

## **ARIZONA GAME AND FISH DEPARTMENT**

### **ELK MANAGEMENT PLAN**

In support of the Arizona Game and Fish Department's Operational Plans, the Department updates this elk management plan every two years.

The following management plan describes how the Department will manage elk in Arizona. The Commission will review the updated plan before implementation.

December 7, 2007

## **INTRODUCTION**

The native Merriam's elk is believed to have become extinct in Arizona shortly after 1900. Rocky Mountain elk from Yellowstone National Park were first transplanted into Arizona in 1913. A number of subsequent transplants were made throughout the state. While most transplants were successful, statewide elk numbers and distribution have fluctuated since then. During the 1980s and early 1990s, elk numbers and distribution increased substantially. Subsequent harvest management strategies, combined with dry climatic conditions, led to the reduction of elk populations in some elk herd units and the stabilization in others. Overall, the elk population in Arizona has been stabilized, with current management toward limited population expansions.

Elk are an important resource to hunters, wildlife viewers, and outdoor enthusiasts. Elk hunters purchase gas, food, lodging, guide services, and trip related equipment. Wildlife viewers also boost the economy by purchasing gas, food, camping equipment, binoculars, cameras, and other related items. Elk related activities annually contribute millions of dollars to the Arizona economy. However, elk also use a limited forage base, thereby affecting potential livestock and agricultural production on both public and private lands.

Conflicting demands for forage produced on primarily public lands of the Little Colorado River watershed in Game Management Units (Units) 5A and 5B resulted in the formation in 1991 of a multi-disciplinary group known as the Forage Resource Study Group (FRSG). Members of this group included representatives from the U.S. Forest Service (USFS), State Land Department, U.S. Natural Resources Conservation Service, ranchers, Arizona Game and Fish Department (Department), and various sportsmen groups. The goals of this group were to develop cooperative grazing management plans that address livestock and elk use of forage in areas of concern, to monitor range condition and trend, and to assimilate this information into the annual hunt recommendations.

The Department developed the concept of Elk Habitat Partnership Committees from the FRSG to address local concerns statewide. The intent of these committees was to involve landowners, land management agencies, Department, and sportsmen in various aspects of elk management. Interested parties were encouraged to participate on a local level to formulate goals, objectives, and strategies to reduce real or perceived conflicts and to submit habitat improvement projects to increase the productivity of the land. These committees also review and comment on Department management direction of elk herd unit population objectives. These committees have now evolved into Habitat Partnership Committees (HPC), reducing the focus on single species management.

The Department developed, with substantial public input, a set of recommendations for Commission Rules during 2001-2002. These rules enabled the Department to develop a list of hunter names, a "hunter pool," that may be drawn from for use in population management seasons to meet management objectives that have not or will not be met using standard season structures. In 2005, the ability to offer restricted nonpermit tags to permit tag holders in units where population management seasons exactly overlap in open areas and season dates with the permitted hunt was developed through rule revision.

The following plans address current and future perspectives in elk management in Arizona. They serve to identify past and current elk management issues, provide elk population management objectives, as well as consider management opportunities to address issues on public and private lands. Progress on objectives will be reported in annual performance reports.

**Goal:**

Develop the framework for elk management and issue resolution consistent with the Department's *Wildlife 2012* Strategic Plan, operational plans, and the Species Management Guidelines. Use local HPCs to develop habitat enhancement projects, which are consistent with the committee's goal statement to increase habitat capability or address conflict resolution.

**Objectives:**

- 1 Identify elk populations exhibiting a relatively high degree of fidelity to home ranges, which encompass both winter and summer ranges.
- 2 Assess current populations within each elk herd area. Set population trend objectives for each elk management unit consistent with habitat capability and management philosophy delineated for the units.
- 3 Use habitat and issue assessment to manage elk populations, prioritize habitat improvements, and achieve forage resource conflict resolution with land management agencies and private landowners.
- 4 Work with the HPCs to formulate habitat improvement recommendations.

**Future Management Needs:**

Future population trend objectives will be set in consultation with land management agencies, HPCs, and interested public. These objectives will be consistent with approved planning documents such as the Department's *Wildlife 2012* Strategic Plan. Public input regarding elk management will be documented every two years to keep each Regional segment of this plan current. These segment updates will be reviewed and submitted with the elk hunt recommendations to the Arizona Game and Fish Commission.

Elk population modeling will be used in making elk hunt recommendations along with improved survey techniques. Additional studies may be conducted to ensure the continued precision of population models and survey methods. Improved survey monitoring will be implemented as appropriate.

To ensure that the forage monitoring data collection is properly directed, specific objectives and use standards will continue to be refined. Forage monitoring data collected to determine elk and

livestock use has been used to manage elk herds. The Department uses forage-monitoring in specific areas to better determine the overall effects elk are having on key areas.

Population trend objectives can be further tailored for each herd unit by analyzing: total numbers surveyed during pre- and post-hunt surveys; standardizing aerial flights using Global Positioning System (GPS) technology; using observed pre-hunt calf to cow ratios as an indicator of habitat quality and rate of recruitment; and tailoring forage monitoring to better determine what the wildlife-caused impacts are in key areas on a landscape level.

The HPCs have become an integral step in securing funding for on the ground habitat improvement projects. For sound population management decisions, active and broad-based local committee participation is essential.

Habitat improvement projects will continue to be coordinated with the HPCs to address concerns regarding elk management. To date such projects have included expanded aerial survey efforts, water source expansion and maintenance, juniper pushes, salt block supply, elk jumps and fencing, and prescribed burns.

**Commission Direction:**

The Department's Elk Management Goal is to maintain elk populations at levels that provide maximum and diverse recreational opportunities, while avoiding adverse impacts to the species and its habitat while minimizing land use conflicts. Guidelines are grouped into "Standard" or "Alternative" hunt management.

The Commission directed the Department to increase elk populations where possible in accordance with Elk Management Plans, while increasing elk hunt opportunity by 10% by 2009.

Season prescriptions:

1. At least five percent of the total elk permits will be allocated to juniors-only antlerless seasons.
2. Habitat based management objectives will be included in the determination of elk population objectives, using forage use monitoring results per Department protocol, for individual elk herd units where this data is available.
3. Field ages from harvested elk may be used in the determination of elk population objectives and trends.
4. "Antlerless elk" hunts may be recommended in units or herds when possible in accordance with the Elk Management Plan. The number of permits may be adjusted annually to reduce, stabilize, or allow for an increase in the elk population.

5. Limited opportunity elk hunts may be recommended to address population management concerns during times that best meet management objectives. Limited opportunity hunts may be offered as over the counter non-permit tags.
6. Population management hunts may be established in accordance with A.R.S. 17-239 and R12-4-115 to meet management objectives with goals, recommendations, or guidelines that were not met during regular seasons.
7. Harvest among general, muzzleloader, and archery seasons by sex will be allocated according to demand (five-year averages), excluding limited opportunity hunts.
8. At least six general early bull elk hunts will be offered annually; two each in Regions 1 and 2 and one each in Regions 3 and 6. At least six muzzleloader bull elk seasons will be offered annually; two each in Regions 1 and 2 and one each in Regions 3 and 6.
9. Early archery elk seasons will begin on Friday of week 37 (September 12, 2008 and September 11, 2009), and run for fourteen days. Late archery elk season will begin on Friday of week 46 (November 14, 2008 and November 13, 2009) and run for 14 days. All units contained within standard elk management zones (not including winter and limited population management zones) will have an early and late archery hunt structure. In the first year, 25 permits will be issued in addition to existing archery structure. In subsequent years, harvest will be managed according to statewide demand for early and late hunts. In units that also have a late muzzleloader hunt, the late archery season will begin on Friday of week 47 (November 21, 2008 and November 20, 2009) and run for 7 days.
10. Early muzzleloader elk seasons will begin on Friday of week 39 (September 26, 2008 and September 25, 2009) and run for seven days. Late muzzleloader elk seasons will begin on Friday of week 46 (November 14, 2008 and November 13, 2009) and run for seven days. Muzzleloader elk season dates may be established as needed in December to address population management objectives.
11. Early general bull elk seasons will begin on Friday of week 39 (September 26, 2008 and September 25, 2009) and run for seven days. Late general bull elk seasons will begin on Friday of week 48 (November 28, 2008 and November 27, 2009) and run for seven days.
12. Early general antlerless elk and juniors-only antlerless elk seasons will begin on Friday of week 42 (October 17, 2008 and October 16, 2009) and run for seven days. Late general antlerless elk seasons may be established as needed in December to address population management objectives.

Opportunity prescriptions:

- A. Wildlife Managers will manage elk for the center of guideline ranges, while keeping confidence intervals in mind. The most recent three-year trends for all population indices should also be taken into consideration when determining permit adjustments.

The following table will be used when determining bull permits for standard management. Hunt opportunity should be maximized and emphasis will be placed on bull:cow ratios.

Bull Permits should	Decrease	Stay the Same	Increase
Calves:100 Cows	< 30	30 to 40	> 40
Bulls:100 Cows	< 15	15 to 25	> 25
Hunt Success	< 20	20 to 30	> 30
Population Trend	Decreasing	Stable	Increasing

- B. Units 1, 9, 10, and 23 will be managed to alternative guidelines. In these units, bull:cow ratios will be managed for up to 40:100 in accordance with the Elk Management Plan.
- C. In units managed according to alternative guidelines, at least 50% of bull elk harvested on early archery, early muzzleloader, and/or early general season should have six antler points or more on a side.
- D. In Units 1, 9, 10 and 23 there will be an early archery elk hunt annually, whereas the early general and muzzleloader bull elk hunts will be offered during alternate years.

