Arizona Statewide
Elk Management Plan

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INTRODUCTION

The native Merriam's elk were historically distributed in Arizona from the White Mountains westward along the Mogollon Rim to near the San Francisco Peaks. These native elk were extirpated just prior to 1900. In February 1913, private conservationists released 83 elk from Yellowstone National Park into Cabin Draw near Chevelon Creek. Two other transplants of Yellowstone elk followed in the 1920s—one south of Alpine and another north of Williams. As a result of these original transplants, Arizona's elk population has grown to levels that support annual harvests of 8,000 or more elk.

Regulated hunting of the transplanted Yellowstone elk began in 1935 and continues today, with only a brief hiatus during 1944 and 1945 due to World War II. During the late 1940s and early 1950s, concerns over growing elk herds lead managers to increase permits, culminating in 1953 when 6,288 permits were issued and 1,558 elk were taken, more than 1,000 of which were cows. Elk permits leveled off and remained below 5,000 through the mid-1960s, when they were again increased in response to expanding populations. In 1967, over 7,000 permits were issued and over 1,500 elk were harvested.

By the mid-1980s, elk and elk permit numbers were again headed upward. This trend culminated in 1994, when nearly 11,000 elk were harvested, a number unimaginable just 20 years earlier. Since then, elk numbers and harvests have stabilized, with an average of 9,107 elk harvested each year during 2006–2010. These harvest levels are expected to continue as wildlife managers, land managers and sportsmen work together to manage elk populations and their habitats in a manner that balances the uses of lands and the public's values to ensure sustainability of Arizona's elk herds.

Elk are an important resource to hunters. Currently an average of 92,000 first choice applicants compete for about 25,000 elk tags, including general, muzzleloader, juniors and archery season opportunities (2006–2010 data). Roughly one in four elk hunting applicants is selected through the draw process for the opportunity to hunt elk each year.

Elk hunters purchase gas, food, lodging, guide services, and trip related equipment. Wildlife viewers, photographers, and other outdoor enthusiasts also boost the economy by purchasing gas, food, camping equipment, binoculars, and other related items. Elk-related activities annually contribute millions of dollars to the Arizona economy.

Elk share use of a limited forage base with other wildlife, 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 wildlife conservation organizations. 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.

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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 evolved into the Habitat Partnership Committees (HPC), reducing the focus on single species management.

The Department chartered a landmark team during 2001–2002, the Elk Harvest Management Strategy (EHMS) Team, to develop management alternatives to address concerns with expanding elk populations. The EHMS Team recommendations included management zones which were modified in the Guidelines for the 2012–2013 and 2013–2014 Hunting Seasons process. All recommendations were developed with substantial public input. The commission approved the following elk management strategies.

- Statewide elk management guideline whereby all areas occupied by elk will be analyzed under standardized criteria and classified into one of four separate management zones: standard population management, winter-range population management, flexible population management, and minimal occurrence population management. Each management zone has specific management objectives and harvest alternatives that can be selected to achieve management objectives. The flexible and minimal occurrence management zones also have specific goals regarding private land conflict resolution. Management zones are fully defined in the Guidelines for the 2012–2013 and 2013–2014 Hunting Seasons.
- Rules enabling 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.
- The ability to offer restricted nonpermit-tags, termed “companion 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.
- Over-the-counter nonpermit-tags for limited population zones where population management hunts and/or companion tags had not met, or were not expected to meet, management objectives.

The Department's Elk Management Goal is to maintain and, where possible, enhance 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. Specific objectives for elk management include: maintain a stable to increasing statewide population of elk, address local issues in Regional Operational Plans that may impact localized populations regardless of statewide population levels, maintain annual harvest at ≥9,000 elk., provide recreational opportunity for ≥20,000 hunters per year, provide ≥100,000 hunter days per year, and maintain existing occupied habitat, with emphasis on retention of medium and high quality habitat. These objectives are to be accomplished through several strategies identified in the Department’s Species Management Guidelines for elk. These strategies are:

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- Design hunt recommendations that address population management objectives and substantiated depredation complaints.
- Use standardized surveys and population and hunt modeling to assist in permit recommendations. Base management on population targets, herd units, and habitat objectives.
- Develop cooperative action plans, including monitoring, with property owners, lessees, and land management agencies to minimize elk-livestock interactions.
- Coordinate with tribal authorities for elk management.
- Issue permits in consideration of demand rates for various weapon types for bull and antlerless.
- Local Habitat Partnership Committees will identify ways to manage and enhance elk habitat through partnerships with public agencies, property owners and lessees, and wildlife conservation organizations, and help maintain communication among individuals interested in elk management.
- Use the Elk Management Plan, which will be reviewed periodically by the Commission, to direct elk management goals and objectives. Eventually, this management plan will be incorporated into the Management Focus Area descriptions of the Comprehensive Game Management Plan.
- Develop a standardized survey protocol that produces survey-generated population estimates.
- Coordinate with the Arizona Department of Transportation to determine the extent of vehicle-elk collisions and to identify possible mechanisms by which to reduce the incidence or severity of such collisions.
- Update elk distribution maps within the Department's Geographic Information System databases.

The following plan addresses current and future perspectives in regards to elk management in Arizona. The plan serves to identify elk management issues, provide elk population estimates and management objectives, as well as consider management opportunities to address issues on public and private lands. To facilitate a more efficient planning process, a framework was developed where information common to all of the planning areas was incorporated into a single section and specific information on each herd or management unit was incorporated into individual chapters. These individual chapters are designed so they can be removed from the document and provide background and strategies for specific populations.

This plan will be updated as needed, but generally not less than every other year coinciding with the development of elk and pronghorn hunt recommendations.

Plan Goal:
Develop the framework for elk management and issue resolution consistent with the Department's *Wildlife 2012* Strategic Plan, *Wildlife Program – Game Subprogram* Operational Plan, Elk Management Guidelines, and the Guidelines for the 2012–2013 and 2013–2014 Hunting Seasons.

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Plan Objectives:

1 Review classifications of all occupied or potential elk habitat into standard population management, winter-range population management, flexible population management, and minimal occurrence population management zones as defined in the Guidelines for the 2012–2013 and 2013–2014 Hunting Seasons. Each management zone will have specific management objectives and harvest alternatives that can be selected to achieve management objectives. Manage elk populations within these zones under a herd unit or management unit basis; whichever best facilitates achievement of management objectives.

2 Survey elk populations using standardized protocols, and where applicable, using techniques that produces survey-generated population estimates.

3 Estimate current populations within each elk management area using population modeling and/or survey-generated population estimates.

4 Monitor elk populations for major diseases.

5 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. Work with the HPCs to formulate habitat improvement recommendations.

6 Use the Guidelines for the 2012–2013 and 2013–2014 Hunting Seasons to direct annual hunt recommendations.

7 Recommend management objectives for each elk herd-management unit consistent with habitat suitability-capability, other land uses, public values, social, and economic factors.

8 Report and evaluate the effectiveness of completed strategies.

Future Management Needs:

Future population 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.

Elk population modeling will be used to assist in making elk hunt recommendations. Additional analysis should be conducted to facilitate improved accuracy and precision of population models, especially in the areas of survey methodology to provide accurate age and sex ratios and annual survival rates for bulls, cows and calves (pre-hunt to pre-hunt). Improved survey methods and efforts will be implemented as appropriate.

Population 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; mark-resight population estimation using simultaneous double-count survey methodology, using observed pre-hunt calf to cow ratios as an indicator of habitat quality

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and rate of recruitment; and tailoring forage monitoring to better determine what the wildlife-caused impacts are in key areas on a landscape level.

Forage monitoring data collection is critical for areas where forage resource use or allocations are established. Forage monitoring data is also critical for areas where excess herbivory by elk is believed to adversely affect sensitive, threatened, or endangered species or their habitats. Forage monitoring data collection efforts need to be designed and implemented under standard and scientifically sound principles. Acceptable forage monitoring standards need to be better defined.

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 maintenance, juniper pushes, salt block supply, elk jumps and fencing, and prescribed burns.

