

IDAHO DEPARTMENT OF FISH AND GAME

Jerry Mallet, Acting Director

Project W-170-R-23

Job Progress Report



PRONGHORN ANTELOPE

Study I, Job 7

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**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Antelope Surveys and</u>
PROJECT:	<u>W-170-R-23</u>		<u>Inventories</u>
SUBPROJECT:	<u>3-7</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Utilization, and</u>
JOB:	<u>7</u>		<u>Associated Habitat Studies</u>
PERIOD COVERED: <u>July 1, 1998 to June 30, 1999</u>			

PRONGHORN ANTELOPE - STATEWIDE

Abstract

A total of 12,648 hunters applied for 2,110 controlled pronghorn antelope permits offered in 1998. There were 115 fewer permits offered in 1998 versus 1997. Thirty-six different hunts were offered in the Southwest, Magic Valley, Southeast, Upper Snake, and Salmon regions. In addition, a general archery pronghorn antelope season was offered from 15 August through 15 September in 27 units. In 1998, the either-sex controlled hunts opened on 25 September and ran through 24 October. One doe/fawn hunt opened 5 October and ran through 24 October, and 1 either-sex muzzleloader hunt opened 1 August and ran through 24 October.

An estimated 1,917 of the 2,110 (91%) controlled hunt permittees actually hunted pronghorn antelope. These hunters harvested 1,153 pronghorn antelope in 6,564 days of hunting. General season archery tags for pronghorn antelope were purchased by 882 hunters. No harvest survey was conducted to estimate pronghorn antelope harvest during the general archery season.

State Introduction

Most pronghorn antelope populations in Idaho have densities that vary from low to moderate. In general, Idaho's pronghorn antelope habitats do not support the levels which are characteristic of high-quality habitat in Wyoming and Montana. Low annual precipitation, poor range conditions, and conflicts with private landowners are probably important reasons for the differences. The Birch Creek, Medicine Lodge, Little Wood, Big Lost, and Little Lost valleys support herds at relatively high densities.

Hunter success in most years exceeds 70% in many controlled hunts. The proportion of bucks harvested in Idaho by permittees in either-sex pronghorn antelope controlled hunts averaged 80% in 1998. A history of pronghorn antelope harvest is presented in Table 1. The 1998 pronghorn antelope season structure is presented in Appendix I.

When Idaho implemented the 1991-1995 Antelope Species Management Plan, the pronghorn antelope management units were divided into 5 groups of units with similar attributes and

hunting opportunities (Figure 1). Knowledge of the opportunities present in these units will allow hunters to select the type of area and hunting experience they prefer. The Department's objective is to provide a variety of opportunities allowing hunters to match the setting and experience they desire. Variables used to classify units were hunting pressure, pronghorn antelope density and herd composition, road density and condition, natural condition of the environment, and distance from major human population centers.

In units of Group 1, hunting pressure is light or dispersed and generally occurs in areas of high aesthetic appeal away from major human population centers. Roads often traverse rough terrain, are of poor quality, and are limited in number. Pronghorn antelope numbers may be high or low but the opportunity to harvest a mature buck is high. Management objectives for Group 1 hunts include: 1) maintain an average horn length of 12.0 inches in the firearm buck harvest, and 2) maintain a preseason buck:doe ratio of greater than 50:100.

Group 2 units can provide a full range of opportunity to hunters. Pronghorn antelope numbers are high, supporting high hunter densities, high harvest, and high success rates in many units. Doe/fawn pronghorn antelope hunts are often offered in these units for population control. Within many of these units, opportunities exist to participate in Group 1 or Group 3 type hunts if desired. Management objectives for Group 2 hunts include: 1) maintain an average horn length of 12.0 inches in the firearm buck harvest, and 2) maintain a preseason buck:doe ratio of greater than 40:100.

In general, Group 3 units are characterized by variable hunter and pronghorn antelope densities, high road densities, and motorized vehicle use. Availability of pronghorn antelope bucks is limited. Private ownership of, and restricted access to, pronghorn antelope habitat is high in most units and have resulted in depredation problems that often dictate hunting season structure and harvest levels. Management objectives for Group 2 hunts include maintaining a preseason buck:doe ratio of greater than 40:100.

No hunts are offered in Group 4 and Group 5 units. Although pronghorn antelope are present in units of Group 4, low population numbers and/or low production levels prohibit harvest at this time. Portions of Group 5 units were historic pronghorn antelope habitat, but currently support few or no pronghorn.

Table 1. Pronghorn antelope estimated harvest history in Idaho, 1935-present.

Season	Year	Hunters	Harvest	Success (%)	Days hunted	
General	1935		144			
	1936		124			
	1937					
	1938					
	1939					
	1940			400		
	1941					
	1942			700		
	1943					
	1944			1,470		
	1945			650		
	1946					
	1947			461		
	1948			419		
	1949			383		
	1950			539		
	1951			1,349		
	1952			1,520		
	1953			1,254		
	1954			970		
	1955			822		
	1956			919		
	1957			1,001		
	1958			821		
	1959			679		
	1960			701		
	1961			579		
	1962			549		
	1963			774		
	1964			839		
	1965			977		
	1966			1,219		
	1967			1,286		
	1968			1,294		
	1969			1,472		
	1970			1,551		
	1971			1,465		
	1972			1,486		
	1973			1,237		
	1974			1,301		
1975			1,314			
1976			1,380			
1977			1,250			

Table 1. Continued.

Season	Year	Hunters	Harvest	Success (%)	Days hunted
Archery	1978		1,345		
	1979		1,430		
	1980		1,498		
	1981		1,837		
	1982	760	130	17	4,900
	1983	400	100	33	2,600
	1984	230	20	8	1,200
	1985	300	40	14	1,600
	1986	100	40	40	400
	1987	600	200	33	3,300
	1988	800	200	27	4,800
	1989	340	60	18	2,400
	1990	200	80	36	1,300
	1991	170	80	28	900
	1992	600	150	25	2,900
	1993	550	80	15	3,000
	1994	860	235	27	4,800
	1995	790	135	17	4,100
	1996	920	155	17	5,200
Controlled	1997-1998 ^a				
	1982	2,400	2,000	85	4,500
	1983	2,900	2,300	76	6,400
	1984	2,740	2,050	70	5,600
	1985	2,900	2,150	73	5,900
	1986	3,000	2,500	83	6,200
	1987	2,900	2,400	77	6,300
	1988	3,100	2,600	80	6,800
	1989	2,900	2,240	72	6,900
	1990	2,500	2,000	72	6,600
	1991	3,600	2,870	75	9,600
	1992	3,980	3,000	72	11,100
	1993	3,740	2,390	60	11,500
	1994	3,110	1,600	72	10,900
	1995	2,170	1,360	63	6,500
	1996	1,920	1,260	66	6,000
	1997	2,128	1,305	61	7,200
	1998	1,917	1,153	55	6,600
	Extra doe/fawn	1989	1,400	1,200	81
	1990	1,300	1,100	80	3,400
Total	1982	3,160	2,130	67	9,400
	1983	3,300	2,400	73	9,000
	1984	2,970	2,070	70	6,800
	1985	3,200	2,190	68	7,500

Table 1. Continued.

Season	Year	Hunters	Harvest	Success (%)	Days hunted
	1986	3,100	2,540	82	6,600
	1987	3,500	2,600	74	9,600
	1988	3,900	2,800	72	11,600
	1989	4,640	3,500	75	12,500
	1990	4,000	3,180	80	11,300
	1991	3,770	2,950	78	10,500
	1992	4,580	3,150	69	14,000
	1993	4,290	2,470	58	14,500
	1994	3,970	1,835	46	15,700
	1995	2,960	1,495	51	10,600
	1996	2,840	1,415	50	11,200
	1997 ^a	2,128	1,305	61	7,200
	1998 ^a	1,917	1,153	55	6,600

^a Due to budget limitations, no survey was conducted to estimate the number of antelope harvested by archery hunters during the general season.

ANTELOPE

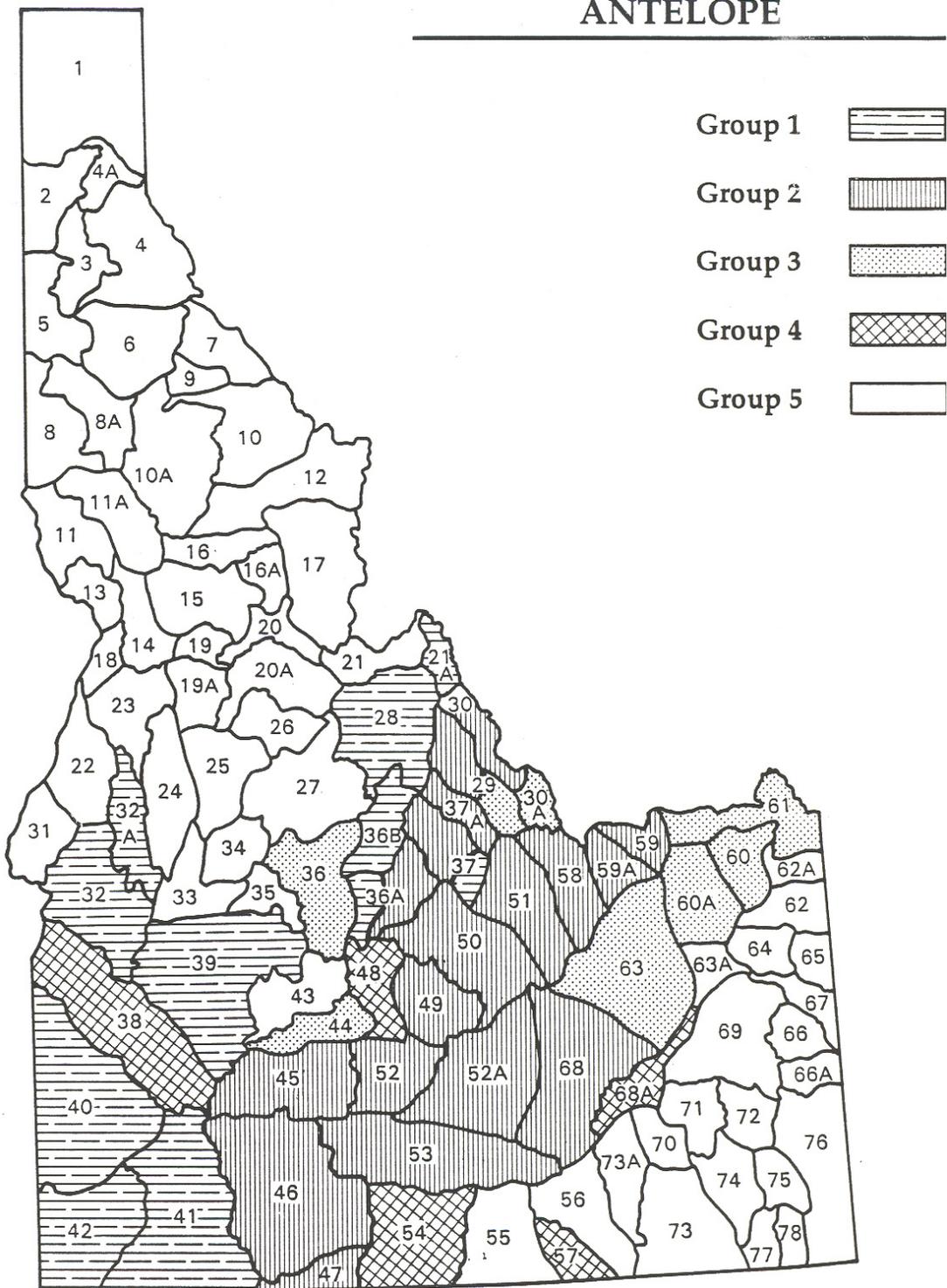


Figure 1. Pronghorn management groups in Idaho.

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SUBPROJECT:	<u>3</u>	STUDY NAME:	<u>Big Game Population Status,</u>
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PERIOD COVERED: <u>July 1, 1998 to June 30, 1999</u>			

PRONGHORN ANTELOPE - SOUTHWEST REGION

Abstract

Group 1: A total of 385 permits were issued and 205 pronghorn antelope were harvested in 1998. Hunter success averaged 55% for the rifle hunts, 28% for the muzzleloader hunt, and 25% during the archery hunt. Average horn length remained above the minimum management objective of 12 inches in Units 39, 40, 41, and 42.

