

VERLE PIERCE MANAGEMENT ALLOTMENT

We have proposed a five-pasture rest-rotation grazing system for the Verle Pierce ranch. It is anticipated that the fencing will be completed this summer along with construction of several new watering facilities. The system will be implemented in 1968.

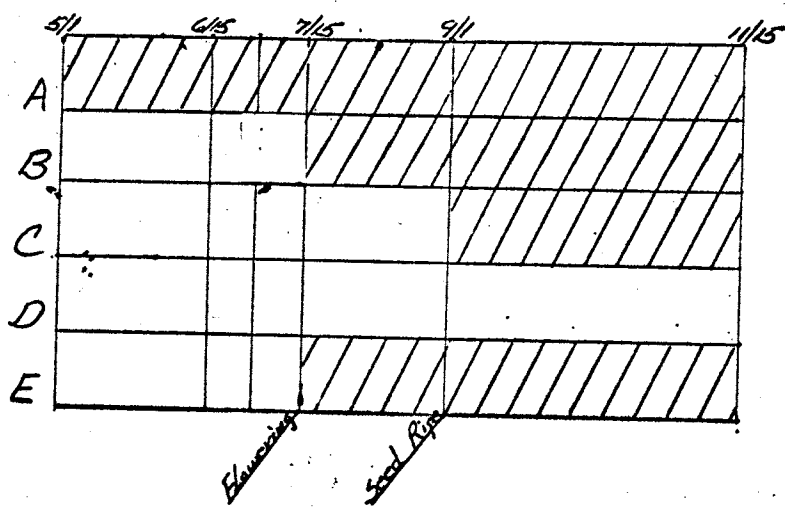
Since the area is close to Belle Fourche, South Dakota, we used phenological data developed by Larry White. Phenological data used for designing the North Dakota Antelope Butte and Big Gumbo Grazing Systems were also reviewed.

Livestock to be used include 1,000 sheep and 130 cattle. The cattle will be turned onto the system May 1 and grazed for 6½ months. The sheep will be turned in on June 15 and grazed for 5 months. Both classes of livestock will be run in common while on the allotment.

Actual livestock use data for the allotment was very difficult to secure, therefore the initial stocking rate was derived from an ecological site survey estimate. At a 67% utilization level, each pasture has approximately 479 AUMs of available forage.

We currently plan to install two gates in each fence segment plus one-half acre hub at the vertex of the fences. Five gates, one leading to each pasture, will be installed in the hub.

Proposed Formula



Pastures

Treatments

1	E	A	B	C	D
2	A	B	C	D	E
3	B	C	D	E	A
4	C	D	E	A	B
5	D	E	A	B	C

DESCRIPTION, INVENTORY AND ANALYSIS OF ALLOTMENT

Class of stock Sheep & Cattle Stocking (AUs) 330 (AUMs) 1980
 Season of grazing (Dates) 5/15 to 11/15
 Character of topography Undulating to steeply rolling

Table 1. Area of natural vegetation types and culturally treated areas grazed by livestock and by game

Vegetation types and culturally treated areas <u>1/</u>	Total area of type		Area grazed by livestock		Area grazed by game	
			At present	30 years from now <u>2/</u>	At present	30 years from now <u>2/</u>
(name) RANGE SITES	(acres)	(per-cent)	(acres)	(acres)	(acres)	(acres)
1-Grassland: Thin clayey	395.	5%				
" Dense Clay.	514.	7%				
" Shale	140.	3%				
" Shallow Clay.	252.	3%				
TOTAL:	1,301.00	18%	1,301.00	1,301.00	1,301.00	1,301.00
4 - Sagebrush: Shale	1,128.	14%				
" Shallow clay.	2,956.	37%				
" Thin Clayey	1,074.	13%				
" Dense Clay.	1,291.	16%				
TOTAL:	6,449.	80%	6,449.	6,449.	6,449.	6,449.
11-Saltbush: Thin clayey	75.	1%				
" TOTAL:	75.	1%	75.	75.	75.	75.
14 - Greasewood: Dense Clay.	4.00	-				
" TOTAL:	4.00	-	4.	4.	4.	4.
Other (Cropland - hay bottoms)	53.00	1%	53.	53.	53.	53.
Allotment Total	7,882.	100	7,882.	7,882.	7,882.	7,882.

1/ List culturally treated areas under appropriate vegetation types.

2/ Under improved management.

Table 2. Composition, value, use and development of plant species in natural vegetation type or culturally treated area

Type or treated area (name) Sagebrush (Summary)

