IDAHO DEPARTMENT OF FISH AND GAME

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Project W-170-R-23

Progress Report

ELK

Study I, Jobs 1, 2, and 3

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PROGRESS REPORT
SURVEYS AND INVENTORIES

STATE:	Idaho	**JOB TITLE:**	Elk Surveys and Inventories
PROJECT:	W-170-R-23		
SUBPROJECT:	1-7	**STUDY NAME:**	Big Game Population Status, Trends, Use, and Associated Habitat Studies
STUDY:	I		
JOB:	1		

PERIOD COVERED: July 1, 1998 to June 30, 1999

ELK

Overview

Rocky mountain elk are Idaho's premier big game animal. Elk are distributed throughout Idaho from the sage-dominated deserts of the south to the dense cedar-hemlock forests of the north. Elk can be classified as habitat generalists, but it must be recognized they have certain basic habitat requirements. These include food, water, and, where hunted, hiding cover and security areas (blocks of elk habitat with limited access). Availability and distribution of these habitat components on each seasonal range ultimately determine the distribution and numbers of elk that may be supported.

Elk hunter numbers have increased in Idaho as populations have increased. However, total pressure on the resource has dramatically increased. Human development has reduced available habitat on winter ranges and increased access into elk habitat, technological developments, and increased availability of leisure time have all contributed to increased hunting pressure on elk.

Access into elk habitat is a primary problem facing wildlife managers today. Roads built into elk habitat for timber management and other activities will increase hunter access, and often increase elk vulnerability to harvest. As a general rule, the problem is one of access; that is, of increasing the number of people in elk habitat. The effects of roads, apart from people, are mixed. On the negative side, elk may vacate otherwise suitable habitats to avoid human activity; the period of time before elk return to such areas depends on the severity and duration of the disturbance but may extend several years. Elk habitat is reduced not only by the amount of land taken by the roads themselves, but also because elk tend to avoid areas adjacent to such roads. On the positive side, timber harvest often associated with construction of roads may open "closed" stands of timber, creating additional forage for elk in some important winter ranges.

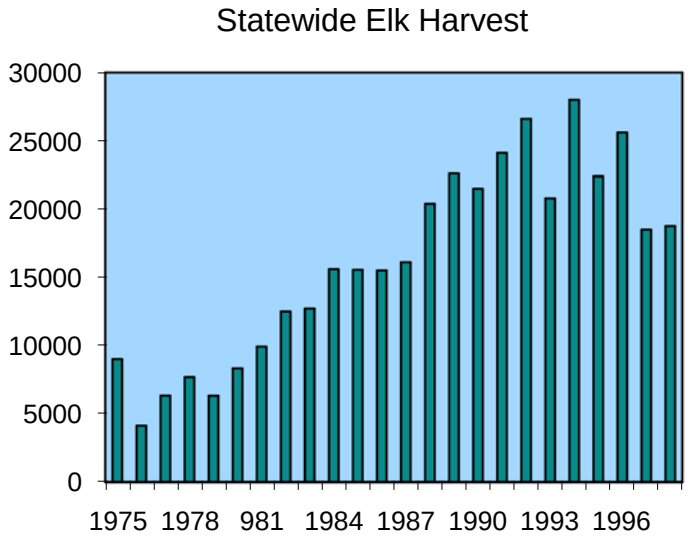
Although the trade-offs associated with road construction may vary with each individual situation, the increase in numbers of people associated with increased access is almost universally detrimental to elk. Elk move away from human disturbance whenever harassed, and elk that remain in logged and roaded areas are subject to more hunters over a longer period of time than elk that live in more secluded habitats.

Because human access into elk habitat is the primary problem associated with roads, perhaps the most critical habitat management factor facing wildlife managers is the use of roads. A comprehensive road management program, involving key elements including timing of construction activities, limitation on use of some roads for single-use only (i.e. timber removal), and complete or periodic closures of other roads to create large blocks of habitat with non-motorized access, could do much to benefit elk management.

Maintenance of the quality and quantity of habitat available to elk is crucial to their long-term survival. Many human activities destroy elk habitat, render portions unusable, decrease the ability of areas to support elk, or result in abandonment of certain areas completely. The Department has direct control over only a minuscule portion of elk habitat in Idaho (the majority of elk habitat is managed by other public agencies or private landowners), we must rely on others to consider, along with us, the biological needs of the elk resource to Idaho citizens in their management programs.

Unlike with deer, elk populations can generally be highly influenced by harvest. Most of the annual mortality of elk (1 year and older) is associated with human harvest. Proper harvest management is to establish population goals and establish harvest opportunities that are consistent with achieving or maintaining these population objectives. In this plan we establish objectives for wintering populations of cows, total bulls, and adult (3.5+ pre-season) bulls. The state has been divided into 28 elk management zones (grouping of units), dependent upon habitat similarity, management similarity, and/or discrete populations. Objectives have been established for each zone. The Idaho Fish and Game Commission adopted a statewide minimum objective of 10 adult bulls:100 cows pre-season. Total population objectives were chosen based on habitat potential, harvest opportunity, depredation concerns, interspecific issues, population performance issues, and winter feeding issues.

Monitoring population objectives will occur periodically (every 2-5 years) in most cases, and annually in some cases. In addition to these winter surveys, the Department will monitor harvest and antler point class in the harvest. Currently, the telephone harvest survey provides information regarding harvest. Beginning in 1998, a mandatory harvest report was implemented. Given adequate compliance, more precise information on harvest and antler point data will be available.



Overall, elk populations statewide are near all time highs. While localized impacts from the 1996/97 winter in north-central and north Idaho reduced populations, elk numbers throughout southern, eastern, and much of western Idaho have continued to increase over time.

Numerically, the state is at or near objectives for total cows, total bulls, and total adult bulls. However, individual zone objectives reflect the need for a distributional change in elk populations.

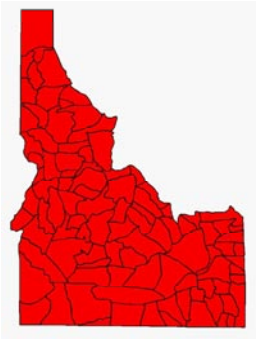
Calf:cow data collected during aerial surveys suggest declining recruitment ratios in many parts of Idaho. Declining recruitment rates can be explained by 2 possible hypothesis: 1) populations are at or near carrying capacity and density-dependent factors are regulating productivity, or 2) predation is playing a larger role in population dynamics than previously. Unfortunately, conclusive evidence does not exist as to which hypothesis is primarily affecting current population dynamics. Valid points can be made for either scenario.

Elk habitat in north-central Idaho was greatly improved during the early 1900s when extensive wildfires replaced heavily forested habitats with productive shrubfields. However, as these shrubfields have aged and conifer reestablishment has occurred, habitat potential has been reduced. Elk populations in these areas probably represent the longest established in the state and might be expected to show density-dependent effects first. In fact, populations in north-central Idaho generally have the lowest calf:cow ratios statewide. These observations are consistent with populations that are at or near carrying capacity.

Conversely, the primary potential predators of elk including black bears, mountain lions, and wolves have increased over the last couple of decades. Approximately 125 wolves are currently within the state after being reintroduced by the U.S. Fish and Wildlife Service. Although, not well understood, an increase in total predators could reduce recruitment rates. It should be noted that in parts of the state where elk herds are productive and increasing that they have similar densities of predators to those areas where elk herds are not productive and are declining.

The quandary exists as to which management action to apply to improve recruitment rates and thus harvestable surplus. If density-dependent factors are primarily responsible, reducing the total population will "stimulate" the population and the harvestable surplus will increase. However, if density-independent factors (i.e. predation) are primarily responsible, the appropriate action would be to minimize antlerless harvest. A better understanding of the potential factors affecting elk population dynamics is needed before confidence can be gained as to what the most appropriate management action is.

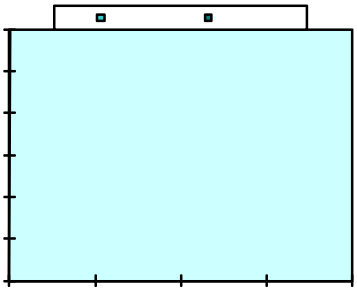
Elk Status & Objectives Statewide



Winter Status & Objectives

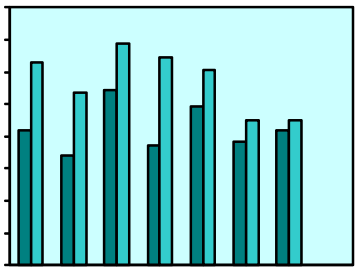
Statewide	Current Status				Objective		
	Cows	Calves	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
Total	(81,400)	(21,200)	(19,500)	(11,500)	82,500	19,500	11,500
Bulls per 100 Cows			(24)	(14)		18-24	10 - 14

Note : Estimates within parentheses are based on information other than sightability surveys.



Population Surveys

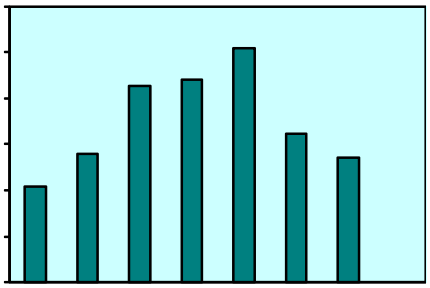
Statewide	Survey 1				Survey 2			
	Cows	Bulls	Calves	Total	Cows	Bulls	Calves	Total
Comparable Surveys Total	66,397	16,416	23,299	108,383	68,133	15,410	17,663	102,700
Per 100 Cows		25	36			23	26	

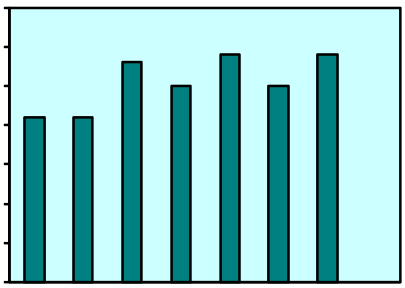


Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	8389	6846	10885	7432	9842	7659	8356
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	12601	10696	13774	12900	12100	9013	9036
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	85457	88982	96272	96997	100479	91168	88492
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	21	21	28	25	29	25	29

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





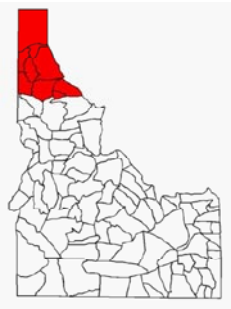
Elk

Panhandle Zone (Units 1, 2, 3, 4, 4A, 5, 6, 7, 9)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
1		(1250)	(450)	(125)	1300-1900	275-425	150-225
2		(125)	(75)	(25)	150-200	40-60	15-25
3		(450)	(125)	(50)	450-650	100-150	50-75
4	1997	2009	666	521	2900-3900	550-850	325-500
4A		(75)	(25)	(20)	75-125	20-30	10-20
5		(550)	(125)	(60)	400-600	75-125	50-75
6		(2500)	(800)	(250)	3300-4000	725-875	350-525
7	1998	1044	541	417	2300-2800	500-600	250-350
9	1998	598	108	72	500-700	100-150	50-75
Zone Total		**(8601)**	**(2915)**	**(1540)**	**11375-14875**	**2385-3265**	**1250-1870**
Bulls per 100 Cows			**(34)**	**(18)**		**18-24**	**10-14**

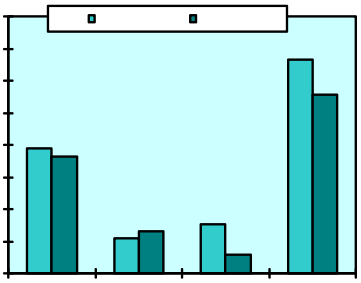
Note : Estimates within parentheses are based on information other than sightability surveys.



Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
1	ND					ND				
2	ND					ND				
3	1993	367	74	118	591	ND				
4	1991	2288	728	1019	4168	1997	2009	666	409	3097
4A	1994	121	17	36	174	ND				
5	ND					ND				
6	1993	1214	740	394	2465	ND				
7	1991	977	251	377	1605	1998	1044	541	150	1735
9	1990	626	130	136	895	1998	598	108	24	729
Trend Area		**3891**	**1109**	**1532**	**6668**		**3651**	**1315**	**583**	**5561**
Per 100 Cows			**29**	**39**				**36**	**16**	

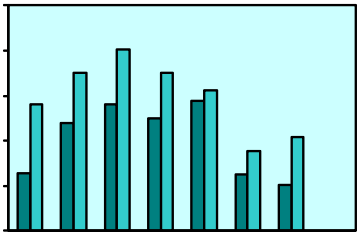
Note: ND = no survey data available.

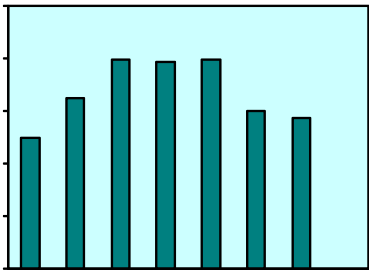


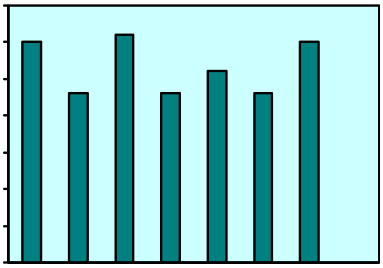
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	639	1193	1404	1251	1446	626	507
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	1408	1753	2014	1752	1558	889	1039
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	12459	16293	19951	19700	19921	14993	14379
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	30	23	31	23	26	23	30

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







PANHANDLE ZONE

Management Objectives

The objectives for the Panhandle Zone are to establish a population 13,125+ cows and 2,825+ bulls, including 1,560+ adult bulls at ratios of 18-24 bulls:100 cows and 10-14 adult bulls:100 cows. The zone is currently exceeding the objectives for total bulls and adult bulls per 100 cows. The severe winter of 1996/97 negatively impacted many of the elk herds in the Panhandle Zone. To meet the cow population numbers established as objectives will require antlerless harvest levels lower than those experienced in the zone in the recent past. Once the population objectives have been reached it would be appropriate to reevaluate them; given that population growth rates prior to 1996/97 suggest a higher population could be supported. Harvest information from the mandatory check was the primary tool used to determine current status and will be used with other information to monitor movement toward zone objectives.

Historical Perspective

The Panhandle Zone is a large and diverse zone consisting of Game Management Units 1, 2, 3, 4, 4A, 5, 6, 7 and 9. Traditionally, the majority of the elk habitat, elk numbers and elk hunting activity occurred in Units 4, 4A, 6, 7 and 9. These units are primarily composed of forested public lands and private timber companies and consistently record some of the highest hunter densities and elk harvest densities in the state. Expanding elk herds have recently increased hunter activities in Units 1, 2, 3 and 5, particularly in the agricultural areas of Units 3 and 5.

The Panhandle Region has essentially been managed as a "zone" since 1982 when the rest of the state eliminated general season cow harvest. The Panhandle "zone" maintained general either-sex hunting opportunities with fairly consistent hunting seasons across most of the game management units. A unique feature of the Panhandle Zone is a mandatory check of all elk harvested in the zone. This data base, in operation since 1982, provides valuable information relevant to the elk population.

Habitat Issues

Elk numbers were very low in the Panhandle Zone around the early 1900s. Major landscape changes occurred as a result of stand-replacing fires beginning in 1910. Vast areas of timber were transformed into brush fields and early successional timber stands that provided ideal conditions for elk. Additionally, elk were imported from Yellowstone National Park by sportsmen in the 1940s and released in Units 1, 4 and 6. Elk populations increased, with periodic set backs due to extreme winter conditions. The most recent impact to elk numbers in the Panhandle Zone occurred as a result of the severe winter of 1996/97. While it is generally accepted that habitat conditions in the core areas have declined from the optimum in the 1950s and 1960s, past timber harvest, prescribed burning and pioneering of elk into new areas will allow elk numbers to increase to pre-1997 levels and beyond. In the long term (the time frame is unknown) in the absence of large scale stand-replacing fire, elk habitat potential may decrease.

Much of the Panhandle Zone's forested habitat experienced extensive timber harvest during the 1980s and 1990s. While this high level of timber harvest created additional elk forage the more important impact was the construction of logging roads that allowed hunters easy access to elk and increased elk vulnerability. High road densities and threats to large areas of elk security continues to be a concern despite access management plans developed by land management agencies to address wildlife and watershed issues.

Elk depredations on crop lands are not a large problem and are normally handled by hazing and kill permits issued to the land owner. An occasional one-time depredation hunt will be conducted to alleviate a specific problem. Elk depredations on nursery orchards often occur, particularly at newly established sites. The high dollar-per-acre value of nursery crops requires quick effective action that has included construction of fencing, deployment of electronic scare devices and the use of guard dogs. Depredation hunts or increased general hunt harvest levels are not used to solve nursery depredations as the number of offending animals is usually low and nurseries are often located adjacent to elk habitat inhabited by non-offending animals.

Biological Issues

The elk populations in the core areas of this zone have shown slow, steady growth over the past 10 to 15 years. Elk numbers in the peripheral game management units (Units 1, 2, 3 and 5) have shown substantial growth and now support considerable elk hunting opportunities. Growth and expansion in the Panhandle Zone elk herd have continued while offering general either-sex hunting opportunities.

The severe winter of 1996/97 reduced herd numbers in much of the Panhandle Zone. Reductions were considerable in some units. Low calf and yearling numbers observed during the winter of 1997/98 indicate the reproductive potential of some herds, particularly Units 7 and 9, may be at reduced levels for several years. Adjustments in cow harvest opportunities were initiated for the 1998 season.

Interspecific Issues

Both white-tailed and mule deer occur in all areas of the zone. White-tailed deer are the predominant deer species and maintain high densities in the lower elevations of Units 1, 2, 3, 5 and 6. Mule deer numbers appear to be stable, at much lower densities than white-tails and are found most frequently in the higher elevations of Units 1, 4, 6, 7 and 9. The moose population in the Panhandle Zone has expanded considerably over the past decade with the highest densities occurring in Units 1 and 2. Competitive interactions may exist among deer, moose and elk. However, the form and extent of those relationships is presently unclear.

Predation Issues

Current harvest levels of black bear and mountain lion indicate that both species may be at or near the highest population levels experienced in the Panhandle Zone. Research conducted in adjacent areas of Idaho and other states indicates that bear and lion predation may have

significant impacts, particularly on elk calves. Wolves have recently established residency in the Panhandle Zone. The impacts of predation on elk numbers in the zone are unknown at this time.

Winter Feeding Issues

Winter feeding of elk in this zone is not conducted by the Department. Numerous private individuals feed small bands of elk annually. The Department provided a minimal amount of feed for individuals to feed small groups of elk during the winter of 1996/97. The impact was of no consequence to the elk herd in the Panhandle Zone.

Information Requirements

There are three levels of aerial survey information needed for management of the Panhandle Zone. The "Panhandle Region Trend Area" should be surveyed annually to determine population trends. Individual units should be surveyed on a rotational basis to develop population estimates and in the near future the units impacted hardest by the winter of 1996/97 should have herd composition counts conducted annually to monitor recruitment.

The mandatory check is needed to measure population performance across the entire zone relative to plan objectives.

Elk
Palouse Zone (Units 8, 8A, 11A)

Winter Status & Objectives

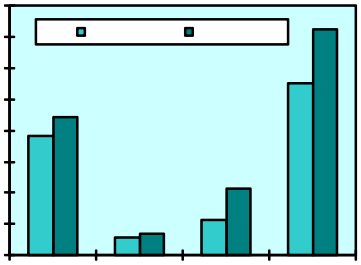
	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
8	1997	221	14	4	325 - 475	50 - 100	25 - 75
8A	1997	663	122	61	650 - 950	150 - 200	75 - 150
11A		(190)	(30)	(12)	100 - 150	20 - 30	10 - 20
Zone Total		**(1074)**	**(166)**	**(77)**	**1075 - 1575**	**220 - 330**	**110 - 245**
Bulls per 100 Cows			**(15)**	**(7)**		**18 - 24**	**10 - 14**

Note : Estimates within parentheses are based on information other than sightability surveys.

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
8	ND					1997	221	14	143	378
8A	1992	765	113	226	1104	1997	663	122	288	1076
11A	ND					ND				
Comparable Surveys Total		**765**	**113**	**226**	**1104**		**884**	**136**	**431**	**1454**
Per 100 Cows			**15**	**30**				**18**	**43**	

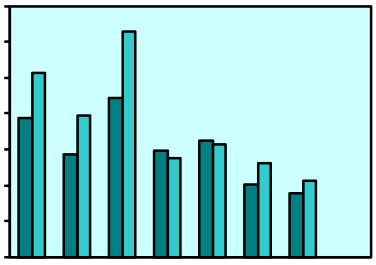
Note: ND = no survey data available.

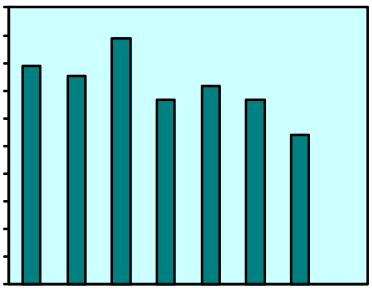


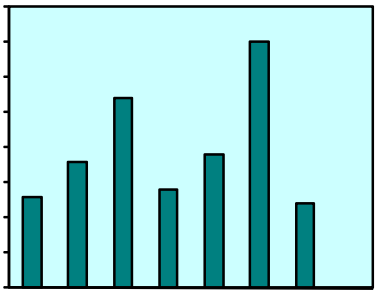
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	389	287	445	296	325	204	180
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	514	396	628	277	316	262	212
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	3946	3776	4435	3344	3592	3326	2703
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	13	18	27	14	19	35	12

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







PALOUSE ZONE

Management Objectives

The objectives in the Palouse Zone area are to establish a population of 1,325+ cows and 275+ bulls, including 180+ adult bulls at ratios of 18-24 bulls:100 cows and 10-14 adult bulls:100 cows. The objectives related to total population level (total elk numbers) were selected to represent a reasonable balance between depredation concerns, and the desire to provide a reasonably large elk population. The objective for the number of adult elk represents an 29% increase over current numbers, and likely also represents the maximum number of elk that could be sustained under the circumstances. Current (1998) antlerless harvest levels should allow the cow elk population to reach its objective within 5 years. However, a significant reduction in bull harvest will be required to achieve the bull and adult bull number and ratio objectives.

Historical Perspective

Historically, elk herds were scattered and numbers were low in this area. Few big game animals were found along the Clearwater River by Lewis and Clark in the early 1800s, probably due in part to the dense, unbroken canopy of forest that covered the entire area. Wildfires burned over vast expanses near the beginning of the 20th century, creating vast brushfields which provided abundant forage areas for elk. Elk numbers increased following creation of these brushfields, and elk numbers apparently peaked around 1950. Elk herds declined, however, through the latter part of that decade and the 1960s and 1970s, partially due to: 1)maturation of the brushfields and declines in forage availability; 2) logging and road-building activity that increased vulnerability of elk to hunters under the then more liberal hunting seasons; and 3) loss of some major winter ranges. In response to declines in elk numbers, an either-sex hunting regime was replaced in 1976 with an antlered-elk only general hunting season. Elk herds began rebuilding.

Habitat Issues

This zone contains portions of the highly productive Palouse and Camas prairies. Dryland agriculture began in this zone in the 1880s and, until the 1930s, large areas of native grassland existed to supply forage for the large numbers of horses and mules required to farm the area. With the development of the tractor, and subsequent improvements, farming efforts intensified as equipment became more capable of handling the steep, rolling hills. Currently, virtually all non-forested land is tilled, and only small, isolated patches of perennial vegetation remain, but these are regularly burned or treated with herbicides. Elk numbers have only recently increased to levels that have provided significant hunting opportunities. Farmland in Units 8 and 8A provides high quality elk forage, and as populations have grown, so have the number of depredations. Farmers recall few elk problems until the last decade or so. Elk currently cause damage to grain, legumes, rapeseed, canola, and hay crops throughout this zone. Most of the crop damage occurs during summer months. Damage to conifer seedlings caused by elk is a concern where reforestation projects occur on elk winter range. Late-season antlerless elk controlled hunts have been successful in controlling elk population growth and reducing the overall damage caused by elk.

Additionally, timber harvest in the corporate timber, private timber, state land, and federal land areas of Unit 8A increased dramatically through the 1980s and 1990s, mostly to capture white pine mortality, and respond to increased demand for timber products. This activity created vast acreages of early successional habitat, expanding elk habitat potential. Road construction associated with timber harvest is extensive in some areas. Road closures in some areas have significant potential to benefit elk through improved habitat effectiveness and reduced harvest vulnerability.

Biological Issues

Elk populations in this zone have increased over the last 30 years. Increased availability of agricultural crops, natural forage, brushfields, both on summer and winter range have led to increases in elk populations. Additionally, mild winters throughout the 1980s likely enhanced calf survival. To address increasing depredation problems during the last 10 years, liberal antlerless elk harvest opportunities have been offered.

More recent, and accurate information on population performance is limited to a single sightability survey in Unit 8 (1997) and two surveys in Unit 8A (1992, 1997). The trend between the Unit 8A surveys indicates a stable population (Growth in total numbers = -0.5%/Year), suggesting cow harvest levels in the zone have been at appropriate levels.

Elk productivity in this zone is very high with calf:cow ratios in the mid 40s or higher. This allows for liberal season length and harvest, and a resilient elk population.

Interspecific Issues

The zone supports a substantial population of white-tailed deer, while mule deer are rare. The zone moose population has expanded substantially over the past decade. Competitive interactions may exist among white-tailed deer, elk, and moose. However, the form and extent of those relationships is presently unclear.

Cattle grazing occurs on almost all of the available pasture ground and does pose some competitive concerns for elk, especially during drought years.

Predation Issues

Increasing lion harvest over the last few years likely reflects increased lion numbers in this zone. Bear numbers have probably remained static. Wolves have begun to establish themselves in the area, and apparently are preying mostly upon deer. At current levels, it is unlikely the existing wolf population has even a measurable effect on the elk population.

Winter Feeding Issues

Emergency winter feeding has not been conducted in the recent past.

Information Requirements

Sightability estimates are needed periodically to monitor progress toward achieving population objectives.

In addition, the information is valuable to assess population growth with respect to depredations and antlerless harvest levels. To achieve those objectives, Units 8 and 8A should be surveyed every 4 to 5 years.

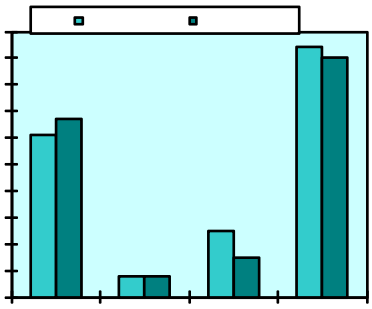
Elk
Dworshak Zone (Unit 10A)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
10A	1999	3355	385	261	2900 - 4300	600 - 900	350 - 500
Zone Total		**3355**	**385**	**261**	**2900 - 4300**	**600 - 900**	**350 - 500**
Bulls per 100 Cows			**12**	**8**		**18 - 24**	**10 - 14**

Population Surveys

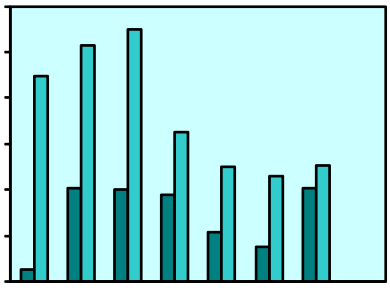
	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
10A	1992	3058	377	1253	4699	1999	3355	385	734	4503
Comparable Surveys Total		**3058**	**377**	**1253**	**4699**		**3355**	**385**	**734**	**4503**
Per 100 Cows			**12**	**41**				**12**	**22**	

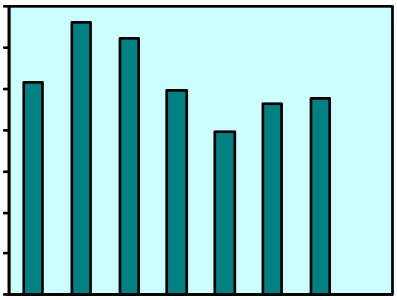


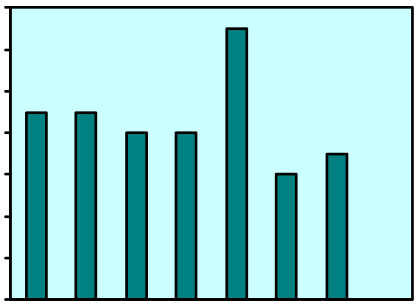
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	55	408	403	377	218	151	410
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	896	1028	1097	651	499	462	506
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	5160	6632	6252	4981	3979	4657	4790
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	9	9	8	8	13	6	7

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







DWORSHAK ZONE

Management Objectives

The objectives for the Dworshak Zone are to establish a population of 3,600+ cows and 750+ bulls, including 425+ adult bulls at ratios of 18-24 bulls:100 cows and 10-14 adult bulls:100 cows.