Group 4: No hunts or surveys took place in the this area during the reporting period.

Group 1

Management Units 39, 40, 41, 42

Management

No pronghorn antelope population surveys were conducted during this year. Pronghorn antelope observations incidental to bighorn sheep surveys and other activities seem to indicate a static population.

Harvest

Based upon the telephone survey, harvest changed very little, from 209 pronghorn antelope in 1997 to 205 in 1998 (Table 1). The muzzleloader hunt in Unit 41 had a success rate of 28% with a harvest of 7 pronghorn antelope. The success rate in the any-weapon hunts was 55% with a harvest of 204 pronghorn antelope. Horn length remained above the minimum objective of 12 inches in Units 39, 41, and 42 (Table 2).

Archery pronghorn antelope hunting is very popular in these units. No estimates of archery hunting activity are available for 1998. In previous years, the estimated number of archery hunters has been about 250 with a harvest of about 60 pronghorn antelope and success rates around 25%.

Table 1. Summary of pronghorn antelope harvest, Group 1, Southwest Region, 1970-present.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
39	1996	10	8	1	9	89	90
	1997	10	9	0	9	100	90
	1998	10	10	0	10	100	100
40	1970	35	9	10	19	47	54
	1971	35	15	6	21	71	60
	1972	50	9	11	20	45	40
	1973	50	17	6	23	74	46
	1974	50	16	1	17	94	34
	1975	50	14	8	22	64	44
	1976	50	13	5	18	72	36
	1977	50	17	4	21	81	42
	1978	50	16	3	19	84	38
	1979	50	23	8	31	74	62
	1980	50	22	8	30	73	60
	1981	50	27	9	36	75	72
	1982	50	31	4	35	89	70
	1983	50	28	10	38	74	76
	1984	50	28	8	36	78	72
	1985	50	27	3	30	90	60
	1986	50	32	8	40	80	80
	1987	50	38	5	43	88	86
	1988	50	35	6	41	85	82
	1989	50	37	4	41	90	82
	1990	100	70	16	86	81	86
	1991	100	77	9	86	90	86
	1992	125	76	13	89	85	71
	1993	125	74	6	80	93	64
	1994	150	82	15	97	85	65
	1995	150	61	20	81	75	54
	1996	150	63	12	75	84	60
1997	150	48	22	70	69	47	
1998	150	77	13	90	86	60	
41	1970 ^a	35	11	6	17	65	49
	1971	35	19	6	25	76	71
	1972 ^b	15	7	1	8	88	53
	1973	10	2	0	2	100	20
	1974 ^c	10	2	1	3	67	30
	1975	10	1	1	2	50	20
	1976	10	3	0	3	100	30
	1977	10	3	0	3	100	30
	1978	10	3	0	3	100	30
1979	10	3	2	5	60	50	

Table 1. Continued.

42	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
	1980	10	5	0	5	100	50
	1981	10	3	0	3	100	30
	1982	10	3	1	4	75	40
	1983	10	4	2	6	67	60
	1984	10	4	1	5	80	50
	1985	10	5	0	5	100	50
	1986	15	6	0	6	100	40
	1987	15	5	0	5	100	33
	1988	15	10	3	13	77	87
	1989	15	4	1	5	80	33
	1990	25	12	0	12	100	48
	1991	25	10	2	12	83	48
	1992	25	9	1	10	90	40
	1993	25	5	1	6	83	24
	1994	25	6	0	6	100	24
	1995	25	4	3	7	57	29
	1996	25	7	0	7	100	31
	1997	25	5	0	5	100	20
	1998	25	7	0	7	100	28
	1970	55	15	11	26	58	47
	1971	55	19	3	22	86	40
	1972	55	19	6	25	76	45
	1973	55	16	7	23	70	42
	1974	55	17	9	26	65	47
	1975	55	20	12	32	63	58
	1976	55	8	1	9	89	16
	1977	55	18	0	18	100	33
	1978	55	21	6	27	78	49
	1979	55	31	0	31	100	56
	1980	55	19	10	29	66	53
	1981	55	32	8	40	80	73
	1982	55	29	2	31	94	56
	1983	55	30	4	34	88	62
	1984	55	22	2	24	92	44
	1985	55	18	1	19	95	35
	1986	75	35	7	42	83	56
	1987	75	32	4	36	89	48
	1988	75	47	2	49	96	65
	1989	75	49	2	51	96	68
	1990	100	48	15	63	76	63
	1991	100	82	4	86	95	86
	1992	125	82	15	97	85	78

Table 1. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
	1993	125	82	6	88	93	70
	1994	200	107	23	130	82	65
	1995	200	131	0	131	100	69
	1996	200	121	16	137	88	76
	1997	200	110	15	125	88	62
	1998	200	93	5	98	95	49
42-2 ^d	1970	20	5	2	7	71	35
	1971	20	5	1	6	83	30
	1972	20	6	2	8	75	40
	1973	20	4	2	6	67	30
	1974	20	5	0	5	100	25
	1975	20	11	0	11	100	55
	1976	20	3	0	3	100	15
	1977	20	1	1	2	50	10
	1978	20	4	1	5	80	25
	1979	20	7	0	7	100	35
	1980	20	6	1	7	86	35
	1981	20	4	0	4	100	20
	1982	20	12	0	12	100	60
	1983	20	2	0	2	100	10

^a Unit included all of Units 46 and 47.

^b Unit reduced to include only the west portion of Unit 46.

^c Present boundary established.

^d Hunt 42-2 was closed from 1984-1989 and then combined with Hunt 42 in 1990.

Table 2. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters by unit, Group 1, Southwest Region, 1991-present.

Hunt area	Year	Number permits	Number reports ^a	Mean maximum horn length
39	1996	10	7	14.9
	1997	10	6	15.2
	1998	10	7	16.4
40	1991	100	32	12.5
	1992	125	44	12.9
	1993	125	43	12.4
	1994	150	40	12.9
	1995	150	25	11.3
	1996	150	20	11.2
	1997	150	19	10.6
	1998	150	36	12.1
	41	1991	25	6
1992		25	4	10.6
1993		25	3	11.0
1994		25	5	13.6
1995		25	3	13.7
1996		25	5	13.8
1997		25	3	12.7
1998		25	5	15.4
42	1991	100	47	13.3
	1992	125	47	12.9
	1993	125	46	13.3
	1994	200	45	14.1
	1995	200	42	12.5
	1996	200	31	12.5
	1997	200	38	12.4
	1998	200	38	12.9

^a Information prior to 1994 was provided by hunter report cards; subsequent data collected through telephone survey.

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PERIOD COVERED: <u>July 1, 1998 to June 30, 1999</u>			

PRONGHORN ANTELOPE - MAGIC VALLEY REGION

Abstract

Group 2: Pronghorn antelope populations in Group 2 units decreased substantially during the 1992-1993 winter after 6 consecutive years of population growth. In recent years, populations in Units 49 and 52 appear to be increasing moderately. Observed reproductive performance in August 1998 was slightly lower than average in Unit 46 (0.40 fawns:doe) and Unit 49 (0.71 fawns:doe). Harvest has been substantially curtailed since 1994 to allow population growth. Overall, permit levels in 1996 and 1997 were 60% lower than in 1993. Telephone survey data suggest mean horn lengths in 1998 were below the 12-inch minimum objective in Units 49 and 53. Observed buck ratios from 1991-1998 have averaged 0.35 and 0.39 bucks:doe in Units 49 and 46, respectively.

Group 3: Pronghorn antelope numbers in Unit 44 have increased since the decline in 1993. The population currently numbers more than 175 head. Ratios of 0.36 bucks and 0.97 fawns per doe ($n = 135$) were observed in September 1998. Permit levels in 1998 were increased from 20 to 40 permits to provide additional hunting opportunity. Hunter success in 1998 was 97%.

Group 4: Pronghorn antelope have gradually increased in Unit 54 since their reintroduction in 1989. A 10-permit hunt has been authorized since 1996. Hunter success has averaged 97% and several trophy bucks have been taken. Pronghorn antelope numbers remain low in Unit 57, but a limited hunt with 5 permits has been authorized since 1996 to allow an opportunity to harvest some of the mature bucks this population supports.

Group 2

Management Units 45, 46, 47, 49, 52, 52A

Pronghorn antelope populations in most Group 2 units declined substantially during the 1992-1993 winter. Hunts and permit levels have been adjusted accordingly to encourage population recovery. Since 1993, pronghorn antelope hunts have been eliminated in Units 45, 52, and 52A, and doe/fawn hunts were eliminated in all units except Unit 46. Overall, the number of permits

issued in Group 2 units in 1998 was 60% lower than 1993 levels. Hunter success in 1998 ranged from 31% in the Unit 47 muzzleloader hunt to 89% in Hunt Area 49 and averaged 62% for all any-antelope hunts combined (Table 1).

One of the goals in the 1991-1995 Pronghorn Antelope Plan is to maintain a minimum mean horn length of 12 inches for firearm hunts. Horn length data were collected by hunter report cards from 1991-1993 and via the telephone survey since 1994. Reported horn lengths in 1998 were above the 12-inch objective in Unit 46 and below the 12-inch objective in Units 49 and 53 (Table 2).

Pronghorn antelope populations have exhibited low to moderate increases in most units since 1994. Fawn production has been fair, winter survival good, and the frequency of observations has increased. Sex and age composition data is collected annually during August in Units 46-47 and 49. In Unit 49, the observed ratio of 0.71 fawns:doe ($n = 285$) in 1998 was slightly lower than the 1976-1997 mean of 0.80 fawns:doe. In August 1993, following the substantial winter losses the previous winter, observed fawn production in Unit 49 was only 0.38 fawns:doe. Observed fawn production in Unit 46 is generally lower than in Unit 49. In Unit 46, 0.40 fawns:doe ($n = 161$) was observed in 1998, which is slightly lower than the 1982-1997 mean of 0.48 fawns:doe.

An objective in the 1991-1995 Pronghorn Antelope Plan is to maintain an August ratio of 0.40 bucks:doe. Since 1991, observed August buck to doe ratios have averaged 0.39 bucks:doe in Unit 46 and 0.35 bucks:doe in Unit 49.

During the past 15 years, fires have removed more than a million acres of sagebrush-dominated habitat in the Magic Valley Region. While these fires may have improved spring, summer, and fall pronghorn antelope habitat in some areas, there have been negative effects on winter range and fawning habitat. These fires will likely hinder recovery of pronghorn antelope populations in Units 49, 52A, 47, and 46 to the high levels of the late 1980s and early 1990s.

No depredation complaints were received during 1998-1999. Seventeen complaints were received in 1992-1993 when populations were high.

Group 3

Management Unit 44

Unit 44 is the only Group 3 unit in the Magic Valley Region. During the late 1970s to mid-1980s, depredation complaints on the Camas Prairie (Units 44 and 45) were common and the management objective has been to maintain the pronghorn antelope population below 100 head. However, depredation complaints have been minimal during the past 12 years despite drought conditions during 7 of those years. No depredation complaints were received during the 1998-1999 reporting period.

Pronghorn antelope suffered high losses during the 1992-1993 winter. Doe/fawn hunting has been eliminated since 1994 to allow population growth. The pronghorn antelope population has increased and currently exceeds 175 head. Any-antelope permits were increased from 20 to 40 permits in 1998 to provide additional hunting opportunity.

During September 1998, 135 pronghorn antelope were classified with ratios of 0.36 bucks and 0.97 fawns per doe. Since 1987 hunter success in the any-antelope hunt has averaged 94% (Table 3). Estimated mean maximum horn length has been below the 12-inch plan minimum during 5 of the past 8 years (Table 4).

Group 4

Management Units 48, 54, 57

In 1989, the Department transplanted 29 pronghorn antelope from the Mud Lake area (Unit 63) to the Shoshone Basin area of Unit 54. In addition, the Nevada Division of Wildlife released pronghorn antelope east of Jackpot, Nevada, near Shoshone Basin in the late 1980s. This interstate population has increased and provides hunting opportunity in Idaho and Nevada. A 10-permit any-antelope hunt has been authorized in Unit 54 since 1996. Hunter success was 100% in 1996 and 1997 and 90% in 1998, with several outstanding bucks taken (Tables 5 and 6).