Species	Amount in cover	Forage value				Utilization ave.	Start growth (date)	Flow-ering (date)	Seed ripe (date)	Leaves -twigs (date)	Regrowth stalk (date)
		Ex	Gd	Fr	Pr						
Grasses & Grass-like											
Agropyron smithii & dasystachyum <i>Rhiz</i>	49		x			40	4 E	7E	8L	8M	6L
Calamovilfa longifolia <i>Rhiz</i>	9		x			25	5E	8E	9M	-	7E
Bouteloua gracilis <i>Semi-rhiz</i>	7		x			20	4M	7M	8L	8M	7M
Carex filifolia	3		x			30	3L	4L	5L	5M	4M
Buchloa dactyloides	1		x			20	4M	6M	7M	8M	7M
Poa secunda	1		x			20	3M	5L	6E	-	5M
Andropogon scoparius <i>Bunch</i>	6		x			50	5E	8M	9E	6M	7M
Koeleria cristata	T		x			10	3M	6M	7E	-	5L
Stipa viridula	T	x				80	4E	6E	7E	6L	5L
Distichlis stricta	T			x		-	5E	7E	-	-	-
Spartina pectinata	T					40	5E	8E	-	-	7M
Stipa comata	T		x			50	4E	6E	6L	6M	5M
TOTAL:	76										
Forbs											
Opuntia polycantha	4				x	-	4E	6M	7M	-	-
Eriogonum multiceps	2			x		10	-	-	-	-	-
Phlox hoodii	T				x	-	3M	4M	5M	-	-
Achillea lanulosa	T			x		-	-	-	-	-	-
Suaeda depressa	T				x	-	5E	7L	8L	-	-
Grindelia squarrosa	T				x	-	-	-	-	-	-
Allium Spp.	T				x	-	3M	5L	6M	-	4L
Oxytropis lambertii	T				x	-	3M	5L	6M	-	5E
Taraxacum officinalis	T				x	-	-	-	-	-	-
Total	6										
Shrubs and trees											
Artemisia tridentata	14				x	10	4E	8M	9E	-	-
Atriplex nuttallii	2	x				60	4E	6M	7L	6L	5L
Chrysothamnus nauseosus	1	x				80	-	-	-	-	-
Gutierrezia sarothrae	1				x	-	4E	8L	9L	-	-
Rosa spp.	T	x				80	5E	6E	6M	-	-
Artemisia frigida	T				x	10	-	-	-	-	-
Sarobatus vermiculatus	T		x			10	4M	6M	6L	-	-
Symphoricarpos occidentalis	T		x			80	5E	6L	7E	-	-
Total	18										
Grand Total	100										

1/ Including conifers

2/ For trees and shrubs include estimates only for species that can be changed or removed in a range improvement program.

3/ How late in spring can the species be grazed and still produce grazable leaves or twigs or seed-producing flower stalks?

E - Early Month
M - Middle Month
L - Late Month

Table 2. Composition, value, use and development of plant species
in natural vegetation type or culturally treated area

Type or treated area (name) Saltbush (Summary)

Species	Amount in cover	Forage value				Utili- zation ave.	Start growth	Development			Regrowth Flower stalk
		3x	Gd	Fr	Pr			Flow- ering	Seed ripe	Leaves -twigs	
Grasses & Grass-like	2/ (percent)	Check one)				(perc 't)	(date)	(date)	(date)	(date)	(date)
<i>Agropyron smithii</i>	9	x				35	4E	7E	8L	8M	6L
<i>Carex filifolia</i>	1	x				40	3L	4L	5L	5M	4M
<i>Poa secunda</i>	T	x				20	3M	5L	6E	-	5M
Total	10										
Forbs											
<i>Eriogonum multiceps</i>	8		x			10	-	-	-	-	-
<i>Phlox hoodii</i>	5				x	-	3M	4M	5M	-	-
<i>Hymenoxys acaulis</i>	3				x	-	-	-	-	-	-
<i>Opuntia polycantha</i>	1				x	-	4E	6M	7M	-	-
Total	17										
Shrubs and trees <u>1/</u>											
<i>Atriplex nuttallii</i>	45	x				60	4E	6M	7L	6L	5L
<i>Atriplex argentea</i>	12		x			30	-	-	-	-	-
<i>Gutierrezia sarothrae</i>	10				x	-	4E	8L	9L	-	-
<i>Sarcobatus vermiculatus</i>	1		x			10	4M	6M	6L	-	-
<i>Artemisia tridentata</i>	T			x		10	4E	8M	9E	-	-
<i>Chrysothamnus nauseosus</i>	5		x			80	-	-	-	-	-
Total	73										
Grand Total	100										

1/ Including conifers

2/ For trees and shrubs include estimates only for species that can be changed or removed in a range improvement program.

3/ How late in spring can the species be grazed and still produce grazable leaves or twigs or seed-producing flower stalks?

Table 2. Composition, value, use and development of plant species in natural vegetation type or culturally treated area

Type or treated area (name) Greasewood (Summary)

Species	Amount in cover	Forage value				Utilization ave.	Start growth	Development Flow-ering	Seed ripe	Regrowth Leaves -twigs	Flow stalk
		Ex	Gd	Fr	Pr						
Grasses & Grass-like											
	2/ (percent)	(check one)				(Perc 't)	(date)	(date)	(date)	(date)	(date)
<i>Agropyron smithii</i>	51	x				35	4E	7E	8L	8M	6L
<i>Bouteloua gracilis</i>	10	x				30	4L	7M	8L	8M	7M
<i>Buchloa dactyloides</i>	2	x				25	4M	6M	7M	8M	7M
<i>Poa secunda</i>	6	x				20	3M	5L	6E	-	5M
<i>Koeleria cristata</i>	2	x				15	3M	6M	7E	-	5L
<i>Carex filifolia</i>	T	x				40	3L	4L	5L	5M	4M
Total	71										
Forbs											
<i>Opuntia polycantha</i>	15				x	0	4E	6M	7M	-	-
<i>Plantago purshii</i>	T				x	-	-	-	-	-	-
<i>Tragopogon dubius</i>	T			x		-	-	-	-	-	-
<i>Achillea lanulosa</i>	T			x		-	-	-	-	-	-
Total	15										
Shrubs and trees <u>1/</u>											
<i>Sarcobatus vermiculatus</i>	12	x				10	4M	6M	6L	-	-
<i>Artemisia tridentata</i>	1		x			5	4E	8M	9E	-	-
<i>Atriplex nuttallii</i>	1	x				50	4E	6M	7L	6L	5L
<i>Artemisia frigida</i>	T		x			10	-	-	-	-	-
Total	14										
Grand Total	100										

1/ Including conifers
 2/ For trees and shrubs include estimates only for species that can be changed or removed in a range improvement program.
 3/ How late in spring can the species be grazed and still produce grazable leaves or twigs or seed-producing flower stalks?