Some question exists regarding the current population size. The 1994 survey indicated an adult population of 3,615 cows and 411 bulls while the 1996 (most recent) survey indicated a population of 2,215 cows and 218 bulls. It is unlikely that such a dramatic decline occurred, although we strongly suspect that numbers have diminished, but to a lesser extent. Additionally, the severity of the 1996/97 winter may have caused some additional losses. The objective of 3,600 cows represents a level that could be achieved, with little cow harvest, under a worse case scenario and should be viewed only as a conservative, interim goal for the next 5 years. Subsequently, a more liberal population goal (over 3,600 cows) should be identified to exploit the full productive potential of Unit 10A. The bull objective represents a correspondingly conservative number that would be expected under a worse case scenario, and would correspond to the 18-24 bull:100 cow objective. Likewise, the goal for bull numbers is a conservative, interim number that should be increased after 5 years to fully exploit the potential of Unit 10A.

Despite the uncertainty, current antlerless harvest levels should allow the cow elk population to reach its objective, given the productive nature of the Unit 10A elk herd. This assumption will be evaluated closely with future aerial survey data. A significant reduction in bull harvest will be required to achieve the bull and adult bull number and ratio objectives. Bull elk have declined substantially, and continuously in Unit 10A (-15%/year). Although to some extent, the overall decline of elk in Unit 10A is questionable, the data indicate that bull elk have declined at a much more rapid rate (63% greater) than cow elk, and recent bull:cow ratios of 11:100 in 1994, and 10:100 in 1996 suggest that bull mortality is greatly excessive. Furthermore, a significant increase in general season bull hunters can be expected as a result of the Lolo Zone cap. As many as 2,500 to 3,000 hunters could be displaced from the Lolo Zone, and we anticipate that many will move to the Dworshak Zone.

Historical Perspective

Historically, elk herds were scattered and numbers were low in this area. Few big game animals were found along the Clearwater River by Lewis and Clark in the early 1800s, probably due in part to the dense, unbroken canopy of forest that covered the entire area. Wildfires burned over vast expanses near the beginning of the 20th century, creating vast brushfields which provided abundant forage areas for elk. Elk numbers increased following creation of these brushfields, and elk numbers apparently peaked around 1950. Elk herds declined into the 1970s, partially due to: 1)maturation of the brushfields and declines in forage availability; 2) logging and road-building activity that increased vulnerability of elk to hunters under the then more liberal hunting seasons; and 3) loss of some major winter ranges. In response to declines in elk numbers, an

either-sex hunting regime was replaced in 1976 with an antlered-elk only general hunting season. Elk herds began rebuilding.

Habitat issues

The Dworshak Zone consists of Unit 10A, which is three-quarters timberland and one fourth open or agricultural lands and is bisected by canyons leading to the Clearwater River. The first wave of timber harvest in this zone occurred during the early 1900s and consisted mostly of removing the most valuable timber species and largest trees. During the 1970s, timber harvest increased fairly dramatically, and new roads provided access to previously inaccessible areas. In 1971, Dworshak Reservoir flooded approximately 45 miles of North Fork Clearwater River corridor with slack water, and permanently removed thousands of acres of prime low elevation winter range for big game. Only a few hundred elk were observed wintering along the river under the predominantly old growth cedar hemlock forest during the early 1970s. The timberland is owned predominantly by Potlatch Corporation, IDL, and the USFS. Access is very good throughout the zone and timber harvest occurs on most available timber ground. High open and closed road densities contribute to high elk vulnerability and low habitat effectiveness. During the 1980s and 1990s timber harvest occurred on almost all available state and private land as timber demand and management of these lands intensified. Despite the reservoir, extensive logging along the river corridor improved winter range in this unit. South aspect forests were cleared to provide timber products and inadvertently provided quality winter range.

Depredations have increased on agricultural land within the past 10 years in this zone due to increases in both deer and elk populations and changes in land ownership that reduced hunting opportunities. Elk cause damage to grain, legumes, and hay crops within the south-central portion of this zone during summer months. Occasional damage to stored hay, silage, and winter wheat occurs during winters with heavy snow accumulation. Damage to conifer seedlings by elk is a concern in the remaining portions of this zone where reforestation projects overlap with elk winter range. Controlled antlerless elk seasons have been successful in reducing the overall damage in this zone. However, high harvest levels between 1992 and 1997, combined with the effects of the severe 1996/97 winter may have reduced the population well below desirable levels.

Biological Issues

Sightability survey data suggest the Unit 10A cow elk population increased from 1992 (3,058 cow elk) to 1993 (3,768), and then declined substantially to the most recent survey in 1996 (2,215). Differential migration patterns among various winters may account for some of the observed changes, especially the biologically impossible increase from 1992 to 1993, and the large decline to 1996. However, it is likely that the population was increasing and then declined to a significant extent. The decline can largely be attributed to the high harvest levels (13% cow harvest objective) implemented from 1992 through 1997 as part of the statewide optimum yield study. Regulation changes were implemented to reduce cow harvest levels by approximately « for the 1998 season.

The sightability survey data also indicate a significant rate of bull elk decline in Unit 10A (-15%/Year). Significant limits in hunting opportunity, such as a B-tag cap at a considerably reduced level, will be required to reverse that trend to bring bull numbers up to objectives.

The winter of 1996/97 was marked by severe conditions including extremely deep snow exceeding 200% of average snowpack in some areas. These conditions caused higher than normal winter mortality leading to a modest decrease in the Unit 15 population (-10%) and a dramatic decline in the Unit 10 population (-48%). Anecdotal information suggests a moderate decline may have occurred in Unit 10A. If so, additional reductions in cow and bull harvest levels will be necessary.

Calf recruitment is typically moderate to high in Unit 10A, allowing moderate to high elk harvest levels. Winter calf:cow ratios range from 30 to 40 calves:100 cows. The potential growth rate of this herd is likewise moderate to high.

Interspecific Issues

Unit 10A supports a substantial white-tailed deer population, few mule deer, and a small moose population. The white-tailed deer population increased dramatically over the past 20 years. Significant competitive interactions between white-tailed deer and elk may exist. However, the form and extent of those relationships is presently unclear.

Significant livestock grazing on rangeland in the southeastern portion of the zone impacts elk habitat potential. Most of that grazing occurs on habitats used exclusively during winter. Additionally, range allotments are present on USFS, IDL and Potlatch Corporation lands elsewhere in the zone on summer and winter habitat.

Predation Issues

Predator numbers, in particular lions, have increased in the last decade to high levels. Currently, more than 80 lions are harvested annually in this unit. This has increased from about 11 harvested during the winter of 1990-91. This is the only zone in the region that has had a continual increase in lion harvest since 1990. Black bear harvest has increased slowly until fairly recently when season changes reduced harvest. However, harvest has increased back to levels observed prior to those season changes. The increase in bear and lion populations may be adversely affecting elk population performance. However, there is inadequate information to objectively assess those potential impacts.

Wolves periodically use the meadow complexes in the Grangemont area during summer, and may exist elsewhere in the zone on a sporadic basis. Given their low numbers, it is unlikely that wolves presently have any significant impact on elk population performance.

Winter Feeding Issues

Emergency winter feeding has not been conducted in the recent past.

Information Requirements

Data from a sightability survey are need relatively soon to evaluate a potential population decline in Unit 10A. Subsequently, sightability surveys will be needed every 3 to 4 years to evaluate population performance relative to plan objectives.

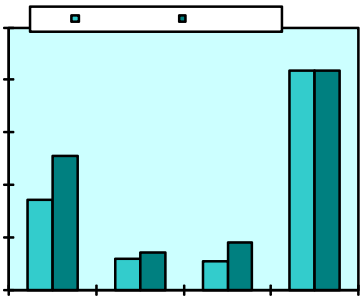
Elk
Hells Canyon Zone (Units 11, 13, 18)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
11	1996	392	88	65	600 - 900	150 - 250	100 - 150
13	1994	556	105	52	500 - 700	100 - 150	50 - 100
18	1992	330	166	117	500 - 700	150 - 225	100 - 150
Zone Total		**1278**	**359**	**234**	**1600 - 2300**	**400 - 625**	**250 - 400**
Bulls per 100 Cows			**28**	**18**		**25 - 29**	**14 - 18**

Population Surveys

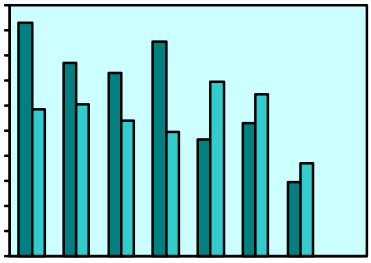
	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
11	1991	296	79	77	623	1996	392	88	143	623
13	1989	359	120	124	880	1994	556	105	219	880
18	1990	210	100	76	591	1992	330	166	95	591
Comparable Surveys Total		**865**	**299**	**277**	**2094**		**1278**	**359**	**457**	**2094**
Per 100 Cows			**35**	**32**				**28**	**36**	

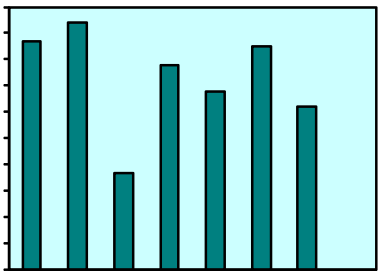


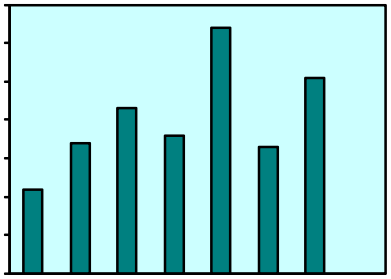
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	186	154	146	171	93	106	59
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	117	121	108	99	139	129	74
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	597	604	547	588	578	595	572
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	22	34	43	36	64	33	51

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







HELLS CANYON ZONE

Management Objectives

The objectives for the Hells Canyon Zone are to establish a population of 1,950+ cows and 525+ bulls, including 325+ adult bulls at ratios of 25-29 bulls:100 cows in Unit 11, 18-24 bulls:100 cows in Unit 13, and 30-34 bulls:100 cows in Unit 18. Current permit levels should allow the Unit 11 and Unit 13 elk populations to reach objectives. However, Unit 18 permit levels should be evaluated once additional harvest and survey data are available.

Historical Perspective

Historically, elk herds were scattered and numbers were low in this area. Few big game animals were found along the Clearwater River by Lewis and Clark in the early 1800s, probably due in part to the dense, unbroken canopy of forest that covered the entire area. Wildfires burned over vast expanses near the beginning of the 20th century, creating vast brushfields which provided abundant forage areas for elk. Elk production in areas adjacent to this unit increased around the turn of the century, and elk repopulated this zone by the 1960s. Elk herds declined into the 1970s, partially due to: 1)maturation of the brushfields and declines in forage availability; 2) logging and road-building activity that increased vulnerability of elk to hunters under the then more liberal hunting seasons; and 3) loss of some major winter ranges. In response to declines in elk numbers, an either-sex hunting regime was replaced in 1976 with an antlered-elk only general hunting season. Elk herds began rebuilding.

Habitat Issues

Habitat productivity varies widely throughout the zone with steep, dry, river canyon grasslands having low annual precipitation, to higher elevation forests having good habitat productivity and greater precipitation. Late successional forest cover types have become fragmented within the zone. Many grassland cover types have been invaded by various weeds and nonnative grasses including cheatgrass and yellow star thistle. Road density is moderate, and access is restricted in many areas. This results in medium to low vulnerability of big game to hunters.

Historically, the canyon lands in this zone were homesteaded by sheep and cattle ranchers, and miners, while prairie land was settled by farmers. Around the turn of the century, northern Unit 11 was under intensive use for dryland agriculture and fruit orchards. Many resort cabins were built near and around the town of Waha. Later, many cabins were built along the mail stage route from Lewiston to Cottonwood via Soldiers Meadows and Forest. A mill was built in Winchester and, along with numerous smaller mills on Craig Mountain, the forested portion of Craig Mountain was extensively logged. The forests were frequently high-graded, and the existing forests still show the scars. In addition, past improper grazing practices severely degraded many meadow areas and allowed invasion of noxious weed species on dryer sites.

This zone contains large tracts of both privately and publicly owned land. Unit 11 is mostly private land except for the Craig Mountain Wildlife Management Area (CMWMA) along the Snake and Salmon Rivers. CMWMA consists of two major units: the Billy Creek unit (16,123

acres) which was obtained between 1971 and 1983; and the Peter T. Johnson Mitigation area (59,991 acres), which was acquired in 1995 as partial mitigation for Dworshak Reservoir. Unit 13 has been mostly under private ownership since settlement, and is managed mostly for agriculture and livestock. Historically, sheep herders ran their flocks in the canyons of Unit 18, and some logging occurred in the forested areas of this unit. Unit 18 is two-thirds public land with the remaining private land located at lower elevations along the Salmon River. The majority of the Hells Canyon Wilderness Area, which was designated in 1975, is in Unit 18.

Depredations have increased during the past 10 years in this zone due to increases in white-tailed deer and elk populations. Elk cause damage to grain, legumes, hay, and rangeland forage. Cultivated crops are the primary concern in the north while livestock forage is the primary concern in the remaining portion of this zone. Controlled antlerless elk seasons have been successful in reducing the overall damage.

Biological Issues

Elk hunting in this zone is only offered on a controlled hunt basis. Across the zone, sightability survey data indicate that cow elk are increasing (+12.7%/year), bull elk are increasing (+7.4%/year), with a declining bull:cow ratio (-5%/year), and stable calf recruitment.

The controlled hunt in Unit 18 was changed in 1998 from 250 any-elk permits to 125 antlerless and 125 bull-only permits. This change will allow sex specific regulation of the harvest, providing the opportunity to more fully exploit the bull segment of the population while allowing cow elk numbers to increase. Once harvest data are collected from 2 to 3 hunting seasons to evaluate success rates and an additional sightability survey is conducted, it will be possible to refine those permit levels.

Interspecific Issues

Cattle grazing is gradually decreasing in the zone due to reductions in USFS and BLM allotments along with land ownership shifting from private to public. Mule deer populations have declined dramatically, possibly alleviating any competitive relationships that may have existed with elk, although it is doubtful that any such effects would be significant..

Predation Issues

Lion harvest has increased slightly in this zone in the last several decades, and currently harvest is about 35 lions per year. Bear populations may be somewhat stable, with harvest fluctuating about 10-20% per year, averaging about 60 bears per year. Wolves have not yet established themselves in this zone.

Winter Feeding Issues

Emergency winter feeding has not been conducted in the recent past.

Information Requirements

Sightability survey data are needed relatively soon from Unit 18 to evaluate the new sex specific permit levels. Sightability surveys will be needed every 4 to 5 years across the zone to evaluate population performance relative to plan objectives.

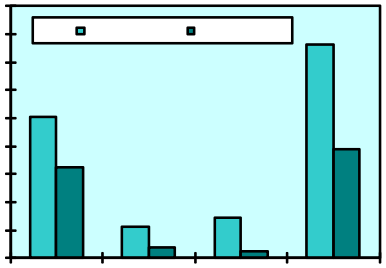
Elk
Lolo Zone (Units 10, 12)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
10	1998	4469	318	268	4200 - 6200	900 - 1300	500 - 750
12	1997	2060	425	327	1900 - 2900	400 - 600	225 - 350
Zone Total		**6529**	**743**	**595**	**6100 - 9100**	**1300 - 1900**	**725 - 1200**
Bulls per 100 Cows			**11**	**9**		**18 - 24**	**10 - 14**

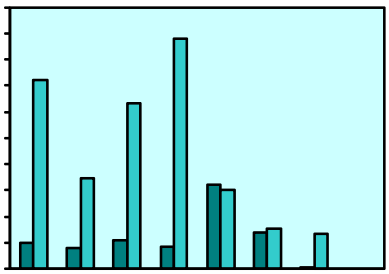
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
10	1989	7692	1516	2298	11507	1998	4469	318	252	5079
12	1989	2421	749	592	3763	1997	2060	425	181	2667
Comparable Surveys Total		**10113**	**2265**	**2890**	**15270**		**6529**	**743**	**433**	**7746**
Per 100 Cows			**22**	**29**				**11**	**7**	



Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	200	158	223	168	638	277	7
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	1447	697	1268	1759	599	309	270
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	6009	3476	5511	5134	4365	4281	1533
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	20	18	17	22	20	16	32



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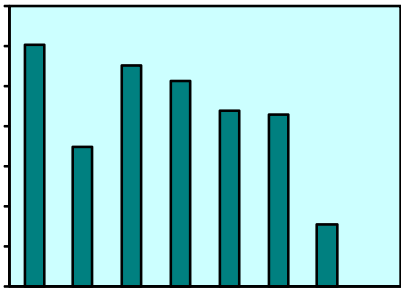
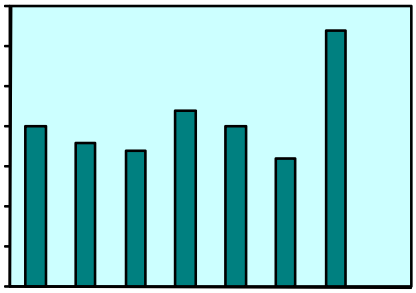




LOLO ZONE

Management Objectives

The objectives for the Lolo Zone are to establish a population of 7,600+ cows and 1,600+ bulls, including 975+ adult bulls at ratios of 18-24 bulls:100 cows and 10-14 adult bulls:100 cows.

Management of the Lolo Zone elk population, and setting appropriate population objectives, presents a serious quandary. Existing information suggests that both predation and density dependence (habitat limitations) could be causing low calf production/recruitment. If predation is the overwhelming factor, population goals should be set higher (e.g. 15,000 adult elk), and there should be little or no cow harvest. However, if density dependence is significant, goals should be set at a low level, and cow harvest should be at moderate levels (5-10%). Also, both factors may be contributing significantly, leading to some intermediate level of objectives. At present it is not possible to determine the relative contribution of those effects. In the absence of that knowledge, the objectives were set at intermediate levels.

If recruitment levels recover to some extent, the existing antlerless and bull-only harvest strategies, with the B-Tag cap of 1,600, should allow the zone to reach the bull, bull:cow ratio, and adult bull:cow ratio objectives. If calf recruitment recovered to pre-decline levels (30-40 calves:100 cows), B-Tags could be liberalized. However, if calf recruitment does not increase from its current level, further restrictions will be required.

Historical Perspective

Historically, elk herds were scattered and numbers were low in this area. Few big game animals were found along the Clearwater River by Lewis and Clark in the early 1800s, probably due in part to the dense, unbroken canopy of forest that covered the entire area. Wildfires burned over vast expanses near the beginning of the 20th century, creating vast brushfields which provided abundant forage areas for elk. Elk numbers increased following creation of these brushfields, and elk numbers apparently peaked around 1950. Elk herds declined into the 1970s, partially due to: 1)maturation of the brushfields and declines in forage availability; 2) logging and road-building activity that increased vulnerability of elk to hunters under the then more liberal hunting seasons; and 3) loss of some major winter ranges. In response to declines in elk numbers, an either-sex hunting regime was replaced in 1976 with an antlered-elk only general hunting season. Elk herds began rebuilding.

Habitat Issues

Land ownership within this zone is almost entirely publicly owned forest. The southern portion of the zone is within the Selway-Bitterroot Wilderness Area. Historically, habitat productivity was high in this zone. However, habitat productivity has decreased following decades of intensive fire suppression. Approximately one-third of the zone has good access for motorized vehicles with medium road densities. The remaining portion has low road densities with good trails contributing to medium to low big game vulnerability. Aside from damages to reforestation projects, there are no elk depredation concerns in this zone.

Until the 1930s, wildfires were the primary habitat disturbance mechanism in this zone. Between 1900 and 1934, approximately 70% of the Lochsa River drainage was burned by wildfires. Between 1926 and 1990, over 1,900 km of roads were built in this area to access marketable timber. State Highway 12 along the Lochsa River was completed in 1962 and became the primary travel corridor. In 1964, most of the southern portion of Unit 12 was designated as part of the Selway-Bitterroot Wilderness.

Biological Issues

Poor productivity since the late 1980s and winter losses in 1996/97 have contributed to dramatically decreasing elk herds within this zone. Across the history of sightability surveys (1985-present), cow elk declined 4%/year, bull elk declined 12%/year, the bull:cow ratio declined 8%/year, and calf recruitment (calf:cow ratio) declined 14%/year. The current population is well below objectives.

The winter of 1996/97 was marked by severe conditions including extremely deep snow exceeding 200% of average snowpack in some areas. These conditions apparently caused higher than normal winter mortality leading to a dramatic decline in the Unit 10 population (-48%). In addition, a survey was conducted in Unit 12 during the 1996/97 and those results suggested a 30% decline to that time. This data, in combination with overwhelming anecdotal information suggests that catastrophic winter losses occurred in Units 10 and 12.

Calf productivity and/or recruitment has declined substantially since the late 1980s. Prior to then, winter calf:cow ratios often exceeded 30:100 and occasionally exceeded 40:100. From 1989 to present, ratios have dwindled continuously down to levels below 10:100. This level of recruitment is inadequate to sustain natural mortality, in the absence of hunting.

Preliminary results from current research efforts suggest that both nutrition and predation may be potential causes of the low calf recruitment levels. Additional work, in an experimental framework is needed to determine the relative significance of those potential causes.

To address the low recruitment levels, declining bull numbers, and 1996/97 winter losses, the Department capped B-Tag numbers at 1,600, and closed cow elk controlled hunts beginning with the 1998 hunting season. The B-Tag cap represents a 60-65% reduction in any-bull rifle hunters. It is anticipated that if recruitment levels recover somewhat, the zone might reach objectives in 5 to 10 years under this management framework.

Interspecific Issues

Both units support small white-tailed deer populations, few mule deer, and moderate density moose populations. Moose have increased moderately over the past 20 years. Cattle grazing does occur to a limited extent in the northwestern corner of Unit 12 on a USFS allotment.

Predation Issues

Lion harvest in the Lolo Zone has been fairly stable over the last decade. However, it has increased since the 1970s. Harvest peaked at 54 during the season of 1993, and has decreased since then to about 35 for the last 3 years. Bear harvest has also remained somewhat stable through the last 2 decades averaging between 100 and 150 bears per year. Bear populations were probably somewhat stable over the last few decades, until recent, conservative regulation changes allowed expansion of bear populations.

A pack of 8 wolves has taken up residence in the Kelly Creek area. This area was previously occupied by a single wolf, and single wolves have resided in the area since the late 1970s. This zone is also an area in which grizzly bears will likely be reestablished in the next decade.

Winter Feeding Issues

Emergency winter feeding has not been conducted in the recent past.

Information Requirements

The level of the Lolo Zone B-Tag cap, and any future changes in the cap, are entirely dependent on recruitment levels. At a minimum, recruitment should be measured with composition surveys, corrected for visibility bias, yearly or every other year, over the next 5 years, to establish the level and trend of calf recruitment. In addition, complete sightability surveys should be conducted every 3 years to evaluate population performance.

Elk

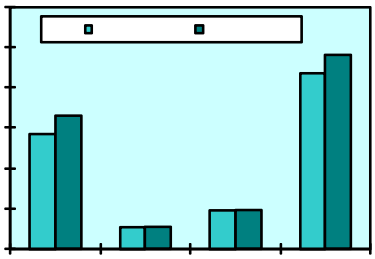
Elk City Zone (Units 14, 15, 16)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
14	1993	1483	268	133	1400 - 2000	300 - 450	150 - 250
15	1998	923	162	89	950 - 1450	200 - 300	100 - 175
16	1996	877	105	59	800 - 1200	175 - 250	100 - 150
Zone Total		**3283**	**535**	**281**	**3150 - 4650**	**675 - 1000**	**350 - 575**
Bulls per 100 Cows			**16**	**9**		**18 - 24**	**10 - 14**

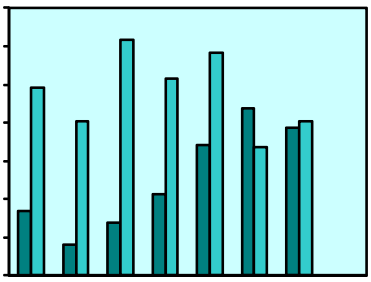
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
14	1990	1049	189	333	1572	1993	1483	268	508	2259
15	1993	852	95	375	1321	1998	923	162	303	1388
16	1987	959	257	242	1457	1996	877	105	157	1148
Comparable Surveys Total		**2860**	**541**	**950**	**4350**		**3283**	**535**	**968**	**4795**
Per 100 Cows			**19**	**33**				**16**	**29**	

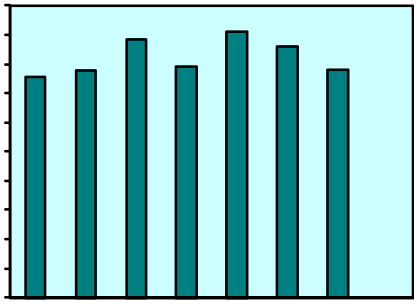


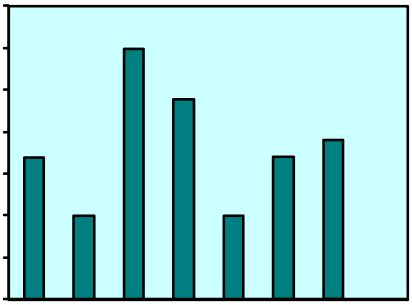
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	170	83	139	214	343	436	388
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	491	404	617	514	583	337	403
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	3799	3893	4440	3970	4574	4308	3910
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	17	10	30	24	10	17	19



Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





ELK CITY ZONE

Management Objectives

The objectives for the Elk City Zone are to establish a population of 3,900+ cows and 850+ bulls, including 475+ adult bulls at ratios of 18-24 bulls:100 cows and 10-14 adult bulls:100 cows. The current cow harvest management strategy should allow that segment of the population to achieve its objective within 5 years. However, significant restrictions will be required to achieve the bull number and ratio objectives. The current number (and ratio) of bulls is well below the objective, and bull numbers have been declining.

Historical Perspective

Historically, elk herds were scattered and numbers were low in this area. Few big game animals were found along the Clearwater River by Lewis and Clark in the early 1800s, probably due in part to the dense, unbroken canopy of forest that covered the entire area. Wildfires burned over vast expanses near the beginning of the 20th century, creating vast brushfields which provided abundant forage areas for elk. Elk numbers increased following creation of these brushfields, and elk numbers apparently peaked around 1950. Elk herds declined into the 1970s, partially due to: 1)maturation of the brushfields and declines in forage availability; 2) logging and road-building activity that increased vulnerability of elk to hunters under the then more liberal hunting seasons; and 3) loss of some major winter ranges. In response to declines in elk numbers, an either-sex hunting regime was replaced in 1976 with an antlered-elk only general hunting season. Elk herds began rebuilding.