**Current Statewide Population Status:**

Post-hunt adult population in 2006 was estimated at 15,000-20,000 animals statewide. Based on 2006 harvest and surveyed population parameters, the post-hunt adult population for 2007 is estimated to be stable to slightly increasing in comparison to 2006. Given the objectives outlined within this plan and recommended harvest, the statewide population trend for 2008-2009 is expected to be stable to slightly increasing, with modest growth in some units. The specific units where population growth is expected will be identified annually to the Commission. The following unit projections were provided to the Commission in December 2007:

Objective	Unit or Herd Unit
Increase herd	1, 10, and 27
Stabilize herd	3BS, 4A, 4B, 5A, 5B, 6A, 6B, 7, 8, 9, 16A, 19A, 21, 22, and 23
Reduce herd	2A, 2B, 3A/3C, 3BN, 4AN, 12A, 12B, 15A, 15B, 17A, 17B, 18A, 18B, 19B, 20A, 20C, 24A, 28, 31, 32, Verde Valley, and Alamo Lake

## **REGION I**

### **Background and History:**

Elk management in Region I currently incorporates a wide variety of information and data. Pre-hunt surveys are conducted to evaluate sex ratios, recruitment, and relative abundance. When conditions and resources permit, winter surveys are conducted to determine use areas and to index populations using critical winter areas. Wildlife forage monitoring is conducted to determine annual herbaceous use levels. Relative health and age of harvested elk in specific units is determined through field checks of harvested animals. Hunter questionnaire data is analyzed to estimate the number of legally harvested animals. Computer population simulation modeling is used to estimate population trends and to predict potential effects on populations from proposed harvest scenarios.

Elk teeth have been collected for aging purposes during many of the elk hunts in Units 1, 3A, 3C, and 4A in the past. The resulting data helped determine the age structure of bulls harvested during rut hunts and changes in age structures of elk as a result of modifying population objectives. Currently teeth are not being collected for aging, but hunt guidelines allow for this as a tool to monitor trends in the population if deemed necessary.

In most units, forage monitoring is conducted annually to determine wildlife herbaceous forage use levels in key areas. Monitoring of wildlife use on key browse species within the Rodeo-Chedeski burn in Unit 3C is also being conducted. Forage monitoring is an important management tool that enables managers to incorporate habitat-based parameters into annual elk population management objectives.

In 1998, the Commission directed the Department to manage elk populations in Unit 4A consistent with the herbaceous forage distribution between elk and livestock developed by the Department and the Apache-Sitgreaves (A-S) National Forests. Wildlife herbaceous forage use levels in key areas on National Forest System lands are one of the primary factors considered in determining annual elk population management objectives in Unit 4A. In 2001, the Commission directed the Department to manage the Unit 4B and western portion of Unit 3C with the same forage distribution management parameters.

Movement studies show seasonal elk movement between the White Mountain Apache Reservation and the A-S from Show Low east and south to Alpine. Elk management information is shared between the White Mountain Apache Game and Fish Department and the Department.

Elk management affects not just sportsmen and their ability to draw an elk permit, but also landowners and livestock operators on public lands. Elk are highly mobile animals and seasonal movements can affect all aspects of land ownership and management.

In 2001, elk population objectives and hunt strategies were modified on and adjacent to private land to address documented elk depredation concerns. Elk have caused marked damage to croplands during the growing season in these areas. It was determined that substantially reducing or eliminating these elk populations would be the best approach. New hunting

opportunities reduced many of these elk populations with limited opportunity hunts. Starting in 2003, through the modification of Commission Rules, newly designed population management seasons added more flexibility in elk management. These hunts can be implemented in short notice using an established hunter pool to remove specific problem elk that were not harvested with traditional hunt structures. Landowner participation will remain a key factor in the success of these hunts.

To address local concerns, HPCs have been formed in the Show Low, Winslow, Springerville, and Alpine areas. In 2005 the Alpine and Springerville HPC members elected to combine their two groups into a single HPC forming the Springerville-Alpine HPC.

### **Management Objectives:**

Hunt Guidelines, Species Management Guidelines, operational plans, and the annual game management implementation plan guide the Region's elk management. The Species Management Guidelines and the Hunt Guidelines provide for elk management consistency across the state, while providing management flexibility for the Pinetop Region.

In 1997 Region I developed the "Herbaceous Forage Production and Use Monitoring Program for Consideration in Elk Management in Region I." The monitoring program provided a consistent, standard approach for incorporating habitat-based parameters into elk management through assessment of herbaceous forage production and use by elk, identification of elk forage use thresholds, and application of management guidelines associated with these thresholds to annual elk population management objective recommendations consistent with Commission direction.

### **Objectives by Management Unit:**

Population management objectives are reviewed and updated annually in cooperation with the Forest Service Ranger Districts and the HPCs. Population simulation models are updated annually with current survey, mortality, and hunter harvest information. Furthermore, proposed harvests levels are run in the simulations to determine potential effects and future trends on the current elk population.

The decision to implement or modify an antlerless elk hunt is determined by many factors. These factors include: (1) herbaceous forage use monitoring; (2) impacts to special status species and habitats; (3) the degree of verified private land conflicts; (4) pre- and post-hunt survey results; and (5) population modeling.

The following herd unit objectives are reviewed and set biannually. Evaluation and modifications can be made based on available information and recommendations of the HPCs.

#### Units 1 and 2C:

1. Stabilize or allow the Unit 1 elk herd to slightly increase from pre-hunt 2008 to 2009. Continue to emphasize harvest of migratory elk by using late season hunt structures throughout the winter range, although at a reduced level.

2. Use specific hunt strategies including Population Management Seasons to address specific concerns of residents within the Round Valley area with elk inside the town limits.
3. Use all available data (e.g., population surveys, population simulation modeling, forage monitoring, substantiated private land depredation concerns, current and projected long-term climatic predictions) to support overall objectives.
4. Continue alternative hunt guidelines directing that the unit be managed for up to 40 bulls:100 cows.

*Unit 2B:*

Continue to reduce the resident herd. The long-term goal is to have a minimal resident elk herd. Lower resident elk numbers would reduce private land depredation and potential negative impacts to other wildlife species.

*Unit 3A:*

1. Continue to reduce the resident herd. The long-term goal is to have minimal or no resident elk. Lower resident elk numbers would reduce private land depredation and potential negative impacts to other wildlife species.
2. That portion of Unit 3A that lies north of the Pink Cliffs has been identified as a Limited Elk Zone.
3. Use all available data (e.g., surveys, depredation complaints, hunter contacts, agricultural and commercial private land issues, and hunter success) to implement hunt structures.

*Unit 3B:*

*Woolhouse:*

1. Continue to focus harvest on the wintering migratory herd through late season antlerless hunt structures.
2. Continue efforts to complete wildlife-use only forage monitoring sites, which will provide habitat-based data for wild ungulate forage use during both early and late growing seasons. Coordinate with the Apache-Sitgreaves National Forest (Lakeside Ranger District) to increase the number of forage monitoring sites to meet protocol.
3. Use all available data (e.g., population surveys, population simulation modeling, forage monitoring, substantiated private land depredation concerns, current and projected long-term climatic predictions) to support overall objectives.

*3B North:*

1. Reduce the resident elk herd.
2. Continue developing and providing a resident elk hunt structure which reduces elk impacts on agricultural lands and addresses private land depredation concerns north of Highway 60 and the U.S. Forest Service boundary.
3. Use all available data (e.g., surveys, depredation complaints, hunter contacts, agricultural and commercial private land issues, and hunter success) to implement hunt structures.
4. In areas where standard hunts are not or cannot achieve the desired objectives, Population Management Seasons may be used.

Unit 3C:

*Aripine-Pinedale:*

1. Reduce the population from pre-hunt 2008 to 2009. Manage the elk population within the Ari-Pine Resource Coalition objectives. The goal is to balance elk herbaceous forage use with the current forage capacity distributed to wild ungulates.
2. Coordinate with the Apaches-Sitgreaves National Forest (Black Mesa and Lakeside Ranger Districts) to make certain our forage monitoring sites meet protocol. Work with Forest Service to reduce or eliminate issues with feral horses. Continue to monitor wildlife forage use to help determine future herd unit objectives.
3. Use all available data (e.g., population surveys, simultaneous double count population estimation, population simulation modeling, forage monitoring, substantiated private land depredation concerns, current and projected long - term climatic predictions) to support overall objectives.

*Baca:*

1. Reduce the population from pre-hunt 2008 to 2009. Manage the elk population within the agreed upon forage distribution (50% livestock:50% wildlife). The goal is to balance elk herbaceous use with the current forage capacity distributed to wild ungulates.
2. Coordinate with the Apaches-Sitgreaves National Forest (Black Mesa Ranger District) to increase the number of forage monitoring sites in the Baca portions of Units 3C and 4B in order to meet protocol. Continue to monitor wildlife forage use to help determine future herd unit objectives.
3. Use all available data (e.g., population surveys, simultaneous double count population estimation, population simulation modeling, forage monitoring, substantiated private land depredation concerns, current and projected long - term climatic predictions) to support overall objectives.
4. In areas where standard hunts are not or cannot achieve the desired objectives (e.g., within the Rodeo-Chediski fire or agricultural areas), population management seasons may be used.

Unit 4A:

*Chevelon:*

1. Stabilize the Unit 4A/Chevelon elk herd from pre-hunt 2008 to 2009 through the harvest of antlerless elk.
2. Manage the elk population within the agreed upon forage distribution (50% livestock:50% wildlife). The goal is to balance elk herbaceous forage use with the current forage capacity distributed to wild ungulates.
3. Continue to monitor wildlife forage use to help determine future herd unit objectives.
4. Use all available data (e.g., population surveys, population simulation modeling, forage monitoring, substantiated private land depredation concerns, current and projected long - term climatic predictions) to support overall objectives.
5. In areas where standard hunts are not or cannot achieve the desired objectives, Population Management Seasons may be used.

*Unit 4A North:*

1. Unit 4A North is that area of 4A that lies north of Territorial Road.
2. Reduce the resident herd. The long-term goal is to have a minimal resident elk herd. Lower resident elk numbers would reduce private land depredation and potential negative impacts to other wildlife species especially along the Little Colorado River corridor.
3. Population Management Seasons maybe used to address private land depredation issues.