Table 2. Composition, value, use and development of plant species in natural vegetation type or culturally treated area

Type or treated area (name) Grassland (Summary)

Species	Amount in cover	Forage value			Utilization ave.	Start growth	Development			Regrowth
		Ex	Gd	Fr			Pr	Flow-ering	Seed ripe	
Grasses & Grass-like	2/ (percent)	Check one)			(Per cent)	(date)	(date)	(date)	(date)	(date)
Agropyron smithii & dasystachyum	41	x			40	4E	7E	8L	8M	6L
Calamovilfa longifolia	21	x			30	5E	8E	9M	-	7E
Bouteloua gracilis	10	x			35	4L	7M	8L	8M	7M
Andropogon, scoparius	8	x			50	5E	8M	9E	6M	7M
Carex filifolia	3	x			35	3L	4L	5L	5M	4M
Buchloa dactyloides	2	x			35	4M	6M	7M	8M	7M
Poa secunda	1	x			20	3M	5L	6E	-	5M
Stipa viridula	T	x			60	4E	6E	7E	6L	5L
Stipa comata	T		x		50	4E	6E	6L	6M	5M
Total	86									
Forbs										
Opuntia polycantha	7			x	-	4E	6M	7M	-	-
Eriogonum multiceps	1		x		10	-	-	-	-	-
Phlox hoodii	T			x	-	3M	4M	5M	-	-
Achillea lanulosa	T		x		-	-	-	-	-	-
Total	8									
Shrubs and trees ^{1/}										
Artemisia tridentata	6		x		10	4E	8M	9E	-	-
Gutierrezia sarothrae	T			x	-	4E	8L	9L	-	-
Atriplex nuttallii	T	x			40	4E	6M	7L	6L	5L
Chrysothamnus nauseosus	T	x			80	-	-	-	-	-
Rosa spp.	T	x			80	5E	6E	6M	-	-
Total	6									
Grand Total	100									

1/ Including conifers

2/ For trees and shrubs include estimates only for species that can be changed or removed in a range improvement program.

3/ In late spring can the species be grazed and still produce grazable leaves or wings of seed-producing flower stalks?

Table 4. Estimated utilization of available forage in natural vegetation types and culturally treated areas and condition of range

Vegetation type or treated area ^{1/}	Use of total tonnage of forage in type (percent)	Range condition				
		Vigor of forage species (L,M,H) ^{2/}	Ratio of good to poor forage species (percent) ^{3/}	Density of forage (percent of potential)	Sheet Erosion	
					Depth (Inches)	Extent (Percent of ground area)
80% sagebrush	38	L	93/7	50	.5"	100
18% Grassland	41	L	92/8	50	.5" m	100
1% Saltbush	33	L	73/27	50	.5"	100
1% Greasewood	33	L	73/27	50	.5"	100
Allotment average	38.4 ✓	L	92/8	50	.5"	100

1/ List treated areas (reseeded, sprayed, etc.) under appropriate vegetation types.
 2/ L = low, M = moderate, H = high.
 3/ From Table 2 Excellent and good species = good; fair and poor species = poor.

What percent of the livestock forage on the range is used by game? 1/2 of 1%

What are the principal foraging game animals? Antelope.

Table 6. Effect of planned cultural treatments on grazing capacity

Vegetation type to be treated	Area	Capacity at present	Artificial reseeded		Effect of cultural treatment (6) minus (4) AUMs (7)
			Capacity 30 yrs. hence due to:		
(name)	Acres	Ac/AUM AUMs (1) (2)	Grazing management Ac/AUM AUMs (3) (4)	Cultural treatment Ac/AUM AUMs (5) (6)	
		N			
		O			
		N			
		E			
Total					
Spraying or other treatment					
		N			
		O			
		N			
		E			
Total					

R 58 E

Federal Range
State Land
Fence
Proposed Fence

V
S
M-R
41'

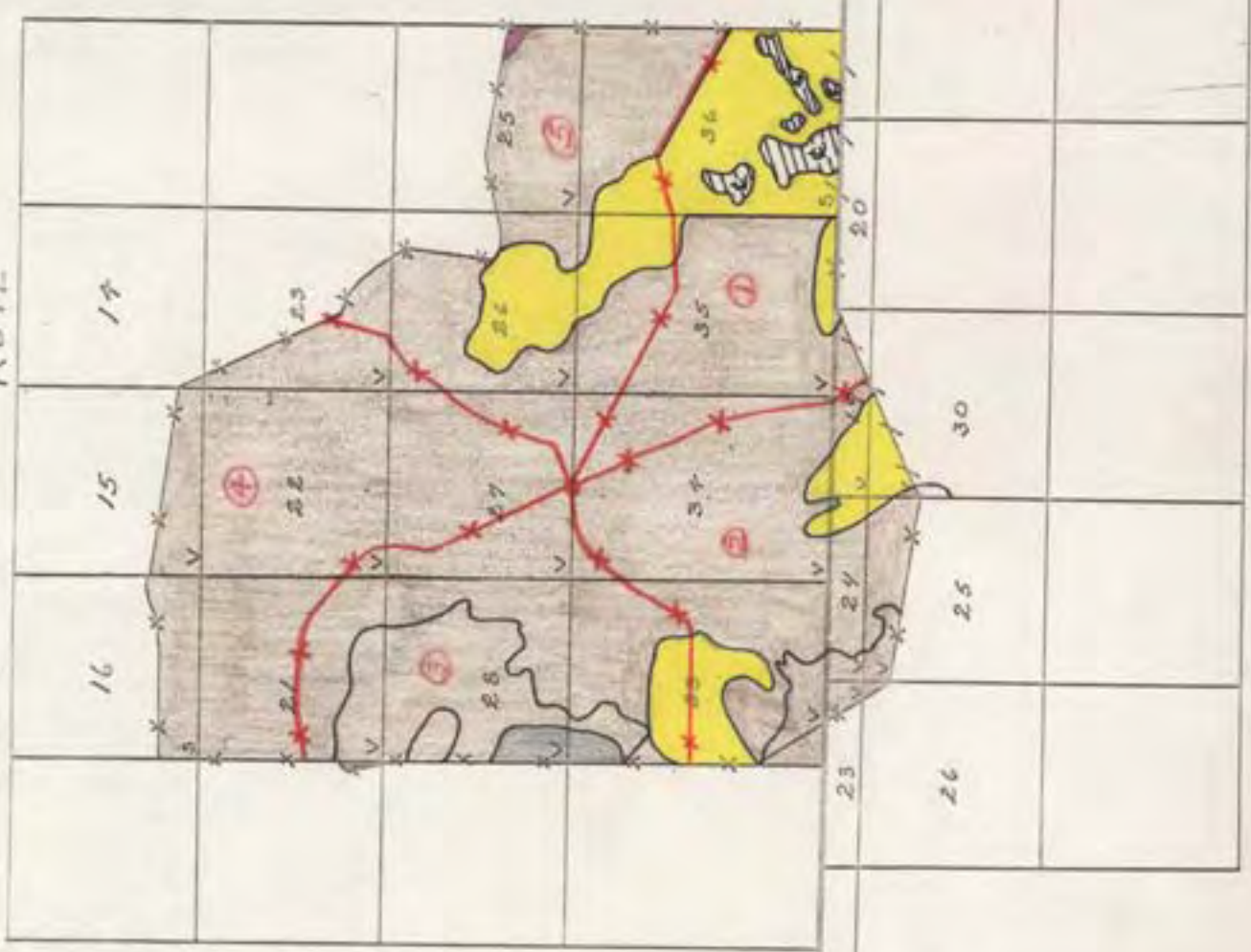
{ VEARLE PIERCE REST-ROTATION }
PASTURE.

