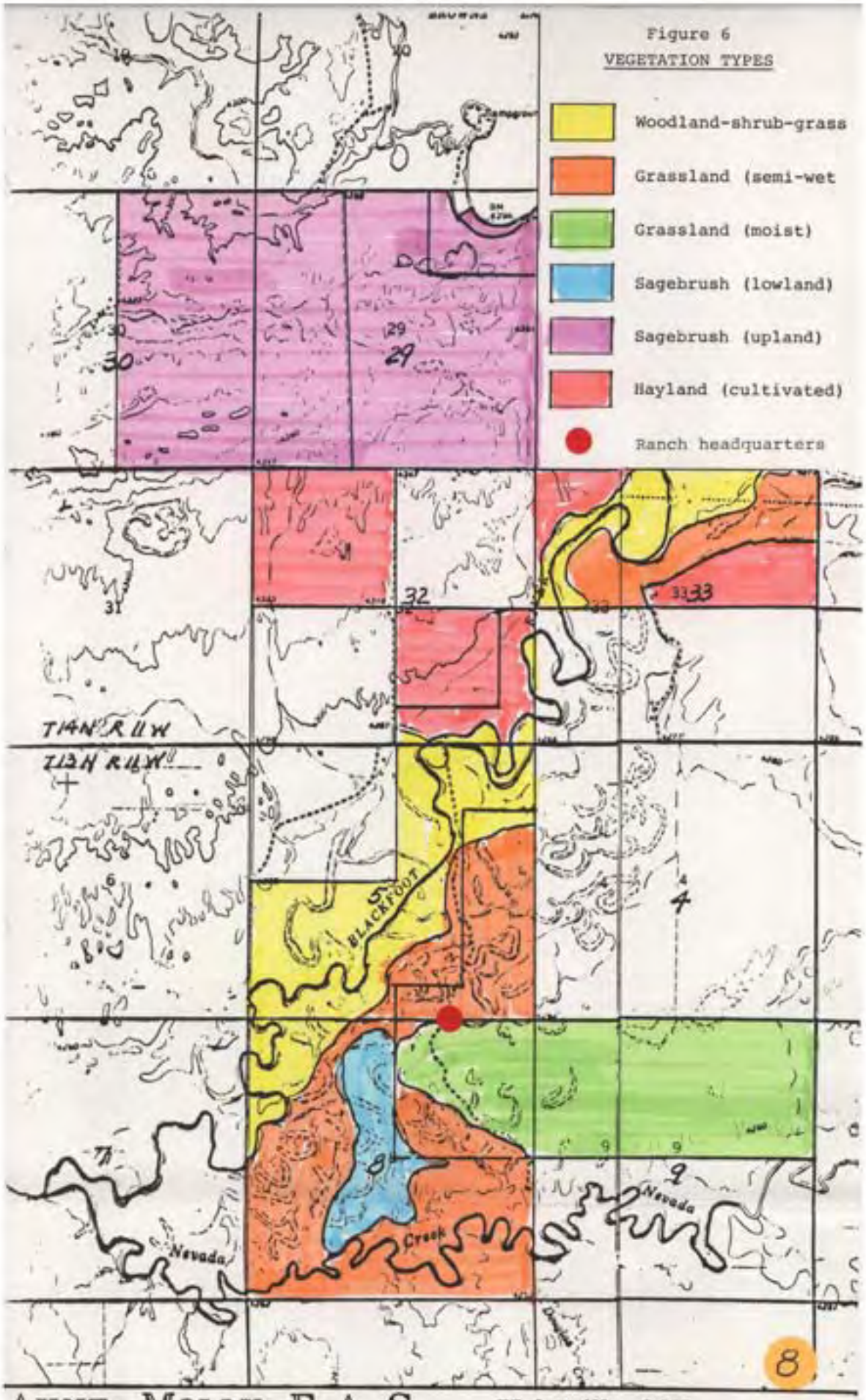
3. Moist grassland type lies on higher better drained ground in the flood plain area (fig. 11).

4. Lowland sagebrush type lies in a transition zone between the semi-wet and moist grassland types (fig. 12).

5. Upland sagebrush type occupies gently rolling well-drained ground some 10 to 50 feet above the valley floor (fig. 13).

26228

Figure 7.—Woodland-shrub-grass type on the bank of the Blackfoot River, September 17, 1984.



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26263

Figure 8.-Area of shrub-grass type, heavy with shrubs, September 17, 1984

26225

Figure 9.-Area of shrub-grass type, heavy with grass, September 17, 1984.

27109

Figure 10.-Semi-wet grassland type in flood plain, September 21, 1985

26236

Figure 11.-Moist grassland type on higher ground in flood plain area, September 17, 1984.

26257

Figure 12. Lowland sagebrush type on better drained ground in the flood plain area. Looking north toward ranch headquarters, September 17, 1984.

26266

Figure 13. Upland sagebrush type on well-drained soil south of Browns Lake, September 17, 1984.

Area of types

The acreage of these types on Department and Ranch lands is shown in table 1.

Table 1 - Area of vegetation types

Type	Department lands		Ranch lands		Aunt Molly Area	
	Acres	%	Acres	%	Acres	%
Woodland-shrub-grass (riparian)	494	40	- - - - -		494	16
Grassland (semi-wet)	520	42	180	10	700	23
Grassland (moinst)	- - - -		440	25	440	15
Sagebrush (lowland)	44	3	- - - - -		44	1
Sagebrush (upland)	58	5	888	49	946	31
Hayland (cultivated)	121	10	295	16	416	14
Total	1237	100	1803	100	3040	100

Plant species in types

Species observed in the types, are listed in table 2.