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Survey Efforts:
Pre-hunt age and sex ratio surveys are conducted for standard management zone units each year. Survey methodologies vary between fixed-wing and helicopter aerial surveys to more traditional ground surveys using roadside vehicle routes. Survey methods vary by habitat type and topography and are further limited by available funding. Ideally, all suitable units would be surveyed by helicopter using simultaneous double count methodology allowing the collection of age and sex ratios as well as density-driven minimum population estimates. Some units don't survey well from the air due to closed canopy forest obstruction. These mixed conifer areas are best surveyed by traditional ground methods.

The primary goal for the fall surveys are to measure bull: cow and calf: cow ratios for the dual purposes of a) assessing the unit's age and sex ratios in relation to hunt guideline criteria for the purposes of bull hunting opportunity and b) obtaining age and sex ratio inputs for population modeling. The precision of the survey data set is evaluated through statistical confidence interval analysis.

Population Status:
Population estimates for elk management units are modeled by computer simulation using surveyed bull to cow and calf to cow ratios as well as hunter-reported harvest data. Yearly mortality rates for adult males and females as well as young are initially entered within the accepted normal ranges from published studies but are tested and adjusted along with starting numbers of bulls and cows to derive a best fit relationship between observed and model-calculated bull to cow ratios. While computer simulation models are valuable tools in estimating populations for management purposes, they are only as accurate as the input data (survey and harvest) and assumptions (starting numbers, mortality rates) entered. Unfortunately, many of our data inputs and assumptions lack the accuracy and precision for reliable model estimates, and therefore should only be taken as gross estimates and not as absolute numbers. While not absolutely accurate, the modeled estimates due have comparative value in establishing trend when compared from year to year. A final confounding factor is that none of our management

units represent closed populations. Immigration and emigration of elk is common and unmeasured, adding another limitation to modeling accuracy.

Disease Surveillance:
Chronic Wasting Disease (CWD) is the primary elk disease of concern to department managers. This prion-based spongiform encephalopathy is prevalent in many cervid populations across the west and nation and is of concern due to the additive mortality risks to elk and deer populations as well the perceived risks to human health and safety (even though there is no current evidence that CWD prions can affect humans). The department conducts annual surveillance for the presence of CWD in elk, mule deer, and white-tailed deer. During the 2010 sampling period, 623 elk specimens collected across the state were tested for CWD. All samples tested negative. To date, CWD has never been documented to occur in Arizona. The department will continue CWD surveillance to annually confirm the absence of this disease and to provide early detection and subsequent management options should the disease be found in Arizona.
In addition to CWD, elk in Arizona are also susceptible to blue tongue, epizootic hemorrhagic disease (EHD) and elaeophorosis. None of these diseases are believed to be of population level concern or factors for human health and safety.

Management Issues and Opportunities:
Elk are unique to Arizona as they are the only wild ungulate in the state whose populations are capable of almost continual growth and expansion. Consequently, managers must continually assess elk population levels and herd expansions under various issue-based criteria to determine appropriate population sizes and distributions. Conversely to most other wild ungulates, such as mule deer, the Department challenge is not how to grow or maintain more elk, but rather to manage growth of these populations within the values of Arizona's diverse populace.

The following paired issues and opportunities are the most significant factors effecting the management of elk now and into the future. Future achievement of management goals and objectives can only be obtained through the successful resolution of these issues.

Private Land Depredation

Issue: Elk are highly mobile and aggressive herbivores capable of negotiating, crossing and jumping obstacles that are significant barriers to other animals. Elk can easily jump most standard livestock fences. Generally speaking, a multi-stranded 7–8 foot high fence of durable construction is required to exclude elk from a desirable resource. Elk seek out and select the highest quality forage within their ranges. Often times these high quality forage resources are pastures and crops grown on private lands, causing direct adverse effects to private landowners.

Opportunity: The Department has multiple private land depredation mitigation programs including technical advice for fencing, cooperative stewardship programs as well as general and specific elk herd reduction or removals through a variety of sport hunting seasons. The Department and wildlife conservation organizations have also resolved significant private land depredation issues in key areas through property acquisition. In fringe

areas of elk distribution or in non-traditional habitats, total elk removal through hunter harvest may be recommended.