Habitat Issues

The prairie regions of this zone were converted to agriculture & ranching by the early settlers. In 1862, gold was discovered near the current location of Elk City in Unit 15. After the readily available gold was depleted, miners turned to dredging activities where rivers ran through meadows. Crooked, American, and Red rivers were channelized and rerouted several times during the extraction processes, which continued commercially until the 1950s. Logging began with mining activities to supply wood for the mines, but in the 1940s, logging activities became commercial and resulted in an extensive network of roads throughout a large portion of this zone. In 1964, with the passage of the Wilderness Act, a small portion of Unit 16 was designated as a part of the Selway-Bitterroot Wilderness. In 1978, portions of Units 14 & 15 were included in the Gospel Hump Wilderness.

Landownership in this zone is approximately 80% publicly owned with the remaining 20% private. The privately owned portions are at lower elevations along the Clearwater and Salmon rivers. Approximately 8% of this zone is Wilderness. Habitat productivity is relatively high in comparison to most other Clearwater Region big game units. The majority of this zone is characterized by productive conifer forests with intermixed grasslands. Many forested areas have become overgrown with lodgepole pine and fir due to fire suppression during the past 40 years. Both open and closed road densities are high within the zone contributing to significant

big game vulnerability during hunting season along with relatively high illegal harvest throughout the year.

Noxious weeds, especially yellow star thistle and spotted knapweed, have increased within the past 15 years and in some areas are out competing grasses and forbs on important elk habitats.

Depredations have increased within the past 10 years in this zone due to increases in both deer and elk populations and changes in landownership that reduce hunting opportunities. Livestock operators are concerned with elk use of pasture and rangeland forage during spring months prior to the release of livestock on these grounds. Some damage to grain crops occurs during the summer. Several past fencing projects have helped to reduce concerns of elk damaging stored hay during winters with heavy snow accumulation.

Biological Issues

Across the zone, cow elk have increased 5%/year, bull elk are gradually declining (-0.6%/year), leading to a declining bull:cow ratio (-5.6%/year). Bull:cow ratios have hovered around 10:100 on recent surveys in Units 15 and 16. The last survey in Unit 14 (1993) revealed a ratio of 18:100. However, the Unit 14 data suggest a declining ratio (-6.5%/year), it has been 5 years since the last survey, and given other supporting data (declining age structure), it is likely that Unit 14 is also at or near 10 bulls:100 cows.

Calf recruitment has been high, and relatively stable in Units 14 and 15, which have averaged 39 and 36 calves:100 cows, respectively, over the past 3 surveys. However, recruitment is a concern in Unit 16 which averaged 18 calves:100 cows over the past 3 surveys.

Unit 15 was surveyed during 1998, following the 1996/97 winter that presumably caused significant winter losses in the Lolo Zone. The 1998 survey results revealed 10% decline in Unit 15, suggesting that 1996/97 winter mortality was not excessive.

Interspecific Issues

Much of this zone is grazed by livestock on both private and public land. On private land on the west side of Units 16 and 14, competition with domestic livestock may be significant, especially during winter.

Predation Issues

Lion harvest in this zone fluctuates due to weather conditions and ability of hound hunters to chase their prey. Harvest was 41 in 1991 and increased to a high of 85 in 1996, but decreased this past season. Bear harvest has increased over the last 2 years, and is higher now then in any previous year. Harvest is about 80 bears per year. This zone is not considered the best bear habitat in the region but does provide for a relatively healthy population of bears.

Wolves have established themselves in the area and are frequently seen. Usually, the occurrence of lone or traveling wolves are documented in this zone.

Winter Feeding Issues

Emergency winter feeding has not been conducted in the recent past.

Information Requirements

A sightability survey has not been conducted in Unit 14 since 1993. A survey should be conducted in Unit 14 relatively soon, and subsequently, all three units should be surveyed every 3 years to evaluate population performance relative to plan objectives.

Elk

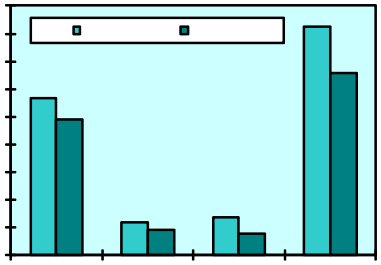
Selway Zone (Units 16A, 17, 19, 20)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
16A	1999	401	51	20	650 - 950	175 - 250	100 - 150
17	1999	2493	398	332	2400 - 3600	650 - 975	375 - 575
19	1996	1149	183	75	1050 - 1550	300 - 400	150 - 250
20	1996	871	273	210	800 - 1200	200 - 325	125 - 200
Zone Total		**4914**	**905**	**637**	**4900 - 7300**	**1325 - 1950**	**750 - 1175**
Bulls per 100 Cows			**18**	**13**		**25-29**	**14 - 18**

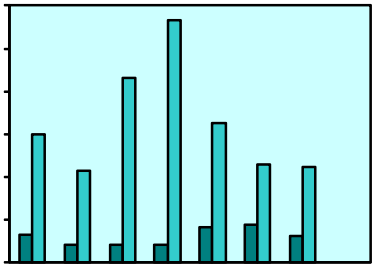
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
16A	1995	354	70	52	475	1999	401	51	86	539
17	1995	3447	721	764	4955	1999	2493	398	298	3188
19	1992	1101	202	349	1653	1996	1149	183	243	1566
20	1989	765	190	201	1155	1996	871	273	133	1277
Comparable Surveys Total		**5667**	**1183**	**1366**	**8238**		**4914**	**905**	**760**	**6570**
Per 100 Cows			**21**	**24**				**18**	**16**	

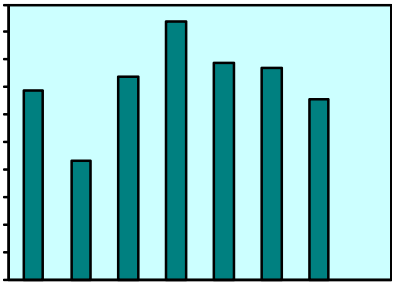


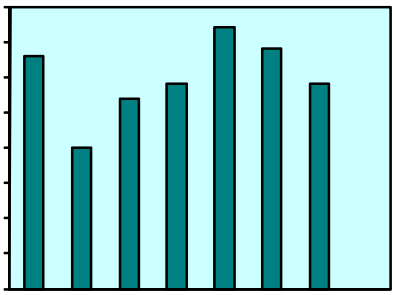
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	130	81	80	81	165	174	124
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	599	426	860	1133	650	461	444
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	3437	2170	3697	4686	3943	3852	3273
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	33	20	27	29	37	34	29



Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





SELWAY ZONE

Management Objectives

The objectives in the Selway Zone are to establish a population of 6,100+ cows and 1,650+ bulls, including 975+ adult bulls at ratios of 25-29 bulls:100 cows and 15-18 adult bulls:100 cows.

Like the Lolo Zone, management of the Selway Zone elk population, and setting appropriate population objectives, presents a serious quandary. Calf production and recruitment has been declining 4.4%/year. Existing information suggests that both predation and density dependence (habitat limitations) could be causing this decline. If predation is the overwhelming factor, population goals should be set higher, and there should be little or no cow harvest. However, if density dependence is significant, goals should be set at a low level, and cow harvest should be at moderate levels (5-10%). Also, both factors may be contributing significantly, leading to some intermediate level of objectives. At present it is not possible to determine the relative contribution of those effects. In the absence of that knowledge, the objectives were set at intermediate levels.

It is questionable how the current (1998) season framework will affect the cow elk population trend. The framework allows unrestricted any-elk, any weapon harvest with an A-Tag from Oct 1 - 31. Participation in that season is questionable. High participation and cow harvest could prevent the zone from reaching the cow elk population objective.

Further limitations on bull elk harvest will be required to meet the bull elk objectives. Bull numbers have declined significantly in all units except Unit 20. It is unknown whether or not the A/B framework, without a B-Tag cap, will be adequate to reverse that trend. Furthermore, calf recruitment has declined, and there is no indication of a recovery. Also, an increase in hunters can be expected as a result of the Lolo Zone cap. As many as 2,500 to 3,000 hunters could be displaced from the Lolo Zone, and we anticipate that some will move to the Selway Zone. And finally, winter 1996/97 mortality may have been high, causing further need to reduce both bull and cow harvest.

Historical Perspective

Historically, elk herds were scattered and numbers were low in this area. Few big game animals were found along the Clearwater River by Lewis and Clark in the early 1800s, probably due in part to the dense, unbroken canopy of forest that covered the entire area. Wildfires burned over vast expanses near the beginning of the 20th century, creating vast brushfields which provided abundant forage areas for elk. Elk numbers increased following creation of these brushfields, and elk numbers apparently peaked around 1950. Elk herds declined into the 1970s, partially due to: 1)maturation of the brushfields and declines in forage availability; 2) logging and road-building activity that increased vulnerability of elk to hunters under the then more liberal hunting seasons; and 3) loss of some major winter ranges. In response to declines in elk numbers, an either-sex hunting regime was replaced in 1976 with an antlered-elk only general hunting season. Elk herds began rebuilding.

Habitat Issues

Habitat productivity varies throughout the zone from high precipitation forested areas along the Lower Selway River to dry, steep, south-facing ponderosa pine and grassland habitat along the Salmon River. Many areas along the Salmon River have a good mix of successional stages due to frequent fires within the Wilderness. Fire suppression within portions of the Selway River drainage have led to decreasing forage production for big game. Road densities are low, contributing to low vulnerability for big game. Noxious weeds, especially spotted knapweed, have encroached upon many low elevation areas frequented by elk.

Due to the rugged and remote nature of this zone, human impacts have been very limited. In 1964, almost all of Unit 17 and a small portion of Unit 16A were included in the Selway-Bitterroot Wilderness. Most of Unit 19 became part of the Gospel Hump Wilderness in 1978, and in 1980, part of Unit 20 was included in the Frank Church River of No Return Wilderness.

Biological Issues

Sightability survey data, collected in this zone since 1987, suggest stable numbers of adult elk (bull trend = 0.6%/year, cow trend = 2.2%/year), while calf recruitment has declined (-4.4%/year). An average recruitment level of 18 calves:100 cows, observed on the most recent surveys in those 4 units, suggests that recruitment has declined to an unacceptably low level.

The winter of 1996/97 was marked by severe conditions including extremely deep snow exceeding 200% of average snowpack in some areas. These conditions apparently caused higher than normal winter mortality leading to a dramatic decline in the Unit 10 population (-48%). In addition, a survey was conducted in Unit 12 during the 1996/97 and those results suggested a 30% decline to that time. Anecdotal information suggests that a similar decline may have occurred in the Selway Zone.

Interspecific Issues

The zone supports small, isolated white-tailed deer populations, low density mule deer populations, and moderate density moose populations. Moose have increased moderately over the past 20 years. Cattle grazing is virtually nonexistent.

Predation Issues

The Selway Zone lion harvest has remained static for several decades, but has increased since the 1970s. Harvest is usually between 10 and 20 lions per year. Bear harvest in 1997 was at a 10-year low of 46 bears, but usually harvest is about 70 bears per year. In this zone, it is doubtful that harvest levels reflect population trend, but rather, reflect the remote, rugged nature of the habitat, which in combination with little access, precludes any significant lion or bear harvest. Recent trends in lion and bear populations are questionable.

Wolves have established themselves in this zone and pack activity does occur. Grizzly bears may be reintroduced in the next decade into parts of this zone.

Winter Feeding Issues

Emergency winter feeding has not been conducted in the recent past.

Information Requirements

Aerial surveys are planned in Units 16A and 17 for the winter of 1998-1999. These surveys will provide information on elk population status to help evaluate the effects of the 1996/97 winter, and will provide more trend information on calf recruitment and bull survival. Subsequently, aerial surveys should be conducted every 3 to 4 years to obtain adequate information to evaluate population performance relative to plan objectives.

Elk
Middle Fork Zone (Units 20A, 26, 27)

Winter Status & Objectives

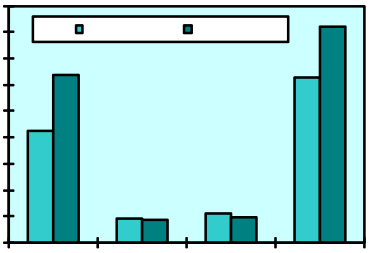
	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
20A	1999	1317	182	130	1050 - 1550	250 - 400	150 - 250
26	1999[a]	(1100)	(140)	(100)	900 - 1300	200 - 350	150 - 200
27	1999	3966	533	389	1900 - 2900	500 - 800	300 - 450
Zone Total		**(6383)**	**(855)**	**(619)**	**3850 - 5750**	**950 - 1550**	**600 - 900**
Bulls per 100 Cows			**13**	**10**		**25 - 29**	**14 - 18**

[a] Incomplete survey, projected estimates included in parentheses.

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
20A	1989	1263	249	261	1773	1999	1317	182	169	1668
26	1989	1071	153	285	1510	1999[a]	1100	140	80	1320
27	1989	1897	532	579	3006	1999	3966	533	723	5224
Comparable Surveys Total		**4231**	**934**	**1125**	**6291**		**6383**	**855**	**972**	**8212**
Per 100 Cows			**22**	**27**				**13**	**15**	

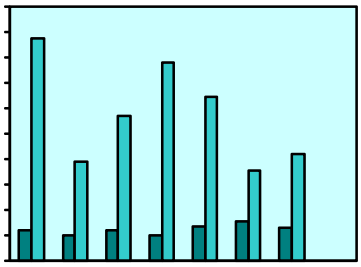
[a] Incomplete survey, projected estimates included in parentheses.

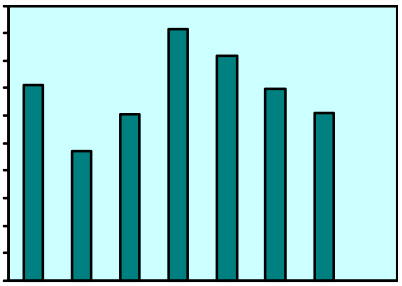


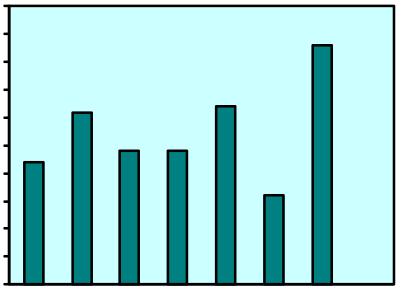
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	122	100	121	103	137	157	131
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	875	391	572	784	647	358	421
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	3548	2360	3022	4576	4085	3499	3044
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	22	31	24	24	32	16	43

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







MIDDLE FORK ZONE

Management Objectives

The objectives for this zone are to maintain Units 20A and 26 at current herd levels of about 2,400 cows and increase bull numbers from the current 350 to about 650. If future elk surveys do not reveal a change in productivity and bull:cow ratios, limiting hunter numbers may be necessary to achieve the bull objective. The objective in Unit 27 is to reduce elk densities to about 2,400 cows and 650 bulls. To maintain herd productivity and to minimize potential impacts on mule deer, a herd reduction of about 40% is recommended in Unit 27, but will be challenging given the difficulty of obtaining sufficient antlerless harvest in the backcountry. Herds will be managed to maintain 25-29 bulls per 100 cows post-season, which translates to 14-18 mature bulls per 100 cows pre-season.

Historical Perspective

Elk were in low abundance in the Middle Fork Zone through the early part of this century. As has occurred over much of the west, elk herds have expanded dramatically since the mid-1970s. Today, the Middle Fork Zone winters approximately 9,500 elk.

About 4,000 people have participated in elk hunts in the Middle Fork Zone in recent years. Seasons have traditionally been general hunts from mid-September to mid-late November for any bull. However, much of the hunting pressure and harvest, particularly for mature bulls, has come during September. In recent years, more emphasis has been placed on antlerless opportunity. However, even with liberal permit levels and seasons, antlerless harvest has consistently been under 2% of the antlerless segment of the herd.

Habitat Issues

Habitat ultimately determines elk densities and productivity. Over the past decades, fire suppression contributed to conifer encroachment on forage-producing areas, particularly winter ranges. Recent large wildfires have partially reversed this trend and enhanced elk habitat. Present management policies which allow fire a larger role in wilderness ecosystems will benefit elk habitat and elk over the long run. Already established in some areas, the spread of noxious weeds such as knapweed and rush skeletonweed could ultimately have significant impacts on winter range productivity.

Biological Issues

Elk populations in Units 20A and 26 have performed poorly in the past decade. Calf production has gone from poor (23 per 100 cows) to worse (18 per 100 cows), and at least partly in consequence, bull:cow ratios have also been less than desirable (17 declining to 14 bulls per 100 cows). In contrast, Unit 27 has performed remarkably, increasing from 3,000 elk in 1989 to 6,300 in 1995. Calf production (31-36 per 100 cows) and bull:cow ratios (28-25 per 100 cows) have remained solid. Large fires in Unit 27 in 1979 and 1988 enhanced elk habitat and probably

significantly contributed to the rapid expansion of that wintering elk herd. Similar large fires in Units 20A and 26 in the past decade may produce similar results in those units.

Interspecific Issues

Current high elk densities may be having some impact on habitat capacity for deer and on deer productivity. Elk could also have an impact in some of the less rugged grassland areas used by bighorn sheep, whose diets are similar to elk. Domestic livestock grazing is minimal in this zone.

Predation Issues

Black bear densities appear to be low to moderate. Mountain lion densities are at least moderate, perhaps high, and appear to have increased in recent years, probably at least in part to increased elk densities. Coyotes are common, but not known to have much impact on elk populations. Wolves reintroduced by the U.S. Fish and Wildlife Service appear to have become well established in these units. The addition of wolves will likely have an impact on bear, lion, and coyote populations. At some level, predation could benefit elk herds to the extent that it keeps elk herds below habitat carrying capacity, where they can be more productive. This is particularly true for this zone, where antlerless elk harvest by hunters has been insignificant. However, excessive levels of predation can also suppress prey populations to undesirably low levels. At this point, it is unclear what the net impact of predation will be with the new mix of large predators.

Winter Feeding Issues

Winter feeding has not occurred in these remote big game units.

Information Requirements

Impacts of elk on mule deer production and survival are suspected but unknown. The most productive elk herds are those maintained at a level well below carrying capacity (at which point recruitment equals mortality and there is no harvestable surplus). Better information is needed to identify the appropriate elk densities which will maintain optimum productivity and harvest. The potential impact of the new mix of large predators is unknown. Migratory patterns are largely unknown.

Elk

Salmon Zone (Units 21, 21A, 28, 36B)

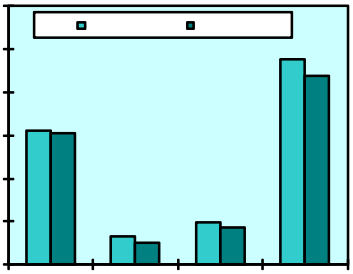
Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
21	1993	1972	475	266	1200 - 1800	250 - 350	150 - 225
21A	1998	1219	377	240	1200 - 1800	250 - 350	150 - 225
28	1999	3245	429	297	1500 - 2300	325 - 475	175 - 275
36B	1997	1617	204	139	700 - 1100	150 - 250	75 - 125
Zone Total		**8053**	**1485**	**942**	**4600 - 7000**	**975 - 1425**	**550 - 850**
Bulls per 100 Cows			**18**	**12**		**18 - 24**	**10 - 14**

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
21	1993	1972	475	665	3112	ND				
21A	1992	2075	618	870	3563	1998	1219	377	376	1972
28	1996	2939	530	696	4165	1999	3245	429	761	4435
36B	1993	1241	192	398	1831	1997	1617	204	562	2363
Comparable Surveys Total		**6255**	**1340**	**1964**	**9559**		**6081**	**1010**	**1699**	**8790**
Per 100 Cows			**21**	**31**				**17**	**28**	

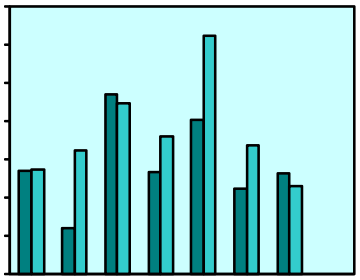
Note: ND = no survey data available.

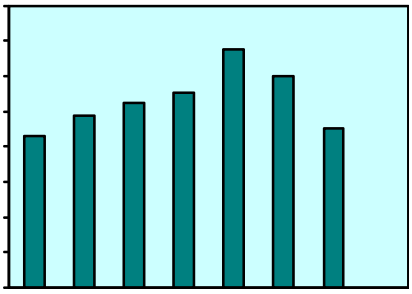


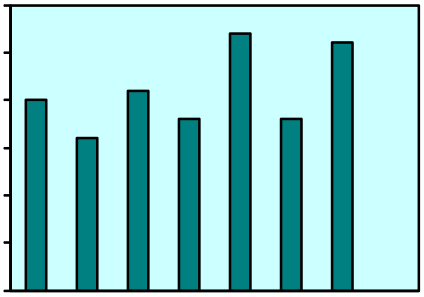
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	537	241	936	531	802	446	529
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	549	645	893	716	1247	673	461
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	4315	4879	5222	5533	6749	5989	4518
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	20	16	21	18	27	18	26

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







SALMON ZONE

Management Objectives

The objectives for this zone are to maintain or slightly increase Unit 21A from current herd levels (about 2,000 elk) and to reduce elk densities in the other units to about 4,300 cows and 900 bulls. To stimulate and maintain herd productivity, to balance depredation concerns with a reasonably large elk population, and to minimize potential impacts on mule deer, a five year period of herd reduction totaling about 33% of current numbers is recommended in Units 21, 28, and 36B. This zone will continue to be managed to produce general hunting opportunity and 10-14 mature bulls per 100 cows post-season.

Historical Perspective

Although present from the time of the first white explorers and trappers, elk were in low abundance in the Salmon Zone through much of this century. From 1917 until the 1940s, parts of Units 28 and 36B were designated as no hunting "game preserves". Sixty-two Yellowstone Park elk were released in the Panther Creek drainage (Unit 28) in 1937. As has occurred over much of the west, elk herds have expanded dramatically since the mid-1970s. Today, the Salmon Zone winters approximately 11,500 elk. Aggressive antlerless harvests since 1992 have stabilized rapidly growing herds in Unit 21A and perhaps Unit 21, but not in the other two units. Declining calf recruitment and bull:cow ratios in recent years suggests that elk herds may be reaching undesirable densities.

About 6,000 people have participated in rifle hunts and 600 in archery hunts in the Salmon Zone in recent years, harvesting about 400-900 cows and 600-1200 bulls annually.

Habitat Issues

Cattle ranching, livestock grazing, mining, timber harvest and recreation are the dominant human uses of the landscape in the Salmon Zone. Elk depredations on agricultural crops are localized, but are especially pronounced in dry years.

In some areas of the Salmon Zone, elk winter in mature stands of mountain mahogany which appear to have become relatively stagnant and unproductive. Forests are slowly encroaching into shrub and grassland communities. The spread of noxious weeds such as knapweed and leafy spurge could ultimately have significant impacts on winter range productivity.

Biological Issues

Aerial surveys in 1992 and 1994 found exceptionally high winter elk densities in Unit 21A, a migratory herd shared by Idaho and Montana. Winter range concerns in Idaho and depredation concerns in Montana prompted significant increases in antlerless hunting in both states with a goal of reducing the herd to 2,000-2,500 wintering elk. The average total antlerless harvest increased from about 100 animals to about 300 animals, and by 1998, the herd had been reduced to about 2,000 animals. Similar reductions may have occurred in Unit 21, but that unit has not

been surveyed since 1993. In contrast, Units 28 and 36B experienced major population increases (57% and 30%) since the early 1990s, despite modest increases in antlerless harvest. As a group, these units are only moderately productive, averaging 30-35 calves per 100 cows. The drop in productivity in Unit 28 as elk numbers increased is worrisome; 1100 additional cows resulted in only 70 additional calves. Partly as a result of this modest productivity, and partly because they are relatively accessible general hunt units, Units 28 and 36B have weak bull:cow ratios (13-18 bulls per 100 cows).

Interspecific Issues

This zone contains the majority of the most productive deer units in the Salmon Region; parts of Units 21, 21A, and 36B contain high densities of wintering deer. Current high elk densities may be having some impact on the area's capacity to produce deer. This may be particularly pronounced during severe winters when deep snow moves elk down onto deer winter ranges. Similar problems may also occur with bighorn sheep, but the amount of habitat overlap is much less.

Predation Issues

Black bear densities appear to be moderate in the Salmon Zone. Mountain lion densities are at least moderate, perhaps high in some areas, and appear to have increased in recent years, probably at least in part to increased elk densities. Coyotes are common, but not known to have much impact on elk populations. Two packs of wolves reintroduced by the U.S. Fish and Wildlife Service have become established in Unit 28. Wolves also occasionally frequent the other units in the Salmon Zone, but packs have apparently not yet become established outside Unit 28. The addition of wolves will likely have an impact on bear, lion, and coyote populations. At some level, predation could benefit elk herds to the extent that it keeps elk herds below habitat carrying capacity, where they can be more productive. However, excessive levels of predation can also suppress prey populations to undesirably low levels. At this point, it is unclear what the net impact of predation will be with the new mix of large predators.

Winter Feeding Issues

Aside from an occasional small private feeding activity and a few elk fed incidental to the rare deer feeding operations, elk have not been deliberately fed in the recent past in the Salmon Zone.

Information Requirements

Budget constraints have not allowed elk census surveys to be conducted at regular intervals. Impacts of elk on mule deer production and survival are suspected but unknown. The most productive elk herds are those maintained at a level well below carrying capacity (at which point recruitment equals mortality and there is no harvestable surplus). Better information is needed to identify the appropriate elk densities which will maintain optimum productivity and harvest. The potential impact of the new mix of large predators is unknown.

Elk
Weiser River Zone (Units 22, 32, 32A)

Winter Status & Objectives

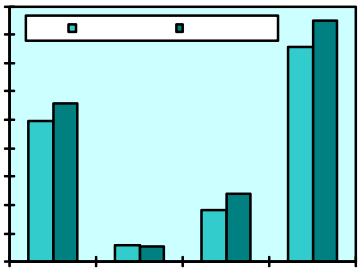
	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
22	1997	1875	174	98	1100 - 1700	250 - 350	125 - 200
32		(650)	(65)	(26)	325 - 475	50 - 100	40 - 60
32A	1994	909	88	23	700 - 1100	150 - 200	75 - 125
Zone Total		**(3434)**	**(327)**	**(147)**	**2125 - 3275**	**450 - 650**	**240 - 385**
Bulls per 100 Cows			**(10)**	**(4)**		**18 - 24**	**10 - 14**

Note : Estimates within parentheses are based on information other than sightability surveys.

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
22	1993	955	164	373	1493	1997	1875	174	861	2911
32	1991	875	91	192	1157	ND				
32A	1991	1513	134	546	2294	1994	909	88	331	1329
Comparable Surveys Total		**2468**	**298**	**919**	**3787**		**2784**	**262**	**1192**	**4240**
Per 100 Cows			**12**	**37**				**9**	**43**	

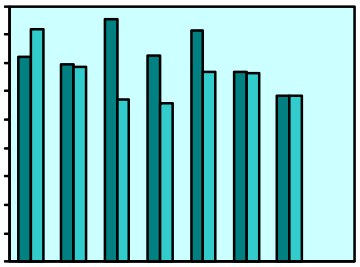
Note: ND = no survey data available.