Although the frequency of antelope observations in Unit 57 has increased in recent years, the population remains at a low level. Between 50 and 100 antelope are frequently observed during winter in the Raft River Valley east of Malta; however, spring, summer, and fall sightings indicate a smaller resident population. At the request of local sportsmen, a hunt with 5 permits has been authorized since 1996 to allow some opportunity to harvest the mature bucks this small population supports. Since the hunt began in 1996, 15 hunters have taken 12 bucks (Tables 5 and 6). A buck taken in 1998 scored number 2 in the Idaho Big Game Records.

Magic Valley Region Management

From 1987-1992, pronghorn antelope populations in the Magic Valley Region increased due to a series of mild winters and improved summer-fall habitat in some units. Hunting opportunity was increased substantially during this period and summer depredation problems were common. Both permit levels and harvest increased more than 500% from 1984 to 1992 (Table 7).

The combined effects of drought and the harsh conditions of the 1992-1993 winter resulted in a substantial decline in pronghorn antelope numbers region-wide. Populations south of the Snake River did not experience the magnitude of decline that occurred in units in the northern portion of the region. Antelope numbers appear to be increasing moderately in Units 44, 49, and 52, whereas numbers in Units 52A, 53, and 46-47 appear to be relatively stable. The small pronghorn antelope populations in Units 54 and 57 appeared to be relatively unaffected by the 1992-1993 winter and have remained relatively stable in recent years.

Large uncontrolled wildfires during the past decade substantially altered antelope habitat in most management units in the Magic Valley Region. The loss of critical sagebrush winter ranges is expected to hinder the future growth of populations in Units 46, 47, 52A, and 49.

Population surveys during the 1999-2000 reporting period will be limited to ground surveys conducted during August to estimate age and sex ratios in Units 46 and 49.

Table 1. Summary of pronghorn harvest, Group 2 hunts, Magic Valley Region, 1976-present.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)	
			Male	Female	Total			
45	1988	30	22	2	24	92	80	
45-1	1989	20	12	2	14	86	70	
	1990	20	14	2	16	88	80	
	1991	20	14	1	15	93	75	
	1992	20	13	1	14	93	70	
	1993	20	6	0	6	100	30	
45-2	1989	30	1	11	12	8	40	
	1990	30	9	13	22	41	73	
	1991	30	4	17	21	19	70	
	1992	30	0	8	8	0	27	
	1993	30	0	13	13	0	43	
46	1976	35	10	5	15	67	43	
	1977	35	21	5	26	81	74	
	1978	20	14	3	17	82	85	
	1979	20	7	2	9	78	45	
	1980	20	13	4	17	76	85	
	1981	10	8	2	10	80	100	
	1982	10	9	0	9	100	90	
	1983	25	19	4	23	83	92	
	46-1	1984	20	15	0	15	100	75
		1985	20	17	0	17	100	85
46-2	1984	10	0	3	3	0	30	
	1985	20	1	12	13	8	65	
46	1986	40	27	6	33	82	83	
	1987	50	38	7	45	84	90	
	1988	50	40	4	44	91	88	
	1989	75	60	5	65	92	87	
46-1	1990	50	32	6	38	84	76	
	1991	50	35	5	40	88	80	
	1992	60	53	0	53	100	88	
	1993	60	48	5	53	91	88	
	1994	60	48	2	50	96	83	
	1995	60	45	6	51	88	86	
	1996	60	34	4	38	89	65	
	1997	60	45	3	48	94	81	
	1998	60	47	3	50	94	88	
	46-2	1990	25	1	14	15	7	60
1991		50	0	38	38	0	76	
1992		100	0	69	69	0	69	
1993		100	0	53	53	0	53	
1994		50	0	36	36	0	72	
1995		50	0	25	25	0	58	

Table 1. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
47	1996	100	50	0	50	100	53
	1997	100	2	42	44	5	46
	1998	100	0	52	52	0	63
	1988	20	3	2	5	60	25
	1989	20	4	1	5	80	25
	1990	40	8	1	9	89	23
	1991	40	12	5	17	71	43
	1992	40	11	1	12	92	30
	1993	40	14	3	17	82	43
	1994	40	9	2	11	82	28
	1995	40	9	4	13	69	36
	1996	40	10	0	10	100	29
	1997	40	9	1	10	90	30
	1998	40	10	1	11	91	31
49	1976	10	3	3	6	50	60
	1977	10	7	0	7	100	70
	1978	30	19	10	29	66	97
	1979	40	18	6	34	53	85
	1980	50	31	11	42	74	84
	1981	90	71	10	81	88	90
	1982	90	71	13	84	85	93
	1983	90	73	7	80	91	89
	1984	90	66	2	68	97	76
	1985	90	55	24	79	70	88
	1986	90	58	13	71	82	79
	1987	90	53	18	71	75	79
	1988	110	83	13	96	86	87
	1989	110	70	13	83	84	75
49-1	1990	100	63	22	85	74	85
	1991	100	67	19	86	78	86
	1992	100	59	11	70	84	70
	1993	100	50	20	70	71	70
	1994	50	25	10	35	71	70
	1995	50	32	10	42	76	84
49-2	1996	30	17	3	20	85	74
	1990	50	21	8	29	72	58
	1991	50	19	14	33	58	66
	1992	50	31	5	36	86	72
	1993	50	11	15	26	42	52
	1994	25	3	13	16	19	64
	1995	25	7	4	11	64	49
1996	10	10	0	10	100	100	

Table 1. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
49-3	1992	25	18	2	20	90	80
	1993	25	11	10	21	52	84
	1994	25	13	3	16	81	64
	1995	25	10	3	13	77	62
	1996	10	3	0	3	100	38
49	1997	50	39	7	46	85	92
	1998	50	36	6	42	86	89
52	1986	20	11	1	12	92	60
	1987	30	15	5	20	75	67
	1988	30	22	4	26	85	87
	1989	30	16	3	19	84	63
	1990	30	20	3	23	87	77
	1991	30	22	3	25	88	83
52-1	1992	15	14	1	15	93	100
	1993	15	7	2	9	78	60
52-2	1992	15	1	7	8	13	53
	1993	15	0	6	6	0	40
52	1994	15	12	0	12	100	80
	1995	15	9	1	10	90	71
52A	1976	65	36	8	44	82	68
	1977	65	32	3	35	91	54
	1978	30	17	3	20	85	67
	1979	30	25	4	29	86	97
	1980	30	17	4	21	81	70
	1981	30	28	2	30	93	100
	1985	20	18	1	19	95	95
	1986	30	22	1	23	96	77
	1987	30	22	7	29	76	97
	1988	30	19	6	25	76	83
	1989	60	39	8	47	83	78
	1990	60	40	8	48	83	80
	1991	60	44	4	48	92	80
52A-1	1992	75	58	7	65	89	87
	1993	75	17	8	25	68	33
52A-2	1992	75	0	56	56	0	75
	1993	75	0	5	5	0	7
52A	1994	25	8	2	10	80	40
	1995	25	6	1	7	86	29
53	1976	10	6	3	9	67	90
	1977	10	9	0	9	100	90
	1978	20	2	15	17	12	85
	1979	20	4	13	17	24	85

Table 1. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
	1980	20	4	16	20	20	100
	1981	30	4	22	26	15	87
	1982	20	4	14	18	22	90
	1985	10	0	6	6	0	60
	1986	10	0	7	7	0	70
	1987	20	18	2	20	90	100
	1988	30	27	3	30	90	100
	1989	50	35	5	40	88	80
	1990	50	38	9	47	81	94
53-1	1991	50	26	7	33	79	66
	1992	30	26	3	29	90	97
	1993	30	12	1	13	92	43
53-2	1991	30	1	16	17	6	57
	1992	30	3	12	15	20	50
	1993	30	0	8	8	0	27
53-3	1992	30	1	17	18	6	60
	1993	30	2	9	11	18	37
53	1994	30	11	3	14	79	47
	1995	30	15	1	16	94	53
	1996	30	10	4	14	71	50
	1997	30	8	4	12	67	44
	1998	30	8	4	12	67	40

Table 2. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters, Group 2 hunts, Magic Valley Region, 1991-present.

Hunt area	Year	Number permits	Number reports	Mean maximum horn length
45-1	1991	20	4	12.9
	1992	20	8	12.7
	1993	20	6	12.9
46-1	1991	50	30	12.2
	1992	60	24	12.2
	1993	60	20	12.0
	1994	60	38	12.2
	1995	60	41	11.4
	1996	60	18	11.4
	1997	60	31	13.1
	1998	60	29	13.5
47	1991	40	9	10.9
	1992	40	3	12.2
	1993	40	6	12.6
	1994	40	8	11.4
	1995	40	8	12.6
	1996	40	6	6.5
	1997	40	6	11.5
	1998	40	8	12.3
49-1	1991	100	29	10.3
	1992	100	25	12.2
	1993	100	19	10.4
	1994	50	22	11.9
	1995	50	29	9.3
	1996	30	12	9.2
49-2	1991	50	14	12.9
	1992	50	15	11.8
	1993	50	6	12.9
	1994	25	2	13.5
	1995	25	6	9.2
	1996	10	6	9.7
49-3	1992	25	7	11.8
	1993	25	4	10.5
	1994	25	11	12.1
	1995	25	8	11.6
	1996	10	3	10.7
49	1997	50	30	10.8
	1998	50	27	11.0
52-1	1991	30	11	12.7
	1992	15	5	10.4
	1993	15	2	13.0

Table 2. Continued.

Hunt area	Year	Number permits	Number reports	Mean maximum horn length
52	1994	15	9	12.0
	1995	15	7	12.0
52A-1	1991	60	20	13.2
	1992	75	26	11.6
	1993	75	8	10.9
52A	1994	25	6	13.8
	1995	25	5	10.6
53-1	1991	50	13	11.7
	1992	30	13	11.5
	1993	30	5	12.5
53	1994	30	8	14.0
	1995	30	14	11.1
	1996	30	7	10.6
	1997	30	6	10.6
	1998	30	7	10.7

^a Information prior to 1994 was provided by hunter report cards; subsequent data collected through telephone survey.

Table 3. Summary of pronghorn harvest, Group 3 hunts, Magic Valley Region, 1987-present.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
44	1987	20	20	0	20	100	100
	1988	20	15	2	17	88	85
44-1	1989	10	7	3	10	70	100
	1990	10	8	0	8	100	80
	1991	10	10	0	10	100	100
	1992	20	18	2	20	90	100
	1993	20	16	1	17	94	85
44-2	1989	20	4	13	17	24	85
	1990	20	0	15	15	0	75
	1991	20	3	13	16	19	80
	1992	30	0	22	22	0	73
	1993	30	0	16	16	0	53
44	1994	20	15	1	16	94	80
	1995	20	14	1	15	93	79
	1996	20	17	1	18	94	92
	1997	20	17	3	20	85	100
	1998	40	34	2	36	94	97

Table 4. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters, Group 3 hunts, Magic Valley Region, 1991-present.

Hunt area	Year	Number permits	Number reports	Mean maximum horn length
44-1	1991	10	5	13.2
	1992	20	6	11.0
	1993	20	6	13.1
44	1994	20	12	10.3
	1995	20	12	11.5
	1996	20	11	10.1
	1997	20	12	10.5
	1998	40	22	12.2

Table 5. Summary of pronghorn harvest, Group 4 hunts, Magic Valley Region, 1996-present.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
54	1996	10	9	0	9	100	100
	1997	10	10	0	10	100	100
	1998	10	9	0	9	100	90
57	1996	5	4	0	4	100	100
	1997	5	5	0	5	100	100
	1998	5	3	0	3	100	60

Table 6. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters, Group 4 hunts, Magic Valley Region, 1996-present.

Hunt area	Year	Number permits	Number reports	Mean maximum horn length
54	1996	10	9	13.9
	1997	10	5	14.7
	1998	10	6	14.7
57	1996	5	3	16.0
	1997	5	5	12.2
	1998	5	2	14.5

Table 7. Summary of pronghorn antelope harvest, Magic Valley Region, 1976-present.