Table 2 - Species in Vegetation Types

SPECIES *	AMOUNT **
WOODLAND-SHRUB-GRASS (riparian)	
Grasses	
Bearded Wheatgrass	2
Kentucky bluegrass	2
Meadow foxtail	1
Red top	1
Timothy	1
Sedges, rushes	2
Weeds	3
Shrubs	
Willow	4
Black cottonwood	3
Dogwood	2
Mountain alder	1
Rocky Mt. juniper	1
Spruce	1
GRASSLAND (SEMI WET)	
Grasses	
Kentucky bluegrass	3
Meadow foxtail	2
Red top	2
Timothy	2
Desert saltgrass	1
Sedges, rushes	4
Weeds	3
Shrubs	
Willow	3
Rose	3
Silverberry	1
Big sagebrush	1
Bush cinquefoil	1

SPECIES	AMOUNT
GRASSLAND (MOIST)	
Grasses spp.	5
Weeds spp.	2
Sedges, rushes	2
SAGEBRUSH (LOWLAND)	
Grasses	
Idaho fescue	4
Bluegrass sp.	2
Western wheatgrass sp.	2
Kentucky bluegrass	2
Timothy	1
Needlegrass sp.	1
Sedges, rushes	2
Weeds	3
Shrubs	
Big sagebrush	5
SAGEBRUSH (UPLAND)	
Grasses	
Idaho fescue	4
Bluebunch wheatgrass	3
Columbia needlegrass	2
Richardson needlegrass	2
Western wheatgrass sp.	2
Kentucky bluegrass	1
Rough fescue	1
Sedges, rushes	1
Weeds	3
Shrubs	
Big sagebrush	5
Rabbitbrush	2
Three-tip sagebrush	1

* See appendix for common and botanical names

** 5. abundant 4. considerable 3. common 2. some 1. sparce

Wildlife

Wildlife associated with these types and waters of the Blackfoot River and Nevada Creek are listed in table 3. The streams meandor a distance of about 6 miles through the area and expose about 21 acres of water surface.

Table 3 - Wildlife on Aunt Molly Area

Fish	Big game
Brook trout	White-tailed deer
Cutthroat	
Dolly Varden	Other animals
German brown	Badger
Rainbow	Beaver
	Black bear
Birds	Bob cat
Water and lowland	Coyote
Blackbird	Mink
Blue heron	muskrat
Canada goose	Porcupine
Cinnamon teal	Red fox
Mallard	Stripped skunk
Sandhill crane	
Wood duck	
Upland	
Assorted songbirds	
Merriam turkey	
Ruffed grouse	
Other	
Bald eagle	
Golden eagle	
Great horned owl	
and others	
Hawks (several Kinds)	

RANGE CONDITION

Indicators of soil deterioration show prominently on Aunt Molly in the kinds of plants on the land.

As soil erodes it changes physically and chemically. It declines in fertility and moisture-holding capacity. It becomes poorer and drier, and as it does, progessively more draught enduring species invade and take possession of the site.

Generally fibrous rooted plants, such as grasses, which grow on well-developed soils with high moisture-holding capacity, are replaced by tap-rooted ones, such as shrubs, trees and weeds (broadleaf herbs), which grow on poorer drier sites.

The presence of shrubs or trees or an abundance of weeds on grassland sites, or thickening of these plants on sites, indicate soil deterioration.

Upland sagebrush type

See figure figure 13. This is a grassland site. At one time the plant cover was herbaceous, dominated by Idaho fescue and bluebunch wheatgrass. Now, it is woody, dominated by sagebrush, the result of erosion, induced by thinning of the plant cover by grazing. Sagebrush continues to thicken on the site because of inadequate plant cover (fig. 14).

Lowland sagebrush type

A change similar to the one in the upland sagebrush type has also occurred here (fig. 15).

Semi-wet grassland type

Shrubs have invaded and thickened in the type (figs. 16,17, 18).

Shrub-grass type

Shrubs have increased in grassy areas of the type (fig. 19).

26269

Figure 14.—Sagebrush is thickening on this grassland site because of inadequate plant cover and soil erosion, September 17, 1984.

26262

Figure 15.—Big sagebrush invaded this grassland site as the soil deteriorated, September 17, 1984.

27108

Figure 16.—Semi-wet grassland type invaded by rose, bush Cinquefoil and other low shrubs with soil deterioration, September 21, 1985.

27119

Figure 17.—Semi-wet grassland type invaded by big sagebrush with soil deterioration, September 21, 1985.

27165A

Figure 18.—Semi-wet grassland type invaded by willow with soil deterioration, September 21, 1985

26227

Figure 19,—Grassy area in shrub-grass type invaded by silverberry with soil deterioration, September 17, 1984.

TAYLOR RANCH OPERATION

Mr. Taylor runs a commercial cow-calf operation with about 240 head of mixed breed cattle and also a pure breed operation with about 160 head of registered Simmental cattle. He produces these cattle in a year round operation involving Ranch and Department lands.