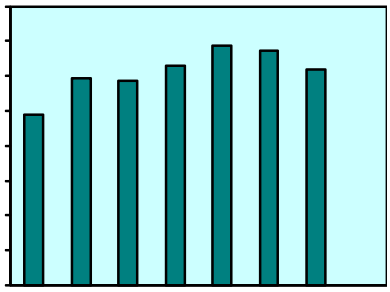


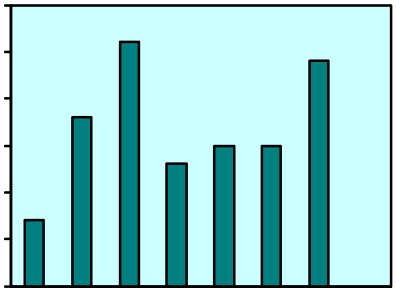
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	722	696	855	726	812	670	583
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	817	684	569	558	666	664	586
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	4885	5928	5880	6296	6858	6725	6190
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	7	18	26	13	15	15	24

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







WEISER RIVER ZONE

Management Objectives

The goal for this zone is to reduce cow elk population levels to 2,700+ elk. Most antlerless elk reduction will occur in Units 22 and 32. The total population objective draws a balance between the concern about depredation damage and the need to sustain a reasonably large elk population. In the short term, the reduction of antlerless elk will result in an increase in controlled antlerless elk permits. As herds are reduced and population levels are stabilized, permit levels will decrease. This zone will be managed to produce the statewide minimums for bull:cow ratio (18-24 bulls:100 cows) and adult bull:cow ratio (10-14 adult bulls:100 cows). A large decrease in harvest mortality will be necessary to increase the bull numbers in this zone. A post season bull population of 550+ including 315+ adult bulls is the objective for this zone. A harvest of 400+ bulls can be sustained each year.

Historical Perspective

Elk were present in the Weiser River Zone prior to European settlement in the mid 1800s. Native American tribes hunted elk for food in the Weiser River drainage. As in other areas in Idaho, the proliferation of mining due to the gold rush' in the late 1800s and early 1900s probably led to year-round slaughter of these animals to supply meat and hides for mining camps. Subsequent intensive livestock grazing denigrated habitat in the zone. Translocation of elk from Yellowstone to places in the McCall Zone on the periphery of the Weiser River Zone occurred in the late 1930s to bolster sagging elk populations. Regulated livestock grazing began during the same era. Transient elk from these populations probably repopulated the Weiser River Zone. Liberal either-sex hunting seasons kept population numbers of elk suppressed well into the 1970s. Unit 22 became a controlled either sex hunt in 1971. This unit reopened to general bulls only hunting in 1977. The implementation of bulls only hunting spurred an increase in elk populations in the Weiser River Zone.

The elk population in the agricultural area of the west half of Unit 32 consisted of transient elk prior to 1980. Following several hard winters elk herds started moving into this area. Most elk were there in the winter and a few groups of elk became year-round residents. The population of elk in the Weiser River Zone reached its sociological tolerance level in the early 1990s.

Habitat Issues

About 60% of Units 22 and 32A and 20% of Unit 32 is in public ownership and management. Private land predominates the western portion of Unit 32 and the Weiser River valley of Units 22 and 32A. Agricultural products are primarily dryland grazing, grain production, and hay fields.

Timber harvest, livestock grazing, and prescribed fires are the preponderant methods affecting habitat change in this zone. Most forested habitat is in the early to mid-successional stage. Winter ranges occur primarily on public ground in Unit 22, but mostly on private ground in Units 32 and 32A. Noxious weed invasion, such as yellow starthistle (Centaurea solstitialis) and whitetop (Cardaria draba), is a threat to winter range habitat. The Andrus Wildlife Management

Area in the southwest portion of Unit 22 is managed for elk and mule deer winter range and encompasses about 8,000 acres.

Extensive road building from past timber harvest and mining activities contribute to the high vulnerability of elk during hunting seasons in this zone. The inherent lack of security cover and openings created from timber harvest compound elk vulnerability. Active timber harvest programs are anticipated to increase these road densities in the near future.

Elk/human conflicts occur during the summer and fall months in Units 22 and 32A when elk enter agricultural fields in the valley bottoms to forage. Resident elk in Unit 32 have caused landowners concern about damage to fences, fall plowed fields, row crops, and alfalfa hay fields. The Department has paid an average of $13,000 per year for this damage in this area.

Biological Issues

The Weiser River Zone contains a highly productive elk population. Calf production averages well over 40 calves per 100 cows. Bull:cow ratios are low (9 bulls:100 cows) due to the high vulnerability of the open canopied, heavily roaded habitat. Even with the good calf production, harvest of bulls is at or exceeds production.

Interspecific Issues

Elk compete zone wide with mule deer for habitat. Intensive domestic sheep and cattle grazing occurs over most of the zone. The competitive effect of these species on one another is largely unknown.

Predation Issues

Black bear and mountain lions occur in moderate to high numbers in the Weiser River Zone. There is no indication that predation is having an impact on elk calf recruitment or survival of elk in this zone. Coyotes are common, but are not known to have much effect on elk populations.

Winter Feeding Issues

Winter feeding takes place on an irregular basis in the Weiser River Zone. Most elk feeding operations have been to bait elk away from livestock feeding operations.

Information Requirements

Carrying capacity of winter ranges is unknown. This information is needed to identify appropriate elk densities which will maintain optimum productivity and harvest. Information is lacking on the migration routes and patterns of elk in this zone and interaction with elk in the adjacent Brownlee Zone. A full survey of these interacting herds is needed for these zones. Knowledge of interspecific competition is needed.

Elk

McCall Zone (Units 19A, 23, 24, 25)

Winter Status & Objectives

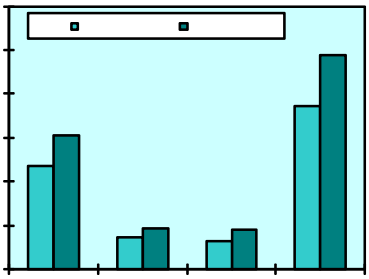
	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
19A	1998	939	242	196	750 - 1150	150 - 250	100 - 150
23	1997	1280	352	214	1050 - 1550	225 - 325	125 - 175
24		(50)	(10)	(5)	0	0	0
25	1998	832	340	287	700 - 1000	150 - 225	75 - 125
Zone Total		**(3101)**	**(944)**	**(702)**	**2450 - 3700**	**525 - 800**	**300 - 450**
Bulls per 100 Cows			**(30)**	**(23)**		**18 - 24**	**10 - 14**

Note: Estimates within parentheses are based on information other than sightability surveys.

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
19A	1990	512	178	87	777	1998	939	242	214	1392
23	1990	1175	256	303	1735	1997	1280	352	489	2121
24	ND					ND				
25	1991	660	296	241	1195	1998	832	340	196	1369
Comparable Surveys Total		**2347**	**730**	**631**	**3707**		**3051**	**934**	**899**	**4882**
Per 100 Cows			**31**	**27**				**31**	**29**	

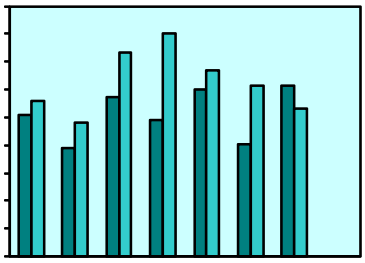
Note: ND = no survey data available.

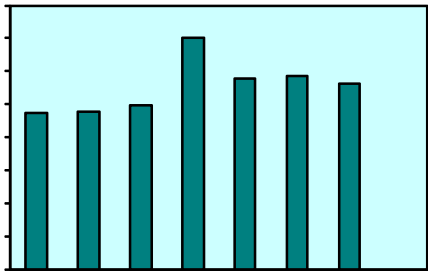


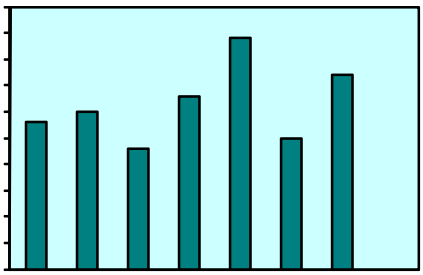
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	510	391	574	491	600	405	614
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	561	479	731	801	669	613	532
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	4746	4776	4973	7032	5788	5872	5647
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	28	30	23	33	44	25	37

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







MCCALL ZONE

Management Objectives

The objective for this zone is to maintain a population of 3,075+ cow and 665+ bull elk, including 375+ adult bulls. This zone will be managed to produce the statewide minimums for bull:cow ratio (18-24 bulls:100 cows) and adult bull:cow ratio (10-14 adult bulls:100 cows). The total population objective draws a balance among the concerns about depredation damage, the desire for a reasonably large elk population, and concern about habitat carrying capacity. Overall bull numbers and bull:cow ratios can be expected to decrease, but remain above the statewide minimums. The decrease in bulls will be due to increased hunter numbers and harvest as the zone absorbs some of the hunters displaced from other zones. Increases in road density will also affect elk vulnerability in the near future. Harvest mortality is not expected to increase in this zone initially, however, as management changes in other zones displace hunters, harvest rates may need to be adjusted.

Historical Perspective

Elk were abundant in the McCall Zone prior to European settlement in the late 1800s. The proliferation of mining due to the gold rush' in the late 1800s and early 1900s led to widespread slaughter of these animals to supply meat and hides for mining camps. As a result, elk became increasingly rare to see, and at one time were thought to be eliminated from the area. Remnant populations relegated to the more remote rugged portions of the zone did survive. Translocation of elk from Yellowstone to places in the McCall Zone such as New Meadows occurred in the late 1930s. Liberal either-sex hunting seasons kept population numbers of elk suppressed well into the 1970s. The implementation of bulls only hunting in 1976 spurred an increase in elk populations in the McCall Zone. This increase has continued to the present day peaks in elk populations.

Habitat Issues

Over 70% of the McCall Zone is in public ownership and management. The Little Salmon River and North Fork Payette River valley bottoms comprise most of the private ownership. Private land in this zone is predominantly agricultural or rural subdivision in nature.

Timber harvest and livestock grazing affect habitat change on the public lands on the west side of the McCall zone. Wildfire or prescribed burning influence habitat alteration on lands on the east side of the zone. Several large fires have burned in this zone in the last decade. A balance exists among early, mid, and late successional habitat stages that are used by elk in summer. Winter ranges occur primarily on public ground. The Federal land management agencies (USFS and BLM) have active prescribed burning programs that should maintain good winter range habitat for elk in the McCall Zone. Noxious weed invasion, specifically from spotted knapweed (Centaurea maculosa) and yellow starthistle (Centaurea solstitialis), is a threat to winter ranges in the Little Salmon River and Salmon River drainages of Unit 23. Elk/human conflicts occur during the summer and fall months when elk enter agricultural fields in the valley bottoms to forage.

Road building and its subsequent negative effect on elk vulnerability is a habitat concern facing this elk population. Road densities are estimated at less than 0.25 miles per square mile in Units 19A and 25. Road densities in Units 23 and 24 are estimated at greater than 2.5 miles per square mile. Active timber harvest programs are anticipated to dramatically increase these road densities in the near future.

Biological Issues

The McCall Zone elk population performed well from the mid 1980s to early 1990s. Since then, calf production has declined from 30+ calves per 100 cows to poor 24 calves per 100 cows)in Units 19A and Unit 23 calf production has remained stable in the 30+ calves per 100 cows range. Bull:cow ratios have remained high in this zone due to the relatively low hunting pressure and low road densities.

Interspecific Issues

Elk must compete zone wide primarily with mule deer and to a lesser extent with white-tailed deer. Extensive domestic sheep and cattle grazing occurs on elk range in the western part of the zone. A small number of bighorn sheep occupy a portion of rugged country less favored by elk in the northeast portion of the zone. The competitive effect of these species on one another is largely unknown.

Predation Issues

Black bear and mountain lions are prevalent in the McCall Zone. Bears are at a moderate but stable level and lions are thought to be at the highest number in recent history. There is no evidence to the extent these species prey on elk in this zone. Wolves, introduced in Idaho's back country in 1995, make periodic predatory appearances in the eastern half of the zone. Predation by wolves is considered insignificant at this time, however, as packs continue to establish, frequency of wolf predation in the eastern half of the zone will likely increase.

Winter Feeding Issues

The remote location of most of the winter range in this zone precludes large scale winter feeding. In severe winters, some feeding has occurred in Unit 24. The Goldfork bait site was established in 1985 to bait elk out of winter livestock feeding operations. Approximately 75 tons of hay is supplied by the Department annually to feed 80-120 elk.

Information Requirements

Carrying capacity of winter ranges is unknown. This information is needed to identify appropriate elk densities which will maintain optimum productivity and harvest. Impacts of three potential predators on elk production is largely unknown. Information is lacking on the migration routes and patterns of elk in this zone.

Elk

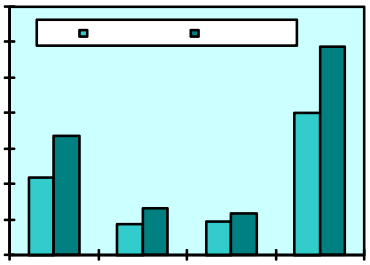
Lemhi Zone (Units 29, 37, 37A, 51)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
29/37A	1998	1796	632	371	1000 - 1600	300 - 500	200 - 300
37	1994	472	101	62	150 - 250	30 - 50	20 - 30
51	1999	1078	580	372	500 - 700	125 - 200	75 - 125
Zone Total		**3346**	**1313**	**805**	**1650 - 2550**	**455 - 750**	**295 - 455**
Bulls per 100 Cows			**39**	**24**		**30 - 35**	**14 - 18**

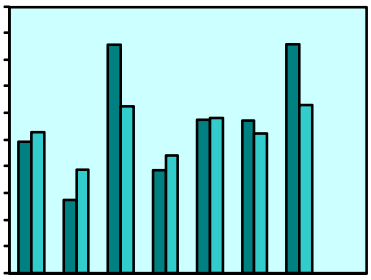
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
29/37A	1992	1163	600	625	2388	1998	1796	632	577	3005
37	1990	456	110	135	701	1994	472	101	131	704
51	1993	579	167	174	920	1999	1078	580	470	2155
Comparable Surveys Total		**2198**	**877**	**934**	**4009**		**3346**	**1313**	**1178**	**5864**
Per 100 Cows			**40**	**42**				**39**	**35**	

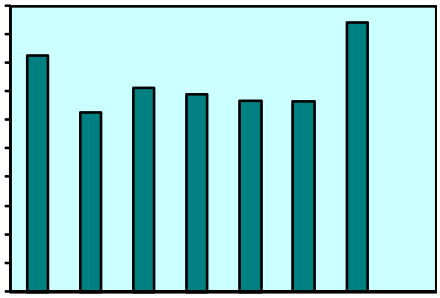


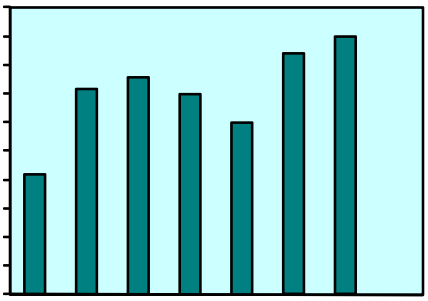
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	247	139	429	194	289	285	428
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	263	195	312	220	291	261	316
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	1651	1256	1427	1381	1338	1332	1881
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	21	36	38	35	30	42	45



Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





LEMHI ZONE

Management Objectives

The objectives for this zone are to maintain Unit 51 at current herd levels (about 600 cows and 160 bulls) and to reduce elk densities in the other units to about 1500 cows and 460 bulls. To stimulate and maintain herd productivity, to balance depredation concerns with maintaining a reasonably large elk population, and to minimize potential impacts on mule deer, a five year period of herd reduction, totaling about 35% of current numbers, is recommended in Units 29, 37, and 37A. Herds will be managed to maintain 10-14 mature bulls per 100 cows in Unit 37, 14-18 mature bulls per 100 cows in Unit 51, and 18-22 mature bulls per 100 cows in Units 29 and 37A.

Historical Perspective

Elk were in low abundance in the Lemhi Zone through much of this century. Most of the zone has been managed for decades under very conservative controlled hunt strategies. In 1993, Unit 51 changed from general any-bull management to general hunting for spike bulls with controlled any-bull permits. As has occurred over much of the west, elk herds have expanded dramatically since the mid-1970s. Today, the Lemhi Zone winters approximately 4,600 elk, which represents an increase of 700 elk just since the early 1990s. Declining calf recruitment and bull:cow ratios in recent years suggests that elk herds may be reaching undesirable densities.

About 1400 people have participated in rifle hunts in the Lemhi Zone in recent years. Conservative bull harvest management has produced exceptional bull:cow ratios and a reputation for large mature bulls. The controlled bull hunts in this zone have become very desirable; rifle permits are much in demand and difficult to draw. The area's reputation for many mature bulls has also made this zone a very attractive archery hunt; approximately 800 people have participated in recent years, 70% of them in Unit 29 alone.

Habitat Issues

Cattle ranching, livestock grazing and recreation are the dominant human uses of the landscape in the Lemhi Zone. The Lemhi Zone is in a generally arid region where forage production can be strongly influenced by growing season precipitation. During drought years, high elevation mesic habitats are more heavily utilized by elk while low elevation riparian areas and wet meadows are more heavily utilized by cattle. Elk depredations on agricultural crops are common and are especially pronounced in dry years. Expanded irrigated agriculture, passage of legislation authorizing depredation payments, and legislation authorizing depredation hunts combined with increasing elk populations have led to more depredation complaints in Unit 51.

In some areas of the Lemhi Zone, elk winter in mature stands of mountain mahogany which appear to have become relatively stagnant and unproductive. In other areas, elk winter on open sagebrush-grassland ridgetops. Forests are slowly encroaching into shrub and grassland communities. The spread of noxious weeds such as knapweed and leafy spurge could ultimately have significant impacts on winter range productivity.

Biological Issues

In 1992, Units 29 and 37A contained strongly-performing elk populations; a base of 1200 cows was producing 600 calves and 600 bulls. By 1998, the herd had increased 50% to 1800 cows, but was still only producing 600 calves and 600 bulls. This loss in productivity may be related to higher than desirable elk densities. The Unit 37 and Unit 51 elk herds remained stable in numbers and productivity through the most recent survey (1993 and 94).

Interspecific Issues

Although historically the Lemhi Zone supported good mule deer densities, the zone currently has relatively modest deer populations. Current high elk densities may be having some impact on deer productivity.

When elk numbers are high, as they are currently, livestock operators often perceive elk to be strong competitors for range forage. However, elk generally remove a minor portion of the forage compared to livestock, and elk tend to use different habitats and different forage species than livestock.

Predation Issues

Black bear densities appear to be low and stable in the Lemhi Zone. Mountain lion densities are low to moderate and appear to have increased in recent years in Units 29, 37, and 37A, probably at least in part to increased elk densities. Coyotes are common, but not known to have much impact on elk populations.

Winter Feeding Issues

Because this is an arid area with relatively little snowfall, winter feeding has not occurred in the recent past in the Lemhi Zone.

Information Requirements

Impacts of elk on mule deer production and survival are suspected but unknown. The most productive elk herds are those maintained at a level well below carrying capacity (at which point recruitment equals mortality and there is no harvestable surplus). Better information is needed to identify the appropriate elk densities which will maintain optimum productivity and harvest. Better information on elk migration patterns is also needed.

Elk

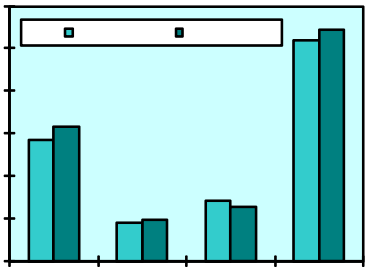
Beaverhead Zone (Units 30, 30A, 58, 59, 59A)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
30	1997	1567	541	341	800 - 1200	250 - 350	150 - 250
30A	1997	307	206	144	200 - 300	40 - 60	25 - 35
58	1995	409	130	100	400 - 600	100 - 175	50 - 100
59/59A	1994	893	89	36	650 - 950	150 - 250	100 - 150
Zone Total		**3176**	**966**	**621**	**2050 - 3050**	**540 - 835**	**325 - 535**
Bulls per 100 Cows			**30**	**20**		**25 - 29**	**14 - 18**

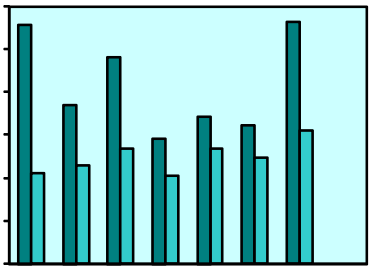
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
30	1992	1131	302	546	1981	1997	1567	542	677	2786
30A	1992	263	211	178	652	1997	307	206	144	656
58	1992	597	193	283	1072	1995	409	130	187	725
59/59A	1992	875	197	423	1495	1994	893	89	264	1258
Comparable Surveys Total		**2866**	**903**	**1430**	**5200**		**3176**	**967**	**1272**	**5425**
Per 100 Cows			**32**	**50**				**30**	**40**	

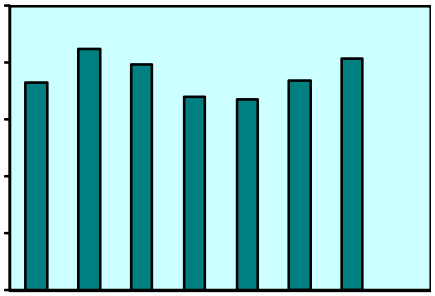


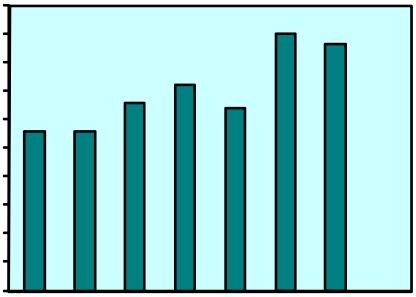
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	556	371	482	292	343	323	562
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	212	230	269	205	269	246	309
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	1829	2130	1997	1712	1691	1851	2044
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	28	28	33	36	32	45	43



Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





BEAVERHEAD ZONE

Management Objectives

The objectives for the Beaverhead Zone are to maintain Units 58, 59, and 59A at current herd levels (about 1300 cows and 350 bulls) and to reduce elk densities in Units 30 and 30A (which have recently expanded elk herds) to about 1250 cows and 260 bulls. Herds will be managed to maintain 14-18 mature bulls per 100 cows in Units 58, 59, and 59A, and 10-14 mature bulls per 100 cows in Units 30 and 30A. To maintain herd productivity, to balance depredation concerns with maintaining a reasonably large elk population, and to minimize potential impacts on mule deer, a five year period of herd reduction totaling about 40% of current numbers is recommended in Units 30 and 30A.

Historical Perspective

Elk were in low abundance in the Beaverhead Zone through much of this century. In fact, elk numbers were apparently low enough that a few elk from Horse Prairie and Yellowstone National Park were transplanted to Units 30 and 30A about 1918. Units 30 and 30A were closed to hunting through the 1940s; managed as general hunts during the 1950s; then general hunts with harvest quotas in the 1960s. Since 1970, Units 30 and 30A have been managed under very conservative controlled hunt strategies. Controlled antlerless hunts were initiated in Units 59 and 59A in 1979 and in Unit 58 in 1988. In 1991, Units 58, 59, and 59A changed from general any-bull management to general hunting for spike bulls with controlled any-bull permits. As has occurred over much of the west, elk herds have expanded dramatically since the mid-1970s. Today, the Beaverhead Zone winters approximately 5,400 elk and supports about 1,800 rifle hunters and 700 archers annually. Unit 30 gained about 800 wintering elk between 1992 and 1997, while elk numbers in the remaining units remained relatively stable

Many elk in this zone, particularly in Units 30 and 30A, spend the winter in Idaho and migrate to summer ranges in Montana. Traditionally, elk in Units 58, 59, and 59A summered in Idaho and wintered in Montana, however, since the early half of the 1980s more elk are wintering in Idaho. In recent years, high elk densities have become a controversial issue with landowners and livestock grazers in both states.

Habitat Issues

Cattle ranching, livestock grazing and recreation are the dominant human uses of the landscape in the Beaverhead Zone. The Beaverhead Zone is in a generally arid region where forage production can be strongly influenced by growing season precipitation. During drought years, high elevation mesic habitats are more heavily utilized by elk while low elevation riparian areas and wet meadows are more heavily utilized by cattle. Elk depredations on agricultural crops are common and are especially pronounced in dry years in Units 30, 30A, and along Medicine Lodge Creek.

Forests are slowly encroaching into shrub and grassland communities. The spread of noxious weeds such as knapweed and leafy spurge could ultimately have significant impacts on winter

range productivity. Elk wintering on wind swept ridgetops in Units 59 and 59A are periodically subject to Oxytropis poisoning.

Biological Issues

The Unit 30 elk population has experienced very high growth rates since at least 1992, despite attempts to increase the antlerless harvest and considerable depredation hunt activity. Unit 58 experienced about a 30% decline after a substantial increase in antlerless permits, and Units 30A and 59/59A had relatively stable populations. Calf production and bull cow ratios have remained strong in this zone.

Interspecific Issues

Although historically the Beaverhead Zone supported good mule deer densities, the zone currently has relatively moderate deer populations. Current high elk densities may be having some impact on deer productivity.

When elk numbers are high, as they are currently, livestock operators often perceive elk to be strong competitors for range forage. However, elk generally remove a minor portion of the forage compared to livestock, and elk tend to use different habitats and different forage species than livestock.

Predation Issues

Black bear densities appear to be low and stable in the Beaverhead Zone. Mountain lion densities are low to moderate and appear to have increased in recent years in Units 30 and 30A, probably at least in part to increased elk densities. Coyotes are common, but not known to have much impact on elk populations.

Winter Feeding Issues

Because this is an arid area with relatively little snowfall, winter feeding has not occurred in the recent past in the Beaverhead Zone.

Information Requirements

Impacts of elk on mule deer production and survival are suspected but unknown. The most productive elk herds are those maintained at a level well below carrying capacity (at which point recruitment equals mortality and there is no harvestable surplus). Better information is needed to identify the appropriate elk densities which will maintain optimum productivity and harvest.

Elk

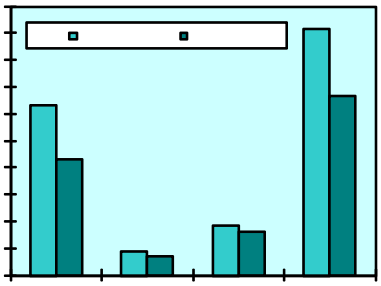
Brownlee Zone (Unit 31)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
31	1993	863	141	55	550 - 850	125 - 175	50 - 100
Zone Total		**863**	**141**	**55**	**550 - 850**	**125 - 175**	**50 - 100**
Bulls per 100 Cows			**16**	**6**		**18 - 24**	**10 - 14**

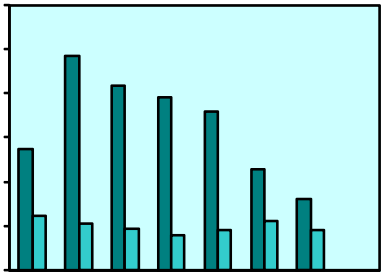
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
31	1991	1262	179	373	1831	1993	863	141	325	1329
Comparable Surveys Total		**1262**	**179**	**373**	**1831**		**863**	**141**	**325**	**1329**
Per 100 Cows			**14**	**30**				**16**	**38**	

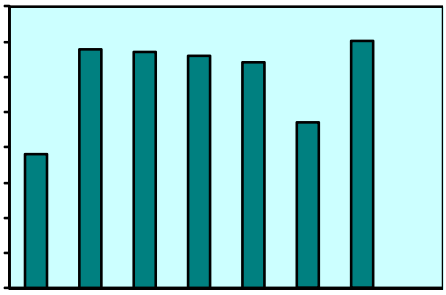


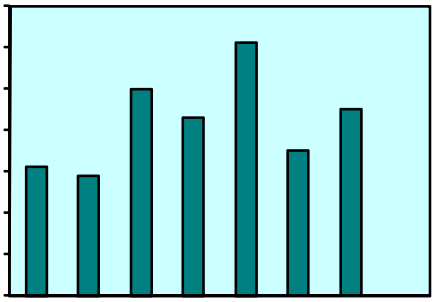
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	138	242	209	195	179	114	80
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	61	52	47	40	45	55	45
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	384	680	673	663	644	471	703
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	31	29	50	43	61	35	45



Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





BROWNLEE ZONE

Management Objectives

The objective for this zone is to maintain a population of 700+ cow and 140+ bull elk, including 75+ adult bulls. This zone will be managed to produce the statewide minimums for bull:cow ratio (18-24 bulls:100 cows) and adult bull:cow ratio (10-14 adult bulls:100 cows). The total population objective draws a balance between concerns about depredation damage and the need to sustain a reasonably large elk population. The current harvest of 40-60 bulls per year by permit is expected to be maintained. Overall, controlled hunt harvest opportunity will remain similar to current levels. General hunting opportunity will be increased with the implementation of a spike-only A-tag season. General antlerless or any bull hunting opportunity is unlikely, due to the inherent vulnerability of elk in this habitat.