Private Land Access

Issue: In parts of the state, some private ranches close (or sell very limited guided hunts) their private lands to hunting which often locks up large portions of public lands. A number of exceptionally large bulls have been taken on these ranches and the corresponding publicity has generated a surge in popularity for elk tags. Unfortunately, outside of these large ranches, elk are widely scattered in small pockets and hunting can be difficult. Access can also be very difficult because a large amount of the land is checker-boarded state and private land. Hunters unfamiliar with this area may have a hard time finding elk or may run into access problems with private land. Increasing antlerless harvest continues to be an issue. Even with the significant antlerless permit increases, a significant increase in harvest is not occurring.

Opportunity: Continue to work with landowners to seek solutions to hunter access. The Department has formed a team to work with landowners and actively find solutions that will be beneficial to the landowner and the sportsman of Arizona.

Public Land Forage Use

Issue: Elk share public land forage resources with other wildlife and permitted livestock. Competition for and allocation of available forage resources has long been an issue with land managers and livestock permittees. Further compounding this issue is the fact that livestock, elk and other wildlife all use the same forage resources at the same time and in the same locations, making it difficult for managers to assess the individual effects of any single herbivore. Collective over-use of forage resources is often difficult or impossible to attribute to any single grazer, making the management of these various animals a highly divisive endeavor.

Opportunity: Adopt standard forage monitoring programs for the purposes of elk management whereby exclosures are used to isolate the herbivory effects of only elk. Establish forage-based management triggers for elk populations in conjunction with land managers. Manage elk populations conservatively within these forage use standards to maintain healthy and productive habitats.

Herbivory of Limited or Declining Plants

Issue: Elk exploit grazing and browsing resources without consideration to their relative availability or abundance. This may place elk in conflict with land managers' efforts to recover or maintain rare or declining plants. For example, elk have been identified as contributing to the decline of the endangered Arizona willow as well as the relatively

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abundant, but declining aspen. Elk browsing of both of these plants may cause plant mortality, confounding efforts to increase numbers and distribution.

Opportunity: Land managers often call for the wide-scale reduction of elk populations to protect and recover declining plant species. While substantial elk population reductions may improve vigor of these plants, the level of herd reductions required to achieve the plant recovery objectives are simply not reasonable. In this case, protection with fencing of individual or groups of plants would be the desired strategy. In the case of widely distributed, but declining plants, such as aspen, strategies involve a mix of population reductions as well as landscape-scale treatments. Aspen recovery has been successfully achieved in the eastern White Mountains through the maintenance of *moderate* elk populations in conjunction with large scale burns.

Adverse Effects to Other Wildlife

Issue: Elk may adversely affect other wildlife through direct competition for resources or indirectly through degradation of critical habitats.

Opportunity: Elk populations that are maintained at population numbers consistent with habitat objectives generally are compatible with other wildlife species. In the cases where other wildlife species may be of greater concern or limited in suitable habitat, elk populations may need to be reduced to favor the species of greater concern.

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REGION 1

Background and History:

Elk management in Region 1 currently incorporates a wide variety of information and data. Pre-hunt surveys are conducted to evaluate sex ratios, recruitment, and relative abundance. When conditions permit, winter surveys may be conducted to determine use areas and to index populations using critical winter areas. Wildlife forage monitoring is conducted to determine annual herbaceous use levels. Hunter questionnaire data is analyzed to estimate the number of legally harvested animals. Computer population simulation modeling and aerial survey double count population estimation is used to estimate population trends and to predict potential effects on populations from proposed harvest scenarios.

The demand for elk permits far exceeds the number issued. On average, in Region 1, there are four first choice elk applicants for every permit issued. Hunter demand is greatest for the early bull rifle permits, with 80–150 applicants for every permit issued. Archery antlerless permits have the highest draw odds with about two applicants per permit. Hunt success varies by timing of hunts and weapon type. Early bull rifle hunt success averages 90%; late bull rifle hunt success averages 40%. Archery bull hunt success averages 45%; antlerless elk archery hunt success averages 25%; and antlerless rifle hunt success averages 40%.