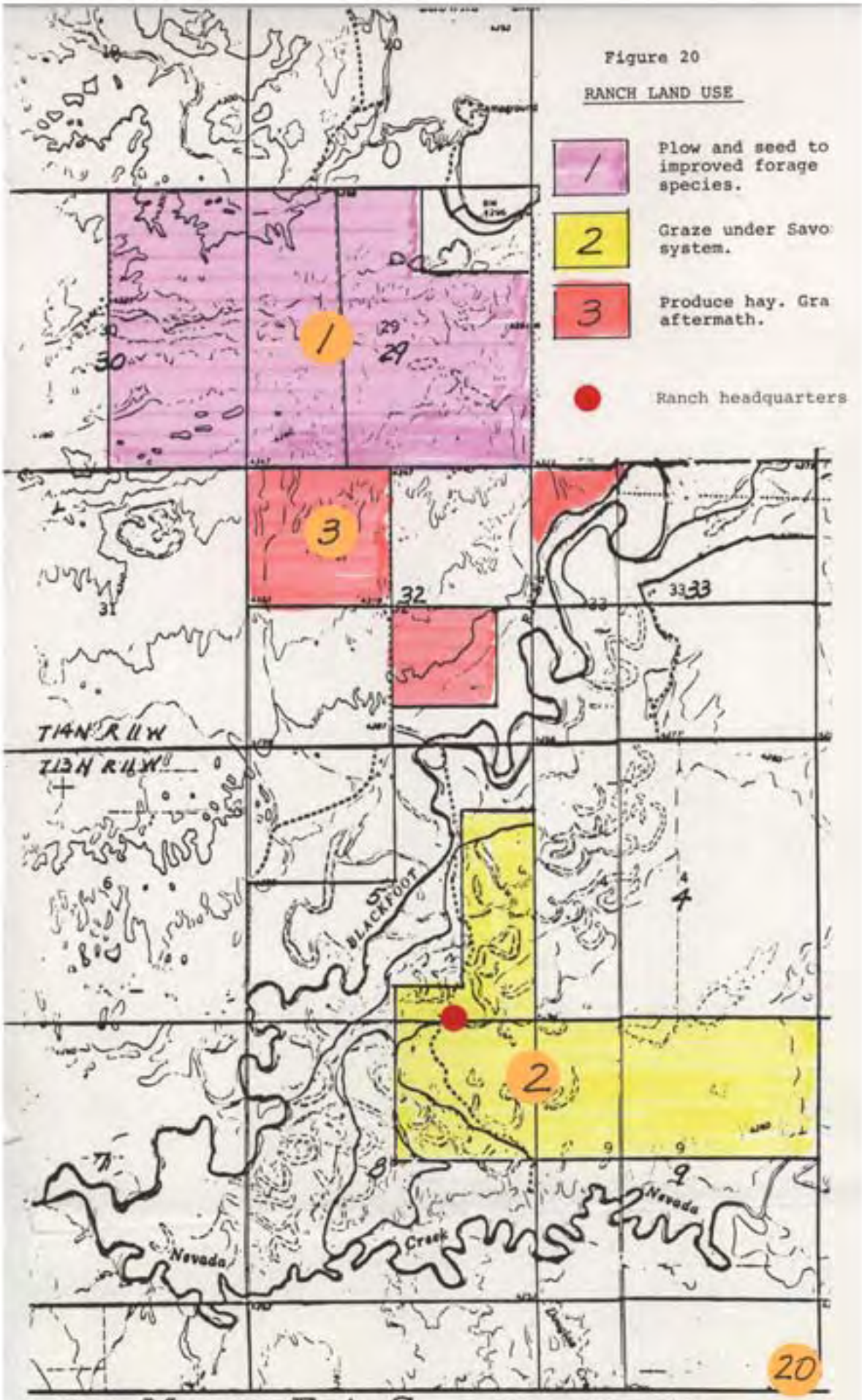
He plans grazing some 620 acres of his grazing land under the Savory system, and plowing and seeding the rest (888 acres) to improved forage species (table 4, fig. 20). He started with Savory grazing in 1984 and by the end of 1985 had about 480 acres under the system (figs. 21,22). He started with sagebrush conversion in 1985 and treated 160 acres. See figure 13 for character of the sagebrush land.

Table 4 - Ranch land use

Map area* No.	Acres	%	Cover	Use
1	888	49	Sagebrush	Plow and seed to improved forage species. Graze (Taylor plan).
2	620	35	Grassland	Irrigate.Graze under Savory system.
3	295	16	Cultivated hayland	Hay production. Graze aftermath.
Total	1803	100		

* See figure 21

Mr. Taylor depends on Department lands for summer grazing and for winter calving area. The latter provides shelter for young calves and is vital to the ranch operation.



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26245

Figure 21. Don Taylor explaining the Savory system to Joe Egan, September 17, 1984.

27151

Figure 22. Registered Simmental cattle in Savory grazing pasture, September 21, 1985.

DEPARTMENT LAND USE

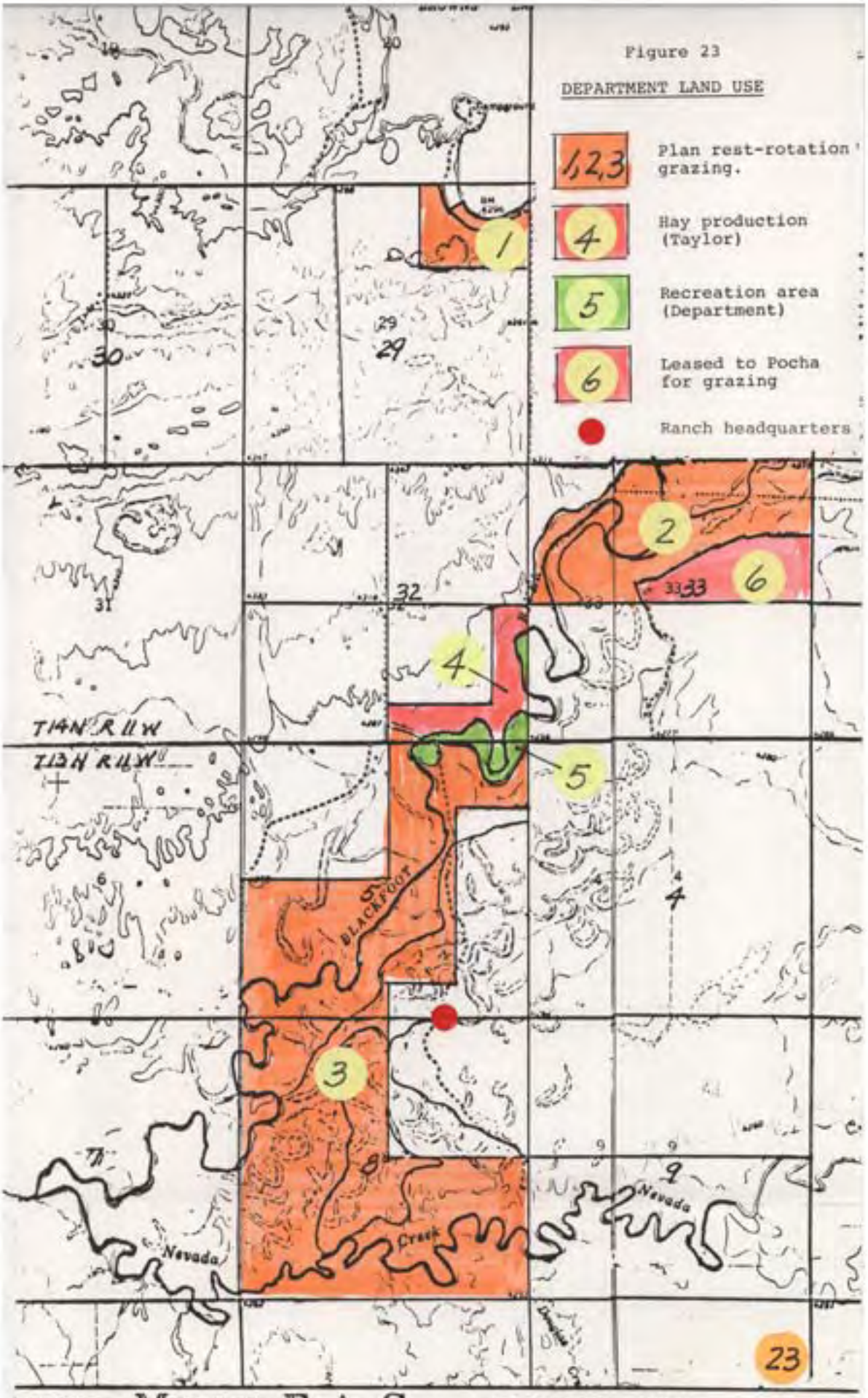
Special disposition has been made or is planned for about 146 of the 1237 acres purchased by the Department. The remaining 1091 acres are considered here for management under rest-rotation grazing (table 5, fig. 23).

