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deer
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vegetation
mitigation

State of: North Dakota

W-67-R-17

Wildlife Surveys and Investigations

C

Big Game Investigations

C-VII

BIG GAME EXCLOSURE STUDIES

C-VII-1

Exclosure Studies in the Badlands of
Western North Dakota (Gas Wells Antelope
Exclosure 1976)

Period Covered: June 30, 1974 to August 31, 1976

Location: Badlands of Western North Dakota

Personnel: James V. McKenzie, Jack Samuelson and student assistants

Submitted by: Jack Samuelson

bibkey: 549385

OBJECTIVES

To determine forage utilization, long term trend in browse conditions and relative usage by browsing wildlife (deer and antelope) and domestic livestock on government lands in western North Dakota and also as a visual demonstration of the results of vegetative utilization by browsing animals to the general public.

PROCEDURE

The Gas Wells Antelope Exclosure is a cooperative study established in 1967, by the U.S. Bureau of Land Management and the North Dakota State Game and Fish Department.

The study involves 2, three-way exclosure combinations: the one on the north side of a east-west line fence has a one-acre exclosure which excludes both big game and domestic livestock; a five-acre exclosure which excludes horses and cattle but is accessible to sheep and wildlife and the outside control area (accessible to all browsing animals); the one to the south of the line fence has a one-acre exclosure which excludes big game and domestic livestock, a five-acre exclosure which excludes cattle but is accessible to wildlife and the outside control (accessible to all browsers).

The techniques used for determining range condition and trend, browse plant condition and trend and browse utilization involved an adaptation of the Parker 3-step, Line Intercept and Pellet Group surveys as described in the following report: Big Game Studies, 1961; North Dakota Game and Fish Department; Pittman-Robertson Division; Project No. W-67-R-1; Phase C, Big Game Investigations; Job No. 9; James V. McKenzie.

A photo study of individual plants as well as transect photos is also incorporated in the study. All photos and camera point information are on file at the Bismarck Game and Fish Department office.

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Additional information regards techniques, work schedule and exclosure lay out may be found in Job Completion Report Number 195; North Dakota State Game and Fish Department, Pittman-Robertson Division, Project W-67-R-14, Phase C, Big Game Investigations, Study No. C-VII; Big Game Exclosure Studies, Job No. C-VII-1: Exclosure Studies in the Badlands of Western North Dakota (Gas Wells Antelope Exclosure 1974).

RESULTS

Gas Wells Antelope Exclosure:

Photo Study: The photo study pictures and records are on file at the Bismarck office of the Game and Fish Department. The photos have been taken annually since 1967.

Parker 3-step Transects: Table 1 includes the ground cover and vegetational analysis for the Parker Transects, associated with this study, for the years 1967, 1970 and 1976.

Line Intercept Browse Transects: The lineal feet of intercepted browse plants and the percentages by vegetative type are presented in Table 2.

Condition and Trend Indices by Woody Plant Species: The age and form classification of each browse species resulting from the line intercept survey is used to determine the present condition of this portion of the range. Tables 3 through 8 provide this information by exclosure site for the years 1967, 1970, 1973 and 1976.

Pellet Group Transects: The 1/50 acre pellet group transects are read annually to provide information on the amount of deer and antelope usage (or non-usage) per acre at each study site. This information is supplied in Table 9.

DISCUSSION

Gas Wells Antelope Exclosure:

Photo Study: The photographs (from both the individual plant and the transect photo study) depict an improvement in plant density and growth within the no browsing and cattle proof exclosures as compared to the outside control areas. These photos are on file at the Bismarck Game and Fish office.

Ground Cover and Species Composition: The ground cover and species composition data resulting from the Parker 3-step data is erratic and does not indicate a trend.

Condition and Trend of Woody Species: All sites indicate an increase in lineal feet of browse plants, however, the largest increase occurs on the no browsing site. The mature plant classification remains dominant with some decadency showing up. No seedlings were recorded in 1976.

Utilization of woody species remained relatively high on the control while the cattle proof usage decreased. The no browsing area had one occurrence of utilization, probably due to mice or rabbit.

Pellet Group Data: In the past two years only one pellet group was found on the sheep control area, all other sites recorded zero pellet groups. The trend over the past ten years has been a decrease in deer and antelope usage as a result of the pellet groups transect readings for all sites.