Legend:

- Grassland.
- Sage brush.
- Saltbush.
- Greasewood.
- Cropland. (Hay bottoms)

MONTANA.
WYOMING.

R 57 E



T 9 S

T 58 N

R 65 W

Division Fence in Pasture (Proposed)

* * *

① - Pasture Numbers.

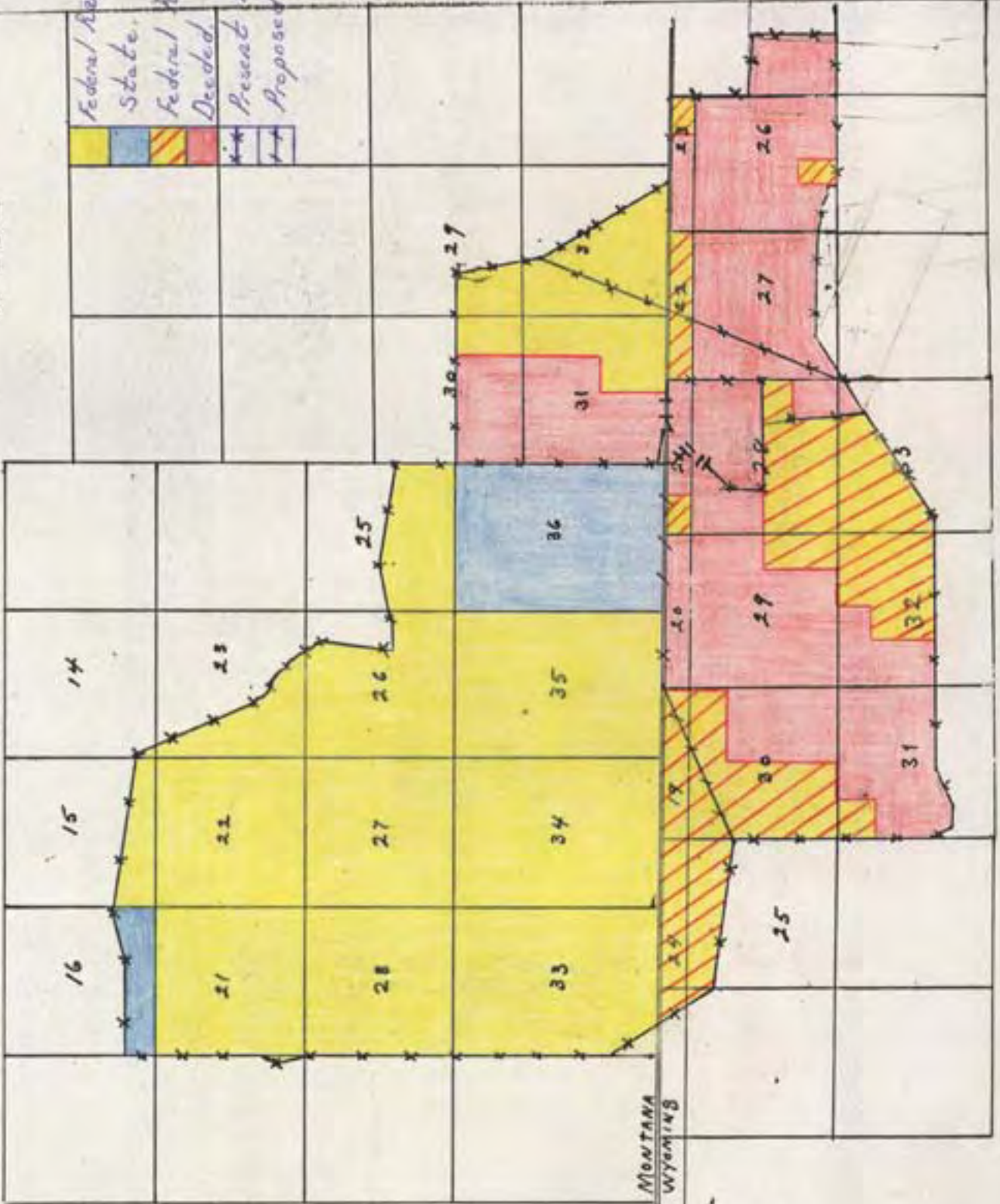
Total Acres = 7,882

VERLE PIERCE (Allotment.)