Historical Perspective

Elk were present in the Brownlee Zone prior to European settlement in the mid 1800s. Native American tribes hunted elk for food in the Weiser River drainage. As in other areas in Idaho, the proliferation of mining due to the gold rush' in the late 1800s and early 1900s probably led to year-round slaughter of these animals to supply meat and hides for mining camps. Subsequent heavy livestock grazing denigrated habitat in the zone. Translocation of elk from Yellowstone to places in the Weiser River and McCall Zones occurred in the late 1930s to bolster dwindling elk populations. Regulated livestock grazing occurred during the same era. Transient elk from these populations probably repopulated the Brownlee Zone. Liberal either-sex hunting seasons kept population numbers of elk suppressed well into the late 1960s. Unit 31 was closed to elk hunting in 1968. The unit reopened to controlled hunting in 1976. Protected by conservative bull only permits, this elk population expanded rapidly in the late 1980s. This population reached its sociological tolerance level in the early 1990s.

Habitat Issues

About 50% of the Brownlee Zone is in public ownership and management. Private land predominates the southern and eastern portions of the unit. Agricultural products are primarily dryland grazing and hay fields. Higher elevations are timbered, lower elevations are primarily shrub-steppe or desert.

Timber harvest, livestock grazing, and prescribed fires are the preponderant methods affecting habitat change in this zone. Most forested habitat is in the early to mid-successional stage. Winter ranges occur primarily on public ground. Noxious weed invasion, such as yellow starthistle (Centaurea solstitialis) and whitetop (Cardaria draba), is a threat to winter range habitat. The Andrus Wildlife Management Area is managed for elk and mule deer winter range and comprises about 8,000 acres in the northwest part of the zone. Elk/human conflicts occur during the summer and fall months when elk enter agricultural fields in the valley bottoms to forage.

Extensive road building from past timber harvest and mining activities contribute to the high vulnerability of elk during hunting seasons in this zone. The inherent lack of security cover and openings created from timber harvest compound elk vulnerability. Active timber harvest programs are anticipated to increase these road densities in the near future.

Biological Issues

Since the mid-1980s elk populations in this zone have performed well. Calf production is good at greater than 35:100 cows on average. Elk have not reached their habitat potential in this zone, but have reached a threshold of tolerance among user groups concerned.

Interspecific Issues

Elk compete zone wide with mule deer for habitat. Intensive domestic sheep and cattle grazing occurs over most of the zone. The competitive effect of these species on one another is largely unknown.

Predation Issues

Black bear and mountain lions occur in low to moderate numbers in the Brownlee Zone. There is no evidence these species have an effect on the elk population in this zone. Coyotes are common, but are not known to have much effect on elk populations.

Winter Feeding Issues

Winter feeding in the Brownlee Zone is an extremely rare event. Winter feeding occurred on a limited basis in close proximity to domestic livestock feeding operations during the severe winter of 1992-93.

Information Requirements

Carrying capacity of winter ranges is unknown. This information is needed to identify appropriate elk densities which will maintain optimum productivity and harvest. Information is lacking on the migration routes and patterns of elk in this zone and interaction with elk in the adjacent Weiser River Zone. A population survey concurrent with the adjacent Weiser River Zone is needed. Knowledge of interspecific competition is needed.

Elk

Sawtooth Zone (Units 33, 34, 35, 36)

Winter Status & Objectives

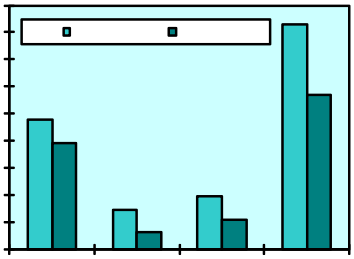
	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
33	1997	3082	546	354	3544	500 - 800	300 - 450
34		(0)	(0)	(0)	0	0	0
35	1997	480	61	37	1761	50 - 100	25 - 75
36	1998	371	50	34	250 - 350	50 - 75	30 - 50
Zone Total		**3933**	**657**	**425**	**3050 - 4550**	**600 - 975**	**355 - 575**
Bulls per 100 Cows			**17**	**11**		**18 - 24**	**10 - 14**

Note : Estimates within parentheses are based on information other than sightability surveys.

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
33	1989	3135	1138	1153	5454	1997	3082	546	899	4529
34	ND					ND				
35	1992	1078	213	557	1848	1997	480	61	132	674
36	1993	592	121	274	967	1998	371	50	85	506
Comparable Surveys Total		**4805**	**1472**	**1984**	**8289**		**3933**	**657**	**1116**	**5709**
Per 100 Cows			**31**	**41**				**17**	**28**	

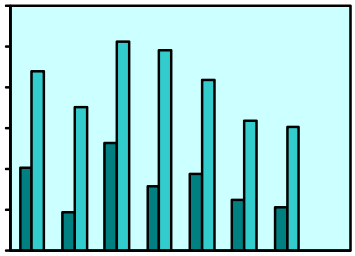
Note: ND = no survey data available.

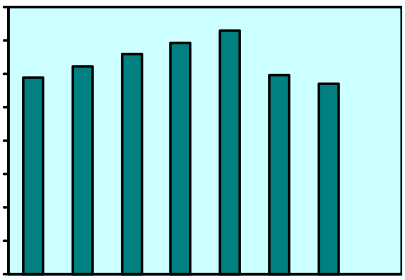


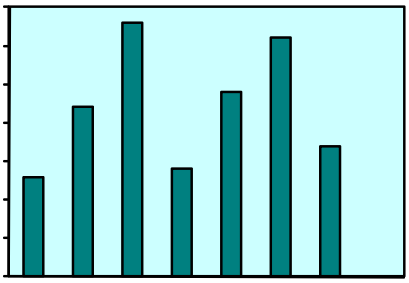
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	407	186	528	312	375	249	210
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	878	702	1021	982	833	636	605
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	5880	6227	6573	6920	7267	5955	5689
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	13	22	33	14	24	31	17

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







SAWTOOTH ZONE

Management Objectives

The objective is to maintain a population of 3800+ cows and 790+ bulls, including 465+ adult bulls in the wintering population in this zone. Bull:cow and adult bull:cow ratios will be managed at 18-24 bulls:100 cows and 10-14 adult bulls:100 cows, the statewide minimums. Summer elk numbers in Unit 36 will be reduced. A harvest of 750+ bulls each year is desired. However, at current recruitment rates, only a harvest of 500+ bulls is sustainable. These objectives reflect a balance between the need for a relatively large, huntable elk population and the concern about winter feeding elk. Unless calf production and survival increases dramatically, harvest rates will have to be reduced to achieve these goals.

Historical Perspective

Both mule deer and elk herds had been over harvested for hides and meat for the mining camps in the mid to late 1800s. The lack of big game in the area resulted in the Idaho Legislature establishing the South Fork Game Preserve (now Unit 35) in 1909. This was the first game preserve in Idaho and remained in place until 1977. No hunting was allowed in the preserve until 1945. Deer populations increased rapidly. The elk herd increased to over 1,000 head by 1940 and approximately 2,000 head by the early 1950s. The rapid increase to the current population of about 5,200 elk started in the late 1970s.

The Sawtooth Zone is a popular destination for elk hunters from the Boise and Magic Valley areas. Nearly 7,000 sportsmen have hunted this area in the last few years.

Habitat Issues

Over 90 percent of this zone is managed by the U.S. Forest Service. The access ranges from heavily roaded in the Garden Valley area to the unroaded Frank Church River of No Return Wilderness and the Sawtooth National Recreation Area. Hunters are able to select hunting conditions from wilderness to logged/roaded situations. In several areas, road densities are very high and access management programs could provide more area with lower motorized access.

Habitat conditions on the winter range have been an important consideration since the early 1930s. Reports by U.S. Forest Service and National Park Service biologists describe the degraded conditions on the winter range in 1932. There have been numerous attempts to improve habitat on the winter range, but none of them have shown significant success.

Elk have caused damage to several ranches (primarily cattle and small horse feeding operations) in the Garden Valley area over the last ten years. Establishing bait sites nearby reduces this damage. In the spring elk concentrate on the green-up forage on private rangeland. In the Stanley area, very limited winter ranges have been impacted by the minority of the herd that does not migrate in the fall. Local areas of summer range are being noticeably impacted by elk.

Biological Issues

Following the trend south of the Salmon River, this elk population has increased dramatically in the last 20 years. Calf recruitment in the past has been good, however, current indications are that it is declining. Harvest data indicate that more bulls are being killed than are produced in the calf crop.

Interspecific Issues

The Garden Valley area has been a significant wintering area for mule deer. In the early 1940s estimated winter deer populations were from 5,000 to 12,000 head. Elk herds were less than 2,000 animals. Since 1964, the mule deer herd has not exceeded 2,000 head and there are approximately 5,500 elk wintering in the area. Livestock grazing has been significantly reduced over the last 60 years. Unit 34, Bear Valley, still has significant levels of cattle grazing.

Predation Issues

Black bear and mountain lion populations are well established and apparently stable in the Sawtooth Zone. Recent sightability surveys have indicated a declining calf:cow ratio, but there is no evidence to indicate predation is, or is not, the cause of this decline. As a result of recent U.S. Fish and Wildlife Service wolf reintroduction, at least three packs have been established in the Sawtooth Zone. The number of wolves in these packs is not yet large enough to have a significant impact on the elk and deer herds in the area. It is unclear how the total impact of predation on elk will change with the introduction of wolves.

Winter Feeding Issues

The Sawtooth Zone has been a focal point for winter feeding since the 1930s. Severe winter kill occurred on a regular basis starting in 1932 when 93 dead elk were found and 1,800 dead deer were buried along the South Fork Payette River. Winter feeding programs for mule deer started shortly thereafter. In a few years, the elk were consuming more feed than the mule deer. Now winter feeding takes place about two out of every five years.

There has been no evidence of brucellosis at any of the feed sites. The major concern is for feeding mule deer on the limited deer winter range in Garden Valley. When mule deer are fed, elk quickly take over the feed sites and exclude the deer. This requires the establishment of elk feeding sites to allow the deer access to sufficient feed. The native range has the capability to support the current elk herd in nearly all situations. There is considerable public demand for feeding elk. This is both for public concern about the welfare of the herd and to develop an elk feeding sleigh ride as a tourist attraction.

In the past two decades, occasional winter feeding has allowed a wintering elk herd to become established in the Stanley area, where historically they could not survive the severe winters. This herd of 500-1,000 animals has severely impacted the small amount of natural winter range that is available.

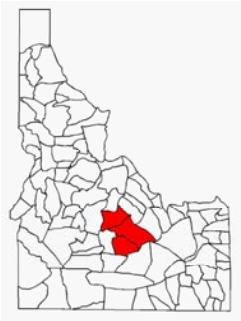
Information Requirements

The migratory patterns of the elk herds are largely unknown. Data on how several large fires in the last ten years has affected calving areas, summer areas, or wintering areas is needed. The potential impacts of the new mix of large predators is unknown.

Elk
Pioneer Zone (Units 36A, 49, 50)

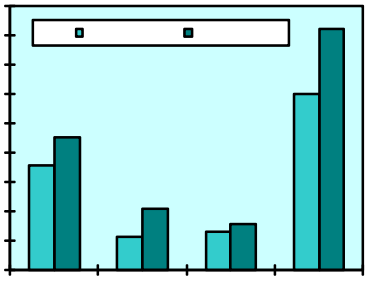
Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
36A	1994	1474	757	527	1050 - 1550	300 - 500	200 - 300
49	1998	2043	888	531	1350 - 2050	500 - 700	300 - 400
50	1999	1027	450	314	950 - 1450	300 - 500	200 - 300
Zone Total		**4544**	**2095**	**1372**	**3350 - 5050**	**1100 - 1700**	**700 - 1000**
Bulls per 100 Cows			**46**	**30**		**30 - 35**	**18 - 22**



Population Surveys

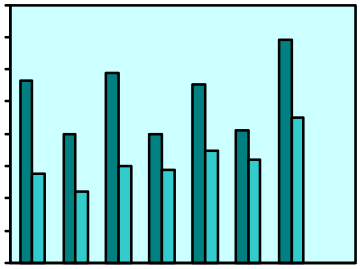
	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
36A	1990	1412	522	426	2360	1994	1474	757	393	2624
49	1993	925	261	311	1497	1998	2043	888	815	3746
50	1993	1256	360	565	2181	1999	1027	450	372	1849
Comparable Surveys Total		**3593**	**1143**	**1302**	**6038**		**4544**	**2095**	**1580**	**8219**
Per 100 Cows			**32**	**36**				**46**	**35**	

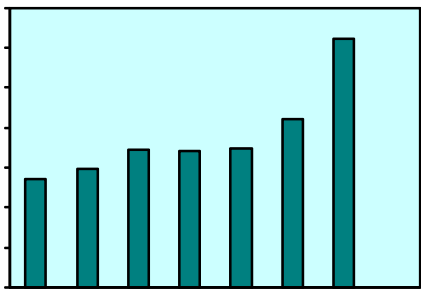


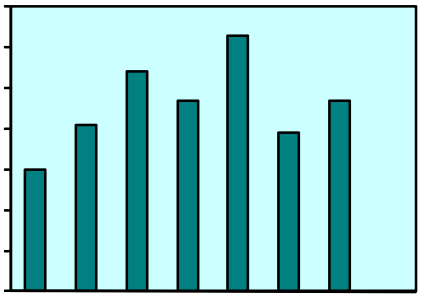
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	565	401	589	398	553	412	691
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	275	223	301	288	346	320	451
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	1349	1477	1721	1714	1732	2101	3114
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	30	41	54	47	63	39	47

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







PIONEER ZONE

Management Objectives

The objective for this zone is to stabilize elk herds at slightly reduced levels (about 4,200 cows and 1,350 bulls) to maintain herd productivity and to minimize potential impacts on mule deer. This zone will continue to be managed to produce very high bull:cow ratios (30-35 bulls per 100 cows post-season) and many mature bulls (18-22 age 3+ bulls per 100 cows pre-season).

Historical Perspective

Elk were in low abundance in the Pioneer Zone through much of this century. These units have been managed for decades under conservative controlled hunt strategies. As has occurred over much of the west, elk herds have expanded dramatically since the mid-1970s. Today, the Pioneer Zone winters approximately 9,000 elk, an increase of about 40% (3,700 elk) since the early 1990s.

About 1800 people have participated in rifle hunts in the Pioneer Zone in recent years. Conservative bull harvest management has produced exceptional bull:cow ratios and a reputation for large mature bulls. The controlled bull hunts in this zone have become very desirable; rifle permits are much in demand and difficult to draw. The area's reputation for many mature bulls has also made this zone a very attractive archery hunt; approximately 800 people have participated in recent years.

Habitat Issues

Cattle ranching, livestock grazing and recreation are the dominant human uses of the landscape in the Pioneer Zone. The Pioneer Zone is in a generally arid region where forage production can be strongly influenced by growing season precipitation. During drought years, high elevation mesic habitats are more heavily utilized by elk while low elevation riparian areas and wet meadows are more heavily utilized by cattle. Elk depredations on agricultural crops are not unusual and are especially pronounced in dry years.

In some areas, elk winter in mature stands of mountain mahogany which appears to have become relatively stagnant and unproductive. Forests are slowly encroaching into shrub and grassland communities. The spread of noxious weeds such as knapweed and leafy spurge could ultimately have significant impacts on winter range productivity.

Recent housing developments in the Big Wood River drainage in Unit 49 have severely reduced winter elk habitat. Continued development on the remaining winter ranges will reduce elk carrying capacity in the unit.

Biological Issues

Elk populations have been increasing steadily since the mid-1970s. Mild winters in the 1980s and early 1990s enhanced calf survival and increased population growth rates. Liberal antlerless

permits have been offered to stabilize population growth rates but some depredation problems continued to exist.

Recruitment measured through sightability surveys indicate most populations are reproducing at sustainable levels (38 calves/100 cows). In addition to high elk productivity, bull:cow ratios remain at very high levels (mid 40s or higher).

Interspecific Issues

Current high elk densities may be having some impact on deer productivity.

When elk numbers are high, as they are currently, livestock operators often perceive elk to be strong competitors for range forage. However, elk generally remove a minor portion of the forage compared to livestock, and elk tend to use different habitats and different forage species than livestock.

Predation Issues

Black bear densities appear to be low and stable in the Pioneer Zone. Mountain lion densities are low to moderate and appear to have increased in recent years, probably at least in part to increased elk densities. Coyotes are common, but not known to have much impact on elk populations. Wolves recently reintroduced by the U.S. Fish and Wildlife Service in central Idaho may become established in the Pioneer Zone. Once established they will become a potential predator on elk and may displace other predators through competitive interactions.

Winter Feeding Issues

No Department sponsored feeding facilities exist in this zone, however artificial feeding of elk by private citizens in Unit 49 is an annual occurrence. Education measures undertaken to reduce this activity have met with some success. Efforts need to continue to give non-sanctioned feeders a better understanding of the problems associated with artificially fed elk.

Information Requirements

Impacts of elk on mule deer production and survival are suspected but unknown. The most productive elk herds are those maintained at a level well below carrying capacity (at which point recruitment equals mortality and there is no harvestable surplus). Better information is needed to identify the appropriate elk densities which will maintain optimum productivity and harvest.

Elk

Owyhee - South Hills Zone (Units 38, 40, 41, 42, 46, 47, 54, 55, 57)

Winter Status & Objectives

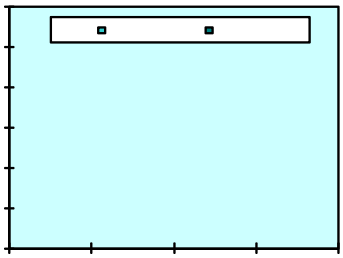
	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
38		(0)	(0)	(0)	0	0	0
40		(150)	(40)	(25)	125 - 175	20 - 40	15 - 25
41		(50)	(15)	(10)	25 - 75	5 - 15	5 - 10
42		(175)	(70)	(40)	150 - 200	25 - 50	15 - 25
46		(10)	(5)	(3)	5 - 15	1 - 10	1 - 5
47		(20)	(10)	(5)	15 - 25	1 - 10	1 - 5
54		(25)	(10)	(5)	20 - 30	1 - 10	1 - 5
55		(20)	(10)	(5)	15 - 25	1 - 10	1 - 5
57		(20)	(10)	(5)	15 - 25	1 - 10	1 - 5
Zone Total		**(470)**	**(170)**	**(98)**	**370 - 570**	**55 - 145**	**40 - 85**
Bulls per 100 Cows			**(36)**	**(21)**		**18 - 24**	**10 - 14**

Note : Estimates within parentheses are based on information other than sightability surveys.

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
1	ND					ND				
2	ND					ND				
3	ND					ND				
4	ND					ND				
4A	ND					ND				
5	ND					ND				
6	ND					ND				
7	ND					ND				
9	ND					ND				
Comparable Surveys Total										
Per 100 Cows										

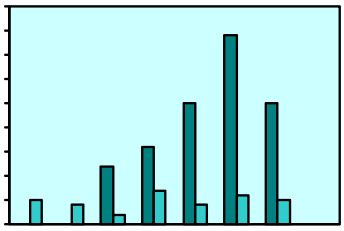
Note: ND = no survey data available.

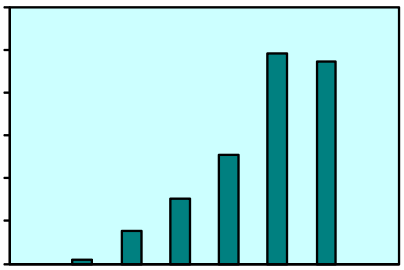


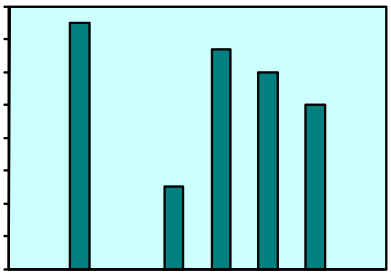
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	0	0	12	16	25	39	25
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	5	4	2	7	4	6	5
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	ND	5	39	76	127	246	236
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points		75	0	25	67	60	50

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest. ND = no harvest data available.







OWYHEE-SOUTH HILLS ZONE

Management Objectives

The goal for the Owyhee-South Hills Zone is to maintain the elk herd at its current level and provide a harvest of less than 10 bulls while emphasizing the opportunity to harvest a mature bull.

Elk management decisions in Units 46 and 47 are currently subject to the Jarbidge 6-Party Elk Agreement. This agreement was developed and signed by the Idaho Department of Fish and Game, Nevada Division of Wildlife, Bureau of Land Management (Idaho and Nevada), U.S. Forest Service, and the 71 Livestock Association to facilitate a reintroduction of elk into the Jarbidge Mountains in Nevada. The agreement stipulates that a summering population of elk will not be allowed to establish in Idaho (Units 46 and 47). The 6-Party Agreement expires in the year 2000 and elk management goals will be reexamined at that time. In units 54, 55, and 57, elk numbers will be maintained at a level that avoids competition with mule deer during winter and minimizes depredation complaints from landowners.

Historical Perspective

The elk population in the Owyhee-South Hills Zone has been at very low levels since 1900. There has been transient elk in the area east of the Jarbidge River. The elk herd in Owyhee County has fluctuated widely since 1900. There were a few hundred elk in Owyhee County in the 1970s. After a slight decline, the herd increased to about 600 elk in the mid 1990s.

The elk in Owyhee County use habitat in three states: Nevada, Oregon, and Idaho. There is limited winter range on the west side of Owyhee County. The majority of the elk in this area move west to winter in Oregon. These movements can be over long distances. One elk calf which had been tagged in Baker, Oregon, was harvested as an adult near Murphy, over 175 air miles. The elk wintering in Idaho between Highway 51 and the Bruneau River move south into Nevada for summer range. Most of the elk in this area are from a reintroduction program conducted by the Nevada Game and Fish Department and the Rocky Mountain Elk Foundation in the Bruneau River drainage in Nevada.

Elk were reintroduced into Unit 54 in 1914 and the population in 1917 was estimated to be 21 head. The elk population remained low in Unit 54, however, hunting seasons were authorized from 1963-66 (15 permits). Slight increases in elk have been observed in all units of the zone east of the Bruneau River as a result of aggressive efforts to reestablish elk in Elko County, Nevada beginning in 1980. Transient elk regularly move into Idaho from Box Elder County, Utah and Elko County, Nevada. Resident elk in the Owyhee-South Hills Zone currently number less than 100 head.

Habitat Issues

The majority of elk habitat in Owyhee County is managed by the Bureau of Land Management. However, the small pieces of private property include very productive habitats. These

productive habitats are used by elk substantially more than would be expected based on size alone. The number of Landowner Preference Permits has been increased to allow landowners to harvest some of the elk which have been utilizing their property The Bureau of Land Management directs management for most of the elk range in Owyhee County. In Owyhee County, the spread of junipers into sage brush habitats and the conversion of sagebrush dominated habitats to crested wheatgrass/cheatgrass dominated habitats raises concerns for loss of habitat diversity in the area.

Both the U.S. Forest Service and the BLM manage the elk habitat in the South Hills area. Habitat conditions are currently adequate for supporting higher numbers of elk in the South Hills portion of the zone. However, high road densities and the potential for severe depredation problems are primary considerations for prohibiting a substantial expansion in the elk populations. Landowner tolerance for increasing elk numbers is presently low.

Biological Issues

The performance of this population is largely unknown due to insufficient population surveys. Anecdotal information suggests these populations are increasing. Increases in elk numbers over the next 5-10 years are inevitable in much of this zone because substantial increases in elk are anticipated in Elko County, Nevada.

Interspecific Issues

The Owyhee-South Hills Zone has a large population of mule deer. The small elk population has had no impact on the mule deer population. In the South Hills portion of the zone (units 46, 47, 54, 55, and 57) mule deer will be given management priority over elk.

Conflicts between elk and livestock have been a major factor in elk management in Owyhee County. The concentration of elk on the private land holdings in western Owyhee County have created significant depredation problems. The landowner's major concerns are damage to fences and loss of private rangeland forage. Any increase in the elk population would increase these conflicts. Currently there are no elk depredation concerns in the South Hills portion of the zone. However, the potential for severe conflicts with private landowners exists.

Predation Issues

There are no wolves or black bears in this zone. Mountain lions and possibly coyotes are the two large predators on elk in this area. Mountain lion populations have increased over the last 30 years. Predation does not appear to be a major factor in the dynamics of these elk herds.

Winter Feeding Issues

There has been no winter feeding of elk in this zone in the recent past. The elk populations are small and scattered. Winter feeding for elk is not likely to be necessary in this zone.

Information Requirements

There are two major data needs for the elk herd in Owyhee County. First, a practical census technique has not been developed for this elk herd. The population estimates are based on reports from ranchers in the area and incidental sightings by biologists. This elk population is at a very low density, often in juniper dominated habitats with low visibility, and often in another state making census projects especially difficult. Second, there is a need to evaluate the impact of elk on the availability of rangeland forage to domestic livestock.

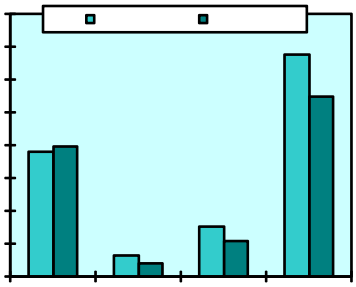
Elk
Boise River Zone (Unit 39)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
39	1998	3957	413	199	3200 - 4800	650 - 950	375 - 575
Zone Total		**3957**	**413**	**199**	**3200 - 4800**	**650 - 950**	**375 - 575**
Bulls per 100 Cows			**10**	**5**		**18 - 24**	**10 - 14**

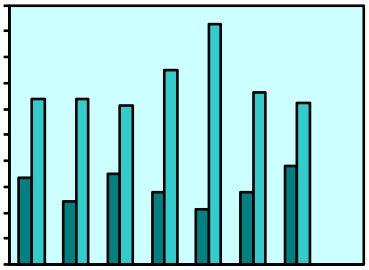
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
39	1990	3807	662	1538	6796	1998	3957	413	1106	5476
Comparable Surveys Total		3807	662	1538	6796		3957	413	1106	5476
Per 100 Cows			**17**	**40**				**10**	**28**	

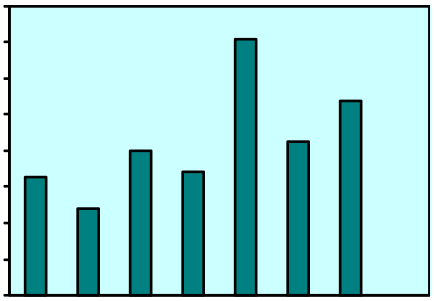


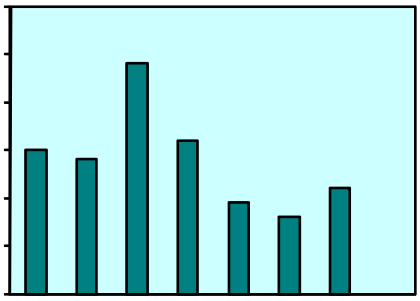
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	333	244	350	279	212	278	378
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	640	638	612	751	929	664	621
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	5257	5077	5401	5284	6016	5446	5676
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	30	28	48	32	19	16	22



Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





BOISE RIVER ZONE

Management Objectives

The objective for this zone is to maintain a population of 4,000+ cows and 800 bulls+, including 475+ adult bulls. The portion of the herd on west side of the zone will be reduced to address significant landowner concerns about elk depredations. The bull:100 cow ratio will be maintained at the statewide minimum of 18-24, with 10-14 adult bulls:100 cows. This equates to maintaining the herd at its current level and providing for a harvest of 500+ bulls each year. Reducing harvest rates on bulls will be necessary to achieve the objectives for this zone.