Generally, the no browsing and cattle proof exclosure sites indicate improved browse and range conditions while the outside control areas remain about the same or show a slight deterioration.

SUMMARY

Parker 3-step, line intercept and photo study data indicate that restricting use by domestic livestock can improve the vigor and growth of woody browse species.

No browsing and cattle proof sites indicate improved conditions while the outside control sites continue to be over used.

Table 1. Comparative ground cover, vegetational types and species composition resulting from Parker 3-step transects on each site of the Gas Wells Antelope Exclosure Study located in Bowman County, North Dakota for the years 1967, 1970 and 1976.

		1967					
Ground Cover		North #1		North #1		South #2	
Vegetative Type	Common Name - Scientific Name**	Sheep Control	Cattle Proof	No Browsing	Cattle Control	Cattle Proof	No Browsing
<u>Ground Cover</u>							
Bare Ground		26	53	44	34	53	30
Erosion Pavement		1	12	0	8	7	20
Rock		0	1	12	0	2	4
Litter		64	28	24	48	26	37
Moss		2	2	1	0	1	1
Plant Density		7	4	19	10	11	8
<u>Grasses</u>							
Western Wheatgrass, <u>Agropyron smithii</u>		5	3	8	6	5	1
Little Bluestem, <u>Andropogon scoparius</u>		0	0	0	0	0	0
Bluegrass, <u>Poa</u> (species undetermined)		0	0	0	0	0	0
<u>Forbs</u>							
None, <u>Aster</u> (species undetermined)		0	0	0	0	0	0
None, <u>Eriogonum flavum</u>		0	0	0	1	0	0
None, <u>Eriogonum multiceps</u>		0	1	9	1	6	6
Prairie Birds-foot Trefoil, <u>Lotus americanus</u>		2	0	2	0	0	1
Yellow Sweet Clover, <u>Melilotus officinalis</u>		0	0	0	0	0	0
<u>Shrubs</u>							
Rose, <u>Rosa</u> (species undetermined)		0	0	0	2	0	0

** All identification was accomplished with reference to this publication: Handbook of North Dakota Plants, O. A. Stevens, North Dakota Institute for Region Studies, North Dakota Agricultural College, Fargo, North Dakota, 1950.

Table 1. Continued.

		1970					
Ground Cover		North #1		North #1		South #2	
Vegetative Type		Sheep Control	Cattle Proof	No Browsing	Cattle Control	Cattle Proof	No Browsing
Common Name - Scientific Name**							
<u>Ground Cover</u>							
Bare Ground		53	26	46	35	29	35
Erosion Pavement		4	39	15	21	53	34
Rock		0	0	0	0	1	0
Litter		13	12	12	23	15	13
Moss		6	0	7	3	4	2
Plant Density		24	23	20	18	18	16
<u>Grasses</u>							
Western Wheatgrass, <u>Agropyron smithii</u>		19	14	12	17	4	14
Little Bluestem, <u>Andropogon scoparius</u>		2	0	0	0	5	0
Bluegrass, <u>Poa</u> (species undetermined)		0	0	0	0	1	0
<u>Forbs</u>							
None, Aster (species undetermined)		0	0	2	0	2	1
None, <u>Eriogonum flavum</u>		0	0	0	0	0	0
None, <u>Eriogonum multiceps</u>		1	8	3	1	5	1
Prairie Birds-foot Trefoil, <u>Lotus americanus</u>		2	1	1	0	0	0
Yellow Sweet Clover, <u>Melilotus officinalis</u>		0	0	0	0	0	0
<u>Shrubs</u>							
Rose, <u>Rosa</u> (species undetermined)		0	0	2	0	1	0

** All identification was accomplished with reference to this publication: Handbook of North Dakota Plants, O. A. Stevens, North Dakota Institute for Region Studies, North Dakota Agricultural College, Fargo, North Dakota, 1950.

Table 1. Continued.