*Unit 4B:*

*Pinto Lake:*

1. Stabilize the antlerless elk population on the forest and increase bull elk permits with an overall goal of widening the bull:cow segment. Limited Opportunity and Population Management Hunt structures will be used to address depredation issues.
2. Manage the elk population within the agreed upon forage distribution (50% livestock:50% wildlife). The goal is to balance elk herbaceous use with the current forage capacity distributed to wild ungulates.
3. Coordinate with the Apaches-Sitgreaves National Forest (Black Mesa Ranger District) to increase the number of forage monitoring sites in the Baca portions of Units 3C and 4B in order to meet protocol.
4. Continue to monitor wildlife forage use to help determine future herd unit objectives.
5. Use all available data (e.g., population surveys, population simulation modeling, forage monitoring, substantiated private land depredation concerns, current and projected long - term climatic predictions) to support overall objectives.

*Unit 4B North:*

1. Reduce the resident herd. The long-term goal is to have a minimal resident elk herd. Lower resident elk numbers would reduce private land depredation and potential negative impacts to other wildlife species.
2. Limited Opportunity and Population Management Seasons will be used to address private land depredation issues.
3. Unit 4B North is that area of 4B that lies north of Hutchinson Ranch Road.

*Unit 27:*

1. Manage for a stabilized or slightly increased elk herd from pre-hunt 2008 to 2009.
2. Maintain a Population Management Season in Unit 27 that could be implemented if regular seasons fail, or are expected to fail in achieving the management objectives for the unit.
3. Continue monitoring wildlife forage use to help determine future population objectives.

**Habitat Partnership Committee Comments:**

The Winslow, Show Low, and Springerville-Alpine HPCs reviewed their respective herd unit population management objective(s).

At the Show Low HPC there was consensus in adopting the Units 3A, 3C, and 3B population objectives as presented.

At the Winslow meeting, the above listed population objectives were presented for the Chevelon and Pinto Lake elk herd units. Consensus was to accept the proposed elk population objectives as presented.

The Springerville-Alpine HPC reached consensus on stabilizing or slightly increasing the resident Unit 1 and 2C elk population and emphasizing a reduced harvest level on the antlerless segment of the wintering elk population. The members also reached consensus of supporting the recommended change in the Unit 27 elk population objective of stabilizing or slightly increasing the population.

## **REGION II**

### **Background:**

Regional elk management strategies have changed with the evolution of modern game management. These management efforts have been applied by the Department over the Region II elk ranges, which include about 1.7 million acres of Coconino and Kaibab National Forest lands, 183,000 acres of Arizona State Trust Lands, and 242,000 acres of privately-owned land. This resulted in an estimated summer adult elk herd, which peaked in 1994 at about 22,000-23,000 animals but has now been reduced to about 14,000-15,000 in 2007. The migration of a small portion of these animals to Regions I (Units 4A and 4B), III (Units 10 and 19B), and VI (Units 21, 22, and 23) occurs mainly in the winter.

The Region II elk populations in Units 5A, 5B, and 6A on the Coconino National Forest and surrounding state and private lands have long been the core of the elk population of Arizona. These elk herds have contributed at least 70% of the statewide elk hunting opportunity and over 60% of the elk harvest over the past 10 to 15 years. Currently, the elk populations in Region II are primarily in Units 5A, 5B, 6A, 6B, 7, 8, and 9 on the Coconino and Kaibab National Forests and surrounding state and private lands.

### **History:**

Elk hunting opportunities in Region II increased dramatically during the early- and mid-1990s, with the provision of additional antlerless elk permits to achieve population reduction objectives in various units. Permits were reduced in 1996-1998 to stabilize the population, but were increased in 1999-2000 to address habitat concerns. Region-wide elk surveys have classified a healthy sex ratio of 30 bulls per 100 cows in 2007 and a reproductive rate that has varied with precipitation and forage conditions from 24-52 calves per 100 cows. The Region II calf recruitment has steadily dropped since 1998 and reached an all-time low of 24:100 in 2001, but has rebounded in the last few years and was at a regional average of 37:100 in 2007.

Since 2004, Region II has been implementing the simultaneous double count survey methodology in areas that are conducive to this survey technique. As the region continues to implement this methodology a regional population estimate will be derived as well as individual elk herd unit population estimates, which will be used as new baselines for population estimation in the Region. The computer population modeling was phased out in 2006. Since the 2006 survey season, Units 9 and 5B have implemented simultaneous double-count surveys.

### **Management Objectives:**

Regional elk management objectives are guided by operational plans, annual implementation plans, Hunt Guidelines, and the Species Management Guidelines. The objectives tied to the Strategic Plan address statewide elk numbers, harvest objectives, hunter days, and other factors.

The Species Management Guidelines and the Hunt Guidelines provide for elk management consistency across the state, while providing management flexibility for the Flagstaff Region.

Elk habitat management in Region II has been and will continue to be a joint venture involving cooperation between multiple agencies and publics. Elk herds do not recognize administrative boundaries so the same elk herd may inhabit state, private, National Park, and USFS lands. Habitat proposals and habitat projects may address either providing more food, water, or other habitat factors for elk, or reducing elk impacts on the habitat of other species. Many habitat changes affecting elk populations in Region II are the indirect result of projects planned for other resources such as management of timber, range, fire, or watersheds. Projects planned specifically for elk tend to focus on forage and water, as these factors are relatively easy to improve. Projects directly impacting elk habitat generally stem from planning efforts directed by the land management agencies such as the USFS Land and Resource Management Plans or Allotment Management Plans. Often, mitigation or habitat improvement measures for elk are included in plans for specific projects, even when the project is primarily designed to manage another resource.

Habitat management functions in support of population objectives. The population objectives are set in Department Strategic Plans and in the Arizona Wildlife and Fisheries Comprehensive Plan jointly developed by the Department and the USFS. The development of both of these plans included public involvement. Habitat objectives are generally set in the form of providing habitat to support a set number of elk. Objectives in the Comprehensive Plan were formed in this manner based on projections in the Coconino and Kaibab Land and Resource Management Plans (LMP).

The Kaibab National Forest LMP projected an increasing elk population while the Coconino National Forest LMP projected a stable elk population. Thus, at the LMP-level of planning, the USFS provided for the presence of elk on public land. The LMPs did not make site-specific decisions of where and how to provide for the needs of elk. Those decisions were to be made when projects, such as timber sales or allotment management plans, were developed. This is the step where the planning process has met with difficulties.

Due to the above average snowfall during the winter of 2004-2005, both the Coconino and Kaibab National Forest expressed concerns regarding road and habitat damage caused by hunters. Since that time, Region II has been working with both forests to provide reasonable motorized access during wet weather conditions, especially during hunting seasons, to achieve game management objectives while protecting roads, natural resources and providing public safety in Units 5A, 5B, 6A, 6B, 7, 8 and 9.

Each spring since 1992, the Department has met with the Coconino and Kaibab National Forests, the FRSG and, and the Flagstaff and Williams HPC to review progress toward meeting the elk population objectives and to address other issues related to elk management. Some of the issues identified through this process are listed below with the Department's response:

*Elk Management Plan – December 7, 2007*

<b>FRSG/USFWS/USFS Issue</b>	<b>AGFD Response</b>
Elk identified as living yearlong on traditional winter range (mostly state and private land)	Creation of sub-units in Units 5A, 5BN, to focus hunting pressure on these herds
Road damage on late elk hunts	Movement of late antlerless hunts to mid-October
In 1998, elk numbers were identified as increasing on state and private lands with little to no hunter harvest	Worked with the FRSG to develop maps of elk locations to send to hunters to assist in harvest
In 1998 deteriorating habitat conditions identified in Unit 7W and 9 due to drought conditions	Increased harvest of antlerless elk in these units
In 1998 and 1999 watershed conditions in East Clear Creek drainage (Unit 5A) identified as not conducive to recovery of Little Colorado River spinedace and other riparian species	USFS adjusted livestock grazing plan and AZGFD increased antlerless elk harvest
Lack of aspen regeneration around the San Francisco Peaks	Significant increase in elk permits in Unit 7E and funding of elk proof fencing to protect aspen
Negative impacts to browse in Unit 9 (both domestic and wild ungulates)	Increased antlerless elk permits in Unit 9
Elk-auto accidents	Creation of subunits in Unit 6A to focus pressure on that part of the herd west of Interstate 17; telemetry research funded by Arizona Department of Transportation along the Interstate-17 corridor to determine elk crossing dynamics and strategize solutions.
In 2000, FRSG recommended further subdivision of hunts in Units 5A and 5BN	Implemented the recommended hunt structures
In 2003 and 2004 elk damage was reported on croplands in Camp Verde	Population Management Hunts and Limited Opportunity hunts implemented
The winter of 2004-2005 created renewed concern of road damage	Shifted more permits to the early hunt structures. Participated in a process to establish core roads that would be open to allow access during wet periods. Provided funding and signs to aid in closing other roads in the areas. Participated in a communications plan for this process.
From 2005 to 2007, renewed concern about aspen regeneration in Units 7 and 8	Recommended late antlerless hunts in Unit 7E to harvest the elk that were likely causing the problems, but USFS decided road damage was a bigger concern on late hunts. Offered to work with the USFS on any workgroup they establish to address a broad range of issues related with aspen decline. Elk harvest was increased in Unit 7 to record levels from 2003 to 2007.

**Objectives by Management Unit:**

Hunt permits will continue to be allocated on a unit basis. Sub-unit hunts have been used in Units 5A and 5BN to focus harvest on elk living yearlong on areas traditionally used only as winter range. Reduction of these yearlong resident herds (primarily on State and Private land) allows ranchers more flexibility to manage cattle grazing and provides more forage for the main elk herd unit, which winters in these areas. Region II will continue to use all available data (e.g. population surveys, population simulation modeling, forage monitoring, substantiated private and state land depredation concerns, current and projected long-term climatic conditions) to support overall objectives.