Historical Perspective

Near the turn of the century, elk herds in the Boise River drainage were heavily harvested for hides and meat for the mining camps in the area. Sparse elk herds in Idaho were bolstered with translocated elk from the Yellowstone area in the late 1930s. Relatively liberal either-sex seasons were maintained in this zone until the early 1970s, suppressing the herds well below habitat potential. In 1975, bulls only hunting was implemented. Since then the herd has increased to over 5,000 head.

The interest in elk hunting in the Boise River Zone has increased right along with the growth in the elk population. This is now one of the top five elk units in the state with a harvest of nearly 1,000 bulls by 5,000 hunters.

Habitat Issues

The Boise River Zone includes 2,455 square miles of excellent elk habitat. The conditions range from wilderness situations in the Sawtooth National Recreation Area to the heavily roaded areas near Boise. The Boise National Forest manages the majority of the summer habitat occupied by elk.

There are large areas of private land on the west side of the unit in the Horseshoe Bend area. Landowners in this area have suffered significant damage to hay crops and private rangeland, especially in the spring. On the south side of the unit, winter and spring concentrations of elk have been in conflict with livestock operations. The urban sprawl of subdivisions and five acre home sites in the foothills around Boise have led to significant conflicts with wintering elk. The loss of winter range and conflicts with homeowners may be the most serious factor limiting elk populations in the Boise River Zone.

Several large wildfires have converted shrub lands to grasslands and may have improved some wintering conditions for elk. The effects of wildfire in the summer and transition ranges have generally improved conditions for elk.

Biological Issues

The implementation of bulls only hunting and a series of mild winters in the late 1980s has increased elk survival in this zone. Calf recruitment is fair to good with ratio of 28-40 calves:100 cows. Bull harvest currently exceeds potential of bull calf recruitment. As an example, in 1997 664 bulls were harvested and an estimated 550 bull calves were recruited.

Interspecific Issues

The Boise River Zone is also one of the top five mule deer hunting units in Idaho. The recent changes to the habitat have favored elk. The winter survey flights show the separation of wintering deer and elk. The mule deer are not using some of the wintering areas that were used when there was a lower elk population in the 1960s.

Predation Issues

Black bear and mountain lion populations are well established and apparently stable in the Boise River Zone. The mountain lion population is well above the levels of the 1950s. Wolves were reintroduced in Idaho in 1995 and, on occasion, have been on the northern edges of this zone. Wolves are not likely to be a significant factor for elk in the unit.

Winter Feeding Issues

Winter feeding sites were maintained along the Middle Fork Boise River for both deer and elk through the 1950s. The only elk winter feeding that has taken place in the last ten years has been around subdivisions to bait elk away from problem areas. The native range has the capability to support the current elk herd in nearly all situations.

Information Requirements

This large units contains both winter and summer range for this elk herd. The current sightability surveys provide excellent information on the status of the entire herd. The most pressing need is an evaluation of the impact of elk on the availability of rangeland forage to livestock.

Elk
Smoky Mountains Zone (Units 43, 44, 48)

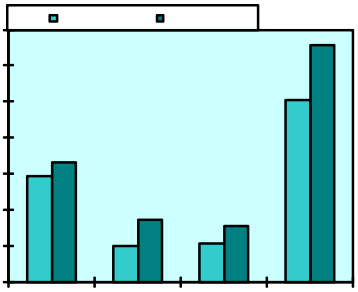
Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
43	1995	1242	498	367	1350 - 2000	425 - 650	275 - 400
44	1995	168	98	85	150 - 250	50 - 75	30 - 50
48	1999	493	245	176	375 - 550	125 - 175	75 - 125
Zone Total		**1903**	**841**	**628**	**1875 - 2800**	**600 - 900**	**380 - 575**
Bulls per 100 Cows			**44**	**33**		**30 - 35**	**18 - 22**

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
43	1995	1242	498	565	2595	ND				
44	1993	157	66	54	277	1995	168	98	86	352
48	1994	434	137	164	735	1999	493	245	224	962
Comparable Surveys Total		**591**	**203**	**218**	**1012**		**661**	**343**	**310**	**1314**
Per 100 Cows			**34**	**37**				**52**	**47**	

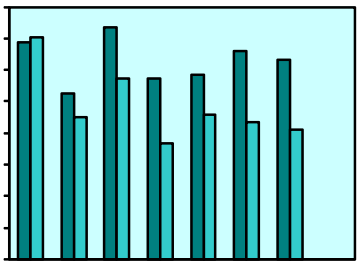
Note: ND = no survey data available.

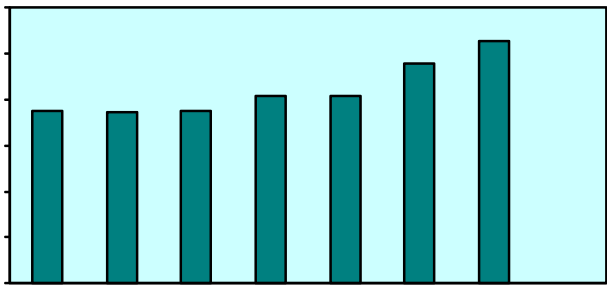


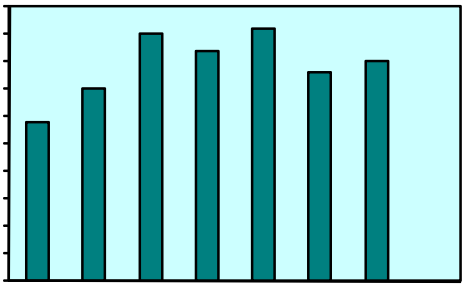
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	344	262	368	286	292	329	316
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	351	225	286	183	229	218	205
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	1885	1863	1885	2045	2045	2400	2634
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	29	35	45	42	46	38	40

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







SMOKY MOUNTAINS ZONE

Management Objectives

The objective in this zone is establish a population of 2,300+ cows and 700+ bulls, including 475+ adult bulls, at ratios of 30-35 bulls per 100 cows and 18-22 adult bulls per 100 cows. The management objective balances depredation concerns in Unit 44 and feed site capacity in units 43 and 48, and the desire to provide the maximum elk population the habitat can sustain. The adult bull objective was selected to maximize bull quality in controlled hunts and provide adequate adult bulls to sustain quality elk populations. Currently, objectives for population levels, bull:cow ratios, and adult bull:cow ratios are within established goals.

Historical Perspective

Accounts from trappers and miners in the 1870s and 1880s, indicate that elk occurred in the zone but were not as numerous as deer. Excessive use by livestock during the late 1800s and early 1900s, severely damaged the Boise River and Big Wood River watersheds and reduced the areas ability to support high numbers of elk. Additionally, heavy, unregulated hunting by miners, market hunters, and local settlers drastically reduced big game populations during the late 1800s and by 1905, had difficulty finding camp meat. Elk had been all but eliminated and deer observations were rare in the Boise River Basin and Big Wood River drainage.

In 1915, the Department began a reintroduction effort with a release of elk from Yellowstone National Park into the Boise River drainage just above Arrowrock Dam. In 1930, the elk population in the Soldier Mountain area was estimated at 135 head. Reintroduction efforts continued in 1935 and 1936 with elk releases near Ketchum in the Big Wood River drainage. Elk populations increased steadily during the 1950s and 1960s and controlled hunts were used to manage the harvest. Excessive use by livestock during the late 1880s and early 1890s, severely damaged the Boise River and Big Wood River watersheds and reduced the areas ability to support high numbers of elk. Supplemental winter feeding of elk by the Department and private interests has occurred in this zone since the initial releases.

Habitat Issues

Primary spring, summer, fall habitats throughout the zone are managed by the U. S. Forest Service and winter ranges are a mixture of U.S. Forest Service, Bureau of Land Management and private lands. Suitable winter ranges in units 43 and 44 are very limited. Because of this, nearly annual supplemental feeding must take place to sustain these populations. In Unit 43, the South Fork Boise River corridor is critical for elk that winter away from established feed sites. In Unit 48, most of the best winter habitat exists on private land in drainage bottoms near residential areas. A substantial loss of winter range to residential development has occurred in Unit 48.

Habitat productivity has probably improved on federal lands in recent years because of reductions in sheep grazing and regrowth of shrubs in areas with timber harvest. However, suppression of fire throughout much of this century has probably resulted in declining elk habitat

quality. Many aspen communities are decadent and/or are being replaced by conifer species and would benefit from fire. Additionally, in some areas, ponderosa pine dominated communities would benefit from fire to reduce high densities of Douglas fir in the stands. Spotted knapweed has become established in the zone and threatens habitat productivity and diversity in several localized areas.

Depredations have been very limited in most of this zone, with the only real problems arising near urban areas where wintering elk find exposed horse hay or ornamental shrubs.

In Unit 43, high road densities from past timber harvest activities have increased elk vulnerability during the hunting seasons. Seasonal road closures have been instituted by the U.S. Forest Service and Bureau of Land Management to increase elk escapement and mitigate for the high road densities. However, oversnow recreational pursuits (snowmobiling, back country skiing, summer home access) potentially pose a serious threat to wintering elk and could hamper the Department's ability to achieve population goals.

Biological Issues

Elk populations have been increasing steadily since their reintroduction in the 1930s. Mild winters in the 1980s and early 1990s enhanced calf survival and increased population growth rates. Liberal antlerless harvest throughout this period has begun to stabilize population growth.

Production, measured through sightability surveys and herd composition surveys at feed sites, indicate most populations are reproducing at sustainable levels (40 calves/100 cows). However, at some feed sites in the South Fork of the Boise River (Unit 43), observed reproductive performance is considerably lower (18 calves/100 cows). No determination has been made as to the cause of this lower production.

Interspecific Issues

The zone supports a substantial population of mule deer, a few moose, and at higher elevations, mountain goats. The relationship between deer and elk is presently unclear but is not believed to be a significant issue in this zone. Elk remain within the zone during winter whereas most deer migrate to winter ranges in units 45 and 52 minimizing potential competition during the critical winter months.

Cattle and domestic sheep have imposed the major forage demand in this zone since the 1870s. Excessive use by cattle and sheep severely damaged watersheds in the late 1800s and early 1900s. Today livestock use has been reduced to roughly 15% of the historic use and competitive concerns remain but tend to be more localized.

Predation Issues

Black bear populations have remained relatively static over time whereas mountain lion numbers probably increased in the late 1980s and early 1990s following increases in mule deer and elk

populations. Recently, a pair of wolves were documented in the Big Wood River drainage (Unit 48) and may become established in the zone. Once established they will become a potential predator on elk and may displace other predators through competitive interactions. Predation is currently not considered to be an important factor in the sustainability of elk populations in this zone.

Winter Feeding Issues

Winter feeding is the most contentious issue related to elk in this zone. The Department has 6 Commission approved feed sites located in units 43 and 48. These are the only elk feed sites in Idaho formally sanctioned by the Fish and Game Commission. Unsanctioned private feeding also occurs at as many as 9 locations in Unit 48 during severe winters.

Elk feeding has become a "tradition" in Unit 43 with near annual feeding operations being conducted. Without supplemental winter feeding, elk numbers in Unit 43 would probably be less than half of current numbers. Currently the elk population in Unit 43 is managed at a level that is compatible with the capacity of the 5 feed sheds (approximately 1100 head). Recent discoveries of brucellosis at "emergency" feed sites in the Upper Snake Region may influence future management of this elk population.

Unit 48 has 1 Department sanctioned feed site in the Warm Springs Creek drainage. It is not necessary to sustain the population but was set up to short stop elk before they enter developed winter ranges in the town of Ketchum. The private feeding operations in the valley are a symptom of growth and the changing demographics of the populace of the Ketchum-Sun Valley area. Most private feeding operations take place whether it is warranted or not.

Information Requirements

More detailed information is needed on 1) the effects of concentrating elk for feeding purposes (i.e. are diseases present in fed elk and what is the relationship between feeding and low observed calf ratios); 2) the movement patterns of fed elk to improve harvest management; and 3) more frequent sightability surveys to monitor population trends and age and sex ratios. In addition to improving harvest management, population surveys and movement studies are important to our discussions with local political factions regarding development in and around critical elk wintering areas.

Elk
Bennett Hills Zone (Units 45, 52)

Winter Status & Objectives

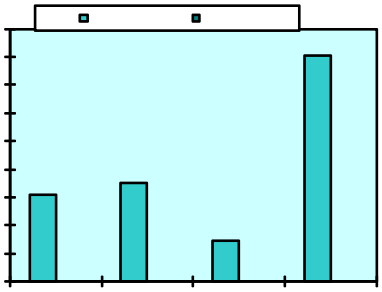
	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
45	1999	154	175	150	225 - 325	50 - 75	35 - 50
52		(75)	(25)	(15)	50 - 100	10 - 20	5 - 10
Zone Total		**(229)**	**(200)**	**(165)**	**275 - 425**	**60 - 95**	**40 - 60**
Bulls per 100 Cows			**(87)**	**(72)**		**18 - 24**	**10 - 14**

Note : Estimates within parentheses are based on information other than sightability surveys.

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
45	1999	154	175	73	402	ND				
52	ND					ND				
Comparable Surveys Total		**154**	**175**	**73**	**402**					
Per 100 Cows			**114**	**47**						

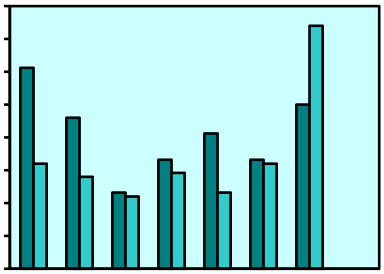
Note: ND = no survey data available.

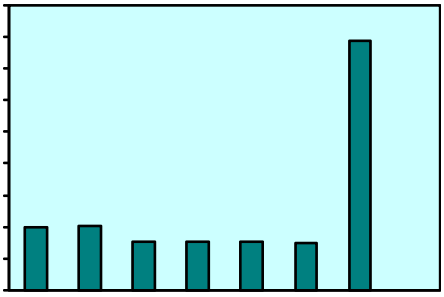


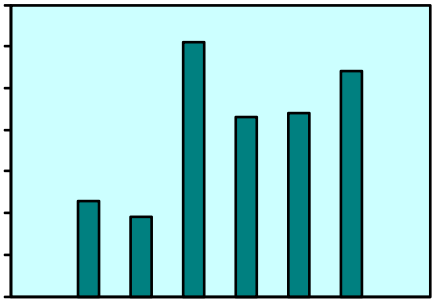
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	61	46	23	33	41	33	50
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	32	28	22	29	23	32	74
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	200	205	155	155	155	151	787
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points		23	19	61	43	44	54

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







BENNETT HILLS ZONE

Management Objectives

The objective is to maintain a population of 350+ cows and 155+ bulls, including 55+ adult bulls, at ratios of 30-35 bulls per 100 cows and 14-18 adult bulls per 100 cows. Since there are no reliable current data available on the status of elk in this zone, population objectives may be modified following sightability surveys.

Historical Perspective

Elk were extirpated from the Bennett Hills Zone by the early 1900s as a result of unregulated hunting and habitat depletion from excessive livestock use. The recolonization of the Bennett Hills Zone by elk was slow, following the reintroduction of elk into southcentral Idaho (Arrowrock Reservoir in 1915, Warm Springs Creek west of Ketchum in 1935 and 1936), During the late 1940s, elk numbered less than 50 head in Unit 45 and less than 15 head in Unit 52. Although population surveys have not been conducted, the zone is currently believed to have about 450 elk.

In Unit 45, general 5-day either-sex elk hunts were held in the western portion of the unit from 1943 through 1953. There were no elk seasons in Unit 45 from 1954-63 and 1971-78. Unit 52 was closed to all elk hunting from 1943-78 and 1971-78.

In 1965, 36 elk (9 bulls, 19 cows, and 9 calves), trapped in Unit 48, were released in Unit 52 about 1 mile south of Magic Reservoir. By the late 1970s, the population had increased to an estimated 235 head and depredation problems occurred on wheat and alfalfa fields from the approximately 120 elk that summered in the Johnson Hill area. Early controlled firearms hunts and archery seasons were implemented in 1979 to reduce the depredation concerns. In 1980, the management objective was to reduce depredations and increase the elk population to 300 head. The 1986-90 Management Plan established a goal of about 400 elk for units 45 and 52 combined. Because depredation problems are minimal and the elk population relatively small, aerial surveys have not been conducted in the Bennett Hills Zone to monitor the elk population.

Habitat Issues

The Bennett Hills Zone encompasses roughly 3,700 mi2 of which 8% is managed by the U. S. Forest Service, 67% is managed by the Bureau of Land Management, 5% is administered by the Idaho Department of Lands, and 27% is private land. Most of Unit 52 and the southern portion of Unit 45 is primarily arid semi-desert dominated by sagebrush-grass. The Mount Bennett Hills in the northern portion of Unit 45 is a low range of mountains or high plateau consisting of sagebrush-grass and mixed mountain shrub communities with small pockets of aspen and Douglas fir on northern exposures and more mesic sites. The Camas Prairie on the north side of the zone is primarily private land used for pasturing livestock and growing grass and alfalfa hay.

Livestock grazing is the primary land use in the zone. There are competitive concerns during drought years when forage utilization by cattle is higher.

Private interests own or control access to important summer and fall habitats. This has been a subject of much concern by hunters unable to gain access to areas they wish to hunt. An elk ranching operation has recently been established in Unit 45 bringing concerns of potential loss of the genetic integrity of wild elk and possible transmission of diseases to wild populations.

Biological Issues

Elk populations in this zone have increased over the last 30 years as a result of reintroduction, conservative harvest management, and improved livestock grazing practices. Because no sightability surveys have been conducted, there is a lack of data on elk productivity and population size.

Interspecific Issues

This zone winters nearly all of the mule deer from management units 43, 44, 48, 52, and 45 and for this reason mule deer will be given management priority over elk whenever conflicts are identified. Currently competitive concerns are minimal; the elk population is relatively small and static and there is little or no known overlap in winter use areas between deer and elk. A small population of pronghorn also occurs in the zone but there is little overlap of habitat.

Livestock grazing, primarily cattle occurs throughout the federal and state administered lands and on most of the private land that is not farmed. Specific conflicts between livestock grazing and elk have not been identified.

Predation Issues

Two or three mountain lions and <10 black bears are taken by hunters in this zone annually; all in Unit 45. There has been no noticeable change in bear or lion numbers in recent years.

Winter Feeding Issues

Winter feeding has not been conducted in this zone in the recent past and is not an issue.

Information Requirements

Aerial surveys for elk have never been conducted in this zone. Sightability surveys are needed occasionally to monitor elk population status in relation to goals and to document important winter use areas.

Elk

Big Desert Zone (Units 52A, 68)

Winter Status & Objectives

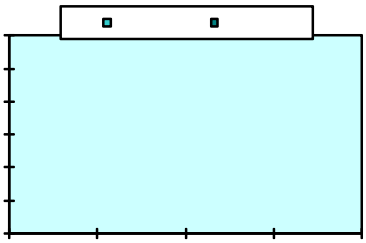
	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
52A		(60)	(20)	(15)	45 - 75	10 - 20	5 - 10
53		(60)	(20)	(15)	0	0	0
63		(200)	(100)	(100)	25 - 35	5 - 10	1 - 5
63A		(0)	(0)	(0)	0	0	0
68		(100)	(40)	(20)	75 - 125	15 - 25	10 - 15
68A		(0)	(0)	(0)	0	0	0
Zone Total		**(420)**	**(180)**	**(100)**	**145 - 235**	**30 - 55**	**16 - 30**
Bulls per 100 Cows			**(43)**	**(24)**		**18 - 24**	**10 - 14**

Note : Estimates within parentheses are based on information other than sightability surveys.

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
52A	ND					ND				
53	ND					ND				
63	ND					ND				
63A	ND					ND				
68	ND					ND				
68A	ND					ND				
Comparable Surveys Total										
Per 100 Cows										

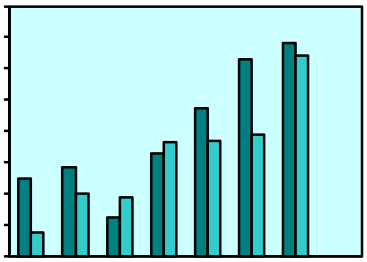
Note: ND = no survey data available.

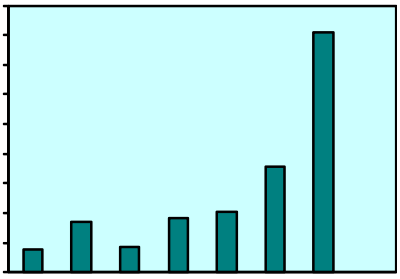


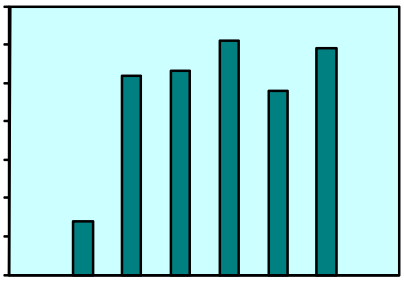
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	50	57	25	66	95	126	136
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	15	40	38	73	74	78	128
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	151	336	171	365	411	714	1619
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points		14	52	53	61	48	59

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







BIG DESERT ZONE

Management Objectives

The objective for the Big Desert Zone is to maintain a wintering elk population of 195+ cows and 40+ bulls, including 20+ adult bulls. Although no population survey estimate exists for this zone, field reports combined with Idaho National Environmental & Engineering Laboratory (INEEL) surveys indicate that current numbers exceed objectives. The reduction in cows is necessary to alleviate significant depredation concerns in Units 53 and 63. Although depredations do occur in Unit 68, they are not as severe as elsewhere in the zone. The reduction in bulls and adult bulls is to provide for hunter demand of antlered elk and balance bull numbers with cow numbers. Aggressive harvest rates will be necessary to achieve population objectives.

Historical Perspective

The elk population in the Big Desert Zone has increased substantially from early historical records. Accounts of trappers through this area in the mid 1800s suggested that although elk were common, buffalo, bighorn sheep, and antelope were far more numerous. Undoubtedly, the unregulated harvest of the late 1800s and early 1900s maintained at or reduced populations to relatively low levels.

Elk hunting in this zone began in 1983 with 30 either-sex permits for Unit 63. Since that time, elk numbers and permit numbers have increased substantially.

Habitat Issues

The Big Desert Zone represents some of the least productive habitat found in eastern Idaho. Comprised of mostly dry desert shrub habitat types, this zone provides limited summer range for elk.

The Bureau of Land Management administers the majority of the public ground (49% of total area) in this zone. Private ground makes up 39% while the Fort Hall Indian Reservation, INEEL, and Craters of the Moon National Park combine for the remaining 12%. Although only making up 12% of the total area, these lands provide difficult challenges for managing elk numbers within this zone. Hunting is either not allowed or allowed only in extremely limited capacity within these areas. The INEEL in particular, provides daytime refuge for several hundred elk that forage on private cropland at night. Efforts will continue to improve management options available to the Department for elk on the INEEL.

A number of water guzzlers have been developed primarily for nongame, upland game, and antelope within this zone. Although the impacts to other wildlife are unknown, elk have permanently destroyed some guzzlers and can prematurely dry up storage tanks.

Wildfires continue to play a big role with habitat throughout the zone. In many cases, fire has replaced sagebrush stands with perennial grasses, theoretically improving habitat conditions for elk.

Biological Issues

With the exception of a few INEEL aerial surveys, population surveys have not been conducted in this zone. Therefore, estimates for recruitment and total numbers are based on other data. Given the relatively rapid increase in elk observed over the last 10 years, it is believed that production is high. To achieve population objectives for this zone, with what are probably high recruitment rates, will require high harvest rates.

Interspecific Issues

Livestock, mule deer, and antelope are the primary ungulates sharing the range with elk in the Big Desert Zone. We are unaware of significant concerns regarding elk competition for forage with livestock. It is unknown what, if any, impacts an increasing elk population may have on antelope or mule deer.

Predation Issues

Coyotes are the predominate large predator within this zone. However, they are not believed to be a significant factor in elk population dynamics.

Winter Feeding Issues

Emergency supplemental feeding of elk has not been conducted in the recent past. The relative inaccessible nature of this zone in winter and generally limited snow fall preclude many concerns for winter feeding.

Information Requirements

The greatest data need for the Big Desert Zone is reliable population data that provides estimates of abundance, composition, and recruitment, and distribution data which would assist in developing effective harvest and depredation control strategies.

Elk
Island Park Zone (Units 60, 60A, 61, 62A)

Winter Status & Objectives

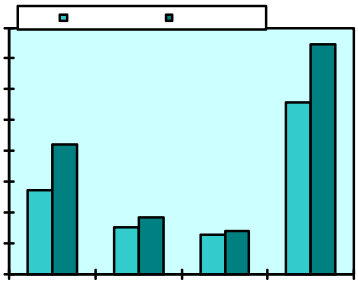
	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
60		(0)	(0)	(0)	0	0	0
60A	1998	2100	924	658	1200 - 1800	400 - 575	250 - 375
61		(0)	(0)	(0)	0	0	0
62A		(0)	(0)	(0)	0	0	0
Zone Total		**2100**	**924**	**658**	**1200 - 1800**	**400 - 575**	**250 - 375**
Bulls per 100 Cows			**44**	**31**		**30 - 35**	**18 - 22**

Note : Estimates within parentheses are based on information other than sightability surveys.

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
60	ND					ND				
60A	1995	1361	762	653	2794	1998	2100	924	705	3729
61	ND					ND				
62A	ND					ND				
Comparable Surveys Total		**1361**	**762**	**653**	**2794**		**2100**	**924**	**705**	**3729**
Per 100 Cows			**56**	**48**				**44**	**34**	

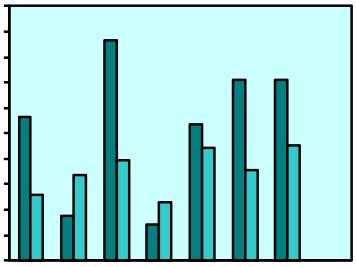
Note: ND = no survey data available.

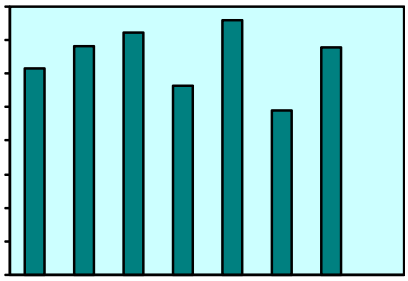


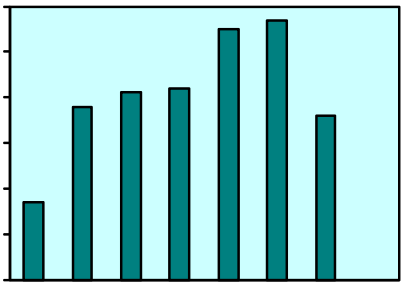
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	563	176	864	142	536	711	713
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	258	336	395	230	445	354	452
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	3078	3399	3611	2810	3783	2441	3393
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	17	38	41	42	55	57	36

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







ISLAND PARK ZONE

Management Objectives

The management objective for the Island Park Zone is to maintain a wintering elk population of 1500+ cows and 475+ bulls, including 300+ adult bulls. Currently, elk wintering on the Sand Creek winter range in Unit 60A are above objective. Obtaining adequate harvest on this population is difficult due to its migratory nature and the fact that significant portions of the herd spend the fall in Yellowstone National Park and Harriman State Park where they are immune to harvest. Bringing this population down to below 3000 animals post-season is a primary objective. Bull:cow ratios are difficult to measure for the hunted portion of the population, again because they are inflated by those animals which avoid hunting. The Zone currently provides the widest array of hunting opportunity available including archery, centerfire, and muzzleloader seasons; early and late hunting, and controlled any-bull and either-sex hunts.