		1976					
Ground Cover		North #1		North #1		South #2	
Vegetative Type		Sheep Control		Cattle Proof		Cattle Control	
Common Name - Scientific Name**		No Browsing		Cattle Proof		No Browsing	
Ground Cover		48		35		53	
Bare Ground		0	0	0	0	0	0
Erosion Pavement		0	0	0	0	0	0
Rock		0	0	0	0	0	0
Litter		30	22	30	8	15	13
Moss		7	30	4	28	2	28
Plant Density		15	4	9	1	16	1
Grasses							
Western Wheatgrass, <u>Agropyron smithii</u>		1	9	6	10	6	17
Little Bluestem, <u>Andropogon scoparius</u>		14	0	0	0	10	1
Bluegrass, <u>Poa</u> (species undetermined)		0	0	0	0	0	0
Forbs							
None, <u>Aster</u> (species undetermined)		0	0	0	0	0	0
None, <u>Eriogonum flavum</u>		0	0	0	0	0	0
None, <u>Eriogonum multiceps</u>		0	0	0	0	0	0
Prairie Birds-foot Trefoil, <u>Lotus americanus</u>		0	0	0	0	0	0
Yellow Sweet Clover, <u>Melilotus officinalis</u>		0	0	0	0	0	1
Shrubs							
Rose, <u>Rosa</u> (species undetermined)		0	0	0	0	0	0

*** All identification was accomplished with reference to this publication: Handbook of North Dakota Plants, O. A. Stevens, North Dakota Institute for Region Studies, North Dakota Agricultural College, Fargo, North Dakota, 1950.

Table 2. Species composition and relative abundance of all woody plants recorded on each 100-foot intercept browse transect associated with the Gas Wells Antelope Exclosure Study in Bowman County, North Dakota for the years 1967, 1970, 1973 and 1976.

Woody Vegetative Type Common Name - Scientific Name	Lineal feet by species below 5-foot level and percentage by woody type											
	North #1				North #1				North #1			
	Sheep Control				Cattle Proof				No Browsing			
	1967	1970	1973	1976	1967	1970	1973	1976	1967	1970	1973	1976
Half-woody Shrubs (lineal feet)	4.1	10.0	12.0	16.8	9.6	21.4	28.0	35.6	8.7	22.0	19.0	27.0
Long-leaved Sage, <u>Artemisia longifolia</u>	0.0	0.0	0.7	1.1	0.0	0.0	0.0	1.5	0.0	1.1	1.4	3.3
Salt Sage, <u>Atriplex nuttallii</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
None, <u>Eriogonum flavum</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
None, <u>Eriogonum multiceps</u>	4.1	10.0	11.3	15.7	9.6	21.4	28.0	34.1	8.7	20.9	17.6	23.7
Percent Half-woody Shrubs	67.2%	78.7%	78.9%	75.3%	100.0%	100.0%	100.0%	100.0%	88.8%	84.0%	76.9%	69.8%
Deciduous Shrubs (lineal feet)	2.0	2.7	3.2	5.5	0.0	0.0	0.0	0.0	1.1	4.2	5.7	11.7
Big Sage, <u>Artemisia tridentata</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6	2.9
Rose, <u>Rosa</u> (species undetermined)	2.0	2.7	3.2	5.5	0.0	0.0	0.0	0.0	1.1	3.7	5.1	8.8
Percent Deciduous Shrubs	32.8%	21.3%	21.1%	24.7%	0.0%	0.0%	0.0%	0.0%	11.2%	16.0%	23.1%	30.2%
Total Lineal Feet of Intercept	6.1	12.7	15.2	22.3	9.6	21.4	28.0	35.6	9.8	26.2	24.7	38.7
Percent change from 1967		+ 72.6				+ 70.0%				+ 74.7%		

Table 2. Continued.

Woody Vegetative Type Common Name - Scientific Name	Lineal feet by species below 5-foot level and percentage by woody type											
	South #2				South #2				South #2			
	Cattle Control		Cattle Proof		Cattle Control		Cattle Proof		No Browsing		No Browsing	
	1967	1970	1973	1976	1967	1970	1973	1976	1967	1970	1973	1976
<u>Half-woody Shrubs</u> (lineal feet)	4.9	6.8	6.0	6.8	11.7	14.2	12.7	20.3	10.5	15.2	18.6	28.1
Long-leaved Sage, <u>Artemisia longifolia</u> ✓	0.0	1.2	2.2	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Salt Sage, <u>Atriplex nuttallii</u> ✓	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0
None, <u>Eriogonum flavum</u>	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
None, <u>Eriogonum multiceps</u>	3.8	5.6	3.8	4.8	11.7	14.2	12.7	20.0	10.5	14.9	18.6	28.1
Percent Half-woody Shrubs	28.8%	29.4%	45.5%	30.9%	100.0%	87.7%	84.1%	80.2%	100.0%	100.0%	100.0%	97.6%
<u>Deciduous Shrubs</u> (lineal feet)	12.1	16.3	7.2	15.2	0.0	2.0	2.4	5.0	0.0	0.0	0.0	0.7
Big Sage, <u>Artemisia tridentata</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rose, <u>Rosa</u> (species undetermined)	12.1	16.3	7.2	15.2	0.0	2.0	2.4	5.0	0.0	0.0	0.0	0.7
Percent Deciduous Shrubs	71.2%	70.6%	54.5%	69.1%	0.0%	12.3%	15.9%	19.8%	0.0%	0.0%	0.0%	2.4%
Total Lineal Feet of Intercept	17.0	23.1	13.2	22.0	11.7	16.2	15.1	25.3	10.5	15.2	18.6	28.8
Percent change from 1967	+ 22.7%				+ 53.7%				+ 63.5%			