*Unit 5A, 5B, and 6A elk herd unit:*

1. Continue reducing that portion of the herd in Unit 5BS. Stabilize and/or slightly increase the overall herd in response to favorable habitat conditions. Region II has met population objectives in Units 5A, 5BN, and 6A.
2. Continue to use specific sub-units with Limited Opportunity hunts and coordinate with land owners to address concerns of elk residing year-round on winter range on private and state lands in Units 5A and 5BN. The appropriate level of antlerless elk has been achieved on the Melatone Mesa portion of Unit 5BS resulting in the elimination of the Unit 5BS sub-units (Melatone Mesa and Hutch Mountain).
3. Stabilize and/or slightly increase the herd in Unit 6A if favorable habitat conditions prevail.

*Unit 6B, 8, and Camp Navajo elk herd unit:*

1. Stabilize or slightly reduce that portion of the herd in Unit 6B to compensate for recruitment from the Camp Navajo sub-herd and to respond to population trend indicators showing an increase in this herd. Keep the bull:cow ratio within guidelines.
2. Continue to work with Camp Navajo to focus the harvest on the female segment of the population.
3. Continue telemetry of Camp Navajo elk to tailor hunt structure to the temporal and spatial dynamics of the sub-herd.
4. Stabilize and/or slightly increase that portion of the herd in Unit 8 and annually adjust harvest in response to measured/monitored forage capacity in coordination with the Kaibab National Forest.

*Unit 7 elk herd unit:*

1. Stabilize that portion of the herd residing in Unit 7E as population objectives have been met. The Coconino and Kaibab National Forests continue to have concerns about the lack of aspen regeneration in Unit 7E.
2. Continue to stabilize and/or slightly reduce that portion of the herd residing in Unit 7W in response to population trend indicators showing an increase in this herd and concerns about lack of aspen regeneration from the Coconino and Kaibab National Forests.

*Unit 9 Elk herd unit:*

1. Stabilize and/or slightly reduce this herd in response to habitat concerns.

*Elk Management Plan – December 7, 2007*

2. Manage the bull segment of the population to maintain a survey ratio of up to 40 bulls per 100 cows.

*Units 12A and 12B Elk herd unit:*

1. Maintain the elk population at very low levels.
2. Beginning in 2005, permitted deer hunters in GMU 12A have had the opportunity to purchase an elk tag valid for the same area and dates of their deer hunt. No elk were reported harvested. This opportunity will continue to be available.
3. Region II will continue to monitor this herd and make hunt recommendations aimed at maintaining elk at very low densities on the Kaibab plateau. In 2007, there were believed to be less than 12 elk on the Kaibab Plateau.

## **REGIONS III AND IV**

### **Background and History:**

Elk populations began to increase in northwestern Arizona during the late 1970s. Region III personnel, land managers, private landowners, ranchers, and sportsmen became concerned as the elk population increased. Within 10 years, portions of Region III began experiencing property damage, crop depredation, and direct competition with livestock on private land as elk populations expanded into new areas. In recent years elk have also expanded into some Region IV areas.

In January 1993, HPCs were established in Prescott and in Williams. Subsequently, other HPCs were started in Kingman (August 1996) and Yuma (January 1998). The Kingman and Yuma HPCs rarely work with elk issues because of the limited amount of elk habitat in those areas.

### **General Management Objectives:**

Elk in northwestern Arizona, with the exception of Unit 10, will be managed with the primary emphasis on minimizing conflicts with other wildlife resources and public and private landholders. Mule deer will be managed as the ungulate species with first priority. Non-consumptive and consumptive recreational opportunities to enjoy elk will be secondary to ensuring populations are maintained at levels that do not negatively impact other natural resources or create substantial landowner conflicts. Hunt permits will be allocated on a unit or multi-unit basis and will continue until population objectives are met in these areas.

### **Unit 10 – Alternative Management Guidelines:**

Unit 10 was first open to elk hunting in the 1940s and early 1950s northwest of Williams; several elk were reported harvested during this period. Elk hunting was then closed until 1977, when a hunt was opened in combination with Units 7 and 9. Unit 10 continued to be hunted in combination with several other Units (6B and 8) until 1989, when the resident population of elk increased to a size warranting separate hunt unit management. Elk herds probably immigrated from the Hualapai Reservation to the west and from the Williams area to the east. There is now a substantial population of elk throughout Unit 10.

### **Population Information:**

Elk observation data has been gathered in Unit 10 during routine winter wildlife surveys since 1989 in the eastern part of the unit. In 1992, summer fixed-wing aerial surveys were expanded to the western portion of the unit. Since 2004, the simultaneous double count method survey has been flown with which a density estimate can be obtained and extrapolated for a population estimate in the unit. This estimate has decreased from 3,900 in 2004 to 1,500 in 2007. The last five years of data is shown in the table below.

Year	Bulls	Cows	Calves	Total	Bull:Cow	Calf:Cow
2003	261	262	106	629	100	40
2004	141	398	189	876*	35	47
2005	148	558	267	973	27	48
2006	53	109	52	214	49	48
2007	64	175	48	287	37	27

\* 2004 total includes 148 unclassified elk

Specific Concerns:

Managers on both the Boquillas and Babbitt Ranches have expressed concerns that elk numbers could increase to the point where competition for forage with livestock was substantial. Over the past few years, the Department has worked with the Navajo Nation and the livestock permittee on the Boquillas Ranch to maintain hunting opportunity and control the elk population. As of 2007, managers from both ranches appear pleased with efforts to reduce the elk population through hunting. Both wish to see the hunting program continue.

The Williams Habitat Partnership Committee expressed concerns over an increasing elk population in Unit 10. Management personnel from the Kaibab National Forest historically expressed a desire to limit adult elk on those portions of Unit 10 within the Kaibab National Forest, but coordination is ongoing. Current direction is to stabilize the herd at current levels.

Solution:

To reduce the population, the harvest of antlerless elk was increased substantially during 1999-2005 hunting seasons, but the harvest of antlerless elk fell below expectations in 2005. In 2007, antlerless elk permits were reduced when the Commission gave new direction to stabilize or slightly increase some elk populations.

Management Objectives:

- Stabilize or slightly increase the population, in accordance with Commission direction.
- Manage for a higher bull:cow ratio, up to 40, in accordance with Commission direction.
- Manage for at least 50% of the bulls harvested in the early season to have 6 antler points or better. New alternative management guideline added in the 2008-2010 hunt guidelines
- Continue to limit the elk population on the Kaibab National Forest portion of the unit to no more than 400 pre-hunt adults.
- Continue to work with landowners who express concerns due to elk numbers.

**Unit 16A – Standard Management Guidelines:**

Elk hunts have been conducted sporadically since 1943. After 23 years of closure, hunting was opened to 3 archers in 1992. In 1994, a 2-permit muzzleloader hunt was added. Although success varies, most of the archery and muzzleloader hunters have opportunities to harvest bulls each year. An additional muzzleloader tag was added to the unit for the 2002 hunting season. For several years now there have been 4 archery permits and 3 muzzleloader permits.

*Population Information:*

From the original transplant in 1927, elk increased to harvestable numbers and were hunted in the 1940s and 1960s. The elk population then declined until the early 1990s when a stable population appears to be maintaining itself. Since 1995, elk have been observed on the Hualapai County Park, Laughlin Ranch, Cane Springs Ranch, Alamo Lake Wildlife Area and Planet Ranch. In 1998, elk numbers for the Hualapai Mountains were estimated at 40-60 adults based on incidental observations, hunter reports and sightings gathered during a 2-year telemetry project (1996-1998). During this project, the Department radio-collared 8 cow elk and one bull to examine the seasonal habitat use and their population characteristics in the Hualapai Mountains. Current estimates, based on limited information, indicate the population could be as high as 100 adults, but remains stable.

*Specific Concerns:*

Some residents in the Hualapai Mountains prefer to feed elk and do not agree with the hunt seasons currently allowed; however local hunters would like the hunt to continue. *Solution:* Continue to survey and monitor elk numbers and movements. Monitor local opinion regarding elk, while educating Pine residents of potential harm caused by feeding elk and deer.

Ranchers and the Bureau of Land Management have voiced concerns regarding the recent arrival of elk along the Santa Maria River and Alamo Lake. *Solution:* Continue to monitor elk numbers in southern Unit 16A near Alamo Lake.

*Management Objectives:*

- Stabilize or decrease the population near the Hualapai Mountain Park, in accordance with Commission direction.
- Initiate late summer or fall ground surveys to gather population data.
- Continue to request that hunters report their observations of elk.
- Work with Mohave County Parks to initiate archery hunting within the park boundaries.
- Continue to seek information about elk in the vicinity of Alamo Lake-Santa Maria-Big Sandy River. The management objective for the Alamo Lake Wildlife Area is to maintain no elk population. Explore hunt opportunities to remove elk in this area.

**Verde Valley (Portions of Units 6A, 19A, and 21) – Limited Opportunity:**

In the late 1990s, elk began damaging cornfields within the Camp Verde town limits. In 2000, the Department purchased and erected an electric fence around the sweet corn fields on the Hauser and Hauser Farms, on an experimental basis. This fence kept elk out of the fields, as long as farm workers kept the gate closed. In 2001, Hauser Farms erected the Department's electric fence but reported that some elk were crawling beneath the fence to enter the fields. In 2002 and 2003, Hauser Farms erected their own electric fence with limited success in keeping elk out of the cornfields. AGFD received the loaned fence back from the farm prior to the 2003 growing season. In 2004, Hauser Farms hired a contractor to install a better electric fence around their cornfields, thus keeping elk out of the fields with a few exceptions. This fence was reported damaged by elk when it was turned off after the 2005 growing season.