Year	# Permits	Harvest			Male (%)	Success (%)
		Male	Female	Total		
1976	120	55	19	74	74	62
1977	120	69	8	77	90	64
1978	100	52	31	93	56	93
1979	110	54	25	79	68	72
1980	120	65	35	100	65	83
1981	160	111	69	147	76	92
1982	120	84	27	111	76	93
1983	115	92	11	103	89	90
1984	120	81	5	86	94	72
1985	160	91	43	134	68	84
1986	190	118	28	146	81	77
1987	240	166	39	205	81	85
1988	320	231	36	267	87	83
1989	415	251	66	317	79	76
1990	485	254	101	355	72	73
1991	540	257	142	399	64	74
1992	745	306	224	530	58	71
1993	745	194	175	369	53	50
1994	310	144	72	216	67	70
1995	340	147	56	203	72	64
1996	315	164	12	176	93	70
1997	315	133	62	195	68	66
1998	335	147	68	215	68	71

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Antelope Surveys and</u>
PROJECT:	<u>W-170-R-23</u>		<u>Inventories</u>
SUBPROJECT:	<u>5</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Utilization, and</u>
JOB:	<u>7</u>		<u>Associated Habitat Studies</u>
PERIOD COVERED: <u>July 1, 1998 to June 30, 1999</u>			

PRONGHORN ANTELOPE - SOUTHEAST REGION

Abstract

Fifty any-antelope permits were issued for Unit 68 in 1998. Forty percent of hunters harvested a pronghorn antelope, compared to 38% in 1997. One female and 19 male pronghorn antelope were harvested. Harvested males had an average maximum horn length of 12.4 inches. Population information is limited for the unit because of low density and wide dispersion.

Group 2

Management Unit 68

The Unit 68 any-antelope permit level remained the same (50 permits) in 1998 as in 1997 (Table 1). Hunter success (40%) in 1998 was the same as in 1997 (38%). An estimated 42 hunters hunted a total of 143 days, averaging 3.4 days per hunter in 1998. This compares to 50 hunters hunting 223 days with an average of 4.5 days per hunter in 1997. Since 1994, horn length information has been gathered through the statewide telephone survey. Mean maximum horn length for the 1998 harvest was 12.4 inches (Table 2), above the 12.0-inch objective established in the 1991-1995 Pronghorn Antelope Management Plan.

No doe/fawn permits were issued in 1998 because of relatively low populations and limited depredation problems.

In the past, little quantitative data has been available on population trend of this pronghorn antelope herd. Subjective observations by Department personnel suggest the population has increased from the most recent low reached during spring 1993. Past estimates of the pronghorn antelope population on the Big Desert have been obtained through fixed-wing surveys using line-transect methodology based on Burnham et al. (1980) and modified by Johnson and Lindzey (1990). Line-transect surveys in Unit 68 were flown in autumn 1987 and in spring 1988, 1990, and 1991.

Population estimates calculated for the Big Desert have varied greatly. Confidence limits for the population estimates have been unacceptably wide due to the low density of pronghorn antelope in the area and their unpredictable distribution.

The application of line-transect surveys and use of the TRANSECT II program for pronghorn antelope in areas that have low level, dispersed populations such as the Big Desert has definite limitations (Laake et al. 1978, White 1986). The technique can still provide a systematic method to survey pronghorn antelope over large areas; however, the inability to increase sample sizes easily and cost-efficiently prevents generation of population estimates with acceptable confidence limits. Due to these limitations, no pronghorn antelope surveys have been conducted for several years.

Use of irrigated agricultural fields adjacent to sagebrush rangeland by pronghorn antelope was noted during summer 1998, but no depredation problems were reported, nor were any received during winter 1998-1999.

The 1998-1999 winter snow-pack in the Southeast Region was just slightly above average, with snow-pack levels throughout the region 100-120% of the mean for the past 30-year period. Most snow-pack was late arriving and restricted to higher elevations, with lower elevations experiencing relatively minor accumulations.

An approximately 220,000-acre wildfire occurred during August 1996 within Unit 68. A seral setback of this scale will likely improve spring/early summer habitat for pronghorn antelope. However, loss of significant amounts of sagebrush may adversely affect wintering habitat.

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Table 1. Summary of pronghorn antelope harvest, Group 2, Southeast Region, 1981-present.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
68 ^a	1981	50	37	5	42	88	84
	1982	50	36	5	41	88	82
	1983	50	32	16	48	67	96
	1984	50	37	3	40	93	80
	1985	50	35	7	42	83	84
	1986	50	44	4	48	92	96
	1987	75	59	10	69	86	92
	1988	75	59	3	62	95	83
68-1 ^a	1989	100	66	17	83	80	83
	1990	75	48	10	58	83	77
	1991	100	55	17	72	76	72
	1992	100	62	8	70	89	70
68-2 ^b	1989	150	6	101	107	6	71
	1990	50	7	25	32	22	64
	1991	200	27	67	94	29	47
	1992	200	11	57	68	16	34
68-3 ^c	1989	100	0	96	96	0	96
	1990	100	3	66	69	4	69
68 ^a	1993	100	29	6	35	83	35
	1994	50	16	3	19	84	38
	1995	50	16	4	20	80	44
	1996	50	17	5	22	77	51
	1997	50	19	0	19	100	38
	1998	50	19	1	20	95	40

^a Any antelope.

^b Doe/fawn.

^c Extra doe/fawn.

Table 2. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters, Group 2, Southeast Region, 1991-present.

Hunt area	Year	Number permits	Number reports ^a	Mean maximum horn length
68-1	1991	100	27	11.7
	1992	100	30	12.4
68	1993	100	12	11.9
	1994	50	12	13.7
	1995	50	13	12.3
	1996	50	10	10.8
	1997	50	12	12.3
	1998	50	14	12.4

^a Information prior to 1994 was provided by hunter report cards; subsequent data collected through telephone survey.

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Antelope Surveys and</u>
PROJECT:	<u>W-170-R-23</u>		<u>Inventories</u>
SUBPROJECT:	<u>6</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Utilization, and</u>
JOB:	<u>7</u>		<u>Associated Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 1998 to June 30, 1999</u>		

PRONGHORN ANTELOPE - UPPER SNAKE REGION

Abstract

Group 2: A population survey was conducted in Unit 51 in July 1996. Population surveys in other Group 2 units have not been conducted in recent years. Some winter kill occurred during the 1992-1993 winter, but no winter mortality has been observed since then. Permit numbers remained the same for 1998 as they were in 1997 for all hunt areas. Horn length data were collected by telephone survey. The average horn length exceeded the 12-inch management plan objective for 6 hunts, but was less than 12 inches for the other 2 hunts. Pronghorn antelope depredation complaints on grain and hay occurred in Hunt Areas 50 2, 51 2, and 59 during summer and fall 1998.

Group 3: A population survey was conducted in the southern part of Unit 63 in July 1996. Population surveys in other Group 3 units have not been conducted in recent years. Severe winter conditions resulted in some winter kill during the 1992-1993 winter, but no mortality has been noted since then. Pronghorn antelope depredation on stacked hay occurred during winter 1998-1999 in Hunt Areas 60A and 63-2.

Group 2

Management Units 50, 51, 58, 59, 59A

These mountain valley units support the most productive pronghorn antelope herds in the region. Most of the land is managed by the Bureau of Land Management or Forest Service with limited private cultivated land occurring along the major stream corridors. Pronghorn antelope occurring in these units are seasonally migratory and, during severe winters, are forced into Unit 63.

Minor depredations on hay and grain crops are common during summer, but most are tolerated by landowners when they receive assistance from the Department. Major depredation complaints are received during extremely dry years when pronghorn antelope congregate on

irrigated fields. Under these conditions, the Department has been forced to authorize additional depredation hunts and pay for crop and fence damage.

Pronghorn antelope depredations occurred in the Spring Creek area east of Moore (Unit 50) and the Sunny Bar area (Unit 51). In the Spring Creek area, about 50-75 pronghorn antelope damaged grain in September, and about 90 pronghorn antelope depredated on hay crops on Sunny Bar in September. Depredation complaints were also received from Units 59 and 59A. In the Small area, the Department received 3 complaints of pronghorn antelope in hay and grain crops during August and September.

Permit numbers for “either-sex antelope” hunts were decreased slightly in most hunt areas in 1991 relative to the previous 2 years. These were reduced further and doe/fawn-only pronghorn antelope hunts were closed in 1994. The number of permits remained the same for 1997 and 1998 (Table 1).

One of the objectives of the 1991-1995 Pronghorn Antelope Plan for this group of units is to maintain an average horn length of 12 inches in the firearm either-sex harvest. This information has been collected by telephone survey since 1994. Six hunts met the minimum average horn length (50-1, 51-1, 51-2, 51-3, 58, and 59), but the other hunts fell short of the objective (Table 2). Reported horn length sample size remains smaller than desired for precision estimates.

Herd composition and population trend surveys had not been attempted in these units for several years. A line-transect survey was conducted in Unit 51 in 1989, but resulted in unacceptably wide confidence intervals on population estimates (Table 3). Problems associated with this survey technique included low population density, uneven distribution, uneven topography resulting in varying band width, and unsafe flying conditions.

In July 1996, a Bell G-47 helicopter was used to survey pronghorn antelope in Unit 51 using a method similar to a method described by Pojar, et al. (1995). A total of 254 pronghorn antelope were counted in Unit 51 (33 bucks, 167 does, 54 fawns) for a mean density of 3.73 pronghorn antelope/km² ($s_x = 4.4$). It was estimated that the summer distribution of pronghorn antelope in Unit 51 was approximately 638 km². If this estimate was correct, then there were an estimated $2,381 \pm 1,164$ pronghorn antelope in Unit 51. This compares to 4.62 pronghorn antelope/km² and a total population estimate of $2,948 \pm 2,444$ pronghorn antelope obtained from the line-transect survey conducted in July 1989 (Table 3).

Severe conditions during the 1992-1993 winter caused un-quantified, but above-normal, winter kill. Winter mortality has not been observed since then.

Winter conditions during the 1998-1999 winter were relatively mild at lower elevations. There was heavy snowfall in the lower part of Units 51 and 58 in November, but mild conditions caused much of this snow to melt. Heavy snowfall in Unit 51 in February appeared to have little impact on pronghorn antelope. The Department received no reports of animals suffering winter stress and general observations suggested pronghorn antelope wintered well.

Group 3

Management Units 60, 60A, 61, 63

These units provide important pronghorn antelope habitat but are difficult to manage. Units 60 and 60A have productive summer range, but access to traditional winter range from these units was blocked when Interstate 15 was built. Under current conditions, the herd flourishes during light to moderate winters but is decimated during hard winters.

Pronghorn antelope habitat in the eastern part of Unit 61 is restricted to summer range on Henrys Lake Flat area and adjacent clearcuts. These pronghorn antelope winter in the Madison Valley of Montana. Summer range is predominantly privately owned. Some landowners have complained to the Department about pronghorn antelope using their land for foraging but have also posted their land to hunting. Montana experiences some winter depredation problems involving these pronghorn antelope. Therefore, the region's goal is to manage this herd for non-consumptive value and use sport harvest to prevent it from increasing and causing more severe depredations.

Habitat in the western part of Unit 61 is primarily confined to the Beaver Creek drainage and its tributaries. These pronghorn antelope winter southeast of Dillon, Montana, and currently are not causing any winter depredation problems.

Unit 63 provides winter range for pronghorn antelope summering in Group 2 units and year-round habitat for a resident population. Approximately half the unit is controlled by the U.S. Department of Energy as the Idaho National Engineering and Environmental Laboratory (INEEL) and is closed to hunting. In several areas, irrigated crops are grown on private lands that abut the INEEL. Consequently, some of the pronghorn antelope summering in Unit 63 cause annual depredation problems on private lands but are unavailable to sportsmen for harvest. Summer crop depredations occur on other private land in the unit but are easier to control with hunting.

Permit numbers were increased from 125 to 175 in Hunt Area 63-2 in 1997 to address depredation complaints received during summer 1996. Permit numbers were reduced from 75 to 50 in Hunt Area 60A in 1998 because pronghorn antelope numbers appeared to be down (Table 4). Permit numbers for all other hunt areas remained the same for 1998 as they were for 1997.