(A)

R 57 E

R 58 E



Federal Range.
State.
Federal Range (Wyo)
Decided.
Present Fence.
Proposed Fence.

T 9 S

T 58 N

MONTANA
WYOMING

R 65 W.

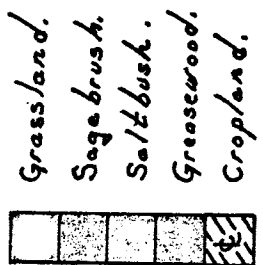
R 58 E

Federal Range
State Land
Fence
Proposed Fence



{ VERLE PIERCE REST-ROTATION }
PASTURES.

Legend:



MONTANA.
WYOMING.

Division Fences in Pasture (Proposed)

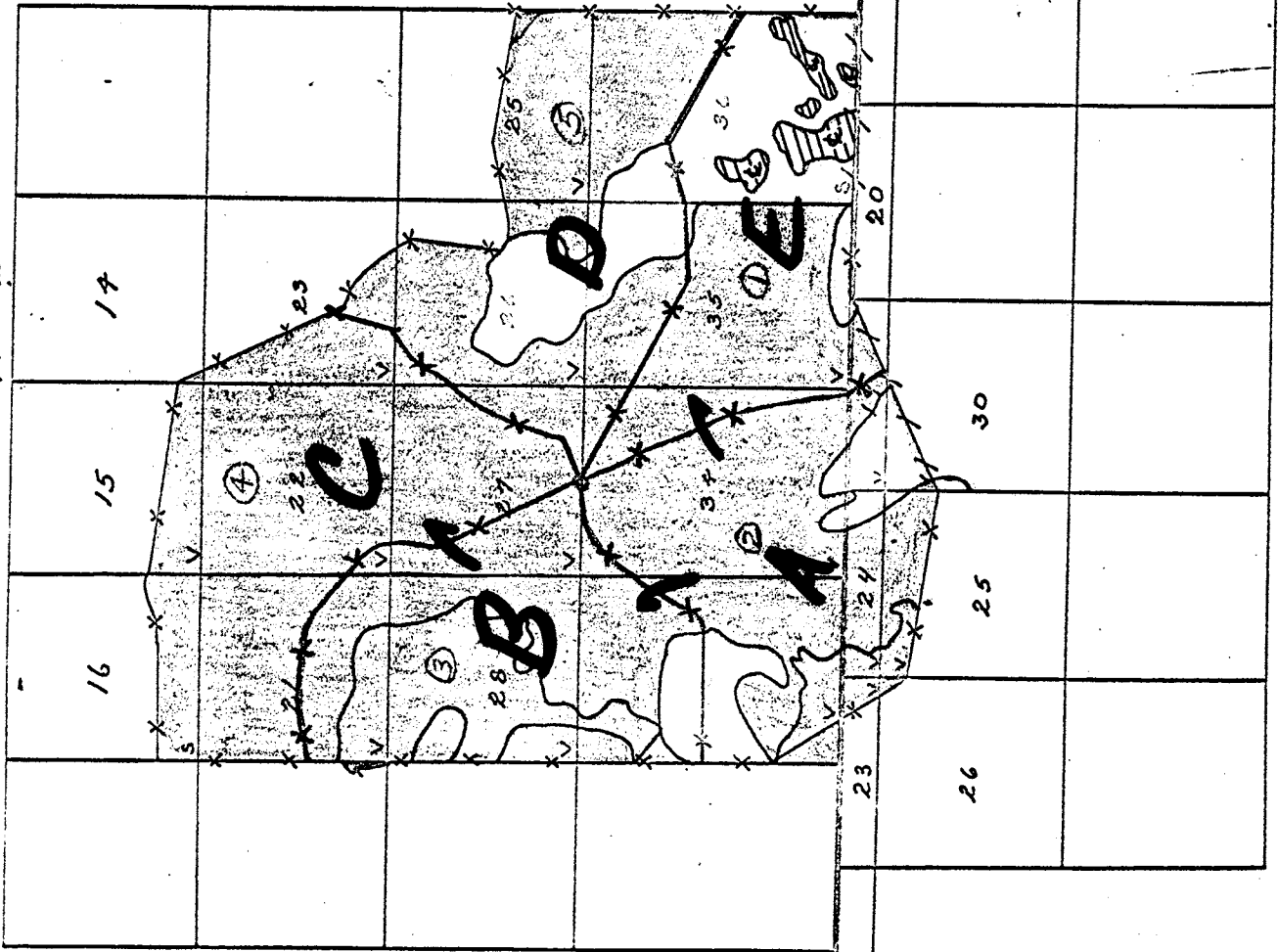


② - Pasture Numbers.