The Department conducted several population management hunts in 2003 and 2004. In August 2003, a hunt on two separate farms in Camp Verde was conducted, but because the farms are in town limits, hunters were restricted to archery equipment. None of the five hunters harvested an elk. In 2004 another hunt was conducted on a new 23-acre alfalfa field in Camp Verde that was drawing in up to 50 elk from the surrounding hills and Verde River corridor. The 35 permit holders harvested 15 elk. The Rocky Mountain Elk Foundation and the Department purchased and erected (on loan) an electric fence around this new alfalfa field.

Since 2004, Limited Opportunity Elk hunts for a broader area around Camp Verde to create a lower-density elk buffer around the town. These hunts included portions of Units 6A, 19A, and 21. Seasons offered included archery antlerless, archery any elk, general antlerless, and general any elk. Harvest levels for these hunts have been fair to good, with the exception of the archery antlerless hunt, in which hunt success has been poor.

*Population Information:*

The highest elk populations within this area occur in the summer months, when agricultural fields are producing sweet corn, field corn, and alfalfa. At this time of the year, while the uplands are dry and without much forage, the Verde River and associated riparian corridor offer water, shade, and freedom from human disturbance. In these peak population months, the elk estimates throughout the Verde Valley have ranged from 25 elk in the late 1990's, 70 elk in 2003, and 25 elk in 2005. Use of electric fencing, along with population management and limited opportunity hunts has decreased elk numbers in the Camp Verde area.

*Specific Concerns:* Elk continue to cause some damage to crops on Hauser Farms and Brubacher Farms in Unit 6A, within the Camp Verde town limits.

*Solution:*

The use of limited opportunity hunts is having the desired effect of reducing the localized elk population and associated crop damage. These hunts or over-the-counter huts are recommended for the 2007 season, with increases in general permit numbers and over-the-counter archery permits with lengthened season dates. Although population management hunts have not been used in the Verde Valley since 2004, this capability has been maintained within the AGFD hunt structure in case the immediate need arises.

*Management Objectives:*

- Continue to reduce the population of elk in the Camp Verde town limits as low as possible and maintain a low-density elk buffer on the surrounding public lands.

**Mult-Unit Hunt (Units 15A, 15B, 17A, 17B, 18B, 19B, 20A, 20C) – Limited Opportunity:**

1997: Five units were combined (17A, 17B, 18A, 18B and 19B) into one hunt area, with three any elk seasons; archery in September, early firearms in October and late firearms in November. The ultimate goal was to increase the Department's ability to manage these small elk populations and to reduce private landowner-elk conflicts. The objectives of the new hunts were to increase the harvest of elk, to increase hunt success, and to open private lands to access. Instructions and maps with the names and phone numbers of participating landowners were mailed to all hunters

prior to the season. A questionnaire was also included that asked hunters for comments on the new format. The hunt was very successful, resulting in the harvest of 124 elk (most of them bulls) by 220 hunters. Very few negative comments about the new format were received.

1998: A second firearm hunt split into 30 any elk and 70 antlerless permits.

1999: The southern portion of Unit 17A south of Walnut Creek and Unit 17B was removed because the desired number of elk to be removed had been achieved. Only an archery hunt was held in these areas in 1999. The firearms hunt structure changed to provide 17-day seasons for October, November, and December.

2000: Emphasis was placed on the October season to harvest large numbers of antlerless elk. Permits were increased, and a large segment of the available tags were issued as antlerless tags.

2001: Portions of Units 17B, 20A and 20C (the Skull Valley and Kirkland Junction areas) were included in the early firearm and early antlerless hunts. This structure allows the opportunity to harvest elk in these areas during years when landowners are experiencing elk damage and are willing to allow sportsman access.

2002: Units 15A and 15B were added to the general and archery hunts.

2004: The hunt was split to better distribute hunting pressure in areas with chronic elk problems. The Williamson Valley, Skull Valley, Kirkland Junction area was split out of the multi-unit hunt with its own season dates, weapon type, and permit numbers.

2006: The hunt structure was modified to significantly increase cow elk harvest, simplify hunts, and increase hunter opportunity. The new structure eliminates smaller areas, e.g. the Williamson Valley, Skull Valley, Kirkland Junction area, by combining all of Units 15A, 15B, 17A, 17B, 18A, 18B, 19B, 20A and 20C into a single hunt area. The multi-hunt structure was changed to provide fewer seasons of longer length. Permit numbers were increased in response to increasing elk populations, especially the female segment.

Permit levels continue to increase in this hunt structure, antlerless harvest is very low and so populations continue to increase. Mature bulls continue to be taken during the any elk seasons and have not had the desired effect of decreasing the population. Future recommendations will narrow permit availability to non-residents and increase opportunities for residents in an attempt to increase the harvest in this hunt area.

*Specific Concerns:* Some sportsmen expressed dissatisfaction with the high harvest of bulls during the 1997 multi-unit hunt. Most of these sportsmen expressed a desire to manage the area for trophy bulls.

*Solution:* The Department evaluated how the elk population was affected by the multi-unit elk hunt strategies and decided to maintain the multi-unit hunt structure for continued elk hunting in these units.

Management Objectives:

- Minimize conflicts with other wildlife resources, and public and private landowners. Elk damage on croplands, wet meadows, and ranch fencing may be substantial in specific sites such as on K-4 Farms and the Las Vegas Ranch.
- Provide recreational hunt opportunities by combining adjacent units into a single hunt structure to provide sportsmen a better opportunity to harvest an elk.
- Continue to estimate elk populations where sufficient elk numbers exist. Since formal surveys are not conducted in many of the units, hunter success and harvest, landowner (rancher) input, incidental observations, elk use sign and Wildlife Manager input will be used to monitor elk populations.
- For much of Units 17A and 17B, the elk population should be kept at 1996 levels. Specifically in northern Unit 17A on the Yavapai Ranch, numbers will be managed to be within the agreed range of 50-75 animals. For other areas within Units 17A, 17B, 18A, 18B and 19B elk will be managed to reduce conflicts on private land while limiting elk to about 500 animals.
- Maintain population management hunt seasons to direct harvest to particular areas during the time when elk are present and causing property damage or crop depredation. Population management seasons allow for the designation of hunts in very specific areas with hunters being in the field within a 10-day notice.

**Unit 15A and 15B:**

Surveys are not conducted for elk in Unit 15. Elk sightings and elk sign were first documented in 1995 in the upper elevations of the Music Mountains. Elk numbers have been increasing on the west side of the Hualapai Reservation. Trails and fence crossings suggest that Unit 15A elk may be dispersing from the Reservation during drought periods. Since the mid-1980s, elk have occasionally been observed in Hualapai Valley. Hunters, ranchers and Department personnel have reported other elk sightings further west in the Cerbat and Black Mountain ranges.

Specific Concerns:

In the past, two of the grazing permittee in the Music Mountains have expressed concern over forage competition and fence damage. Additionally, some members of the Kingman HPC have expressed concern about the presence of elk populations in non-historic range. The Hualapai Nation conducts elk hunts on the adjacent reservation and is the permittee for the Music Mountain Allotment. They have not expressed any concern over the presence of elk on their allotment.

Solution:

Provide permittee with elk jumps and monitor herd levels in areas of concern. Units 15A and 15B were added to the multi-hunt structure for 2002.

**Units 17A and 17B:**

Multiple methods have been employed to survey elk in Units 17A and 17B; including helicopter flights, fixed-wing aircraft flights, nighttime spotlighting and calling. None of these methods proved effective, even at finding elk in known areas. Currently, population information is gained

through hunter surveys, hunter harvest information, landowner/rancher input, incidental observations, elk sign and Wildlife Manager input. Elk were first observed in the Yolo-7Up Ranch area in the 1940s. However, there were no reports of elk observed in this area from the early 1950s until the middle 1970s. In the late 1970s, elk herds gradually increased. During 1988, elk were regularly observed on Juniper Mesa and the adjacent Baca Land Grant in Unit 18B.

*Specific Concerns for Unit 17A:*

The owner of the 7UP Ranch historically expressed concerns about elk using forage on the private meadow at his ranch headquarters. This problem was solved in 1995 when the owner fenced the entire private portion of the meadow (8' vertical). The 7UP Ranch was sold to a new owner in 1998. Since that time, the Department has worked with the new owner to mitigate problems associated with elk. The owner of the Yavapai Ranch has expressed concerns about the apparent increase in elk numbers during the 1990s. Specifically, the damage caused by elk to fences and anticipated competition for forage with livestock. The owner of the LO Ranch voiced concern about future elk population growth in Unit 17A.

*Specific Concerns for Unit 17B:*

The Cross U Ranch voiced concern about elk depredation on irrigated private land. These pastures are fenced but are not elk proof. The Cross U sold in 2002 and thus far, the new owners have not expressed concern regarding elk. The Old Camp and Las Vegas Ranches have also voiced their concern about the increased elk populations in the eastern portion of the unit. For the past several years the Las Vegas Ranch has experienced crop depredation on their irrigated private pastures and damage to fences. No elk depredation problems have been reported since 2005 on the Las Vegas Ranch. Private landowners in the Skull Valley and Kirkland started voicing concerns about the appearance of elk in the late 1990s.

*Solution:*

The Department obtained an elk-proof electric fence that can be temporarily loaned to ranchers and used on an experimental basis to reduce potential depredations on agricultural crops. Continue to seek funding for projects such as water tank cleaning, elk jump installation, burning and juniper cutting on USFS and private lands. Modify the multi-unit elk hunts to meet harvest objectives, realizing that these hunts are dynamic and may change from year to year. Maximize hunter access to private lands where elk harvest is most needed. Involve the HPC members in the hunt recommendation process.

**Unit 18A:**

Department personnel first observed elk in this unit in 1985. Annual aerial surveys were conducted from 1992 to 2000. Surveys were discontinued in 2001 because of a declining elk population with the exception of a 2004 survey. Elk harvest was initiated in 1991 in combination with Unit 10. In 1993, Unit 18A was first hunted as a separate unit. In 1996, Unit 18A was hunted in combination with the Anvil Rock portion of Unit 18B where significant elk populations occurred. In 1997, the present multi-unit Elk Hunt structure was initiated with Unit 18A in combination with Units 15A, 15B, 17A, 17B, 18B and 19B. The only area in Unit 18A where elk are still relatively numerous is on the private land portion of the X-1 Ranch.