Late summer pronghorn antelope depredation problems did not occur along the INEEL boundary northwest of Mud Lake (Hunt Area 63-2) as in past years because improved foraging conditions resulted in improved pronghorn antelope distribution. An estimated 100 pronghorn antelope again foraged on private crops south of Sage Junction (hunt area 63-1), but no landowner complaints were received. Pronghorn antelope depredation complaints were received on stacked hay during winter 1998-1999. Approximately 150 pronghorn antelope damaged haystacks in the Dubois-Hamer area of Hunt Area 60A and an estimated 500-600 pronghorn antelope damaged haystacks in the Montevue area in Hunt Area 63-2.

Pronghorn antelope in Units 60 and 60A recovered from near total extirpation during the hard winters of 1983-1984 and 1984-1985 but suffered winter kill again during the 1992-1993 winter. Pronghorn antelope numbers in Unit 61 also followed a similar pattern.

The average horn length for reported hunter harvest in 1998 was less than 12 inches for all hunts (Table 5). Although the 1991-1995 Pronghorn Antelope Plan does not include a minimum average horn length goal for this group of units, the Plan does note as a management consideration that mature buck numbers were below desired levels.

Hunt Area 63-2 is 1 of only 3 pronghorn antelope hunts in the state restricted to muzzleloaders. Muzzleloader interest has increased over the past few years, and since 1994, all permits have been filled by first-choice applicants.

Consistent herd composition counts and population trend surveys have not been conducted in these units in recent years. A line-transect trend survey was attempted in Unit 63 in 1990 (Table 3). The wide confidence interval suggested this method was not suitable for census of pronghorn antelope in this area. The primary variable producing the wide confidence interval was low population density.

In July 1996, pronghorn antelope were surveyed in that part of Unit 63 south of Highway 33 outside of the INEEL and the adjacent 3.22 km inside the east and south border of INEEL as described for Unit 51 above. Forty-seven pronghorn antelope were counted in the area surveyed in Unit 63 (6 bucks, 73 unclassified) for a mean density of 1.04 pronghorn antelope/km² ($s_x = 6.58$). It was estimated that there were 654 km² surveyed in Unit 63. The estimated number of pronghorn antelope occurring in the area surveyed in Unit 63 during summer 1996 was $682 \pm 1,008$.

The Environmental Science and Research Foundation, Inc. conducted a pronghorn antelope survey on the INEEL in August 1996 following the protocol reported by Pojar et al. (1995). Two hundred fifty-two pronghorn antelope were observed. The total pronghorn antelope estimate on the INEEL was $1,247 \pm 1,212$ (90% C.I.). The buck:doe ratio was 16:100 and the fawn:doe ratio was 8:100.

In February 1999, the Environmental Science and Research Foundation, Inc. conducted a standard line-transect pronghorn antelope survey over the INEEL using a fixed-wing aircraft. Nine hundred sixty-six km² of the 1,432 km² INEEL were flown in a north to south direction along transects spaced at 0.8 km intervals. The INEEL was divided into subunits to stratify high use versus low use. Pronghorn antelope data were collected and analyzed as per Johnson and Lindzey (1990). One thousand ninety-eight pronghorn antelope were observed in 21 groups. One group, containing 200 pronghorn antelope, was observed just east of agricultural fields south of Howe. Analysis of the data with the program Transect II (Johnson and Lindzey 1990) resulted in an estimated pronghorn antelope population on the INEEL of $2,939 \pm 1,226$.

Conditions during the 1992-1993 winter were severe for pronghorn antelope wintering in Units 60A and 63, and supplemental feeding occurred. However, winter mortality has not been observed since then.

Upper Snake Region Management

Pronghorn antelope permit levels and harvest increased steadily from 1975 to 1983. Permit levels have fluctuated widely since then (Table 6). Severe winter conditions resulted in some winter kill during the 1992-1993 winter; therefore, doe/fawn-only hunts were closed in 1994.

Literature Cited

- JOHNSON, B. AND F. LINDZEY. 1990. Guidelines for estimating pronghorn numbers using line-transects. Wyoming Game and Fish Department. 30 pp.
- POJAR, T. M., D. C. BOWDEN, AND B. R. GILL. 1995. Aerial counting experiments to estimate pronghorn density and herd structure. *Journal of Wildlife Management* 59(1):117-128.

Table 1. Summary of pronghorn antelope harvest, Group 2, Upper Snake Region, 1994-present.

Hunt area ^a	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
50-1	1994	100	70	9	79	89	79
	1995	100	62	12	74	84	80
	1996	100	45	15	60	75	69
	1997	100	63	14	77	82	77
	1998	100	39	15	54	72	54
50-2	1994	50	15	9	24	63	48
	1995	50	20	4	24	83	53
	1996	50	24	3	27	89	55
	1997	50	17	3	20	85	40
	1998	50	22	6	28	79	56
50-3	1994	30	26	1	27	96	90
	1995	30	15	5	20	75	80
	1996	30	10	6	16	63	58
	1997	30	9	5	14	64	47
	1998	30	14	4	18	78	61
51-1	1994	75	47	18	65	72	87
	1995	75	57	2	59	97	91
	1996	75	50	6	56	89	82
	1997	75	49	13	62	79	83
	1998	75	41	11	52	79	69
51-2	1994	50	23	13	36	64	72
	1995	50	28	2	30	93	68
	1996	50	29	8	37	78	82
	1997	50	28	3	31	90	62
	1998	50	23	8	31	74	62
51-3	1997	50	12	7	19	63	38
	1998	50	21	10	31	68	62
58	1994	50	27	8	35	77	70
	1995	50	26	10	36	72	78
	1996	50	25	10	35	71	81
	1997	50	34	4	38	89	76
	1998	50	29	14	43	67	85
59	1994	100	66	17	83	80	83
	1995	100	72	11	83	87	87
	1996	100	75	15	90	83	92
	1997	100	80	4	84	95	84
	1998	100	67	16	83	81	83

^a Refer to annual hunting regulations for a description of hunt boundary, weapon type, and age/sex restrictions.

Table 2. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters by unit within Group 2, Upper Snake Region, 1994-present.

Hunt area	Year	Number permits	Number reports ^a	Mean maximum horn length
50-1	1994	100	44	13.1
	1995	100	36	11.9
	1996	100	18	10.3
	1997	100	35	10.8
	1998	100	24	12.3
50-2	1994	50	19	10.4
	1995	50	16	11.4
	1996	50	14	12.4
	1997	50	11	10.6
	1998	50	17	10.3
50-3	1994	30	23	14.2
	1995	30	12	12.6
	1996	30	7	14.1
	1997	30	7	12.1
	1998	30	11	11.5
51-1	1994	75	46	14.3
	1995	75	48	12.5
	1996	75	24	12.2
	1997	75	34	12.8
	1998	75	30	14.3
51-2	1994	50	25	11.7
	1995	50	25	11.4
	1996	50	17	12.1
	1997	50	22	10.6
	1998	50	17	12.6
51-3	1997	50	8	13.2
	1998	50	16	12.0
58	1994	50	31	12.9
	1995	50	20	11.6
	1996	50	15	11.3
	1997	50	28	13.2
	1998	50	19	12.4
59	1994	100	48	12.6
	1995	100	40	11.5
	1996	100	30	10.6
	1997	100	45	11.6
	1998	100	42	12.8

^a Information prior to 1994 was provided by hunter report cards; subsequent data collected through telephone survey.

Table 3. Line-transect survey data and population estimates using the TRANSECT program for pronghorn antelope in the Little Lost Valley, Unit 51, 1989; and the Big Desert, Unit 63, 1990.

Search area		No. of groups in distance bands ^b				Mean	Density			Population estimate ^a		
Name	Size (km ²) ^a	Survey date	1	2	3	4 group size	Groups/km ²	95% C.I.	Antelope/km ²	Range (95% confidence)		
Unit 51	880	7/17/89	8	19	14	15	5	0.0636	3.83	4.62	3,372	4,062
Unit 63	2,880	7/19-21, 1990	83	63	104	134	5	0.0288	0.39	0.7730	1,121	2,111

^a Size of area used for determination of population estimates. Unit 51: 880 km². Unit 63: 1,459 km²; INEL: 1,421 km²; Combined: 2,880 km².

^b Distance band widths: (1) 0-25 m, (2) 25-50 m, (3) 50-100 m, (4) 100-200 m.

Table 4. Summary of pronghorn antelope harvest, Group 3, Upper Snake Region, 1994-present.

Hunt area ^a	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
60A	1994	50	29	10	39	74	78
	1995	75	15	14	29	52	46
	1996	75	20	8	28	71	47
	1997	75	19	28	47	40	63
	1998	50	17	6	23	74	45
61	1994	50	10	12	22	45	44
	1995	50	8	7	15	53	36
	1996	50	5	11	16	31	36
	1997	50	15	9	24	63	48
	1998	50	1	12	13	8	26
63-1	1994	50	30	4	34	88	68
	1995	50	18	1	19	95	45
	1996	50	28	12	40	70	85
	1997	50	27	3	30	90	62
	1998	50	31	3	34	91	68
63-2	1994	125	36	9	45	80	36
	1995	125	41	15	56	73	58
	1996	125	43	17	60	72	50
	1997	175	68	20	88	77	50
	1998	175	48	23	71	68	40

^a Refer to annual hunting regulations for a description of hunt boundary, weapon type, and age/sex restrictions.

Table 5. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters by unit within Group 3, Upper Snake Region, 1994-present.

Hunt area	Year	Number permits	Number reports	Mean maximum horn length
60A	1994	50	28	9.8
	1995	75	13	9.9
	1996	75	10	8.9
	1997	75	13	10.1
	1998	50	14	10.4
61	1994	50	17	10.6
	1995	50	6	7.2
	1996	50	3	10.7
	1997	50	8	10.9
	1998	50	1	3.0
63-1	1994	50	30	11.5
	1995	50	14	12.4
	1996	50	16	10.1
	1997	50	20	10.5
	1998	50	19	11.2
63-2	1994	125	21	9.6
	1995	125	19	11.1
	1996	125	15	12.1
	1997	175	24	11.0
	1998	175	19	11.3

Table 6. Summary of pronghorn antelope harvest, Upper Snake Region, 1975-present.

Year	# Permits	Harvest			Male (%)	Success (%)
		Male	Female	Total		
1975	755	394	139	533	74	71
1976	755	326	106	432	75	57
1977	855	441	140	581	76	68
1978	930	503	202	705	71	76
1979	1,030	598	180	778	77	76
1980	1,120	660	165	825	80	74
1981	1,340	870	250	1,120	78	84
1982	1,565	1,025	233	1,258	81	80
1983	2,115	1,150	365	1,515	76	72
1984	1,883	879	354	1,233	71	65
1985	1,852	944	412	1,356	70	73
1986	2,045	1,054	558	1,612	65	79
1987	1,856	979	425	1,404	70	76
1988	2,095	1,156	506	1,662	70	79
1989	1,530	738	326	1,064	69	70
1990	2,385	783	1,008	1,791	44	75
1991	1,750	617	668	1,285	48	73
1992	1,555	551	654	1,205	46	77
1993	1,555	454	491	945	48	61
1994	716	379	110	489	78	68
1995	755	362	83	445	81	59
1996	755	354	111	465	76	62
1997	855	255	68	323	79	38
1998	830	353	128	481	73	58

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Antelope Surveys and</u>
PROJECT:	<u>W-170-R-23</u>		<u>Inventories</u>
SUBPROJECT:	<u>7</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Utilization, and</u>
JOB:	<u>7</u>		<u>Associated Habitat Studies</u>
PERIOD COVERED: <u>July 1, 1998 to June 30, 1999</u>			

PRONGHORN ANTELOPE - SALMON REGION

Abstract

There were 235 pronghorn antelope harvested in the Salmon Region in 1998 (Table 1). The buck harvest of 162 animals was the lowest in 3 decades. The doe harvest of 73 animals was 13% of the 1992 peak harvest. All doe/fawn permits were eliminated in 1998, compared to 100 issued in 1997 and 825 in 1992-1993. Any-antelope permits remained constant at 520 from 1990-1997. In 1998, any- antelope Hunt 21A was eliminated (10 permits) reducing the total to 510. Average horn lengths met the minimum 12-inch criterion in 6 of 9 hunts. Aerial surveys were conducted in April 1999. A total of 1,918 antelope were counted in all units, down 53% from 1990. No depredation hunts were held in 1998.

Group 1: The male harvest was 42 animals, down 19 from the 1997 harvest and the lowest in 3 decades.