1968

A-B-E-C

R 57 E

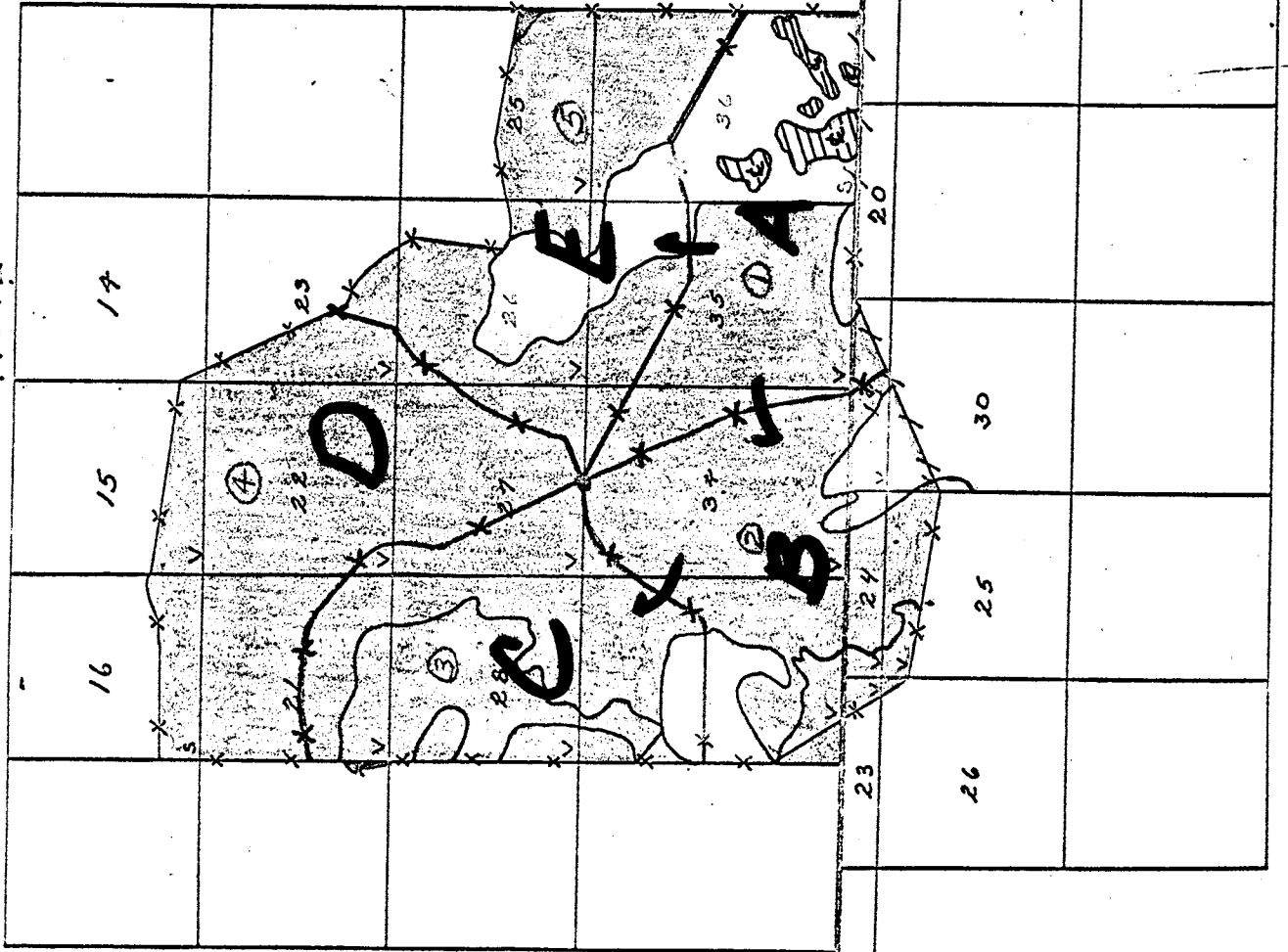


R 65 W

T 9 S

T 58 N

R 57E



R 58E

v
s
**
##

Federal Range
State Land

Fence

Proposed Fence

{ VERLE PIERCE REST-ROTATION }
PASTURES.

Legend:



Grassland.

Sagebrush.

Saltbush.

Greasewood.

Cropland.

MONTANA.
WYOMING.

Division Fences in Pasture (Proposed)

--*

② - Pasture Numbers.