*Specific Concerns:*

The Willows Ranch was very concerned with the elk population in Unit 18A in general, but much of the problem was alleviated during the 1996 drought when nearly 25 elk were killed on Interstate 40 in the vicinity of the irrigated pasture on Willows Ranch. Shortly thereafter, this ranch sold and subdivided into 30-40 acre residential parcels. The current livestock lessee has not expressed elk concerns. The X-1 Ranch has expressed concern about elk foraging on privately owned pastures being rested from livestock grazing. This rancher does not allow open public access for elk hunting but instead offers guided elk hunts. The Robinson Ranch, composed mostly of public lands managed by the BLM (the Crozier Allotment), complained about fence damage by elk. The Department supplied materials and education on how to set up elk jumps to help alleviate damage but the ranch never used any of the materials or set up any elk jumps. The Robinson family sold the ranch in 2002. The present owner has not communicated any complaints. Managers of the Fort Rock Ranch complained about increasing elk numbers and competition with livestock in years past but presently feel elk populations are acceptable.

**Unit 18B:**

No successful method has been found to survey elk in this dense pinyon-juniper habitat. Population estimates are based on hunt success and elk numbers observed by the Wildlife Manager, hunters and ranchers. The majority of these observations have taken place on the Baca Float and Pine Creek portions of Unit 18B. Elk are currently found only in the eastern half of the available elk habitat with the western portion being of lower quality and isolated by large open grassland mesas. During 1988, elk were regularly observed on the Baca Land Grant and the adjacent Juniper Mesa. During the 2000 season, the elk on the Baca Land Grant and Pine Creek were found in lower concentrations than the previous years, thus suggesting movement easterly into Unit 17A.

*Specific Concerns:*

The majority of elk occur on the ORO Ranch, which is all private property. The ranch manager charges an access fee for bull elk hunts but not for antlerless hunts. The ranch owner and manager are growing increasingly concerned with elk numbers on the ORO ranch. The ranch is an attractive site for the elk because range conditions are more favorable on the ranch than adjacent lands and also serves as a refuge for elk that are chased out of adjacent units. This creates problems for the ORO Ranch. Hunters cut fences to access the ranch and trespass in pursuit of elk. To help reduce this problem, patrol efforts along the boundary are increased during the elk hunts. These conflicts should be reduced, as we get closer to reaching our management objectives. According to ORO ranch manager, Wayne Word, the elk population has increased on the ranch over the past few years due to favorable rainfall. Mr. Word estimates the current resident elk population on the ranch to be approximately 300 animals and increasing gradually. The ranch would be content with 200 to 250 resident elk but is concerned with the growing population and its impacts on the ranch.

**Unit 19B:**

In the early 1980s, elk were infrequently encountered in this unit but by 1990 elk were common at irrigated croplands in the Big Chino Valley. No formal survey are conducted and elk are only occasionally observed during wildlife surveys in June and December, but are frequently seen crossing Highway 89. Elk move seasonally to adjacent units, mainly Units 8 and 17A, so the number of elk within Unit 19B varies throughout the year. Historically, about 12-30+ elk seasonally use the juniper woodlands south of Ash Fork, while the west half of Unit 19B (including croplands) typically contain an additional 20-40 elk. During a December 2005 flight, a herd of about 50 elk were observed west of the K-4 Farms with small herds scattered about the unit. It appears the total number of elk in Unit 19B has been increasing as indicated by these observations and continued high multi-unit hunt success. Elk hunts were initiated in 1994, primarily in response to depredation complaints at the K-4 Farms croplands. Hunt success remained low on the crop-damaging elk since they often traveled to adjacent units to avoid hunters. Hunt success greatly improved with the multi-unit hunt structure in 1997 that allow inter-unit pursuit of elk. Population management hunts beginning in 2003 specifically addressed crop depredation on the K-4 Farms.

*Specific Concerns:*

Elk damage to the irrigated alfalfa and cornfields at K-4 Farm and CV Farm in Big Chino Valley has continued since the mid-1990s. Elk are frequently seen crossing Highway 89 from Unit 8 and constitute a traffic hazard.

*Solution:*

Continue to use population management seasons to remove elk from private cropland when contacted by landowners. Continue to monitor elk crossings and recommend signage of elk crossing areas. Evaluate and modify the multi-unit hunt structure to minimize private property damage and increase hunter opportunity. The 2006 hunt strategy will provide fewer but longer seasons for sportsmen.

**Unit 20A:**

In 1984 and 1985, archery deer hunters on Big Bug Mesa observed 8 cow elk and 3 cow elk were observed in 1986. Two bulls were observed fighting on George Lees' Ranch in the Sierra Prieta Mountains in 1987. Presently, there are 12 elk along Kirkland Creek, and 15 elk in Skull Valley. These 27 elk exist entirely on private land. In 1998, a hunt combining parts of Units 17B, 20A, and 20C (Skull Valley-Kirkland Valley) was formulated to address elk depredation on private lands. This sub-unit was established not only to address elk damage but to also comply with the Departments Strategic Plan of managing Unit 20A for a population less than 50 elk. The Prescott Habitat Partnership Committee approved this hunt structure. The results of this hunt were so successful that no hunt was recommended for 1999 or 2000. In 2001, this sub-unit was included with the Region III multi-unit hunt. If elk are not present in the sub-unit during the season, hunters have the opportunity to hunt other areas.

*Specific Concerns:*

Private land owners in Skull Valley and Kirkland Creek expressed concern that elk compete with livestock for forage on private lands and caused fence damage. At the same time, landowners have expressed a desire to retain a limited population of elk, about 6 in Skull Valley and 12 in Kirkland. These elk will eventually cause problems for other ranchers and landowners as already seen in the Wagoner area. Elk were not historically in Unit 20A and even a few elk will cause conflicts. Elk also exist outside the boundaries of the Skull Valley-Kirkland Valley hunt area. It is highly suspected that these elk cause property damage in the hunt area during the non-hunting season. These elk may not stay in the hunt area long enough to be harvested during Population Management hunts, thus limiting the effectiveness of the short season. Yearly questions and remarks from the hunters as to what fence-lines or dirt roads were the actual boundaries indicated confusion.

*Solution:*

Eliminate the sub-unit of 17B, 20A, and 20C, (Skull Valley-Kirkland Valley) and include all of 20A-C in the Region III multi-unit hunt seasons. This will be a pro-active step to control the population, reduce elk depredation problems and eliminate boundary confusion for the Skull Valley-Kirkland Valley hunt area.

## REGION V

### **History and Background:**

Elk did not occur in southeastern Arizona historically and are an unplanned addition to the native wildlife found there. Early elk sources such as Murie's 1951 "*Elk of North America*" correctly noted that elk were not native to southeastern Arizona. However, later sources (Bryant and Maser 1982 – *Elk of North America*) erroneously extended the historic range of elk far in to Mexico based on unsubstantiated rumors, a report of a pictograph, and a report by Edgar Mearns' camp cook of 2 "large deer" crossing the border into Mexico. Archaeological evidence fails to provide any evidence elk were ever in Region V in historic times. No evidence exists of elk remains in the fauna lists at Native American sites in southeastern Arizona.

Another large herbivore grazing on the region's arid and fragile desert ecosystems would probably come to the detriment of other native wildlife. Elk currently occur in Units 28, 31, and 32 and can live quite well among mesquite and prickly pear. There is no doubt they would become established in many areas of southeastern Arizona and have the potential to greatly impact other native wildlife such as desert mule deer, pronghorn, and many grassland and riparian obligate species.

### **Units 28, 31 and 32.**

#### History:

In 1918, 22 elk were released in the Pinaleno Mountains (Unit 31) from Yellowstone National Park. The immediate fate of this translocation is unclear, but ultimately they disappeared entirely. Although records are scanty, they did not appear to persist for very long. Elk have only moved into this part of the state in the last decade. In the early 1990s local landowners started to report elk in the Sulphur Springs Valley and the northwestern part of Unit 28. We have offered hunts to attempt to keep the number of elk in the unit to a very low number and prevent them from expanding. Several different hunt designs have been tried and we continue to refine our management of this population.

#### Population Information:

Reports of elk along the Gila River in Unit 28 have subsided, but still occur sporadically. Those near the Mule Creek Pass area will continue to be seen occasionally, but represent mere transients. Fixed-wing aircraft surveys were conducted in Unit 28 and Unit 31 in 2004, but no elk were observed during these surveys flights. Elk hunts in Unit 28 and on the San Carlos Apache Reservation near Unit 28 may have reduced the elk numbers in that area. Elk are still seen with some regularity on the east (Unit 31) and west (Unit 32) side of the Sulphur Springs Valley. Standardized surveys are not cost effective here because of the low numbers and sporadic distribution. Additionally, they move on and off the reservation in Unit 28. This year some hunters were having trouble finding elk. It is not clear if this indicates less elk or just a wider or different distribution.

Specific Concerns:

The elk currently residing along the Gila River are seen in the agricultural fields periodically; apparently living in the tamarisk bottoms near the river. The elk herd in the Gila Mountains has been more noticeable in recent years and has the potential to expand to a greater extent into the agricultural Gila Valley. We will not be able to exterminate the Gila Mountain herd because they spend a certain amount of time on the San Carlos Reservation, but we certainly don't want to let them spread further. There is also a portion of the local communities that are in favor of a sustained elk hunting opportunity near Willcox and Safford.

At least one local rancher has felt impacted by the newly arrived herbivores sharing his BLM grazing allotment. We want to be responsive to those constituents who want more elk hunting opportunity and also those who do not want elk interfering with range recovery or feeding in alfalfa and cotton fields.