Table 5 - Department land use

Map Area (fig. 23)	Acres	%	Use
6	69	6	Leased to Pocha for grazing
5	23	2	Department recreation area (fig. 24)
4	54	4	Leased to Taylor for hay production
1,2,3	1091	88	Leased to Taylor for grazing
Total	1237	100	

26272

Figure 24 - A portion of a woodland area along the Blackfoot River, planned for recreational use by the Department, September 17, 1984.



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BASIS OF REST-ROTATION GRAZING

Rest-rotation grazing is designed to promote and maintain maximum vegetation cover on the range. This is accomplished through timely resting of the range from use.

The need for resting is apparent from the following facts:

The plant weakens and dies under continuous grazing, because it can't make food for itself. The plant makes its food in its leaves when the leaves are green. It stores some of the food each year for future use — during the dormant period and and to produce new growth in spring. It stores enough to last several years. However, with continuous close cropping over a period of years, it can't make adequate food; exhausts reserves and dies — literally of starvation.

With rest-rotation grazing the range is rested from use periodically, so as to provide plants opportunity to make and store food and complete other life processes.

To practice rest-rotation grazing the range is divided into pastures. Each is grazed and rested from one year to the next, according to a formula.

The duration and time of resting are determined by the kinds of plants and the season of grazing. Herbaceous plants are damaged during the green period when they are making food. They are uneffected by use during the dormant period, because the crowns are dead.

Woody species are damaged by use during both the green and dormant periods. Because woody species cannot be completely defoliated, the impact of grazing during the vulnerable period, is not as severe as with herbaceous species.

Most of the damage to vegetation, herbaceous and woody, on Aunt Molly has been caused by summer grazing.

With rest-rotation grazing a specific grazing system is formulated for each range, to meet the particular conditions on the range. The number of pastures vary from system to system, depending on the amount of rest needed.

APPLICATION

Summer range

The area (fig. 25) encompasses the 1091 acres available for grazing.

Vegetation growing season	Approximate dates
Start	April 15
Start of rapid growth	May 10
Seed-ripe	August 1
Period of drying	July 15-Sept. 30