Table 3. The condition and trend of all woody species recorded on a 100-foot line intercept browse transects located on the North #1 Sheep Control area of the Gas Wells Antelope Exclosure study in Bowman County, North Dakota for the years 1967, 1970, 1973 and 1976.

Scientific Name Common Name	Year	S	Age data* = 100.0%				Form-class data* = 100.0%							
			Y	M	D	1	2	3	4	5	6	7	8	
<u>Artemisia longifolia</u>	1967	0	0	0	0	0	0	0	0	0	0	0	0	
Long-leaved Sage	1970	0	0	0	0	0	0	0	0	0	0	0	0	
	1973	0	0	100.0	0	0	100.0	0	0	0	0	0	0	
	1976	0	0	100.0	0	0	100.0	0	0	0	0	0	0	
<u>Eriogonum multiceps</u>	1967		Not determined				Not determined							
None	1970	0	1.0	99.0	0	76.0	24.0	0	0	0	0	0	0	
	1973	0	0.9	92.9	6.2	56.6	43.4	0	0	0	0	0	0	
	1976	0	0	84.7	15.3	29.9	45.2	15.3	0	0	0	0	9.6	
<u>Rosa</u> (species undetermined)	1967	0	0	100.0	0	0	0	100.0	0	0	0	0	0	
Rose	1970	0	14.8	85.2	0	48.2	33.3	18.5	0	0	0	0	0	
	1973	0	0	100.0	0	12.5	59.4	28.1	0	0	0	0	0	
	1976	0	1.8	98.2	0	34.6	21.8	43.6	0	0	0	0	0	

*Key: S = Seedling
Y = Young
M = Mature
D = Decadent

1. All available - little or no hedging
2. All available - moderate hedging
3. All available - severely hedged
4. Partly available - little or no hedging
5. Partly available - moderate hedging
6. Partly available - severely hedged
7. Unavailable
8. Dead

Table 4. The condition and trend of all woody species recorded on a 100-foot line intercept browse transect located on the North #1 Cattle Proof area of the Gas Wells Antelope Exclosure study in Bowman County, North Dakota for the years 1967, 1970, 1973 and 1976.

Scientific Name	Year	Age data* = 100.0%			Form-class data* = 100.0%								
Common Name		S	Y	M	D	1	2	3	4	5	6	7	8
<u>Eriogonum multiceps</u>	1967	Not determined				Not determined							
None	1970	0	0	98.5	1.5	90.2	5.6	2.8	0	0	0	0	1.4
	1973	0	3.6	87.8	8.6	94.6	2.9	0	0	0	0	0	2.5
	1976	0	0	97.6	2.4	49.8	26.7	23.5	0	0	0	0	0
<u>Artemisia longifolia</u>	1967	0	0	0	0	0	0	0	0	0	0	0	0
Long-leaved Sage	1970	0	0	0	0	0	0	0	0	0	0	0	0
	1973	0	0	0	0	0	0	0	0	0	0	0	0
	1976	0	0	0	100.0	0	0	100.0	0	0	0	0	0

*Key: S = Seedling
Y = Young
M = Mature
D = Decadent

1. All available - little or no hedging
2. All available - moderate hedging
3. All available - severely hedged
4. Partly available - little or no hedging
5. Partly available - moderate hedging
6. Partly available - severely hedged
7. Unavailable
8. Dead

Table 5. The condition and trend of all woody species recorded on a 100-foot line intercept browse transect located on the North #1 No Browsing area of the Gas Wells Antelope Exclosure study in Bowman County, North Dakota for the years 1967, 1970, 1973 and 1976.