With the number of tags offered in previous years, it appears that the harvest is not keeping up with the annual production. Several groups of elk have been observed and reported to local wildlife managers. These herds appear to have fairly good calf crops.

Summary of elk harvest for Units 28, 31, & 32

Year	Number of Bulls Harvested	Number of Cows Harvested
2001	7	0
2002	2	2
2003	1	2
2004	2	4
2005	1	3
2006	0	15 reported <sup>a</sup>

<sup>a</sup>Extrapolated from 13/45 responses – probably not accurate

Solution:

Continue to consider alternative hunt structures as means to achieve the objectives below. The limited opportunity general elk hunt is now almost entirely for “antlerless elk” rather than “any elk.” This hunt was originally established to provide some level of harvest pressure on these elk to prevent their expansion into agricultural areas and natural areas where they never occurred historically. However, the any elk structure in the past resulted in the harvest of predominately bulls. This sex composition was not achieving our objective of limiting further population growth and expansion. Our intent was not to provide a trophy season, but to apply harvest pressure on this small nucleus of elk to keep their numbers in check and discourage their spread into outlying areas. To further encourage the harvest of more females we implemented longer “antlerless only” General hunts to allow hunters to return several times during the season and relocate elk that may scatter after opening day. The October-December time period also allows harvest of females at a cooler time of the year and will eliminate the perception this is a trophy bull hunt.

We are continuing our management using the “limited opportunity” elk hunts again this year with no changes from last year. We have been making adjustments in recent years to better accomplish our objectives and we think what we established last year is working. The archery

season will remain the same with 5 “Any Elk” permits in each of 2 hunt areas (Unit 28 and 31/32). We will also retain the three 1-month-long antlerless seasons from last year with the same number of permits. The 10 any elk permits in the first general hunt will allow for the take of bulls that are in this population. These hunts will provide a total of 10 any elk archery permits, 10 general any elk permits, and 65 general antlerless permits.

We are not recommending over-the-counter tags because of expressed concerns by the landowners that a large number of deer hunters will buy elk tags and swamp the small area elk inhabit. This would also create a safety concern because some areas occupied by elk are scattered with dispersed houses. In addition, it would allow, potentially hundreds of deer hunters in an area with over-the-counter elk tags before the permitted elk hunters.

*Management Objectives:*

- Use hunting to reduce or maintain the current low levels of elk in the Gila Mountains and Sulphur Springs Valley and not allow for an increase in this elk population.
- Minimize landowner-elk conflicts in the Gila Mountains, Sulphur Springs Valley and along the agricultural fields bordering the Gila River.
- Continue to allow hunters to take animals from this population through the current hunt structure.

Because of the limited distribution and density of elk in these units, it should continue to be offered as an alternative hunt opportunity because elk may be extremely difficult to locate. The hunt takes place in very rough terrain with few roads accessing the area. The elevation in these units is also much lower than what hunters usually expect for an elk hunt and the weather can be warmer than expected.

## **REGION VI**

### **Background and History:**

Region VI's elk management efforts are mainly confined to the northern portions of Units 22 and 23. This range is also used by elk from Regions I and II, as well as from the Fort Apache Indian Reservation. This complicates elk management efforts below the Mogollon Rim. Information gathered from Department research has helped understanding some of these complexities. All elk habitat in Units 22 and 23 is occupied year-long. Those portions of Units 22 North and 23 North near the Mogollon Rim also receive wintering elk from Units 6A, 5A, 3C, and 4A. The Region will continue to monitor the expansion of elk range southward in Units 22 and 23. For current management, we are primarily considering the resident elk population below the Mogollon Rim.

Elk have been observed in Unit 21 since the mid- to early-1980s. Sightings were rare and it was uncertain if the elk were residents of the district or just a wintering population. By 1990, hunter reported sightings were on the increase. Elk were seen year-round. It was determined that Unit 21 should be surveyed to determine the number of elk in the district and their distribution. The first surveys were conducted in the winter with little success. Elk sightings continued to increase and hunters inquired if the Unit 21 elk herd was sufficient to support a bull elk hunt. A helicopter survey was flown in the fall of 1996. From that survey it was determined that the unit 21 elk population could support a bull elk hunt. In the mid-80s, a hunter shot a bull elk believing it was a large mule deer buck. Two bulls were known to be poached in Unit 21 during 1997.

In Unit 24A, elk occur in two locations. Periodic observations of elk in and around the Timber Camp Mountains in the northern portion of the unit indicate presence of pioneering bulls and seasonal use by some cow elk. There is also a small number of elk in the Pinal Mountains but the elk habitat is poor. The Pinal Mountain elk are most likely remnants of the Cutter herd. Periodic observations of elk have been made within these areas of Unit 24A for several decades. Population levels seem to be remaining stable, at low densities, with no complaints from landowners or lessees. Proximity of these areas to the San Carlos Reservation may complicate management of elk in Unit 24A.

Elk range in Region VI is primarily comprised of USFS land. Due to the minimal amount of private lands within elk range, Region VI historically had few conflicts with elk on private properties. Partially due to drought, substantial conflicts between elk and private property owners have occurred in Young, Arizona, and also on golf courses in Payson, Arizona. In Unit 23, elk are impacting isolated riparian areas such as Canyon and Mule Creek. Three riparian exclosures were constructed in April 2002 with coordination from the Payson Natural Resource Committee (PNRC) to mitigate the impacts of elk on the Mule Creek riparian vegetation. Three new exclosures are being built along Canyon Creek to aid in recovery of the riparian vegetation after the Rodeo-Chediski fire. Increasing elk use in upland key areas has been of some concern across the northern half of the Region. To address these issues a forage monitoring strategy has been developed by the U.S. Forest Service and AGFD with input from the PNRC. Some upland cover plots have also been established within the Dude Fire area by the U.S. Forest Service and may yield information on wildlife use over time.

**Population Trends:**

In the late 1970s and early 1980s there were about 250 resident elk occupying Units 22 and 23. In the mid-1980s, the population began increasing and by 1987 the population estimate was 550 resident elk. In 1991, about 235 elk in Units 22 and 23 were observed from the ground during the fall survey and estimated total pre-hunt population was between 843 and 1,265 elk. For the winter period it is estimated that the Unit 22 elk numbers double and the Unit 23 elk numbers increase by about 50%, due to migration from areas outside Region VI. This increase is variable from year to year, dependent on winter snowfall. The following table reflects the elk population status for Region VI from 1988 to 2007.

YEAR	ADULT POPULATION ESTIMATE	% CHANGE	PERMIT NUMBERS	BULL HARVEST	ANTLERLESS HARVEST	TOTAL HARVEST
1988	660	-	85	68	-	68
1989	710	+0 8	95	52	-	52
1990	785	+ 11	135	87	-	87
1991	1054	+ 34	185	75	-	75
1992	1260	+ 20	335	135	22	157
1993	1380	+ 10	485	129	45	174
1994	1547	+ 12	965	164	140	304
1995	1668	+ 08	1145	250	201	451
1996	1553	- 07	1145	190	183	373
1997 <sup>a</sup>	1547	+ 00	1040	259	171	430
1998	1459	- 06	1160	265	251	516
1999	1647 <sup>a</sup>	+ 11	995	230	128	358
2000 <sup>a</sup>	2208	+34	1320	293	167	460
2001	1922	-15	1215	259	163	422
2002	1889	-02	960	204	141	345
2003	1815	-04	1035	232	141	373
2004	1471	-19	1172	274	155	429
2005	1514	+03	1407	379	154	533
2006 <sup>bc</sup>	2143	+42	1537	426	177	603
2007 <sup>b</sup>	2154	+01				

<sup>a</sup>adjusted mean from revised population model estimate

<sup>b</sup>projected values

<sup>c</sup>adjusted based on Unit 22 double count population estimate

Insufficient information is available to provide a realistic population estimate for Units 21 and 24A; however previous survey information for Unit 21 indicates that this elk herd remains stable at a low population level. The Wildlife Manager of Unit 24A estimates the population at 25 elk

that fluctuates due to a herd of 21 that travels back and forth between 24A and the San Carlos Reservation. It is yet undetermined if elk occur in Unit 24A year-round but they have been observed from August to late December. Due to the low number of elk that occur in Unit 24A, data is insignificant to determine population trend.

### **Specific Concerns of HPC:**

The Payson Natural Resource Committee holds about five meetings annually. The Committee submitted or is in the process of completing 16 projects this year. Ten of these projects were improvement of water catchments and habitat projects involving juniper thinning.

### **Objectives by Unit:**

#### Unit 21:

Continue to monitor the elk population through annual surveys and hunter harvest. Although there have not been any complaints related to depredation in Unit 21 for the past two years, the area near Camp Verde where elk have access to private lands (farms) is part of the Verde Valley Hunt Unit. Hunts in this unit can be used to harvest problem elk. Unit 21 is split with a portion of the unit being managed as Standard Population Management Zone, and a portion of the unit being managed as a Limited Population Management Zone. The boundary that divides the Standard Population Management and Limited Population Management zones for Unit 21 is as follows:

From where Interstate Highway 17 crosses the Verde River, south along I-17 to the Bloody Basin Road exit, then easterly along the Bloody Basin Road (USFS Road 269) to the Verde River.

The portion of Unit 21 lying north of the above-described boundary will be managed as a Standard Population Management Zone. That portion of Unit 21 lying south of the above-described boundary will be managed as a Limited Population Management Zone.

#### Unit 22:

Annually adjust the harvest of resident adult elk to keep population and hunt success parameters within Department guidelines. Continue to monitor elk impact and/or forage use in key areas (e.g., riparian areas associated with the Dude Fire). Monitor the elk population through annual surveys. Obtain habitat conditions from the U.S. Forest Service. Harvest bull elk and antlerless elk in accordance with AGFD elk management guidelines.