Grazing Season

Start of fast growth to October 31

Grazing system

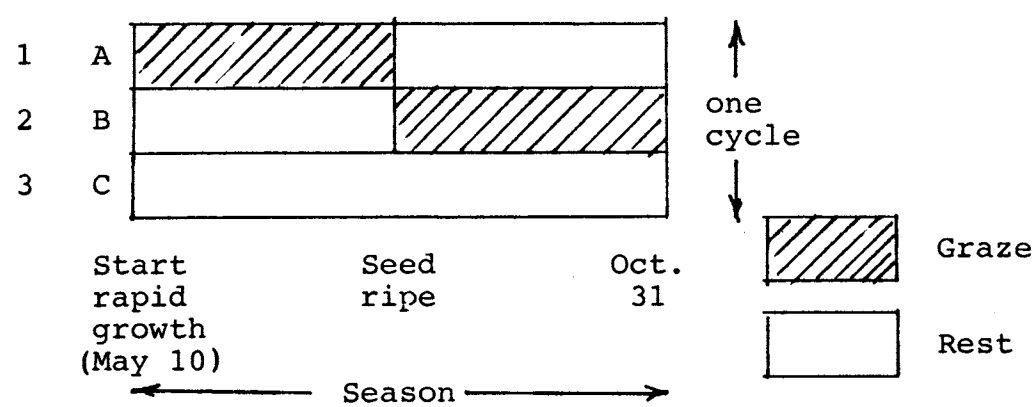
A 3-pasture system is prescribed

Grazing formula

The formula is diagrammed in figure 26

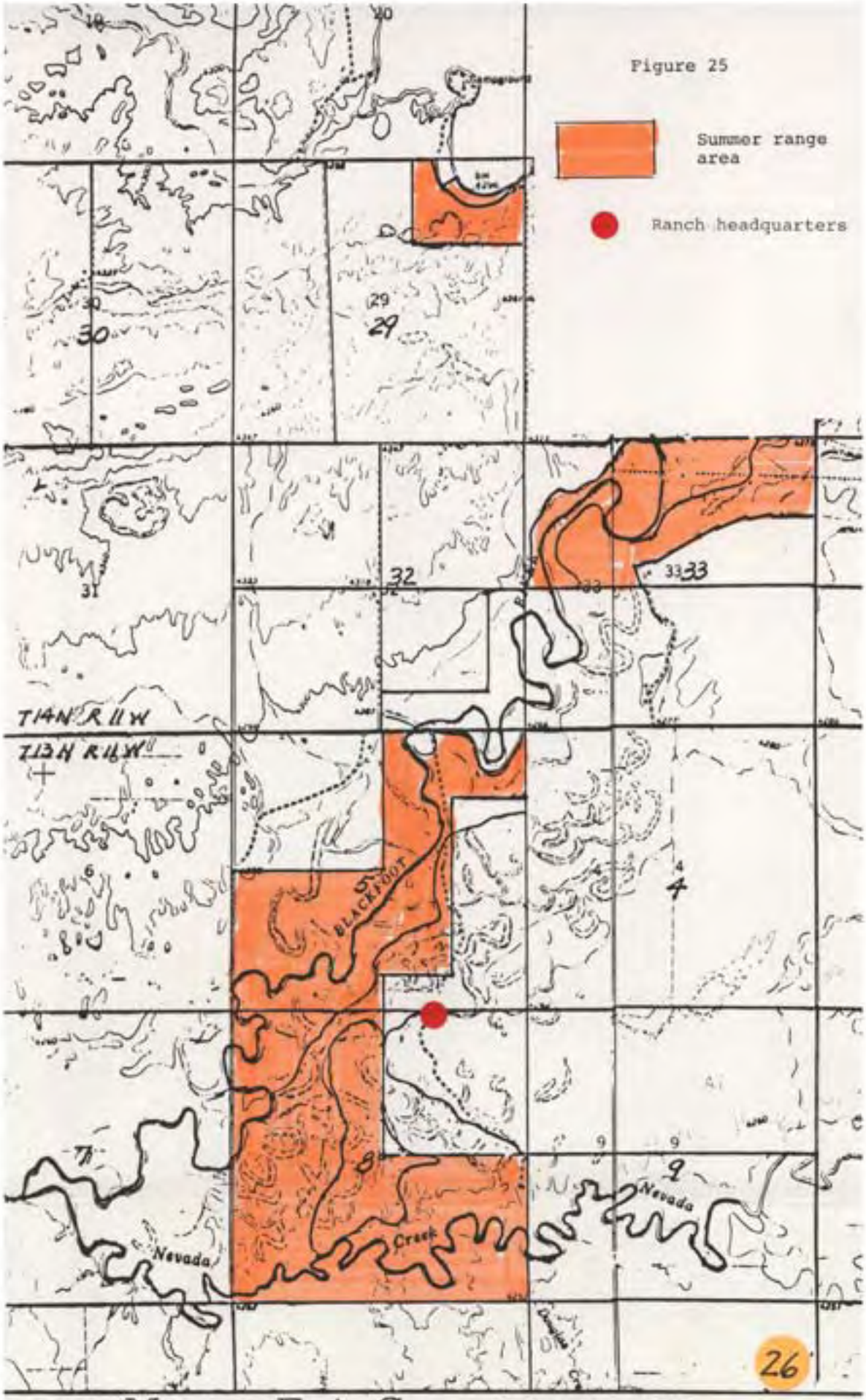
Figure 26 - Grazing formula for pastures

Year : Grazing treatments



The diagram reads as follows:

With Treatment A	The pasture is grazed from start of fast growth until seed-ripe time.
With Treatment B	The pasture is rested until seed-ripe time, then grazed to the end of the season.
With Treatment C	The pasture is rested season long.



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Treatments A,B,C, make up a cycle of treatments. The treatments are repeated in ABC order, cycle after cycle, indefinitely. They are applied in the 3-pastures as shown in the following schedule (table 6).

Table 6 - Grazing schedule

Years :	Pasture		
	1	2	3
	Grazing treatments		
1	A	B	C
2	B	C	A
3	C	A	B
4	A	B	C
5	B	C	A
6	C	A	B

PROPOSED GRAZING IN 1986

I suggest the grazing system be tried with a tentative pasture set-up. Several arrangements are possible, the one most practical for Mr. Taylor should be used. Results with the system will be the same with any arrangement.

The best way to arrive at a sound set-up is to try one. There are sufficient fences and other controls on the ground to do this. I show an arrangement in figure 27. I suggest it be tried this season, proceeding with grazing as in year 1 of the grazing schedule. The experience will be invaluable in determining the best arrangement.

Pasture 1 would be grazed the first half of the season up to seed-ripe time and pasture 2, the second half. Pasture 3 would be rested. Use Idaho fescue to determine seed-ripe time.