Group 2: The female harvest was 40 animals, compared to 72 in 1997, 83 in 1996, and 333 in 1992. The male harvest was 83 animals, which is about one-third of the recent harvest peaks. Both male and female harvests were the lowest in 3 decades.

Group 3: The 1998 male harvest was 37 animals, compared to the 1997 harvest of 51 and 1982 peak harvest of 162 animals. The 1998 male harvest was the lowest in 3 decades. The female harvest was 16 animals, compared to the 1985 peak of 65 animals.

Group 1

Management Units 21A, 28, 36A (Part), 36B, 37 (Part)

The total 1998 harvest from this group of hunts was 57 pronghorn antelope, down 70% from the 1992 peak (Table 2). The male harvest of 42 animals was 55% of the 1992-1996 average. Any-antelope Hunt 21A was eliminated in 1998. Doe/fawn Hunt 21A-2 was eliminated in 1994; Hunt 36B-2 was eliminated and Hunt 37-3 permits were reduced from 75 to 25 in 1996, then

eliminated in 1998. Mean horn lengths were below the 1991-1995 plan criterion of 12.0 inches in 2 hunts and above in 1 hunt (Table 3).

Group 2

Management Units 29 (Part), 30, 36A (Part), 37 (Part), 37A

The total 1998 harvest was 124 animals. The male harvest of 83 animals was about one-third of recent peak harvests. The female harvest was 40 animals, compared to 72 animals in 1997, 83 in 1996, and 333 in 1992. As the objective to reduce populations and depredation problems was reached, all doe/fawn permits have been eliminated (Table 4). Specifically, in 1996, 3 doe/fawn hunts were eliminated (29-3, 29-4, and 37A-3) and doe/fawn permits were reduced in 2 hunts (36A-3 and 37-4), then eliminated in 1998. Any-antelope permits have remained unchanged. Mean horn lengths were above the 1991-1995 plan criterion of 12.0 inches in 5 hunts and below the criterion in 1 hunt (Table 5).

GROUP 3

Management Units 29 (Part), 30A

The total 1998 harvest was 54 pronghorn antelope, slightly down from the 1997 harvest. Sixteen females were harvested, up from the 1997 harvest of 12. Only the 1996 harvest of 11 females was lower in the past 3 decades. Any-antelope permits have remained unchanged since 1990 (Table 6). Mean horn lengths were below the 1991-1995 Plan criterion of 12 inches in 1 hunt and above criterion in the other hunt (Table 7). However, horn length is not a Plan criterion for Group 3 hunts since depredation control is one of the primary management considerations.

Table 1. Summary of pronghorn antelope harvest, Salmon Region, 1969-present.

Year	# Permits	Harvest			Male (%)	Success (%)
		Male	Female	Total		
1969	855	385	241	626	62	73
1970	855	414	232	646	64	76
1971	855	402	188	590	68	69
1972	885					
1973	875	353	204	557	63	64
1974	835	371	180	551	67	66
1975	765	296	157	453	65	59
1976	725	238	120	358	66	49
1977	610	260	111	371	70	61
1978	460	256	95	351	73	76
1979	445	270	88	358	75	80
1980	445	283	61	344	82	77
1981	495	350	53	403	87	81
1982	565	414	61	475	87	84
1983	670	469	89	558	84	83
1984	745	486	90	576	84	77
1985	745	426	137	563	76	76
1986	760	460	136	596	77	78
1987	760	435	153	588	74	77
1988	760	470	133	603	78	79
1989	968	464	309	773	60	80
1990	774	341	271	612	56	79
1991	995	429	373	802	53	81
1992	1,345	416	561	977	43	73
1993	1,345	372	499	871	43	65
1994	1,010	321	342	663	48	66
1995	915	286	200	486	59	53
1996	620	270	114	384	70	62
1997	620	240	107	347	69	56
1998	510	162	73	235	69	46

Table 2. Summary of pronghorn antelope harvest, Group 1, Salmon Region, 1969-present.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
21A-1	1969-1971 Closed						
	1972	15					
	1973	15	9	1	10	90	67
	1974	15	4	1	5	80	33
	1975	15	6	3	9	67	60
	1976	15	6	3	9	67	60
	1977-1983 Closed						
	1984	15	12	3	15	80	100
	1985	15	13	0	13	100	87
	1986	15	15	0	15	100	100
	1987	15	11	1	12	92	80
	1988	15	6	6	12	50	80
	1989	15	9	1	10	90	67
	1990	10	9	0	9	100	90
	1991	10	9	1	10	90	100
	1992	10	8	0	8	100	80
	1993	10	3	0	3	100	30
	1994	10	3	1	4	75	40
	1995	10	9	0	9	100	90
	1996	10	2	2	4	50	40
1997	10	7	0	7	100	70	
	1998 Closed						
21A-2	1990	6	0	4	4	0	67
	1991	10	0	7	7	0	70
	1992	20	0	11	11	0	55
	1993	20	0	12	12	0	60
	1994-1998 Closed						
36A-1	1983	50	17	8	25	68	50
	1984	50	16	6	22	73	44
	1985	25	9	1	10	90	40
	1986	15	8	2	10	80	67
	1987	15	5	1	6	83	40
	1988	15	8	1	9	89	60
	1989	15	8	2	10	80	67
	1990	15	8	0	8	100	53
	1991	15	8	3	11	73	73
	1992	15	13	0	13	100	87
	1993	15	4	4	8	50	53
	1994	15	8	2	10	80	67
	1995	15	6	3	9	67	60
	1996	15	4	1	5	80	33
1997	15	6	0	6	100	40	

Table 2. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
36B-1	1998	15	4	2	6	67	40
	1969	50	13	7	20	65	40
	1970	50	10	5	15	67	30
	1971	50	12	1	13	92	26
	1972	40					
	1973	30	1	2	3	33	10
	1974	30	5	3	8	63	27
	1975	30	5	4	9	56	30
	1976-1982	Closed					
	1983	30	28	0	28	100	93
	1984	50	38	3	41	93	82
	1985	50	31	6	37	84	74
	1986	50	32	10	42	76	84
	1987	50	27	11	38	71	76
	1988	50	33	4	37	89	74
	1989	50	32	9	41	78	82
	1990	25	12	6	18	67	72
	1991	25	20	1	21	95	84
	1992	25	15	1	16	94	64
	1993	25	18	1	19	95	76
1994	25	15	1	16	94	64	
1995	25	17	0	17	100	68	
1996	25	16	1	17	94	68	
1997	25	15	0	15	100	60	
1998	25	17	0	17	100	68	
36B-2	1990	9	3	5	8	38	89
	1991	10	1	3	4	25	40
	1992	25	0	13	13	0	52
	1993	25	0	11	11	0	44
	1994	25	0	9	9	0	36
	1995	25	0	9	9	0	36
	1996-1998	Closed					
37-1	1969	125	66	41	107	62	86
	1970	125	79	27	106	75	85
	1971	125	81	26	107	76	86
	1972	150					
	1973	150	70	41	111	63	74
	1974	175	98	30	128	77	73
	1975	175	74	43	117	63	67
	1976	175	60	28	88	68	50
	1977	175	76	39	115	66	66
	1978	175	98	37	135	73	77

Table 2. Continued.

37-3	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
	1979	100	63	18	81	78	81
	1980	100	58	15	73	79	73
	1981	100	64	7	71	90	71
	1982	75	59	8	67	88	89
	1983	75	46	12	58	79	77
	1984	50	29	7	36	81	72
	1985	75	48	10	58	83	77
	1986	75	55	8	63	87	84
	1987	75	55	15	70	79	93
	1988	75	63	3	66	95	88
	1989	100	73	8	81	90	81
	1990	75	39	17	56	70	75
	1991	75	63	6	69	91	92
	1992	75	58	5	63	92	84
	1993	75	48	11	59	81	79
	1994	75	50	11	61	82	81
	1995	75	43	8	51	84	68
	1996	75	43	6	49	88	65
	1997	75	33	9	42	79	56
	1998	75	21	13	34	62	45
	1990	18	2	14	16	13	89
	1991	75	2	39	41	5	55
	1992	100	0	69	69	0	69
	1993	100	2	49	51	4	51
	1994	75	1	35	36	3	48
	1995	75	1	19	20	5	27
	1996	25	0	10	10	0	40
	1997	25	0	14	14	0	56
	1998	Closed					

Table 3. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters by unit, Group 1, Salmon Region, 1991-present.

Hunt area	Year	Number permits	Number reports ^a	Mean maximum horn length
21A-1	1991	10	2	10.1
	1992	10	4	11.9
	1993	10	2	13.3
	1994	10	2	14.5
	1995	10	9	12.9
	1996	10	2	15.0
	1997	10	5	13.4
	1998	Closed		
36A-1	1991	15	6	13.2
	1992	15	8	13.2
	1993	15	3	12.9
	1994	15	5	12.4
	1995	15	5	11.8
	1996	15	3	10.0
	1997	15	4	13.4
	1998	15	4	11.5
36B-1	1991	25	13	12.5
	1992	25	9	11.9
	1993	25	13	11.4
	1994	25	13	11.5
	1995	25	12	14.3
	1996	25	11	13.4
	1997	25	9	12.4
	1998	25	11	13.4
37-1	1991	75	28	13.0
	1992	75	33	13.5
	1993	75	26	12.4
	1994	75	35	14.0
	1995	75	34	13.6
	1996	75	21	12.3
	1997	75	23	14.3
	1998	75	15	10.8

^a Information prior to 1994 was provided by hunter report cards; subsequent data collected through telephone survey.

Table 4. Summary of pronghorn antelope harvest, Group 2, Salmon Region, 1969-present.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)	
			Male	Female	Total			
29-1	1969	80	42	14	56	75	70	
	1970	80	46	15	61	75	76	
	1971	80	34	21	55	62	69	
	1972	80						
	1973	80	26	21	47	55	59	
	1974	80	27	13	40	68	50	
	1975	50	15	6	21	71	42	
	1976	15	7	1	8	88	53	
	1977	15	9	0	9	100	60	
	1978	15	8	5	13	62	87	
	1979-1982 Closed							
	1983	30	27	2	29	93	97	
	1984	50	36	1	37	97	74	
	1985	50	38	1	39	97	78	
	1986	75	45	16	61	74	81	
	1987	75	41	14	55	75	73	
	1988	75	47	17	64	73	85	
	1989	75	42	9	51	82	68	
	1990	50	27	7	34	79	68	
	1991	50	41	1	42	98	84	
	1992	50	29	7	36	81	72	
1993	50	34	4	38	89	76		
1994	50	29	7	36	81	72		
1995	50	27	4	31	87	62		
1996	50	26	5	31	84	62		
1997	50	12	8	20	60	40		
1998	50	9	5	14	64	28		
29-3	1989	24	0	24	24	0	100	
	1990	19	0	16	16	0	84	
	1991	25	0	22	22	0	88	
	1992	100	4	66	70	6	70	
	1993	100	7	42	49	14	49	
	1994	50	1	25	26	4	52	
	1995	25	0	13	13	0	52	
1996-1998 Closed								
30-1	1969	125	63	33	96	66	77	
	1970	125	57	40	97	59	78	
	1971	125	51	24	75	68	60	
	1972	125						
	1973	125	31	30	61	51	49	
	1974	35	13	4	17	76	49	
	1975	20	8	8	16	50	80	

Table 4. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
	1976	20	10	1	11	91	55
	1977	20	11	2	13	85	65
	1978	20	13	4	17	76	85
	1979	20	9	2	11	82	55
	1980	20	15	2	17	88	85
	1981	20	17	2	19	89	95
	1982	40	32	1	33	97	83
	1983	60	33	18	51	65	85
	1984	80	59	4	63	94	79
	1985	80	46	13	59	78	74
	1986	80	43	15	58	74	73
	1987	80	36	29	65	55	81
	1988	80	46	16	62	74	78
	1989	60	25	22	47	53	78
	1990	30	25	1	26	96	87
	1991	30	18	8	26	69	87
	1992	30	24	1	25	96	83
	1993	30	22	1	23	96	77
	1994	30	25	0	25	100	83
	1995	30	22	3	25	88	83
	1996	30	21	6	27	78	90
	1997	30	22	1	23	96	77
	1998	30	26	2	28	93	93
30-2	1989	52	0	43	43	0	83
	1990	34	0	32	32	0	94
	1991	40	2	26	28	7	70
	1992	100	6	65	71	8	71
	1993	100	2	62	64	3	64
	1994	50	4	27	31	13	62
	1995	25	1	15	16	6	64
	1996-1998	Closed					
36A	1969	50	27	9	36	75	72
	1970	50	25	13	38	66	76
	1971	50	29	12	41	71	82
	1972	50					
	1973	50	31	9	40	78	80
	1974	100	50	22	72	69	72
	1975	100	50	17	67	75	67
	1976	150	42	29	71	59	47
	1977	50	23	8	31	74	62
	1978	Closed					
	1979	25	19	0	19	100	76