1969

A-B-E-C

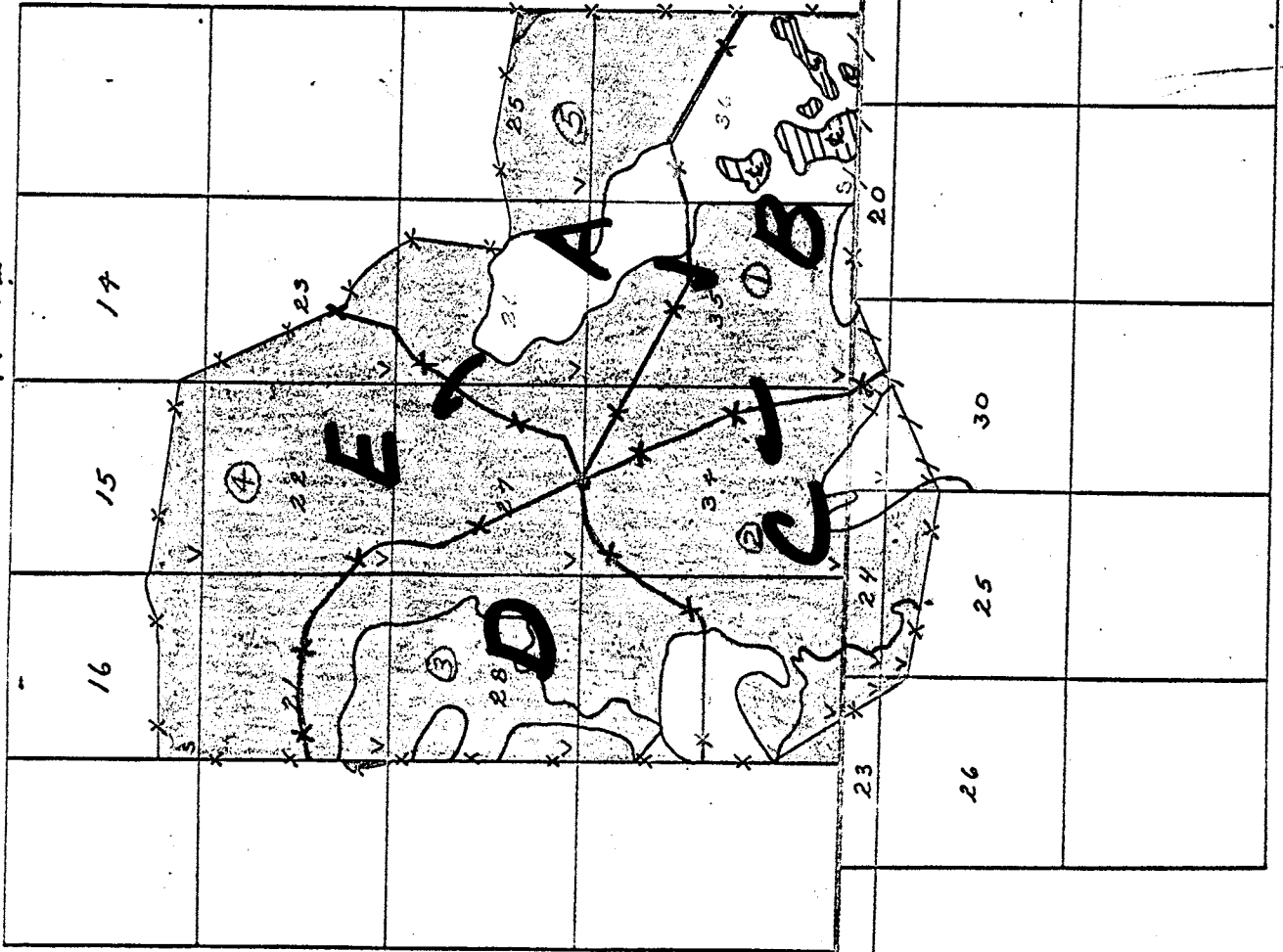
R 65W

T 9 S

T 58 N

R 51 E

R 58 E



V
S
X-X
HH

Federal Range
State Land
Fence
Proposed Fence

{ VERLE PIERCE REST-ROTATION }
PASTURES.

Legend:

- Grassland.
- Sagebrush.
- Saltbush.
- Greasewood.
- Cropland.

MONTANA.
WYOMING.

Division Fences in Pasture (Proposed).

X-X-X
③ - Pasture Numbers.