Scientific Name Common Name	Year	Age data* = 100.0%			Form-class data* = 100.0%								
		S	Y	M	D	1	2	3	4	5	6	7	8
<u>Artemisia longifolia</u>	1967	0	0	0	0	0	0	0	0	0	0	0	0
Long-leaved Sage	1970	0	0	100.0	0	100.0	0	0	0	0	0	0	0
	1973	0	0	100.0	0	100.0	0	0	0	0	0	0	0
	1976	0	0	100.0	0	100.0	0	0	0	0	0	0	0
<u>Artemisia tridentata</u>	1967	0	0	0	0	0	0	0	0	0	0	0	0
Big Sage	1970	0	0	100.0	0	100.0	0	0	0	0	0	0	0
	1973	0	0	100.0	0	100.0	0	0	0	0	0	0	0
	1976	0	0	100.0	0	100.0	0	0	0	0	0	0	0
<u>Eriogonum multiceps</u>	1967	Not determined			Not determined								
None	1970	0	0	98.0	2.0	98.0	0	0	0	0	0	0	2.0
	1973	0	0.5	84.7	14.8	92.0	0	0	0	0	0	0	8.0
	1976	0	0	100.0	0	100.0	0	0	0	0	0	0	0
<u>Rosa</u> (species undetermined)	1967	0	0	100.0	0	0	0	100.0	0	0	0	0	0
	1970	0	13.5	86.5	0	100.0	0	0	0	0	0	0	0
	1973	0	4.0	96.0	0	100.0	0	0	0	0	0	0	0
	1976	0	1.1	94.3	4.6	95.4	0	0	0	0	0	0	4.6

*Key: S = Seedling
Y = Young
M = Mature
D = Decadent

1. All available - little or no hedging
2. All available - moderate hedging
3. All available - severely hedged
4. Partly available - little or no hedging
5. Partly available - moderate hedging
6. Partly available - severely hedged
7. Unavailable
8. Dead

Table 6. The condition and trend of all woody species recorded on a 100-foot line intercept browse transect located on the South #2 Cattle Control area of the Gas Wells Antelope Exclosure study in Bowman County, North Dakota for the years 1967, 1970, 1973 and 1976.

Scientific Name Common Name	Year	Age data* = 100.0%			Form-class data* = 100.0%								
		S	Y	M	D	1	2	3	4	5	6	7	8
<u>Artemisia longifolia</u>	1967	0	0	0	0	0	0	0	0	0	0	0	0
<u>Long-leaved Sage</u>	1970	0	0	100.0	0	0	100.0	0	0	0	0	0	0
	1973	0	0	100.0	0	100.0	0	0	0	0	0	0	0
	1976	0	10.0	90.0	0	10.0	90.0	0	0	0	0	0	0
<u>Eriogonum flavum</u>	1967	0	0	100.0	0	0	100.0	0	0	0	0	0	0
None	1970	0	0	0	0	0	0	0	0	0	0	0	0
	1973	0	0	0	0	0	0	0	0	0	0	0	0
	1976	0	0	0	0	0	0	0	0	0	0	0	0
<u>Eriogonum multiceps</u>	1967	0	0	100.0	0	0	100.0	0	0	0	0	0	0
None	1970	0	0	28.6	71.4	100.0	0	0	0	0	0	0	0
	1973	0	2.6	97.4	0	60.5	39.5	0	0	0	0	0	0
	1976	0	0	100.0	0	39.6	50.0	10.4	0	0	0	0	0
<u>Rosa (species undetermined)</u>	1967	0	0	100.0	0	0	100.0	0	0	0	0	0	0
	1970	0	1.2	98.8	0	18.4	25.8	55.8	0	0	0	0	0
	1973	0	0	100.0	0	43.1	23.6	33.3	0	0	0	0	0
	1976	0	5.3	86.8	7.9	4.0	24.3	71.7	0	0	0	0	0

*Key: S = Seedling

Y = Young

M = Mature

D = Decadent

1. All available - little or no hedging

2. All available - moderate hedging

3. All available - severely hedged

4. Partly available - little or no hedging

5. Partly available - moderate hedging

6. Partly available - severely hedged

7. Unavailable

8. Dead

Table 7. The condition and trend of all woody species recorded on a 100-foot line intercept browse transect located on the South #2 Cattle Proof area of the Gas Wells Antelope Exclosure study in Bowman County, North Dakota for the years 1967, 1970, 1973 and 1976.