Table 4. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
36A-2	1980	25	13	4	17	76	68
	1981	50	34	3	37	92	74
	1982	50	25	5	30	83	60
	1983	25	23	1	24	96	96
	1984	50	38	5	43	88	86
	1985	50	37	8	45	82	90
	1986	50	44	2	46	96	92
	1987	50	32	6	38	84	76
	1988	50	43	3	46	93	92
	1989	50	40	5	45	89	90
	1990	50	36	5	41	88	82
	1991	50	42	3	45	93	90
	1992	50	44	0	44	100	88
	1993	50	34	4	38	89	76
	1994	50	32	3	35	91	70
	1995	50	23	4	27	85	54
	1996	50	12	4	16	75	32
1997	50	21	6	27	78	54	
1998	50	12	4	16	75	32	
36A-3	1989	50	3	47	50	6	100
	1990	47	3	41	44	7	94
	1991	75	0	51	51	0	68
	1992	100	7	58	65	11	65
	1993	100	0	55	55	0	55
	1994	50	0	17	17	0	34
	1995	50	0	18	18	0	36
	1996	25	0	8	8	0	32
1997	25	0	10	10	0	40	
37-2	1998	Closed					
	1969	225	100	63	163	61	72
	1970	225	112	66	178	63	79
	1971	225	106	51	157	68	70
	1972	225					
	1973	225	96	51	147	65	65
	1974	150	73	33	106	69	71
	1975	150	57	39	96	59	64
	1976	150	37	23	60	62	40
	1977	150	56	31	87	64	58
	1978	50	26	7	33	79	66
	1979	75	45	17	62	73	83
	1980	75	51	6	57	89	76
	1981	75	58	7	65	89	87

Table 4. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
	1982	100	85	9	94	90	94
	1983	100	80	14	94	85	94
	1984	100	70	19	89	79	89
	1985	100	58	14	72	81	72
	1986	100	70	13	83	84	83
	1987	100	75	18	93	81	93
	1988	100	85	9	94	90	94
	1989	125	84	25	109	77	87
	1990	100	74	13	87	85	87
	1991	100	84	11	95	88	95
	1992	100	91	2	93	98	93
	1993	100	84	5	89	94	89
	1994	100	71	14	85	84	85
	1995	100	57	9	66	86	66
	1996	100	70	15	85	82	85
	1997	100	49	14	63	78	63
	1998	100	20	15	35	57	35
37-4	1990	45	4	39	43	9	96
	1991	100	4	86	90	4	90
	1992	125	0	91	91	0	73
	1993	125	2	82	84	2	67
	1994	100	0	82	82	0	82
	1995	100	2	37	39	5	39
	1996	50	2	34	36	6	72
	1997	50	0	24	24	0	48
	1998	Closed					
37A	1974	50	19	15	34	56	68
	1975	50	21	9	30	70	60
	1976	50	17	6	23	74	46
	1977	50	20	9	29	69	58
	1978	50	27	6	33	82	66
	1979	75	36	28	64	56	85
	1980	75	55	8	63	87	84
	1981	75	51	13	64	80	85
	1982	75	51	9	60	85	80
	1983	75	59	3	62	95	83
37A-1	1984	50	24	9	33	73	66
	1985	50	24	13	37	65	74
	1986	50	36	8	44	82	88
	1987	50	29	5	34	85	68
	1988	50	27	13	40	68	80
	1989	50	32	6	38	84	76

Table 4. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
37A-2	1990	50	31	4	35	89	70
	1991	50	44	5	49	90	98
	1992	50	25	8	33	76	66
	1993	50	25	8	33	76	66
	1994	50	17	9	26	65	52
	1995	50	19	3	22	86	44
	1996	50	20	6	26	77	52
	1997	50	14	5	19	74	38
	1998	50	15	7	22	68	44
	1984	25	17	3	20	85	80
	1985	25	15	6	21	71	84
	1986	25	15	2	17	88	68
	1987	25	19	1	20	95	80
	1988	25	13	4	17	76	68
	1989	25	12	3	15	80	60
	1990	25	16	6	22	73	88
	1991	25	21	3	24	88	96
	1992	25	14	1	15	93	60
	1993	25	16	6	22	73	88
	1994	25	13	2	15	87	60
37A-3	1995	25	9	2	11	82	44
	1996	25	6	5	11	55	44
	1997	25	10	4	14	71	56
	1998	25	1	6	7	14	28
	1990	2	0	2	2	0	100
	1991	50	7	20	27	26	54
	1992	50	0	22	22	0	44
	1993	50	4	29	33	12	66
	1994	50	0	28	28	0	56
	1995	50	0	18	18	0	36
37A-4	1996-1998 Closed						
	1990	13	0	9	9	0	69
	1991	25	0	22	22	0	88
	1992	25	3	12	15	20	60
	1993	25	0	8	8	0	32
1994 Combined with 37A-3							

Table 5. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters by unit, Group 2, Salmon Region, 1991-present.

Hunt area	Year	Number permits	Number reports ^a	Mean maximum horn length
29-1	1991	50	20	10.8
	1992	50	14	10.4
	1993	50	15	12.5
	1994	50	22	14.0
	1995	50	23	12.0
	1996	50	15	11.5
	1997	50	8	10.4
	1998	50	7	12.1
30-1	1991	30	15	12.1
	1992	30	13	12.8
	1993	30	16	12.3
	1994	30	16	12.7
	1995	30	17	13.1
	1996	30	15	11.0
	1997	30	20	12.0
	1998	30	17	12.0
36A-2	1991	50	21	12.0
	1992	50	16	13.2
	1993	50	9	13.5
	1994	50	23	13.0
	1995	50	20	12.3
	1996	50	7	11.1
	1997	50	17	13.4
	1998	50	9	13.8
37-2	1991	100	40	14.2
	1992	100	42	12.4
	1993	100	30	11.9
	1994	100	40	13.2
	1995	100	32	12.3
	1996	100	28	10.3
	1997	100	27	12.4
	1998	100	12	11.8
37A-1	1991	50	18	12.5
	1992	50	15	10.5
	1993	50	9	11.8
	1994	50	13	11.5
	1995	50	17	12.4
	1996	50	12	11.5
	1997	50	9	12.6
	1998	50	10	12.2

Table 5. Continued.

Hunt area	Year	Number permits	Number reports ^a	Mean maximum horn length
37A-2	1991	25	12	12.3
	1992	25	10	10.9
	1993	25	9	12.7
	1994	25	12	10.7
	1995	25	7	10.9
	1996	25	4	13.3
	1997	25	8	10.8
	1998	25	1	12.0

^a Information prior to 1994 was provided by hunter report cards; subsequent data collected through telephone survey.

Table 6. Summary of pronghorn antelope harvest, Group 3, Salmon Region, 1969-present.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
29-2	1969	100	30	37	67	45	67
	1970	100	39	31	70	56	70
	1971	100	43	31	74	58	74
	1972	100					
	1973	100	45	21	66	68	66
	1974	100	37	29	66	56	66
	1975	75	24	11	35	69	47
	1976	50	17	11	28	61	56
	1977	50	30	4	34	88	68
	1978	50	34	5	39	87	78
	1979	50	23	18	41	56	82
	1980	50	34	4	38	89	76
	1981	75	64	2	66	97	88
	1982	125	86	16	102	84	82
	1983	125	89	21	110	81	88
	1984	125	87	18	105	83	84
	1985	125	57	39	96	59	77
	1986	125	50	38	88	57	70
	1987	125	54	30	84	64	67
	1988	125	66	25	91	73	73
	1989	100	57	17	74	77	74
	1990	50	27	9	36	75	72
	1991	50	37	5	42	88	84
	1992	50	36	8	44	82	88
	1993	50	38	5	43	88	86
	1994	50	30	8	38	79	76
	1995	50	27	9	36	75	72
	1996	50	28	7	35	80	70
	1997	50	28	8	36	78	72
	1998	50	15	13	28	54	56
29-4	1989	39	0	26	26	0	67
	1990	19	1	13	14	7	74
	1991	25	0	18	18	0	72
	1992	100	10	66	76	13	76
	1993	100	0	67	67	0	67
	1994	50	0	36	36	0	72
	1995	25	0	13	13	0	52
	1996-1998	Closed					
30A-1	1969	100	44	37	81	54	81
	1970	100	46	35	81	57	81
	1971	100	46	22	68	68	68
	1972	100					

Table 6. Continued.

Hunt area	Year	# Permits	Harvest			Male (%)	Success (%)
			Male	Female	Total		
	1973	100	44	28	71	62	71
	1974	100	45	30	75	60	75
	1975	100	36	17	53	68	53
	1976	100	42	18	60	70	60
	1977	100	35	18	53	66	53
	1978	100	50	31	81	62	81
	1979	100	75	5	80	94	80
	1980	100	57	22	79	72	79
	1981	100	62	19	81	77	81
	1982	100	76	13	89	85	89
	1983	100	67	10	77	87	77
	1984	100	60	12	72	83	72
	1985	100	50	26	76	66	76
	1986	100	47	22	69	68	69
	1987	100	51	22	73	70	73
	1988	100	33	32	65	51	65
	1989	80	47	14	61	77	76
	1990	40	20	6	26	77	65
	1991	40	26	3	29	90	73
	1992	40	27	6	33	82	83
	1993	40	29	1	30	97	75
	1994	40	21	9	30	70	75
	1995	40	22	8	30	73	75
	1996	40	20	4	24	83	60
	1997	40	23	4	27	85	68
	1998	40	22	3	25	88	63
30A-2	1989	58	0	48	48	0	83
	1990	42	4	22	26	15	62
	1991	40	0	29	29	0	73
	1992	80	2	49	51	4	64
	1993	80	0	32	32	0	40
	1994	40	1	16	17	6	43
	1995	20	1	5	6	17	30
	1996-1998 Closed						

Table 7. Summary of mean maximum male horn length reported by successful pronghorn antelope hunters by unit, Group 3, Salmon Region, 1991-present.

Hunt area	Year	Number permits	Number reports ^a	Mean maximum horn length
29-2	1991	50	21	11.8
	1992	50	25	10.8
	1993	50	17	11.1
	1994	50	26	12.8
	1995	50	23	12.2
	1996	50	17	11.1
	1997	50	21	11.2
	1998	50	13	10.2
30A-1	1991	40	16	11.7
	1992	40	22	10.8
	1993	40	15	11.2
	1994	40	16	12.1
	1995	40	19	10.1
	1996	40	13	11.6
	1997	40	20	11.7
	1998	40	15	12.3

^a Information prior to 1994 was provided by hunter report cards; subsequent data collected through telephone survey.

APPENDIX I

1998 Idaho Antelope Season Structure

1998 ANTELOPE HUNTING SEASONS



Doe or fawn only: Only antelope without a black "cheek patch" or with horns less than 3 inches long may be taken during doe or fawn only antelope seasons.

Antelope archery tags may be purchased for use in any archery antelope hunt. Controlled hunt permits and tags issued for antelope controlled hunts may be used only in the hunt for which the permittee was drawn.

Any person who purchases an archery antelope tag who is subsequently drawn for a controlled hunt must return the unused archery tag to a Department office to exchange the tag for a controlled hunt tag at a cost of \$3.50.

Any person who receives a controlled hunt permit and tag for antelope is prohibited from hunting in any general season archery antelope hunt.

Attention Antelope Archery Hunters!

Don't give your sport a black eye. Did you know that leaving blind material is considered littering? And, digging pits on federal land is a violation of federal law? For information on how to construct a legal blind, contact your local Bureau of Land Management office.

EVIDENCE OF SEX

See page 12.