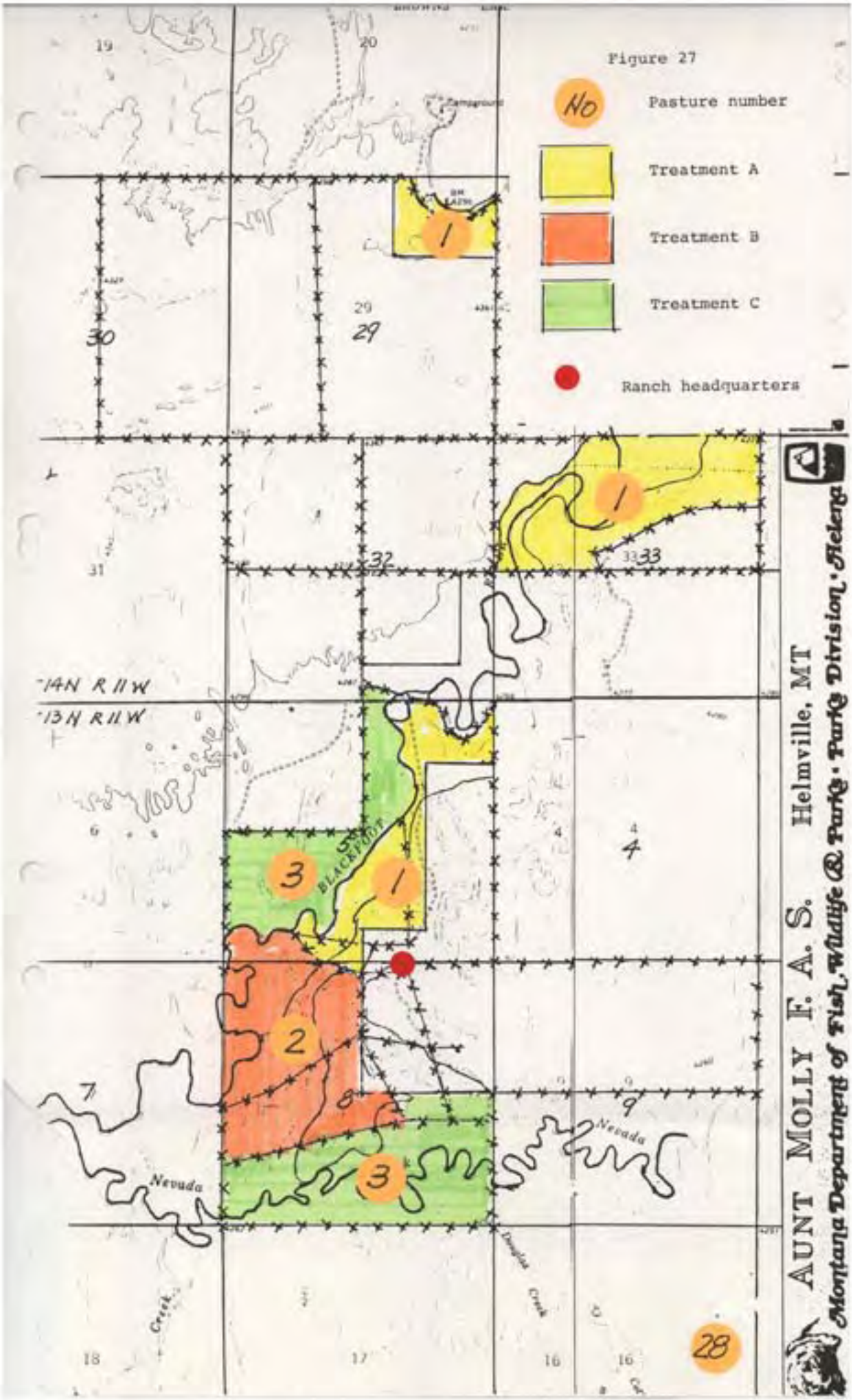


Figure 27
No
Pasture number
Treatment A
Treatment B
Treatment C
Ranch headquarters
AUNT MOLLY F. A. S.
Helmville, MT
Montana Department of Fish, Wildlife & Parks · Parks Division · Helena
14N R11W
13N R11W
BLACKFOOT
Nevada
Nevada
Creek
Douglas Creek
19
20
29
30
31
32
33
4
6
7
8
9
16
17
18
28
1
2
3

Mr. Taylor can graze the pastures during the time they are open to use, with any number of cattle, for any periods, up to the limit of the grazing capacities of the pastures.

Pasture No.	Area Acres	Capacity AUMs
1	426	234
2	272	186
3	393	253
Total	1091	673

Grazing capacity was calculated from actual use data, provided by Mr. Taylor, for 1984 and 1985.

Animal unit equivalents used in the calculations were obtained from page 2 of the 1979 lease agreement.

Cow and calf - - - - - - - -	1.00 AU
Bull (mature)- - - - - - - -	1.25
Weaned calf (6-12 months old)	.60
Yearling (12-36 months old)	.75
Steer (22-36 months old) - -	.90
Dry cow (22-36 months old)	.90
Horse - - - - - - - - - - - -	1.25

The capacity figures reflect capacity in the average year and 66 percent use of the forage. Capacity varies from year to year, depending on forage production; so the figures serve only as guides to stocking and use.

Capacity can be determined realistically only after use; before then, it can only be estimated.

Winter range (calving grounds)

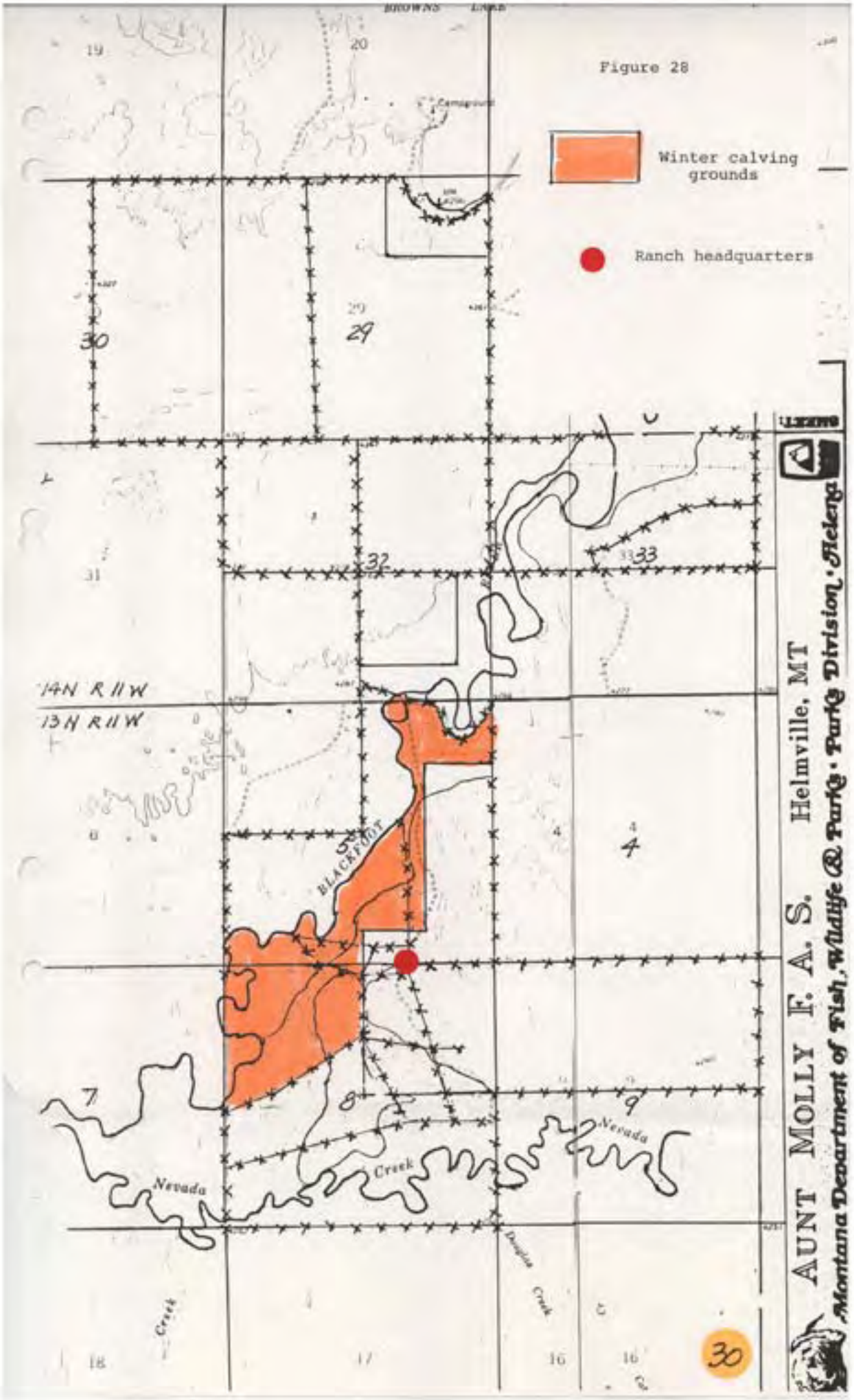
The area lies in the woodland-shrub-grass type along the Blackfoot River (fig. 28). It is about 304 acres in size and is usually used for about 2 months, from late February through April. Cows are fed hay during this period. Grazing is light and mainly on woody species.