In most units, forage monitoring is conducted annually to determine wildlife herbaceous forage use levels in key areas. 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 50% and 50% 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 (Baca Herd Unit) with the same forage distribution management parameters. The Aripine-Pinedale Herd in central and eastern Unit 3C is managed for a 70% livestock and 30% wildlife split of the forage allocation.

Elk 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. Table 1 shows the area of each herd unit or hunt unit, breakdown of land ownership, and amount of seasonal range.

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In 2001, elk population objectives and hunt strategies were modified on and adjacent to private land in some units to address documented elk depredation concerns. Elk caused marked damage to croplands during the growing season in these areas. It was determined that substantially reducing or eliminating these elk populations is the best approach. New hunting opportunities reduced many of these elk populations with limited opportunity hunts. Starting in 2003, through the modification of department 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. Unlimited elk permits were recommended and issued starting in 2008 in northern portions of Units 4A and 4B to address private lands conflicts and growing resident elk populations in non-traditional elk habitat. Landowner participation is a key factor in this process.

The Rodeo–Chediski Fire was a landscape-level wildfire that burned the southern portion of Unit 3C in 2002. Elk forage use of herbaceous species has been monitored since that fire and forage monitoring has shown low use and within current allocations over the past five years. After the fire, antlerless elk harvest was increased in response to increases in the elk population and to aid in the recovery of the habitat. Now, almost ten years post-fire, managers are stabilizing this elk herd at acceptable population levels.

Beginning in late May 2011, The Wallow Fire burned almost 500,000 acres in Units 1 and 27. The fire perimeter covers most of the summer elk habitat in Unit 27 and most of the summer elk habitat in Unit 1, south of Highway 260. In addition, some portion of the elk winter range burned in both units at varying intensities. While there were areas of severe fire intensity, the area experienced substantial green-up immediately after the fire as monsoon rains fell across the region. Hopefully the area will experience a flush of browse renewal and increased grass and forb production. It is unknown how the elk will respond to these landscape-level changes in these units, and it will require close monitoring of both the biological and political issues that elk generate in this area.

The management objectives for the 2011 elk hunts in Unit 1 were to reduce that population by 10% and new limited opportunity hunt structures were implemented in the Round Valley area to address issues with yearlong occupation of winter range habitat by elk. These strategies should prevent the need for drastic changes to the management objectives immediately after the fire. In addition, the Unit 1 calf crop was down to 32 calves:100 cows from an average of 39:100. This may have resulted from fire-related mortality. Unit 27 was being managed for a stabilized elk population and likewise saw a reduced calf crop of 24 calves:100 cows, down from an average of 32:100 immediately before the fire. These factors combined will allow managers the latitude to see how the elk herds and habitat respond to the affects of the Wallow Fire.

In 1993, the Department led the formation of the HPC program. The purpose of the HPC program is to provide a forum for interested parties to work together to identify cooperative habitat projects addressing wildlife and private property or public land conflicts, and to have input into population objectives for elk herd units. Since 1994, the Regional HPCs have annually submitted habitat improvement projects. Most proposed projects have been funded by Special Big Game License-Tag Funds on projects recommended by the Statewide Habitat Partnership

Committee. Projects have included opening and burning pinyon-juniper woodland, monitoring naturally occurring fires in the Blue Primitive Area, drilling and re-development of wells, building new water distribution systems, refurbishing existing wildlife waters, applying fertilizer on private lands and salt to better disperse elk, and providing elk jumps to reduce fence damage. In addition, the HPCs meet at least annually to discuss elk herd population objectives for their respective elk herd units.

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:

The Wildlife 2012 Strategic Plan, Hunt Guidelines, and the Species Management Guidelines guide regional elk management objectives. The current elk management goal is to maintain elk populations at levels that provide diverse recreational opportunities, while avoiding adverse impacts to habitat, and minimizing substantiated depredation complaints.

The objectives tied to the Strategic Plans 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 Pinetop Region.

In 1997 Region 1 developed the "Herbaceous Forage Production and Use Monitoring Program for Consideration in Elk Management in Region 1." 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.