GENERAL ANTELOPE ARCHERY SEASONS

(Either sex may be taken)

Unit(s)	1998 SEASON DATES
21A, 28, 29, 30, 30A, 36, 36A, 36B, 37, 37A, 40, 41, 42, 46, 47, 49, 50, 51, 53, 58, 59, 59A, 60, 60A, 61, 63 (that portion south of Highway 33), 68	Aug 15 - Sept 15

1998 EITHER SEX ANTELOPE CONTROLLED HUNTS (2,110 Permits)

Hunt No.	Season Dates	Notes	Controlled Hunt Area	Permits
4001	Sept 25 - Oct 24		29-1	50
4002	Sept 25 - Oct 24		29-2	50
4003	Sept 25 - Oct 24		30	30
4004	Sept 25 - Oct 24		30A	40
4005	Sept 25 - Oct 24		36A-1	15
4006	Sept 25 - Oct 24		36A-2	50
4007	Sept 25 - Oct 24		36B*	25
4008	Sept 25 - Oct 24		37-1	75
4009	Sept 25 - Oct 24		37-2	100
4010	Sept 25 - Oct 24		37A-1	50
4011	Sept 25 - Oct 24		37A-2*	25
4012	Sept 25 - Oct 24		39	10
4013	Sept 25 - Oct 24		40	150
4014	Sept 25 - Oct 24		42*	200
4015	Sept 25 - Oct 24		44*	40
4016	Sept 25 - Oct 24		46-1	60
4017	Sept 25 - Oct 24		49*	50
4018	Sept 25 - Oct 24		50-1	100
4019	Sept 25 - Oct 24		50-2	50
4020	Sept 25 - Oct 24		50-3	30
4021	Sept 25 - Oct 24		51-1	75

1998 EITHER SEX ANTELOPE CONTROLLED HUNTS - CONTINUED

Hunt No.	Season Dates	Notes	Controlled Hunt Area	Permits
4022	Sept 25 - Oct 24		51-2*	50
4023	Oct 25 - Nov 30		51-3*	50
4024	Sept 25 - Oct 24		53	30
4025	Sept 25 - Oct 24		54	10
4026	Sept 25 - Oct 24		57*	5
4027	Sept 25 - Oct 24		58	50
4028	Sept 25 - Oct 24		59*	100
4029	Sept 25 - Oct 24		60A*	50
4030	Sept 25 - Oct 24		63-1	50
4031	Sept 25 - Oct 24		68	50

Notes:

* — See antelope controlled hunt area descriptions. This area includes other units or parts of other units.

1998 DOE OR FAWN ANTELOPE CONTROLLED HUNTS

Hunt No.	Season Dates	Notes	Controlled Hunt Area	Permits
4032	Oct 5 - Oct 24		46-2	100

1998 EITHER SEX ANTELOPE MUZZLELOADER CONTROLLED HUNTS

Hunt No.	Season Dates	Notes	Controlled Hunt Area	Permits
4033	Sept 25 - Oct 24		41	25
4034	Sept 25 - Oct 24		47	40
4035	Aug 1 - Oct 24		63-2	175

1998 EITHER SEX ANTELOPE SHORT-RANGE WEAPON CONTROLLED HUNTS

Hunt No.	Season Dates	Notes	Controlled Hunt Area	Permits
4036	Sept 25 - Oct 24	Limited Access	61	50

ANTELOPE CONTROLLED HUNT AREA DESCRIPTIONS

Hunt Area 29-1 — That portion of Unit 29 downstream from and including the Hayden Creek drainage on the west side of the Lemhi River and those drainages on the east side of the main Salmon River upstream from the mouth of the Lemhi River to, but excluding, the Poison Creek drainage.

Hunt Area 29-2 — That portion of Unit 29 upstream from, but excluding, the Hayden Creek drainage on the west side of the Lemhi River.

Hunt Area 30 — All of Unit 30.

Hunt Area 30A — All of Unit 30A.

Hunt Area 36A-1 — That portion of Unit 36A west of the East Fork of the Salmon River.

Hunt Area 36A-2 — That portion of Unit 36A east of the East Fork of the Salmon River.

Hunt Area 36B — All of Unit 36B, and that portion of Unit 28 upstream from and including the Iron Creek drainage.

Hunt Area 37-1 — That portion of Unit 37 south of the Doublespring Pass-Goldburg Road.

Hunt Area 37-2 — That portion of Unit 37 north of the Doublespring Pass-Goldburg Road.

Hunt Area 37A-1 — That portion of Unit 37A east of the (Little) Morgan Creek Road and the north fork of (Little) Morgan Creek.

Hunt Area 37A-2 — That portion of Unit 37A west of the (Little) Morgan Creek Road and the North Fork of (Little) Morgan Creek, and that portion of Unit 29 in the Poison Creek drainage.

Hunt Area 39 — All of Unit 39.

Hunt Area 40 — All of Unit 40.

Hunt Area 41 — That portion of Unit 41 east of State Highway 51.

Hunt Area 42 — That portion of Unit 41 west of State Highway 51 and all of Unit 42.

Hunt Area 44 — All of Unit 44 and that portion of Unit 45 within the Camas Creek drainage.

Hunt Areas 46-1 and 46-2 — All of Unit 46.

Hunt Area 47 — All of Unit 47.

Hunt Area 49 — All of Unit 49 and that portion of Unit 50 in the Copper Creek and Cottonwood Creek drainages west of the Craters of the Moon National Monument.

Hunt Area 50-1 — That portion of Unit 50 north of Antelope Creek and west of U.S. 93.

Hunt Area 50-2 — That portion of Unit 50 southeast of Antelope and Pass creeks but EXCLUDING the Copper Creek and Cottonwood Creek drainages west of Craters of the Moon National Monument.

Hunt Area 50-3 — That portion of Unit 50 north of Pass Creek and east of U.S. 93.

Hunt Area 51-1 — That portion of Unit 51 north of Badger Creek Road and north of the Wet Creek-Pass Creek Road.

Hunt Areas 51-2 and 51-3 — That portion of Unit 51 south of Badger Creek Road and south of the Wet Creek-Pass Creek Road and that portion of Unit 63 within Butte County including that portion of this hunt area within one-half mile inside the boundary of the Idaho National Engineering and Environmental Laboratory (INEEL) adjacent to agricultural lands.

Hunt Area 53 — All of Unit 53.

Hunt Area 54 — All of Unit 54.

Hunt Area 57 — All of Unit 57 and that portion of Unit 56 west of Interstate 84.

Hunt Area 58 — All of Unit 58 outside the Idaho National Engineering and Environmental Laboratory (INEEL) boundary.

Hunt Area 59 — All of Units 59 and 59A.

Hunt Area 60A — All of Units 60 and 60A, and that portion of Unit 61 west of Hotel Creek.

Hunt Area 61 — That portion of Unit 61 east of Hotel Creek.

Hunt Area 63-1 — That portion of Unit 63 south of state Highway 33, and including that portion of this hunt area within one-half mile inside the boundary of the Idaho National Engineering and Environmental Laboratory (INEEL) and which is adjacent to agricultural lands.

Hunt Area 63-2 — That portion of Unit 63 north of state Highway 33 and including that portion of this hunt area within one-half mile inside the boundary of the Idaho National Engineering and Environmental Laboratory (INEEL) and which is adjacent to agricultural lands, EXCLUDING the Camas National Wildlife Refuge which is CLOSED.

Hunt Area 68 — All of Unit 68.

Submitted by:

Lou Nelson
Regional Wildlife Manager

Randall Smith
Regional Wildlife Manager

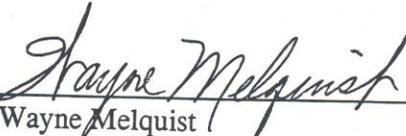
Carl Anderson
Regional Wildlife Manager

Justin Naderman
Regional Wildlife Biologist

Mike Scott
Regional Wildlife Manager

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME



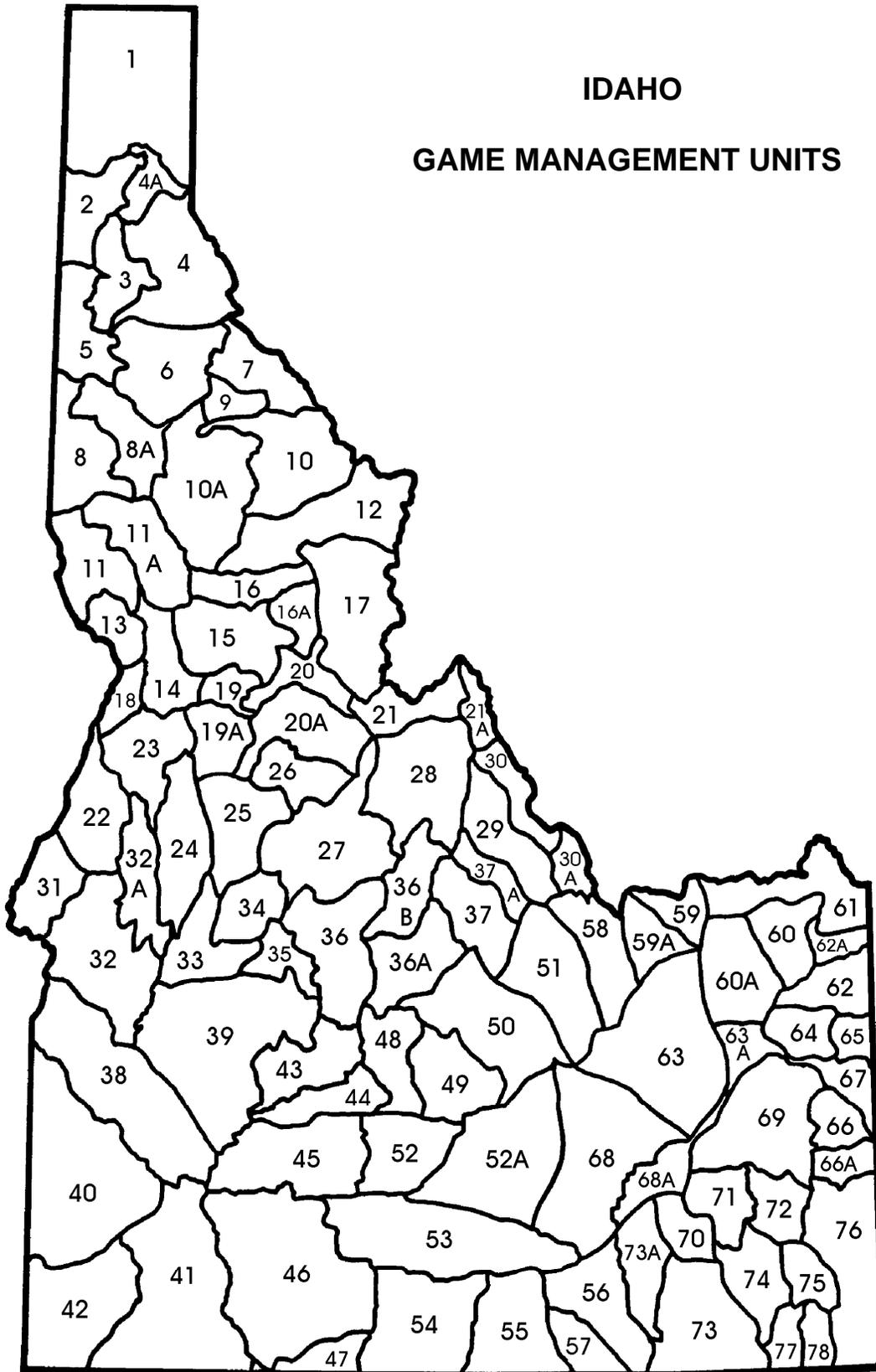
Wayne Melquist
Nongame Wildlife Manager
Federal Aid Coordinator



Tom Parker, Acting Chief
Bureau of Wildlife

IDAHO

GAME MANAGEMENT UNITS



FEDERAL AID IN WILDLIFE RESTORATION

The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sale of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program then allots the funds back to states through a formula based on each state's geographic area and the number of paid hunting license holders in the state. The Idaho Department of Fish and Game uses the funds to help restore, conserve, manage, and enhance wild birds and mammals for the public benefit. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes necessary to be responsible, ethical hunters. Seventy-five percent of the funds for this project are from Federal Aid. The other 25% comes from license-generated funds.