The impact of use on the range cannot be assessed at this time because the area has also been grazed in summer. Results with summer grazing will have to be observed to determine whether or not change in management is needed. In the mean time I suggest the area be used as in the past.

Fences

About 6 miles of fences are needed to close off Department lands from adjoining properties. An additional amount will be needed for cross-fencing pastures (fig. 29).

Figure 28


Winter calving grounds
Ranch headquarters
14N R11W
13N R11W
BLACKFOOT
Nevada
Creek
Nevada
Creek
Douglas
Creek
Campground
LEGEND
AUNT MOLLY F. A.S.
Helmville, MT
Montana Department of Fish, Wildlife & Parks · Parks Division · Helena

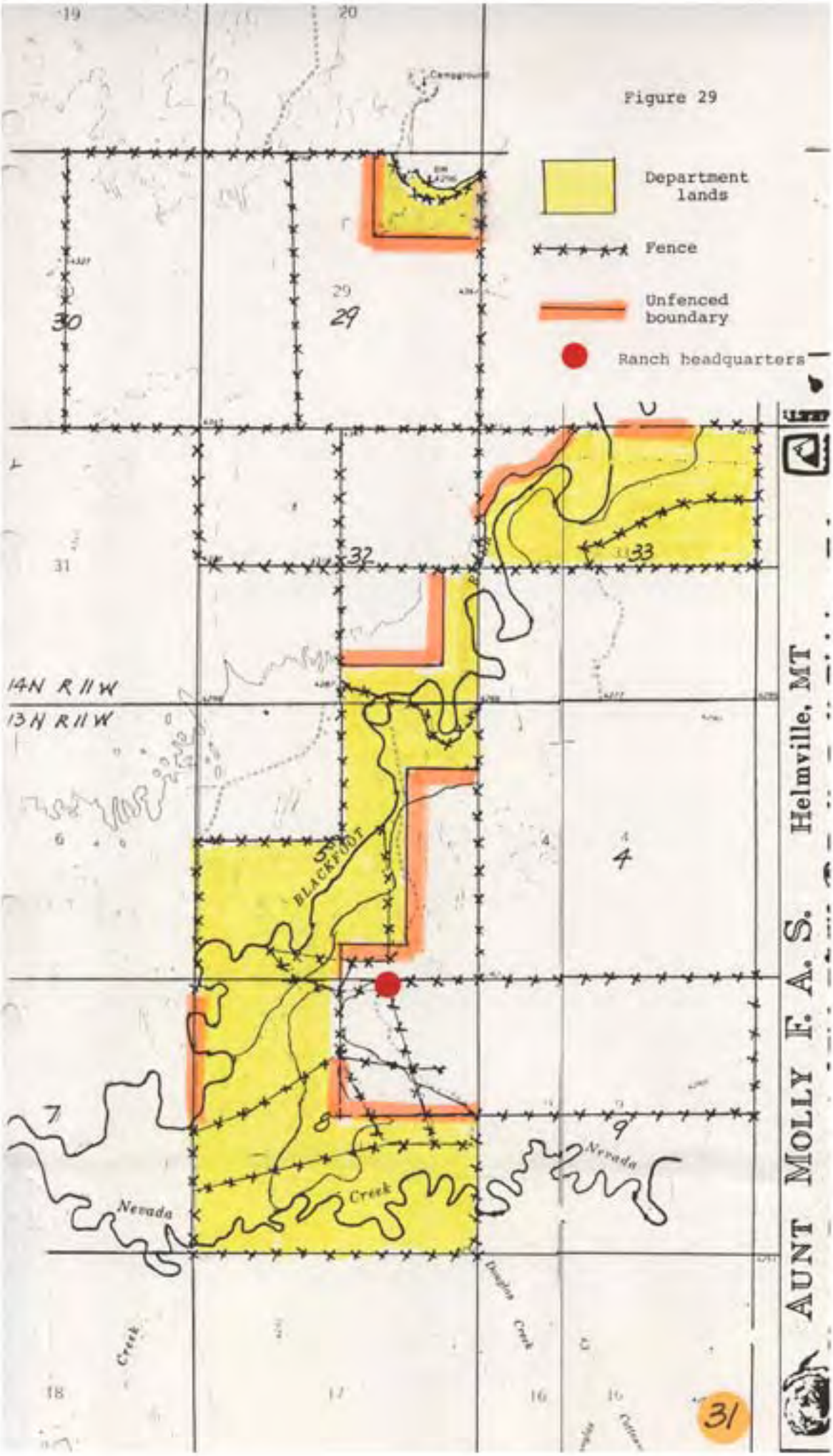


Figure 29
Department lands
Fence
Unfenced boundary
Ranch headquarters
14N R11W
13N R11W
BLACKFOOT
Nevada
Creek
Douglas Creek
AUNT MOLLY F. A. S.
Helmville, MT

ANTICIPATED RESULTS

The objectives sought in this plan can be realized with the 3-pasture rest-rotation grazing system.

Results with continuous grazing and those anticipated with the 3-pasture system are illustrated in figures 30 and 31.

A 27265B

B 27161

Figure 30 A-B, With continuous grazing the range is deteriorated steadily. Vegetation is closely utilized and little is left for wildlife and other uses, September 21, 1985

A 26274

B Also see figure 24 26233

Figure 31 A-B, With rest-rotation grazing plant cover is improved and maintained at site capacity. With the 3-pasture system vegetation on one-third the range is left ungrazed throughout the season. On two-thirds it is left ungrazed until mid-season, September 17, 1984.