Historical Perspective

Elk have been present in varying numbers in at least portions of the Island Park Zone throughout recorded history. There has been a general elk season in all or part of Fremont County since 1882. This undoubtedly is the longest running general hunting opportunity in the state. During much of the early 20th century, these hunts were based upon elk populations summering in Yellowstone National Park.

In the late 1940s, elk were first observed wintering on the high desert habitats of Unit 60A, with 582 wintering elk recorded in 1952. These wintering populations varied from about 700 - 1,200 elk until the mid-1970s, at which time the elimination of general either-sex elk hunting resulted in a rapidly increasing winter population. In the 1997-98 winter, a total of 3,729 elk were tallied on the Sand Creek winter range.

General bull hunting was restricted to spikes-only in 1991 in response to an accelerated timber harvest program on the Targhee National Forest which resulted in poor bull escapement and low bull:cow ratios. Antlerless elk hunting opportunity has been managed through controlled hunts and beginning in 1993, permits have been offered for any-bull hunting opportunity throughout the zone.

Habitat Issues

Most of the elk summer range in the zone occurs on U.S. Forest Service lands and is dominated by gentle topography lodgepole pine communities. Douglas fir stands are common on sloping sites. Timber management practices in the 1970s - 1990s severely altered habitat in the zone. In the mid-1970s, approximately two-thirds to three-fourths of the merchantable lodgepole pine stands on the Targhee National Forest were classified as dead or dying due to a mountain pine beetle infestation. Consequently, the Forest dramatically accelerated timber harvest. The result is an extensive network of roads and clearcuts which reduced elk habitat effectiveness and greatly increased elk vulnerability. Recent implementation of road and area closures in some areas should help offset some of these affects in the future.

The Sand Creek winter range supports a vegetative complex typical of high desert shrub steppe dominated by sagebrush. Bitterbrush and chokecherry are prominent on areas of stabilized sand. Land ownership consists of a checkerboard of State, Bureau of Land Management, and private property. Cooperative use trade agreements have benefited the elk population. Agricultural encroachment continues to threaten winter range in this zone.

Biological Issues

Winter elk populations have been increasing steadily in the zone since they were first noticed on the Sand Creek Desert in the late 1940s. A total of 582 were recorded in 1952. This total has climbed steadily to the 3,729 elk accounted for in 1998.

Recruitment measured through sightability surveys indicates the productive nature of the heard with calf:cow ratios typically in the 40 - 45 calves:100 cows range. Bull:cow ratios have rebounded markedly since the implementation of spikes-only general hunting in 1991. Bull:100 cows ratios have ranged from 44 - 68. It should be noted, however, that these totals are buttressed by an unknown segment of the population that spends most of their summers and falls in Harriman State Park and Yellowstone National Park. These animals are largely unharvested, being subjected to hunting pressure only while migrating to winter range, followed with a conservative winter range controlled hunt.

Interspecific Issues

Little evidence exists to support the notion of a negative relationship between elk, mule deer, and moose in this zone, as all 3 presently occur at historical high population levels. White-tailed deer are scattered throughout the zone, but are relatively uncommon.

Sheep and cattle grazing occurs throughout the zone which could pose some competitive concerns for elk, especially on winter range during drought years.

Predation Issues

Black bear densities appear to be low and stable in the Island Park Zone. Mountain lions are extremely rare. Coyotes are common, especially in the winter range portion of the zone, but are not known to have much impact on elk populations. Wolves recently introduced by the U.S. Fish and Wildlife Service in Yellowstone National Park may become established in this zone, which could effect other predators and elk.

Winter Feeding Issues

No Department sponsored feeding activities occur in this zone except under emergency situations. Agricultural encroachment on the Sand Creek winter range increases the risk of elk depredations on stored crops, especially under adverse winter conditions. Some feeding by private citizens, resulting short-stopping of elk, has occurred on Ashton Hill in recent years. Efforts need to continue to give non-sanctioned feeders a better understanding of the problems associated with artificially fed elk.

Information Requirements

Sightability estimates are needed periodically to monitor progress toward achieving population objectives. In addition, the information is valuable to assess the ongoing results of the relatively recently implemented spikes-only regulations.

Elk
Teton Zone (Units 62, 65)

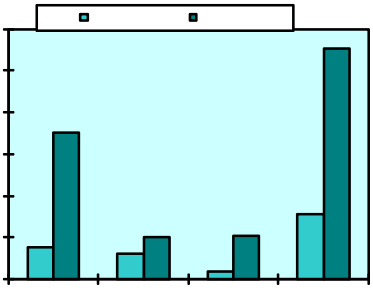
Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
62	1992	65	25	22	100 - 150	20 - 30	10 - 20
65	1996	175	51	30	50 - 100	15 - 25	5 - 15
Zone Total		**240**	**76**	**52**	**150 - 250**	**35 - 55**	**15 - 35**
Bulls per 100 Cows			**32**	**22**		**18 - 24**	**10 - 14**

Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
62	1992	65	25	26	115	ND				
65	1993	39	30	9	78	1996	175	51	52	277
Comparable Surveys Total		**39**	**30**	**9**	**78**		**175**	**51**	**52**	**277**
Per 100 Cows			**77**	**23**				**29**	**30**	

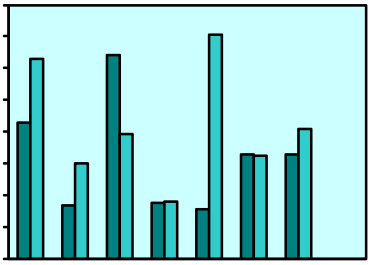
Note: ND = no survey data available.

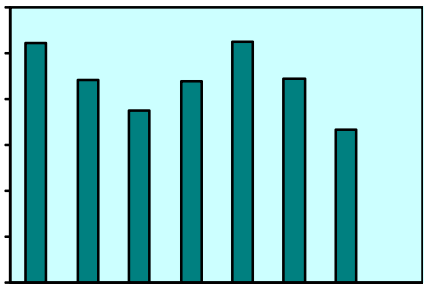


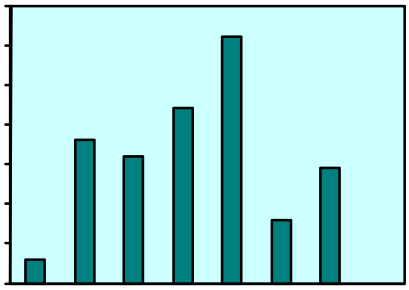
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	86	34	128	35	31	66	66
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	126	60	79	36	141	65	82
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	1042	884	751	874	1046	887	663
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	6	36	32	44	62	16	29

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







TETON ZONE

Management Objectives

The population management objective for the Teton Zone is to maintain 200+ cows, 45+ bulls, of which 25+ should be adult bulls, as measured by post hunting season sightability surveys. This represents approximately a 55% reduction from 1999 levels and is designed to eliminate artificial feeding operations existing at Victor, Conant Creek, and Felt, as directed by the WILDLIFE BRUCELLOSIS TASK FORCE REPORT AND RECOMMENDATIONS TO THE GOVERNOR (September 1998). Following the elimination of feeding, the population will be allowed to recover to the extent it can be supported on natural forage. Population manipulation will be accomplished primarily through public hunting, however trapping and transplanting may be used if hunting is unsuccessful in achieving objectives.

Well over half of the elk in this zone spend the spring, summer and fall in Wyoming. They often do not enter Idaho until after the standard hunting seasons are over. This presents a difficult challenge for management. These migratory elk provide little opportunity for Idaho hunters, particularly in the eastern portion of Unit 65, where they do cause depredation problems during the winter.

Historical Perspective

Reports of elk in the 1800s and early 1900s are sketchy and inconclusive for this area, however it is likely elk were present. General either sex hunting was allowed until the mid 1970s. At that time, over harvest became a concern and the format was changed to allow five days of general hunting for bulls only. Hunting for antlerless elk was restricted to permits. Winter range in the zone has always been limited by elevation and associated deep snows, and agricultural development. The elk population was relatively stable through the 1980s with 50-60 animals wintering in the Game Creek/Moose Creek area, 30-40 animals wintering along the Teton River in the basin, 40-50 animals being fed at a ranch on Conant Creek and approximately 100 elk wintering in and adjacent to the Teton River and its tributaries north of State Highway 33. Elk populations have grown dramatically in the 1990s. There are currently an estimated 700 elk wintering in the zone.

Habitat Issues

Although extensive logging and roading on national public lands over the last three decades has reduced elk habitat effectiveness and elk security, ample summer range remains. True winter range has always been limited in the zone due to high elevations and associated deep snows and severe temperatures. A large area of winter range in the western portion of Unit 62 has been converted to farming. Some of this land is now enrolled in the CRP. Elk winter range was lost to the construction and subsequent failure of Teton Dam although the greatest losses associated to that event were to deer habitat. Recently, urban sprawl, particularly in the east portion of Unit 65, has crept up the hillsides and reduced much of what limited winter range existed in that portion of the zone. Efforts are underway to inventory occupied and potential winter range in the zone as part of a strategy to end winter feeding of elk.

Biological Issues

The most pressing biological issues in this zone relate to the overall size of the wintering population in Unit 65 and winter distribution of elk in Unit 62. The Teton Basin population (Unit 65) has quadrupled over the past ten years and consists of two groups. One herd winters east and south of Victor and numbers about 200. It is estimated the winter range in the area could support 50-60 animals. Addressing this over population through harvest is difficult because many of the animals are in Wyoming until late winter. The other group winters along the Teton River in Teton Basin. They have increased to over 100 animals and they pose a major depredation threat in normal winters. There is an opportunity to control them with hunting.

Two groups of elk being fed in Unit 62 need to be moved or redistributed by hunting or other strategies. These animals are fed in the winter on private ranches at Teepee Creek and Conant Creek. Both as a brucellosis control method, and to comply with Fish and Game Commission policy, these annual feeding operations need to be eliminated. It is believed they have short stopped elk which previously migrated further to the west in winter. These elk summer in Wyoming and in the Bechler Meadows area of Yellowstone National Park. Management of these populations could be simplified by moving the Unit 65 west boundary, east to the Poleline-Bates-Cedron-Highway 31 Road.

Interspecific Issues

This zone contains a moderate mule deer population, a significant and relatively new white-tailed deer population in Teton Basin, and a strong moose population and it is grazed extensively by domestic livestock. Interspecific relationships among these species and elk are not monitored and are poorly understood. Examination of livestock impacts on elk winter range will be conducted as part of the effort to end annual winter feeding of elk in this zone.

Predation Issues

There are no known unique or unusual predator issues affecting the elk population in this zone.

Winter Feeding Issues

Winter feeding is occurring at three locations in this zone on a regular basis. Continued feeding at these sites is in direct conflict with Fish and Game Policy and presents a brucellosis risk. A description of the history of each site follows:

<u>Victor</u> - A herd of approximately fifty elk traditionally wintered in the foothills east and south of Victor. In about 1990, a landowner began feeding this elk herd which has grown each year and now numbers approximately 200 animals. The Department had rejected all requests to feed elk or establish a permanent feed ground at this site. Permanent stack yards, panels and hazing have been employed to combat depredations at this site. A large damage payment was made to a nursery in the vicinity which was then fenced at significant expense. The Department provided hay to this operation on two winters which were deemed to be emergency cases.

Conant Creek - In the late 1950s a private landowner began feeding approximately 20 elk on upper Conant Creek. Over the years the Department has provided this landowner hay to bait the elk away from stored hay and cattle. The numbers of elk increased and in the interim the Department tried to work with the landowner to solve the problem with options other than feeding. All such efforts were rejected and the landowner has successfully enlisted the support of politicians and sportsmen in continuing the feeding. Approximately 200 elk were fed at this site during the 1996-97 winter.

Teepee Creek (Felt) - A landowner on Teepee Creek began feeding elk in the early 1990s. There currently are approximately 150 habituated to this operation. The Department has provided panels to the landowner to protect haystacks but has not provided any feed. It is believed this operation and the one at Conant Creek have short-stopped elk from migrating to winter ranges further west.

Information Requirements

A comprehensive inventory of winter range in this zone is needed to accomplish the objective of ending annual winter feeding. The condition of some winter ranges may provide an opportunity for enhancement for elk through burning or changes in livestock management. As part of this an assessment of the location, quality, and remaining terms of enrollment, of the area's CRP lands is key if the fed populations in this zone are to become self sufficient. Additionally, information on snowmobile use of these lands is needed. If they are to be made available to elk, snowmobiles should be discouraged.

Elk

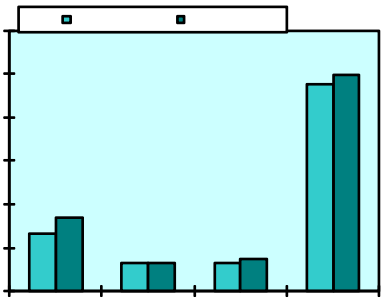
Palisades Zone (Units 64, 67)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
64/67	1998	340	131	93	400 - 600	125 - 200	75 - 125
Zone Total		**340**	**131**	**93**	**400 - 600**	**125 - 200**	**75 - 125**
Bulls per 100 Cows			**39**	**27**		**30 - 35**	**18 - 22**

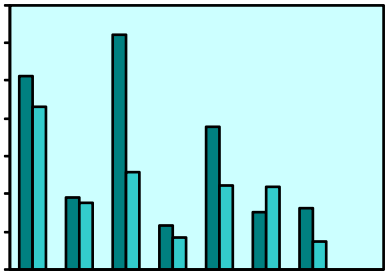
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
64/67	1993	264	80	127	950	1998	340	131	146	995
Comparable Surveys Total		**264**	**131**	**127**	**950**		**340**	**131**	**146**	**995**
Per 100 Cows			**30**	**48**				**39**	**43**	

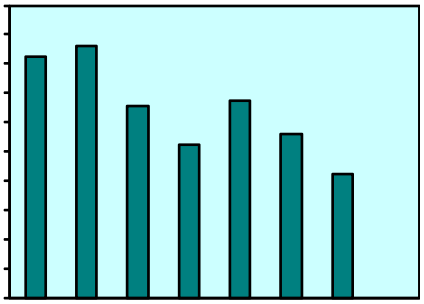


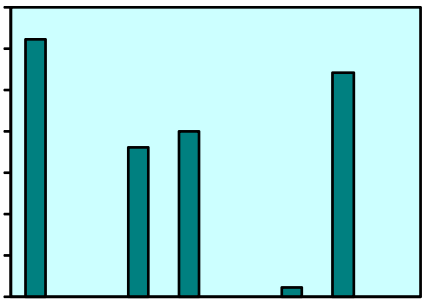
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	255	96	311	59	188	76	82
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	215	89	129	42	112	109	37
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	1653	1722	1313	1048	1353	1124	849
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	31	0	18	20	0	1	27



Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





PALISADES ZONE

Management Objectives

The population management objective for the Palisades Zone is to maintain 500+ cows, 160+ bulls, of which 100+ should be mature bulls, as measured by post hunting season sightability surveys. This represents approximately a 25% reduction from 1999 levels and is designed to eliminate the artificial feeding operation existing at Rainey Creek, as directed by the WILDLIFE BRUCELLOSIS TASK FORCE REPORT AND RECOMMENDATIONS TO THE GOVERNOR (September 1998). Following the elimination of annual feeding, the population will be allowed to recover to the extent it can be supported on natural forage, particularly on winter ranges northwest of Dry Canyon. Population manipulation will be accomplished primarily through public hunting, however trapping and transplanting will also be employed. This zone offers most of what little back country hunting opportunity remains in southeast Idaho.

Historical Perspective

Reports of elk in the 1800s and early 1900s are sketchy and inconclusive for this area, however it is likely elk were present. General either sex hunting was allowed until the mid 1970s. At that time over harvest became a concern and the format was changed to allow five days of general hunting for bulls only. Hunting for antlerless elk was restricted to permits. Elk damage to haystacks in Swan Valley dates back to the mid 1950s, corresponding with a loss of winter range to inundation by Palisades Reservoir on the South Fork of the Snake River. In the mid 1970s the Department began feeding elk in Rainey Creek to bait them away from livestock feeding operations. This activity has continued to the present and involves 400-500 animals. The elk population wintering in this zone has increased gradually over the last three decades and is currently as high as it has been in modern times.

Habitat Issues

Abundant spring, summer, and fall habitat exists in this zone. Winter range is limited and is more characteristic of mule deer habitat than elk habitat. Winter range has been lost to agriculture, inundation by a large artificial reservoir, and is currently threatened by proposed housing developments. Efforts are underway to inventory both occupied and potential elk winter range in the zone as part of a strategy to end winter feeding. Opportunities to preserve or enhance winter range will be pursued. Formerly occupied winter ranges in the northern portion of the zone (Grandview Point) are now vacant, in all probability due to displacement of elk by snowmobile activity. Winter range on slopes in the vicinity of the mouth of Rainey Creek appears to have suffered from years of overgrazing by elk and mule deer. Mature mountain mahogany stands throughout the zone may be providing only limited forage in addition to precluding all but a sparse understory of other species. Some bench areas in the Black Canyon to Wolverine Canyon stretch appear to be converting from a shrub dominated to a grass dominated community.

Biological Issues

The most pressing biological issues in this zone relate to the fed elk herd at Rainey Creek. This group of between 400 -500 animals has a documented exposure rate to brucellosis of approximately 25% based on testing of 100 individuals. Late hunts have been unsuccessful in reducing this population. Plans have been implemented to trap and remove all positive testing female animals and transplant negative testing calves to winter ranges northwest of Dry Canyon. This process is expected to take three years to complete. The calves are being transplanted in an experimental effort to determine if they will return to their birthing summer ranges and then migrate back near their transplant site the following winter. Radio tracking will monitor this test.

Management of this zone could be simplified by moving the east boundary of Unit 64 east to the Poleline-Bates-Cedron-Highway 31 Road.

Interspecific Issues

In addition to elk, the Palisades Zone is home to an important mule deer population, a strong moose population and is grazed extensively by domestic livestock. Interspecific relationships among these species and elk are not well monitored and are poorly understood. Competition between elk and mule deer probably is occurring in the immediate vicinity of Rainey Creek where both species have been fed on most winters since the mid 1970s.

Predation Issues

There are no known unique or unusual predator issues affecting elk populations in this zone.

Winter Feeding Issues

In the late 1970s, a rancher near Irwin began feeding cattle near the mouth of Rainey Creek and along the Forest boundary. Concurrently large areas of browse in the area were being converted to cultivation and snowmobile use was increasing. The combination of these factors resulted in elk damaging stored hay and taking advantage of the livestock feedlines. The Department resolved these conflicts by baiting the elk up into Rainey Creek where they have been fed ever since. It is the Department's intent to eliminate all but emergency feeding of elk in this zone by the 2001-02 winter. This should also eliminate any brucellosis related concerns.

Information Requirements

A comprehensive inventory of winter range in this zone is needed to accomplish the objective of ending annual winter feeding. The condition of some winter ranges may provide opportunities for enhancement for elk perhaps through burning or changes in livestock management. As part of this, an assessment of the location, quality, and remaining terms of enrollment of the area's CRP lands will be determined.

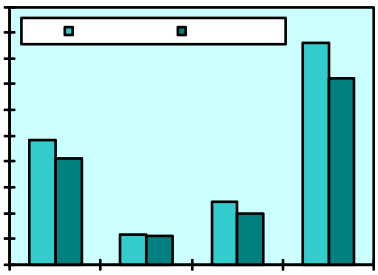
Elk
Tex Creek Zone (Units 66, 69)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
66/69	1997	2059	570	331	2000 - 3000	425 - 625	250 - 350
Zone Total		**2059**	**570**	**331**	**2000 - 3000**	**425 - 625**	**250 - 350**
Bulls per 100 Cows			**28**	**16**		**18 - 24**	**10 - 14**

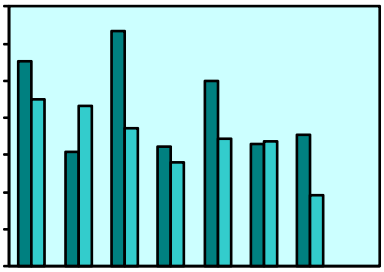
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
66/69	1995	2424	598	1230	4302	1997	2059	570	995	3623
Comparable Surveys Total		**2424**	**598**	**1230**	**4302**		**2059**	**570**	**995**	**3623**
Per 100 Cows			**25**	**51**				**28**	**48**	

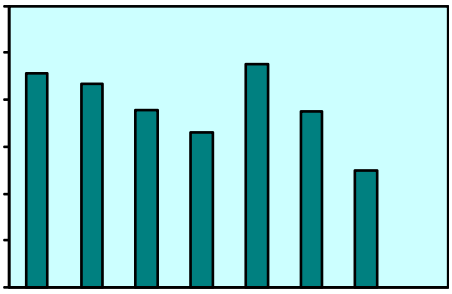


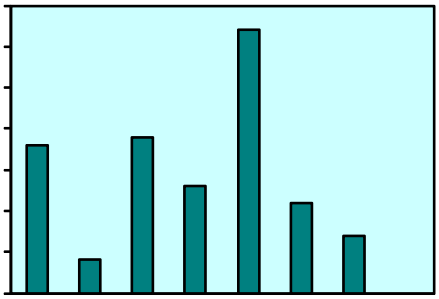
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	552	310	635	324	500	331	354
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	449	433	372	280	344	337	191
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	4573	4348	3784	3289	4763	3743	2485
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	18	4	19	13	32	11	7



Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





TEX CREEK ZONE

Management Objectives

The population management objective for the Tex Creek Zone is to maintain 2500+ cows, 525+ bulls, of which 300+ should be adult bulls, as measured by post hunting season sightability surveys. Population manipulation will be accomplished primarily through regulated public hunting. Management will be coordinated with management of Unit 66A of the Diamond Creek Zone where a major portion of the wintering Tex Creek elk are in summer and fall. Claims resulting from crop damage will be eliminated and depredation problems will be solved using hunting as a first option.

Historical Perspective

Elk were present in the Tex Creek Zone during the late 1840s as reported by Osborne Russell in "Journal of a Trapper". During the early 20th century elk were rarely seen according to residents of the area. The elk population increased during the 1940s and by the mid 1950s depredation complaints on winter wheat were common. The first modern hunt was implemented in 1952 and consisted of 50 permits. Beginning in 1955 general hunting was allowed and has continued in some form to the present.

The elk population continued its growth through the following decades and peaked near its current level of approximately 4000 animals, post hunting season, in the early 1990s. Controlling the growth of the zone's elk population has driven harvest strategies during this period. Recently, over harvest of bulls and under harvest of cows has been addressed with implementation of spike only general hunting and increased antlerless permits on late hunts.

Habitat Issues

Habitat throughout the Tex Creek Zone is or has the potential to be highly productive. The fertile, mineral rich soils of the area produce diverse plant communities including sagebrush-grasslands, extensive aspen patches and cool moist conifer stands primarily on north and east facing slopes. Terrain is generally mild and much of the private land of the area is dry farmed with cereal grains. Nearly half of the zone is private land with the balance of public lands administered by the United States Forest Service, Bureau of Land Management, Idaho Department of Lands and the Department. A significant portion of the private land is CRP enrolled and is contributing substantially to the area's carrying capacity during all seasons. The Tex Creek Wildlife Management Area, partially owned and totally managed by the Idaho Department of Fish and Game, provides 30,000 acres of prime winter habitat for elk, mule deer and moose in the zone. This land was purchased to mitigate for habitat inundated or destroyed by Ririe, Palisades and Teton Dams.

Biological Issues

A projected over harvest of bull elk in this zone was occurring under the prior management scheme of 5 days of any bull hunting. This condition was not evident on winter surveys because

the elk from Unit 66A in the Diamond Creek Zone winter in this zone. These elk should be managed as one population in the same zone from a biological perspective. Implementation of zone management resulted in a dramatic drop in the number of any bull hunters the first year and could bring the male segment of the population to objective rapidly. The Tex Creek elk are productive and future management of them will be heavily influenced by the need to control this population. Placing all of the seasonal ranges of these elk in the same zone would be appropriate to accomplish this objective.

Interspecific Issues

The Tex Creek Zone supports an important deer population. Significant mortality was sustained by this population during the 1991-92 winter. It is gradually recovering. The area also supports a strong moose population and it is grazed extensively by domestic livestock. Mule deer and elk appear to partition themselves from each other on winter range and there are no known conflicts between elk and moose, however relationships among these species are not monitored or well understood.

Predation Issues

There are no known unique or unusual predator issues affecting the elk population in this zone.

Winter Feeding Issues

Elk are not fed in this zone except on an emergency basis which has occurred twice recently; winters of 1988-89 and 1991-92. Because of the zone's proximity to known brucellosis infected herds in Wyoming and Idaho, it is extremely critical that feeding on anything less then a genuine emergency basis should be avoided. Large round bales of grass-alfalfa hay have been left in the field on Tex Creek WMA periodically to attract elk to the area and hold them on that winter range.

Information Requirements

In 1978, 1979, and 1980 the Idaho Department of Fish and Game conducted radio telemetry studies of elk wintering on Tex Creek WMA, the results of which indicated these elk summered primarily in Units 66 and 66A with some going to Units 69 and 76. This work is being duplicated in 1998-99 with preliminary results showing the same trends in distribution and movement. Of concern however, is the low proportion of marked animals remaining in the zone during the summer and fall. Additional information from this work may result in new harvest strategies designed to favor the zone's resident animals.

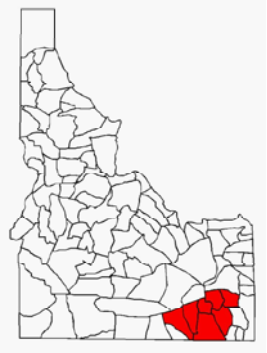
Elk

Bannock Zone (Units 56, 70, 71, 72, 73, 73A, 74)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
56		(125)	(75)	(50)	100 - 150	30 - 50	20 - 30
70		(100)	(40)	(25)	50 - 75	5 - 15	5 - 10
71		(50)	(20)	(20)	50 - 75	5 - 15	5 - 10
72		(300)	(100)	(60)	50 - 75	5 - 15	5 - 10
73		(150)	(50)	(30)	100 - 150	20 - 30	10 - 20
73A		(10)	(5)	(5)	10 - 20	1 - 5	1 - 5
74		(300)	(100)	(60)	150 - 200	25 - 35	15 - 25
Zone Total		**(1035)**	**(390)**	**(250)**	**510 - 745**	**125 - 165**	**61 - 110**
Bulls per 100 Cows			**(38)**	**(24)**		**18 - 24**	**10 - 14**

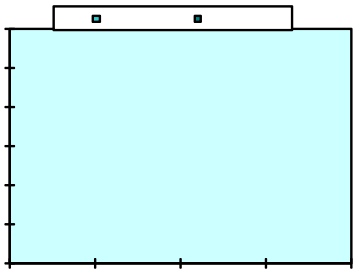
Note : Estimates within parentheses are based on information other than sightability surveys.



Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
56	ND					ND				
70	ND					ND				
71	ND					ND				
72	ND					ND				
73	ND					ND				
73A	ND					ND				
74	ND					ND				
Comparable Surveys Total										
Per 100 Cows										

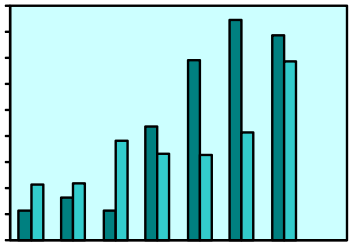
Note: ND = no survey data available.

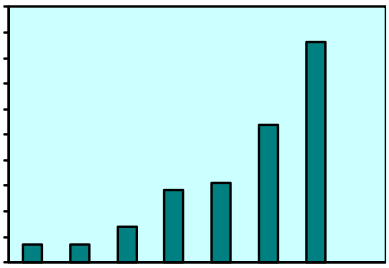


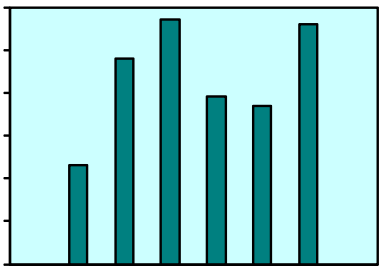
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	23	33	23	87	138	169	157
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	43	44	76	66	65	83	137
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	142	140	278	564	619	1079	1730
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points		23	48	57	39	37	56

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







BANNOCK ZONE

Management Objectives

The objective for the Bannock Zone is to maintain a wintering elk population of 625+ cows and 145+ bulls, including 85+ adult bulls. Although no population estimate exists for this zone, field reports combined with incidental observations from deer surveys indicate that current numbers exceed objectives. The reduction in cows is necessary to alleviate significant depredation concerns and reduce the occupancy of elk in important mule deer winter ranges. The reduction in bulls and adult bulls is to provide for hunter demand of antlered elk and balance bull numbers with cow numbers. Aggressive harvest rates will be necessary to achieve population objectives.

Historical Perspective

According to the Pocatello Deer-Elk Herd Management Plan (1945), in the early 1900s elk were not found in the area, and "deer were a rarity." In 1916-17 35 elk were transported by train from Gardiner, Montana, and released west of Pocatello. Counts in the 1930s and 40s found 5-600 elk. By 1950 elk were reported to be spreading into the Elkhorn Mountain and John Evans Canyon areas (Unit 73), Blackrock (Unit 71), and Crystal and Midnight Creeks (Unit 70).

In a 1940 report Ted Trueblood said, "Elk (in this area) are a liability and a problem; deer would be an asset."

Elk hunts were first offered in the zone in 1933. Elk numbers declined in the 1950s, due to "overhunting by whites and Indians," and seasons were closed. Permit hunts were offered in some units between 1962 and 1968. Populations remained at very low levels into the late 1980s. Since that time elk have expanded dramatically in all but Unit 73A. By the mid 1990s all units except 73A offered some elk hunting opportunity.

Habitat Issues

The topography of the Bannock zone (3,125,000 acres) is characterized by low, north-south mountain ranges separated by broad valleys. Elevations range from 4000-9000 feet. Mountains support mixed conifer/aspen stands on north slopes, and mountain brush/grass communities on southern exposures. Juniper and mountain mahogany are common on lower slopes. Valleys are agricultural, with large expanses of small grains, pasture, and hay. Grazing, logging, and urbanization are additional factors affecting habitats in the zone.

Land ownership is 55% private, 30% federal, 5% state, and 10% Indian reservation. Access is widespread, with few areas more than 1 mile from some type of road.

Winter range consists of windswept ridges, Conservation Reserve Program acreage, and other agricultural fields. Depredation damage complaints from private landowners have increased dramatically in several areas in recent years.

Biological Issues

Calf recruitment rates have not been measured in this zone. However, the rapidly increasing numbers observed and changes in distribution suggest a highly productive herd. Additionally; newly colonizing populations, without any known competition, tend to have high recruitment rates. Given that recruitment is probably high, high harvest rates will be necessary to achieve population objectives.

Interspecific Issues

The concurrent increase in numbers of elk and decrease in mule deer on some winter ranges has raised concerns about possible competition for forage and/or social intolerance. Livestock operators in several areas have complained about increasing elk use of forage on public land grazing allotments and private lands.

Predation Issues

Mountain lions are the major natural predators of elk in the zone and are judged to be at relatively high levels in most areas; however, expanding populations of elk do not indicate that predation is significantly impacting numbers. Coyotes are quite common, but not believed to be a major predator of elk. Black bears exist at extremely low levels within the zone and therefore not an important source of mortality for elk.

Winter Feeding Issues

Emergency supplemental feeding of elk has not been conducted in the zone. A rancher on the west side of Unit 72 has fed a small number of elk several winters for the purpose of keeping them out of his cattle feedlot.

Information Requirements

Elk permits have increased significantly from conservative to relatively higher levels over the past decade. A greater level of precision in estimating elk numbers and population change (recruitment) would help to determine appropriate levels and types of hunting to help to achieve population objectives.

Better understanding of mule deer/elk interactions, particularly on winter ranges, would help to determine future management direction for both species. A future question for wildlife managers and the public may be, "Do we want to favor deer or elk?"

Elk

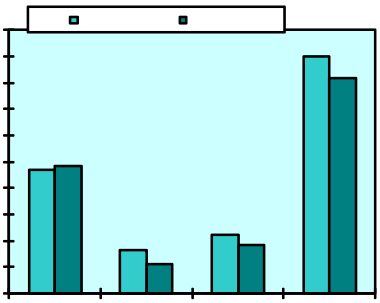
Bear River Zone (Units 75, 77, 78)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
75	1996	216	21	22	200 - 300	40 - 60	25 - 35
77	1996	104	34	14	100 - 150	20 - 30	10 - 20
78	1996	163	56	21	100 - 150	20 - 30	10 - 20
Zone Total		**483**	**111**	**57**	**400 - 600**	**80 - 120**	**45 - 75**
Bulls per 100 Cows			**23**	**12**		**18 - 24**	**10 - 14**

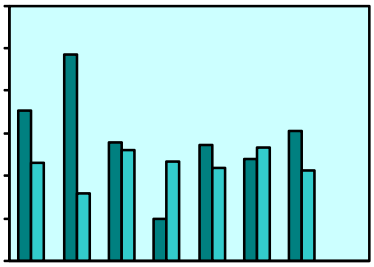
Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
75	1991	235	105	132	471	1996	216	21	75	311
77	1992	55	12	16	84	1996	104	34	39	209
78	1992	180	48	76	347	1996	163	56	80	299
Comparable Surveys Total		**470**	**165**	**224**	**902**		**483**	**111**	**184**	**819**
Per 100 Cows			**35**	**48**				**23**	**40**	

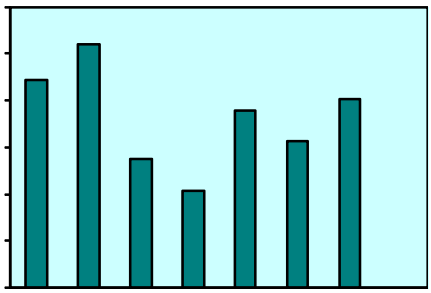


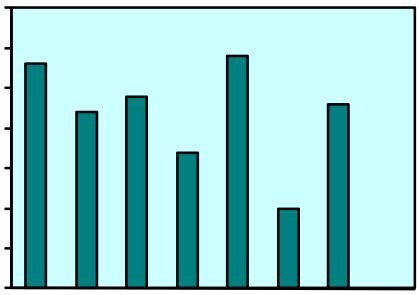
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	177	242	140	49	137	120	152
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	115	80	130	117	110	134	106
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	2221	2605	1372	1042	1892	1568	2009
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	28	22	24	17	29	10	23



Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.





BEAR RIVER ZONE

Management Objectives

The objective for the Bear River Zone is to maintain a wintering elk population of 500+ cows and 100+ bulls, including 60+ adult bulls. Although this zone could support a higher wintering population, it would be at the expense of significant depredation concerns and increases in elk occupying mule deer winter ranges. The most recent aerial survey (1996) indicates that the population is within objectives for cows, bulls, and adult bulls. No significant changes in harvest rates are necessary.

Historical Perspective

The elk population in the Bear River Zone has increased substantially from early historical records. Accounts of trappers through this area in the mid 1800s suggested that although elk were common, buffalo and bighorn sheep were far more numerous. Undoubtedly, the unregulated harvest of the late 1800s and early 1900s maintained at or reduced populations to relatively low levels.

Elk hunting in this zone began in the 1940s with controlled either-sex hunts, was closed for several years and started up again in 1956 with general hunts for either-sex. Unit 75 was closed on and off through the 1960s. From 1968 through 1975 all units were open to general either-sex hunting. Starting in 1976 through the present all units have been open for general antlered-only opportunity. In 1984 and 1985 a few either-sex permits were offered along with the antlered-only hunt. Since 1986 antlerless-only permits have generally increased.

Prior to the late 1970s the vast majority of elk that summered in this zone, wintered in Utah. Since that time, elk wintering in this zone have dramatically increased.

Habitat Issues

The Bear River Zone represents some of the highest productive habitat found in southeastern Idaho. Three main vegetational types predominate: 1) sagebrush-grassland, 2) aspen, and 3) conifer. Past habitat use research indicates that aspen habitat types are highly preferred, especially during non-snow periods. Fire suppression efforts and/or intensive livestock grazing in the past has resulted in increased shrub and conifer cover with a reduction in the aspen component since historical times.

The U.S. Forest Service administers the majority of public ground (49% of total area) in this zone. Predominant land uses of the public ground include livestock grazing, timber management, and recreation. Private ground makes up the remaining 51%, and is used primarily for rangeland pasture, small grains, and hay production. Since most of the potential elk winter range is privately held, depredation concerns have been significant. Several stackyards have been developed in order to alleviate some of the depredation concerns. The urban sprawl of subdivisions and small-acreage home sites in this zone have also led to significant conflicts with

wintering elk. The loss of winter range and conflicts with producers are the primary considerations limiting elk populations in the Bear River Zone.

Because of relatively high amounts of conifer cover, the Bear River Zone represents some of the best security cover found in southeastern Idaho. Increased use of ATV's and increases in roading will increase vulnerability standards in this zone.

Biological Issues

Calf:Cow ratios, as measured during aerial surveys, indicate a healthy, productive herd in the Bear River Zone. High calf:cow ratios are consistent with growing populations that are not heavily influenced by density-dependent factors. Given these high levels of recruitment, relatively high harvest rates of antlerless elk are necessary to stabilize populations.

Interspecific Issues

The elk population in this zone has caused conflict with several livestock operations in the foothills. The main source of concern are damage to fences, loss of hay, grain, and private rangeland forage.

The Bear River Zone is also a highly productive mule deer area. Recent habitat changes appear to be favoring elk. Although these units do show some niche separation during winter between elk and deer, recent observations indicate that elk are beginning to occupy suitable deer winter range.

Predation Issues

Potentially major predators of elk in the Bear River Zone include black bear and mountain lions. The black bear population is extremely low and probably has remained unchanged for many years. Mountain lions are believed to have increased during the last 30 years. However, current recruitment rates and other elk population parameters suggest this increased mountain lion population is not having a significant effect. Coyotes are common, but not believed to be a significant predator on elk.

Winter Feeding Issues

Emergency winter feeding of elk only occurs periodically in this zone. The last effort occurred during the winter of 1983-84 with 2 sites in each of units 75 and 77. An unknown but substantial number of elk are believed to migrate and winter in Utah, with some known to use the feeding operation at the Hardware Ranch.

Information Requirements

An unknown yet believed to be substantial number of elk are known to migrate to Utah and winter. A better understanding of these numbers would benefit management recommendations.

Historically, harvest estimates from this zone have suffered from small sample size. The need exists for better precision of these parameters.

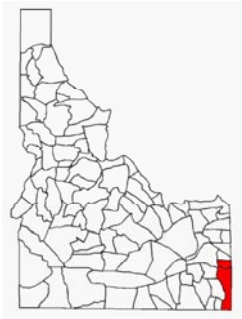
A more thorough understanding of mule deer/elk interactions, particularly on winter ranges, would help to determine future management direction for both species. A future question for wildlife managers, land managers, and the public may be, "Do we want to favor deer or elk?"

Elk
Diamond Creek Zone (Units 66A, 76)

Winter Status & Objectives

	Current Status				Objective		
Unit	Survey Year	Cows	Bulls	Adult Bulls	Cows	Bulls	Adult Bulls
66A		(50)	(25)	(20)	40 - 60	15 - 25	5 - 15
76	1999	1551	719	485	1260 - 1900	385 - 575	250 - 350
Zone Total		**(1601)**	**(744)**	**(505)**	**1300 - 1960**	**400 - 600**	**255 - 365**
Bulls per 100 Cows			**46**	**32**		**30 - 35**	**18 - 24**

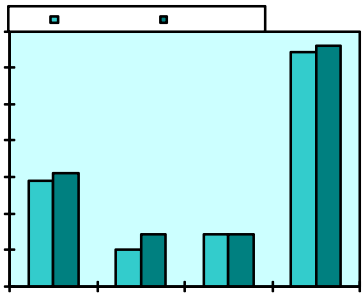
Note : Estimates within parentheses are based on information other than sightability surveys.



Population Surveys

	Survey 1					Survey 2				
Unit	Year	Cows	Bulls	Calves	Total	Year	Cows	Bulls	Calves	Total
66A	ND					ND				
76	1995	1453	513	709	3213	1999	1551	719	711	3301
Comparable Surveys Total		**1453**	**513**	**709**	**3213**		**1551**	**719**	**711**	**3301**
Per 100 Cows			**35**	**49**				**46**	**46**	

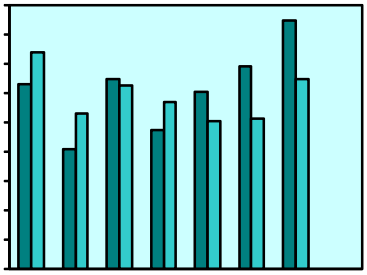
Note: ND = no survey data available.

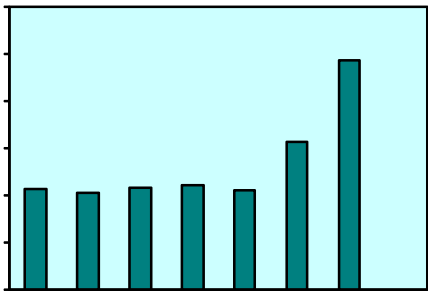


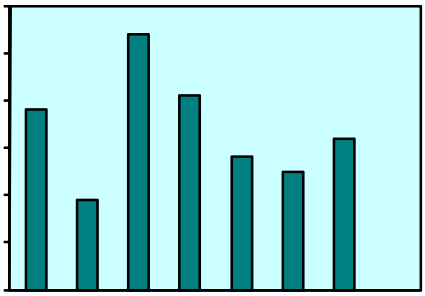
Zone Harvest Statistics

	1992	1993	1994	1995	1996	1997	1998
Antlerless Harvest	315	204	325	237	303	346	424
'A' Tag							
'B' Tag							
CH Tag							
Antlered Harvest	370	266	314	286	252	258	324
'A' Tag							
'B' Tag							
CH Tag							
Hunter Numbers	1061	1027	1075	1104	1058	1562	2421
'A' Tag							
'B' Tag							
CH Tag							
% 6+ Points	38	19	54	41	28	25	32

Note: Harvest data based on telephone survey results of general season and controlled hunts; archery harvest and hunter numbers not included; % 6 points does not include spike-only harvest.







DIAMOND CREEK ZONE

Management Objectives

The objective for the Diamond Creek Zone is to maintain a wintering elk population of 1600+ cows and 500+ bulls, including 310+ adult bulls. Limited amounts of suitable winter range in Unit 66A preclude significant increases in the wintering population for that unit. Although Unit 76 could support a higher wintering population, it would be at the expense of significant depredation concerns and increases in elk occupying mule deer winter ranges. The most recent aerial survey (1995) indicates that the population is within objectives for cows, bulls, and adult bulls.

Historical Perspective

The elk population in the Diamond Creek Zone has increased dramatically from early historical records. Accounts of trappers through this area in the mid 1800s suggested that although elk were common, buffalo and bighorn sheep were far more numerous. Undoubtedly, the unregulated harvest of the late 1800s and early 1900s maintained at or reduced populations to relatively low levels. By 1952 elk were believed to be numerous enough to warrant the first hunting season with 250 permits for either-sex elk in Game Management Units 66, 66A, and 69. An aerial survey of Game Management Unit 76 during February of 1952 resulted in 193 elk observed with a total population estimate of 230. Elk in Unit 66A are primarily migrational and winter with elk in Units 66 and 69. The first hunt in Unit 76 began in 1964 with 75 either-sex permits.

As the elk population grew, so did hunting opportunity. Although this zone has primarily been managed via controlled permits, several general hunting seasons have occurred since regulated harvest began. Between 1955 and 1959, general hunts were held in Units 66, 66A, and 69 varying between a 3 day antlered-only to a 10-day either-sex season. Again in 1968 and 1969, antlered-only 9-day general seasons were offered. The last general hunting opportunity occurred in 1975 with a 3-day antlered-only season.

The most recent population survey (1995) estimated a total of 3,213 elk in Unit 76. This total represents a 1300% increase over the first estimate in 1952. Historically, elk in Unit 76 summered and wintered within the Unit, however, as populations have increased there has been use of wintering areas outside the unit.

Habitat Issues

The Diamond Creek Zone represents some of the most productive habitat found in southeastern Idaho. Three main vegetational types predominate: 1) sagebrush-grassland, 2) aspen, and 3) conifer. Past habitat use research indicates that aspen habitat types are highly preferred, especially during non-snow periods. Fire suppression efforts and/or intensive livestock grazing in the past has resulted in increased shrub and conifer cover with a reduction in the aspen component since historical times.

Approximately 65% of the land in the Diamond Creek Zone is publicly owned, primarily U.S. Forest Service. The 35% private land is used for rangeland pasture, small grains, and hay production. Depredation complaints have generally increased in the last decade. Predominate land uses of the publicly owned ground include livestock grazing, timber management, recreation, and phosphate mining. Approximately 35% of the known U.S. reserves of phosphate ore are located in the Diamond Creek Zone.

Open habitat types combined with moderate road densities (0.7 - 2.3 miles/square mile), and in some cases unrestricted ATV travel, result in a relatively high vulnerability standard for elk in the Diamond Creek Zone.

Biological Issues

Calf:cow ratios, as measured during aerial surveys, indicate a healthy, productive herd in the Diamond Creek Zone. High calf:cow ratios are consistent with growing populations that are not heavily influenced by density-dependent factors. Given these high levels of recruitment, relatively high harvest rates of antlerless elk are necessary to stabilize populations. Additionally, liberal bull harvest rates can be sustained by high recruitment rates.

Interspecific Issues

Although both livestock and elk numbers within the Diamond Creek Zone are high, there appears to be little concern by livestock operators for competition for grass. However, localized concerns do exist for livestock (primarily sheep) over-utilization of ridge tops used by wintering elk.

During the mid 1900s, Unit 76 supported a high population of mule deer with relatively few elk. Important mule deer wintering areas included Brown's Canyon to Yellowjacket Creek, east of Henry, Stump Creek, Crow Creek, and the Soda Front from Wood Canyon to Dingle. Today these winter ranges are predominately occupied by elk. It is unknown whether habitat changes and/or competition (resource or social intolerance) have led to this change. However, there appear to be areas vegetationally suitable as deer winter range, but now only occupied by elk. Extensive populations of wintering mule deer are not expected to occur with current distribution and numbers of elk in this zone.

Predation Issues

Potentially major predators of elk in the Diamond Creek Zone include black bear and mountain lions. The black bear population is extremely low and probably has remained unchanged for many years. Mountain lions are believed to have increased during the last 30 years. However, current recruitment rates and other elk population parameters suggest this increased mountain lion population is not having a significant effect. Coyotes are common, but not believed to be a significant predator on elk.

Winter Feeding Issues

Emergency supplemental feed for elk has been provided during 4 winters since 1981 in the Diamond Creek Zone. Numbers of animals fed have ranged from 200 - 880. Recurrent emergency feeding areas include near Freedom, Thomas Fork Valley, Crow Creek, Stump Creek, and Bischoff Canyon. Additionally, it is believed that some elk summering in this zone migrate to annual winter feed grounds in adjacent Wyoming. During 1985, 122 elk were trapped near Stump Creek and translocated elsewhere. On-site testing for brucellosis resulted in no positive responses. However, during 1992/93, a group of 300 wintering elk in Idaho and Wyoming along the Thomas Fork Valley were trapped and marked in Wyoming. One out of the 40 elk tested showed a positive brucellosis response.

Information Requirements

Recently observed changes in winter distribution of elk in the Diamond Creek Zone are poorly understood. Possible explanations include a population that has reached habitat fill, habitat change resulting in less suitable winter range, and/or random behavioral response to differing environmental conditions. A better understanding of the processes involved in winter range selection would aid in a better ecological understanding of elk in this zone and lead to more responsive management actions.

The Diamond Creek Zone has been a highly popular area for archery hunting. It is believed that a significant amount of archery harvest occurs in this zone, however, past data collection efforts have been inadequate to precisely monitor archery harvest. Better archery harvest information would enhance management efforts.

ELK HARVEST MANAGEMENT FRAMEWORK AND GUIDELINES

The following discussion provides a general overview and guidelines for implementation and management of the Dual Tag Zone System. It is not intended to dictate specific recommendations, rather to provide a general approach to implementing changes in elk hunting frameworks. Concern for numbers of adult bulls and bull age structure in parts of Idaho prompted elk management changes summarized in this plan. The following discussion primarily deals with changes that affect adult bull elk harvest mortality.

The Dual Tag Zone System, as originally established by the Idaho Fish and Game Commission, provides 2 distinct elk tags, A' tags and B' tags. A' tags would be available in unlimited numbers in each zone, would carry the longer and more attractive of the archery seasons, and the minimum rifle A' tag hunt would be for spike bulls with antlerless opportunity optional. B' tags would have the shorter/less attractive archery season, and the minimum B' tag rifle hunt would be for any bull. The Dual Tag Zone System would be used differently in the backcountry Middlefork and Selway zones due to season length (September 15 - November 18). B' tags would be valid for September, A' tags valid for October, and C' tags valid for November. A' tags would be valid for either-sex elk in the middle of the season. Additionally, the Commission indicated that B' tags would not be capped initially, unless an emergency arose.

If a reduction in harvest mortality of bull elk is needed to achieve population objectives, the greatest effect will generally occur by changing the level of participation and/or hunting effort associated with the B' tag. Therefore, the Department will explore opportunities that limit B' tag harvest mortality before restricting A' tag opportunities. Two options exist to change the B' tag harvest mortality. First, A' tag season frameworks (legal animal(s), season length, weapon types, valid zones, etc.) can be made more attractive relative to B' tags to voluntarily draw hunters away from B' tags. Second, restrictive caps on B' tags can be implemented to limit the number of hunters participating. Given the Department's general philosophy for harvest management of allowing the greatest opportunity with the fewest restrictions to achieve objectives, we will first explore means of voluntary B' tag reductions before recommending caps. This is consistent with the conclusions made by the "Deer and Elk Implementation Resolution Team" (consisting of Department staff and members of the sporting public) that general hunting opportunity be maintained.

However, when all opportunities to voluntarily reduce B' tag harvest mortality have been reasonably explored and restrictive caps become necessary, the Department will recommend an incremental reduction in available B' tags. This will allow hunters time to adjust and it allows the Department time to measure results. Except under exceptional circumstances, the first year's recommended reduction will be at least 25%, but no more than 50% of the total anticipated reduction in B' tags. If and/or when further restrictions are needed, another 25% cap restriction will be recommended. This incremental approach should be followed until a positive response in bull harvest mortality is observed.

We recognize that predictable hunter behavior patterns and effects of the Dual Tag Zone System will not be apparent for a couple of years as hunters experiment and explore different

opportunities. It would be premature to make sweeping management changes based on information obtained from the first year's information following a significant change in elk management. More appropriate changes can be made after reliable data on hunter behavior and hunter effects under the Dual Tag Zone System are available.

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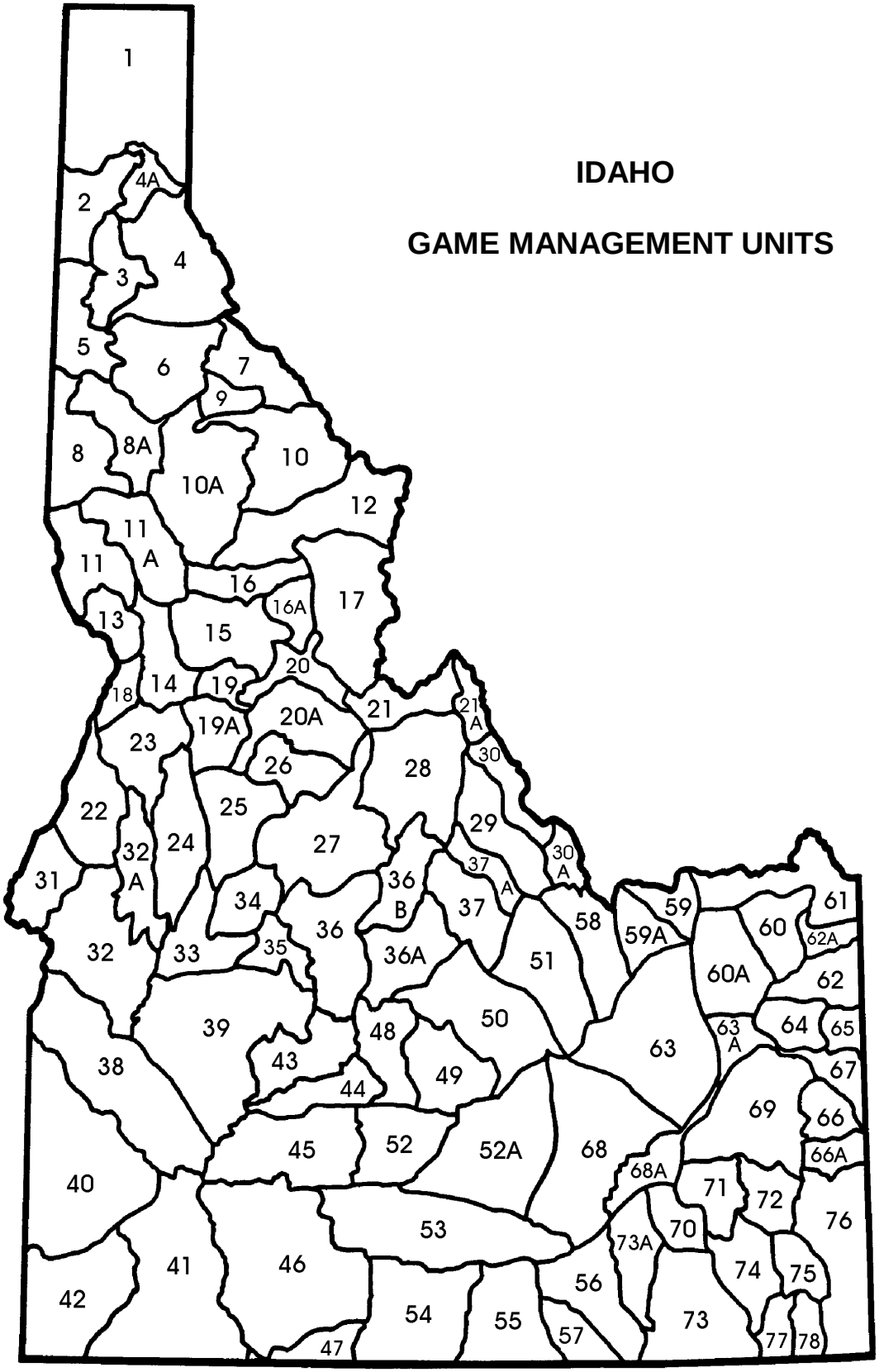
IDAHO

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.