Double count effort: Based on the calculation the herd size is estimated to be 1,696. This year's flight was flown the last two hours of each day. Based on these calculations the herd size is estimated to be 1,696 animals. That would consist of 478 bulls, 870 cows, and 348 calves with a ratio of 55 bulls to a 100 cows and 40 calves to a 100 cows. This is the third year of flying a double count in Unit 22, population estimates were:

- 2005 population of 2,144 elk.
- 2006 population of 2,473 elk.
- 2007 population of 1,696 elk.

If this years population estimate was used in the population model all the estimated number of bulls would be removed. The 2006 estimate is considered closer to the actual number of elk in the unit; therefore 2,473 elk are used in the population model to calculate permit numbers. These figures are obtained are used only as indicators in the population trend.

Management Zones: After taking public input, the Region recommended Unit 22 be split with a portion of the unit being managed as Standard Population Management Zone, and a portion of the unit being managed as a Limited Population Management Zone. The boundary that divides the Standard Population Management and Limited Population Management zones for Unit 22 is as follows:

On a line beginning at Tonto Creek directly east of the intersection of State Highway 188 and the El Oso Rd (Forest Road 422); westerly on the El Oso Road to Forest Road 143; westerly on Forest Road 143 to State Route 87. Northerly on State Route 87 to the Junction with Old State Route 87 (toward Sunflower); northerly on old State Route 87 to the junction with the 500kV power line (Forest Road 393); westerly on Forest Road 393 to the Verde River below Bartlett Lake.

The portion of Unit 22 lying north of the above-described boundary will be managed as a Standard Population Management Zone. That portion of Unit 22 lying south of the above-described boundary will be managed as a Limited Population Management Zone.

Conflicts in Unit 22 between elk and other uses of the land exist. First, the urban interface areas around the communities in northern Unit 22 experience regular incursions by elk. Conflicts resulting from these incursions include damage to ornamental plants, fruit trees, and residential and commercial lawns, and use of forage on private pastures intended for private livestock. Golf courses at the Rim Club, Chaparral Pines, and Payson Municipal Golf Course experience seasonal damage from elk including dents in the greens and fairways from hoof action, urine stains on the greens and fairways, and elk pellets. Second, potential exists for overuse of forage resources on public lands by elk.

Strategies for resolving conflicts around the urban interface include educating residential and commercial property owners about ways to discourage elk from causing damage. Some methodologies for discouraging elk include visual, auditory, or olfactory deterrents, permanent elk proof fencing (the most effective method), and hazing. Other tools include implementation of stewardship agreements with private property owners, the temporary loaning of Department-owned elk proof fence material, adjusting elk permit levels to address elk population levels, and use of the Department's population management hunts to address specific population management concerns in the unit. Strategies for addressing potential conflicts involving overuse of the forage resources on public lands include cooperative biannual monitoring of elk forage use, implementation of habitat improvement projects through the HPC process, annually adjusting permit levels, and use of the Department's population management hunts.

Population Management Hunts: Population management hunts starting and ending anytime between August 1 and February 15 may be used to address problems associated with elk

depredation on private and/or public lands in Unit 22. One hundred and twenty-five population management permits will be recommended to alleviate any human-elk conflicts that might occur.

Unit 23:

Annually adjust the harvest of resident adult elk to keep elk population and hunt success parameters within Department elk management guidelines. Continue to monitor elk impact and forage use in key areas. Reduce the population of resident elk in the Canyon Creek area through the use of Limited Opportunity Hunts which should decrease use in key riparian areas along with the monitoring and maintenance of the elk-proof exclosures. Manage for higher bull:cow ratio in accordance with Commission direction. Monitor the elk population through annual surveys. The population of elk in Unit 23 appears to be on a downward trend due primarily to average 35:100 calf:cow ratio during the last five years. This is the second year for using the simultaneous double count method. The 2008 prehunt adult segment of the population is estimated at 1700 elk based on this survey information.

In 2003 the Region generated an aggressive hunt package to address documented overuse by elk on riparian vegetation near Mule Creek during calendar year 2000. The proposal would create a special hunt unit in Canyon Creek to remove the elk responsible for the damage. The Region has recommended that the hunt package be tabled for a second year, after considering forage monitoring data, and input from the USFS, PNR, and the affected permittee. The hunt package will be retained as an option for consideration in future hunts packages.

In 2003 the Region accepted public input regarding management of elk in Unit 23. The Region recommended to the Commission that a portion of Unit 23 be managed as a Standard Population Management Zone, and a portion be managed as a Limited Population Management Zone. The boundary that divides Standard Population Management and Limited Population Management zones within Unit 23 is as follows:

Beginning at the junction of Forest Service R. 96 and the Fort Apache Indian Reservation; west on Forest Service R. 96 to its intersection with Forest Service Rd. 203 (Cherry Creek Rd.); southwesterly on Forest Service Rd. 203 to its junction with state Highway 288 (Young Highway); northerly on State Highway 288 to its junction with Forest Service Trail 284; west on Trail 284 to its junction with Workman Creek; westerly on Workman Creek to its confluence with Salome Creek. Northerly along Salome Creek to its confluence with Dupont Canyon; westerly in Dupont Canyon to Forest Service Rd. 236 at Dupont Cabin; westerly on Forest Service Rd. 236 to Forest Service Rd. 71; westerly on Forest Service Rd. 71 to Tonto Creek.

The portion of Unit 23 lying north of the above-described boundary will be managed as a Standard Population Management Zone. That portion of Unit 23 lying south of the above-described boundary will be managed as a Limited Population Management Zone.

Conflicts between elk and other uses of the land exist in Unit 23. First, the urban interface areas around Young and Colcord Estates, and Christopher Creek experience seasonal incursions by elk. Conflicts resulting from these incursions include damage to ornamental plants, fruit trees, and residential and commercial lawns, and use of forage on private pastures intended for private

livestock. Second, potential exists for overuse of forage resources on public lands by elk. Specifically, the areas around Canyon Creek and Mule Creek have experienced documented overuse of riparian vegetation attributable to elk. This area represents an even more important management challenge now due to the fragile nature of the ecosystem left by the Rodeo-Chediski Fire.

Strategies for resolving conflicts around the urban interface include educating residential and commercial property owners about ways to discourage elk from causing unwanted damage. Some methodologies for discouraging elk include visual, auditory, or olfactory deterrents, permanent elk proof fencing (the most effective method), and hazing. Other tools include implementation of stewardship agreements with private property owners, the temporary loaning of Department-owned elk proof fence material, adjusting elk permit levels to address elk population levels, and use of the Department's population management hunts to address specific population management concerns in the Unit. Strategies for addressing potential conflicts involving overuse of the forage resources on public lands include cooperative biannual monitoring of elk forage use, implementation of habitat improvement projects through the HPC process, annually adjusting permit levels, and use of the Department's population management hunts.

**Population Management Hunts:** Population management hunts starting and ending anytime between August 1 and February 15 may be used to address problems associated with elk depredation on private and/or public lands in Unit 23. The need for population management hunts in Unit 23 would most likely occur in two areas as evidenced by historic elk depredation problems; Canyon Creek riparian area and/or in the vicinity of the town of Young. One hundred permits will be recommended to address these issues. These permits are expected to relieve depredation problems in the Canyon Creek area and the vicinity of Young.

Unit 24A:

Unit 24A will be managed as a Limited Population Management Zone. Currently occupied elk habitat and potential elk habitat in the unit is not contiguous, and is relatively small in terms of land area. The Region recommends that the unit be managed for minimal levels of conflict with elk so other management objectives, such as enhancing mule deer and whitetail deer populations, can be the primary focus. The first elk hunt in Unit 24 in over 25 years was held in the fall of 2003. Three of the five hunters were successful in harvesting bulls although this was an any elk hunt.

The Region will continue to monitor the elk population while completing other tasks in the area. Because it is a Limited Population Management Zone, elk surveys will not be conducted on an annual basis. If observations of elk increase in the future, elk survey time may be requested in order to more accurately estimate population levels in the unit.

Because of the relatively low elk population levels in Unit 24A at this time, there have not been documented complaints about overuse of forage by elk on public lands, and there have not been complaints about conflicts with elk in the urban interface in the unit. There was one complaint in 2002 regarding elk damage to fences associated with livestock operations on public land near the

Timber Camp Mountains in the northern portion of the unit. There have been no complaints of elk depredation since then.

**Habitat Management:**

Elk forage monitoring continues in accordance with Region VI Elk Forage Monitoring Protocol in Units 22 and 23 in key areas where elk are known to feed and congregate. In Unit 22, 2006 fall monitoring of 10 sites were in light category for elk use of 30% or less, with the exception of Bonita Creek. Bonita Creek has orchard grass, which ends up in moderate use. In spring of 2007, readings were light at all sites except for Buckhead Tank and Bonitia which were moderate. In Unit 23, late 2006 fall monitoring showed light use at all sites except for Thirteen Ranch, which was moderate. The 2007 spring monitoring was light except for Horse Pasture which was light to moderate and Red Lake Grave pasture which was moderate to heavy. The Red Lake pasture is an ongoing concern for recourse damage due to trespass horsed from the adjacent reservation. Regional personnel will continue to coordinate on wildlife and related habitat management issues with the USFS through their various scoping and planning processes. Regional personnel will also coordinate with the Payson HPC on development and funding of habitat enhancement projects. Use plots will continue to be monitored.

A variety of strategies are being implemented to improve habitat conditions for the mutual benefit of elk and livestock throughout Units 22 and 23. Through the annual HPC process projects are proposed and receive consideration for funding through the Department's Special Tag Funds. Habitat enhancement project proposals include but are not limited to prescribed burns, livestock tank clean out projects, contract maintenance of existing Forest Service guzzlers, grassland maintenance projects highlighting thinning of juniper trees using an agra axe, livestock and/or elk exclusion fencing to protect sensitive or overused areas, and spring redevelopments. Department Habitat Stewardship proposals can be used on private property to improve forage availability on private property. A habitat stewardship project typically involves state purchase of seed and fertilizer for application to a private pasture to improve forage quality for wildlife and livestock.