 Also see figure 24

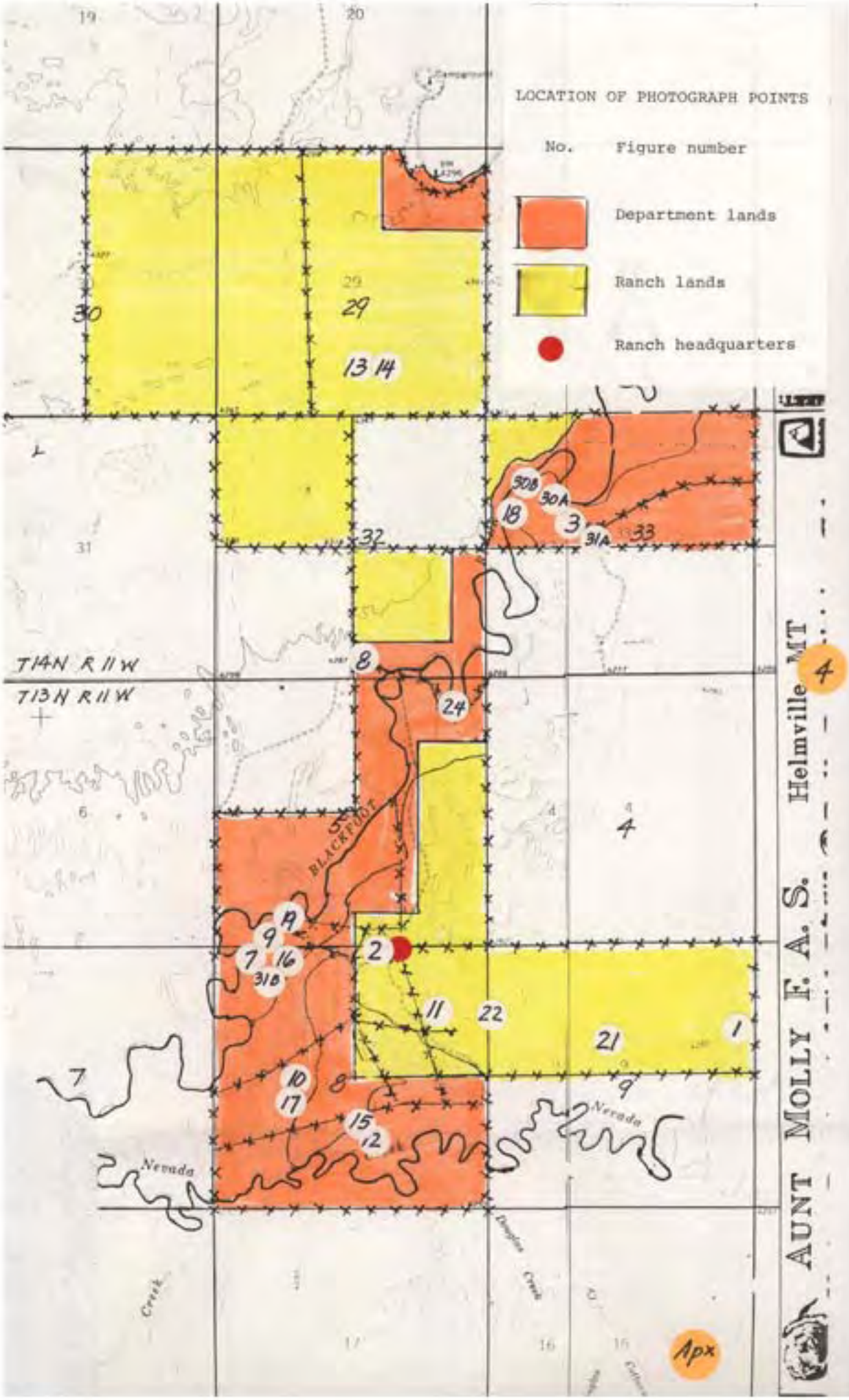
APPENDIX

Location of photograph points

Common and botanical names of plant species.

PHOTOGRAPH LOCATIONS

Figure No	Section No	
1	9	
2	5	
3	33	
4	2	(off Map)
7	8	
8	5	
9	5	
10	8	
11	8	
12	8	
13	29	
14	29	
15	8	
16	8	
17	8	
18	33	
19	5	
21	9	
22	8	
24	5	
30A	33	
30B	33	
31A	33	
31B	8	


LOCATION OF PHOTOGRAPH POINTS
No. Figure number
Department lands
Ranch lands
Ranch headquarters
T14N R11W
T13N R11W
BLACKFOOT
Nevada
Creek
Douglas
Helmville MT
AUNT MOLLY F. A. S.
4
Apx

COMMON AND BOTANICAL NAMES OF SPECIES MENTIONED

GRASSES

Bearded wheatgrass	Agropyron subsecondum
Bluebunch wheatgrass	Agropyron spicatum
Columbia needlegrass	Stipa columbiana
Desert saltgrass	Distichlis stricta
Idaho fescue	Festuca idahoensis
Kentucky bluegrass	Poa pratensis
Meadow foxtail	Alopecorus pratensis
Red top	Agrostis alba
Richardson needlegrass	Stipa richardsonii
Rough fescue	Festuca scabrella
Timothy	Phleum pratensis
Western wheatgrass	Agropyron smithii

SEDGES AND RUSHES

Sedges	Juncus spp.
Rushes	Carex spp.

WEEDS (FORBS)

Weeds	--

SHRUBS

Big sagebrush	Artemisia tridentiata
Gooseberry	Ribes
Rabbitbrush	chrysothamnus spp.
Rose	Rosa spp.
Silverberry	Sheperdia argentea
Three-tip	Artemisia tripartita
Willow	Saliz spp.
Bush cinquefoil	Potentilla glandulosa

TREES

Black cottonwood	Papulus trichocarpa
Dogwood	Cornus spp.
Mountain alder	Alnus tenuifolia
Rocky Mountain juniper	Juniperus scopulorum
Spruce	Picea engelmannii
Willow	Salix spp.