1970

A-B-E-C

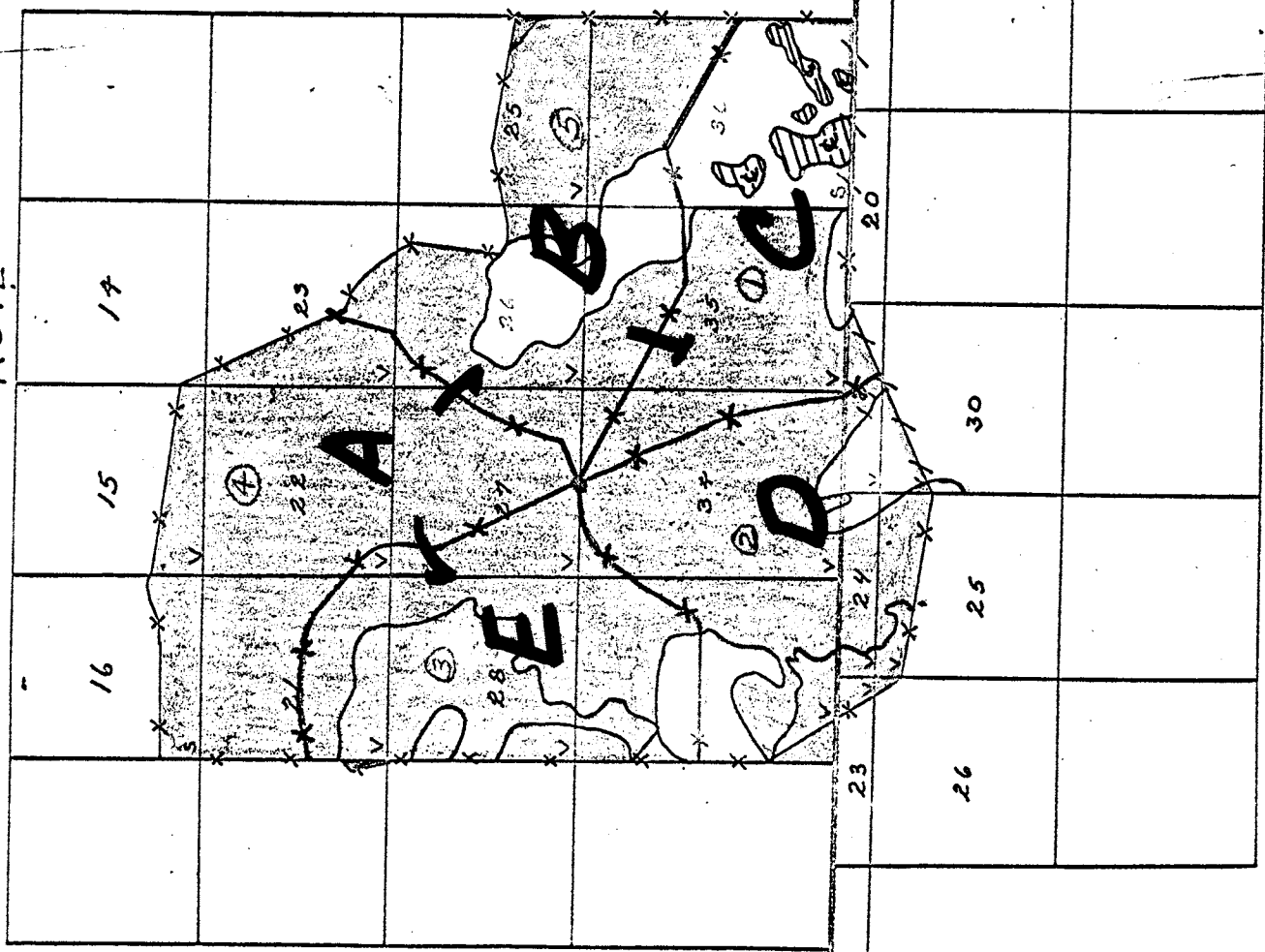
R 65 W

T 9 S

T 58 N

R 51 E

R 58 E



V
S
X-X
HH

Federal Range
State Land
Fence
Proposed Fence

{ VERLE PIERCE REST-ROTATION PASTURES.

Legend:

- Grassland.
- Sagebrush.
- Saltbush.
- Greasewood.
- Cropland.

MONTANA.
WYOMING.

Division Fences in Pasture (Proposed).

X-X-X

③ - Pasture Numbers.

1971

A-B-E-C

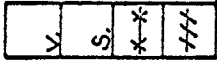
T 9 S

T 58 N

R 65 W

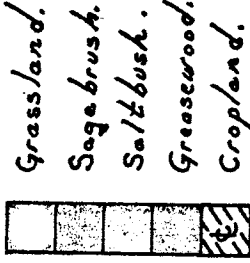
R 58 E

Federal Range
State Land
Fence
Proposed Fence



{ VERLE PIERCE REST-ROTATION }
PASTURES.

Legend:



MONTANA
WYOMING.

Division Fences in Pasture (Proposed).

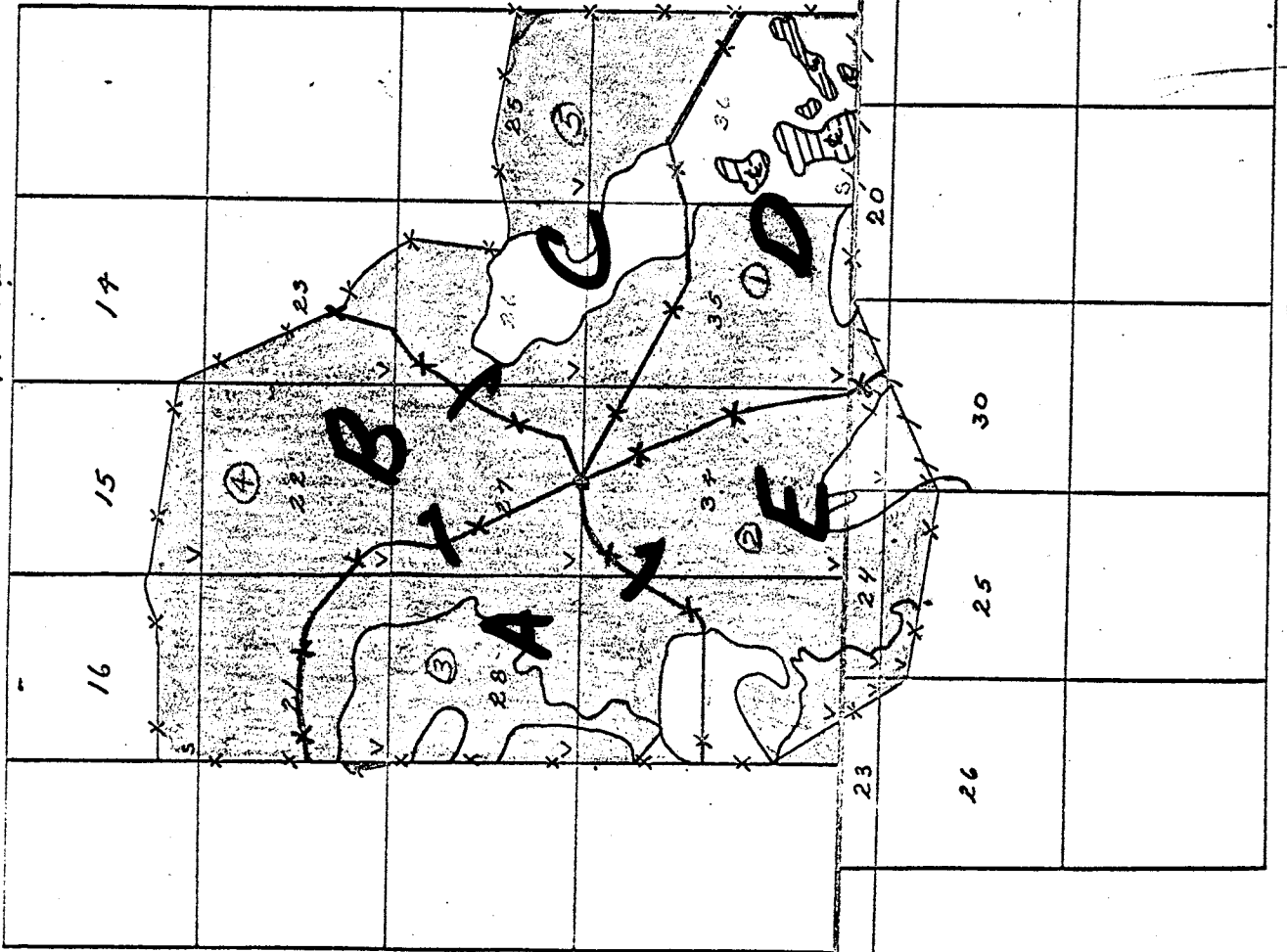


③ - Pasture Numbers.

1972

A-B-E-C

R 51 E



R 65 W

T 9 S

T 58 N