Scientific Name Common Name	Year	S	Age data* = 100.0%	Y	M	D	1	2	3	4	5	6	7	8	
<u>Eriogonum multiceps</u>	1967		Not determined						Not determined						
None	1970	0	0	96.5	3.5	97.2	2.8	0	0	0	0	0	0	0	
	1973	0	2.4	94.5	3.1	96.9	0	0	0	0	0	0	0	3.1	
	1976	0	0	90.5	9.5	35.5	52.0	12.5	0	0	0	0	0	0	
<u>Rosa</u> (species undetermined)	1967	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rose	1970	0	0	100.0	0	50.0	0	50.0	0	0	0	0	0	0	
	1973	0	4.2	95.8	0	41.7	58.3	0	0	0	0	0	0	0	
	1976	0	0	82.0	18.0	38.0	44.0	18.0	0	0	0	0	0	0	
<u>Atriplex nuttallii</u>	1967	0	0	0	0	0	0	0	0	0	0	0	0	0	
Salt Sage	1970	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1973	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1976	0	0	100.0	0	100.0	0	0	0	0	0	0	0	0	

*Key: S = Seedling

Y = Young

M = Mature

D = Decadent

1. All available - little or no hedging
2. All available - moderate hedging
3. All available - severely hedged
4. Partly available - little or no hedging
5. Partly available - moderate hedging
6. Partly available - severely hedged
7. Unavailable
8. Dead

Table 8. The condition and trend of all woody species recorded on a 100-foot line intercept browse transect located on the South #2 No. Browning area of the Gas Wells Antelope Exclosure study in Bowman County, North Dakota for the years 1967, 1970, 1973 and 1976.

Scientific Name Common Name	Year	Age data* = 100.0%				Form-class data* = 100.0%							
		S	Y	M	D	1	2	3	4	5	6	7	8
<u>Atriplex nuttallii</u>	1967	0	0	0	0	0	0	0	0	0	0	0	0
Salt Sage	1970	0	0	100.0	0	100.0	0	0	0	0	0	0	0
	1973	0	0	0	0	0	0	0	0	0	0	0	0
	1976	0	0	0	0	0	0	0	0	0	0	0	0
<u>Eriogonum multiceps</u>	1967	Not determined				Not determined							
None	1970	0	0	91.9	8.1	100.0	0	0	0	0	0	0	0
	1973	0	0	94.1	5.9	94.1	0	0	0	0	0	0	5.9
	1976	0	0.7	99.3	0	100.0	0	0	0	0	0	0	0
<u>Rosa</u> (species undetermined)	1967	0	0	0	0	0	0	0	0	0	0	0	0
Rose	1970	0	0	0	0	0	0	0	0	0	0	0	0
	1973	0	0	0	0	0	0	0	0	0	0	0	0
	1976	0	0	100.0	0	100.0	0	0	0	0	0	0	0

*Key: S = Seedling
Y = Young
M = Mature
D = Decadent

1. All available - little or no hedging
2. All available - moderate hedging
3. All available - severely hedged
4. Partly available - little or no hedging
5. Partly available - moderate hedging
6. Partly available - severely hedged
7. Unavailable
8. Dead

Table 9. Deer or pronghorn pellet groups per acre as indicated by the pellet group transects on each site of the Gas Wells Antelope Exclosure study for the years 1967 through 1976.

Year	No Browsing (No. #1 and So. #2)		Sheep Control North #1		Cattle Proof North #1		Cattle Control South #2		Cattle Proof South #2	
	Deer	Antelope	Deer	Antelope	Deer	Antelope	Deer	Antelope	Deer	Antelope
1967	0	0	550	0	250	0	0	0	0	0
1968	0	0	0	0	100	0	0	0	0	0
1969	Not Read		100	300	200	0	0	0	0	0
1970	0	0	50	2000	0	100	0	0	0	0
1971	Not Read		0	100	0	0	0	0	0	0
1972	Not Read		150	0	100	50	0	0	0	0
1973	0	0	250	0	100	0	0	0	0	0
1974	Not Read		Not Read		Not Read		Not Read		Not Read	
1975	0	0	0	50	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0