In 1998, in conjunction with allotment management planning efforts for the four allotments in Unit 4A, the Department and A–S established an herbaceous forage distribution agreement for domestic livestock and wild ungulates on National Forest System lands in the unit. The agreement was reached after a series of inter-agency meetings, public meetings, and Commission approval. Through the forage distribution agreement, allowable use levels for livestock and elk were established. The Department's forage monitoring determines annual herbaceous forage use levels by elk in the unit, and annual elk population management objectives are based on annual use levels relative to allowable use levels in the unit.

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. Reported hunter harvest of antlerless elk is compared to predicted

harvest of antlerless elk to determine if the desired population management objective was achieved.

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. All of these factors are considered in determining the degree of antlerless elk harvest.

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

Units 1 and 2C:

The Unit 1 elk herd represents a large portion of Arizona's elk population and falls within the Standard Elk Management Zone as defined in the Arizona Game and Fish Department Hunt Guidelines spring 2012 through fall 2014. The Department recognizes the importance of the Unit 1 elk population, to our constituents, sportsmen and sportswomen groups, particularly those with an emphasis on elk, and that of our Commission. With these factors in mind it is important for the Region to maximize this population's herd size without adversely impacting the habitats these animals use. This approach is not without issues however. The Region also recognizes that with a larger Unit 1 elk population the likelihood of increased complaints due to elk persistence on and use of private lands in and around the communities of Springerville, Eagar, Nutrioso, and Alpine are real. The Region is proposing a more active approach to deal with these communities in addressing these issues. The Region has been using population management hunts in the Round Valley communities for a number of years which has been effective at pushing elk out the area for short periods of time. In addition to the continued use of population management hunts, limited opportunity hunts will be used, as needed, for several months out of the year to put more constant pressure on elk and keep them out of the Round Valley area. The region will also be considering additional archery elk hunts to begin to address elk depredation complaints in the Alpine and Nutrioso communities.

1. Reduce the Unit 1 elk herd by 10 percent from pre-hunt 2011 to pre-hunt 2012. The elk herd will be maintained and stabilized when a 10 percent reduction has been obtained.
2. Continue to use alternative hunt structures (e.g. Population Management Hunts and Limited Opportunity Hunts) to address elk within the town limits of Eagar, Springerville and the surrounding area.
3. Consider use of alternative hunt structures to address increasing elk depredation complaints in the other urban areas of Unit 1 such as Alpine and Nutrioso.
4. Continue monitoring wildlife forage use to help determine future population 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 and hunter success) to recommend population objectives and permit numbers while meeting the Alternative Elk Hunt Objectives within the Commission approved Arizona Game and Fish Department Hunt Guidelines 2012–2014.

Units 2A and 2B:

Unit 2A is managed as a Minimal Occurrence Elk Management Zone and Unit 2B is managed as a Winter Range Elk Management Zone. The management objective for both of these units is to 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

Winter Range Elk Management Zone:

1. This zone includes the portion of Unit 3A that lies west of State Route 77 and south of the Pink Cliffs.
2. The population management objective is to manage to substantially reduce or eliminate spring through fall (generally April through October) elk populations to enhance habitat quality for wintering elk, and to reduce or eliminate conflicts with other public or private resources during spring through fall months.
3. Elk related private land depredation issues have occurred in areas around Snowflake, Taylor, Woodruff and Hay Hollow in the past. These site specific issues are generally unpredictable and can occur at various times of the year. It is recommended to continue having population management permits available for Units 3A and 3C, should the need arise to address landowner conflicts.
4. Use all available data (e.g., surveys, depredation complaints, hunter contacts, agricultural and commercial private land issues, and hunter success) to implement hunt structures.

Flexible Elk Management Zone:

1. This zone includes the portion of Unit 3A that lies north of the Pink Cliffs and east of State Route 77 has been identified as a Flexible Elk Management Zone.
2. The population management objective is to reduce or eliminate conflicts with other public, private or wildlife resources by maintaining population densities as deemed appropriate.
3. Elk related private land depredation issues have occurred in areas around Snowflake, Taylor, Woodruff and Hay Hollow in the past. These site specific issues are generally unpredictable and can occur at various times of the year. It is recommended to continue having population management permits available for Units 3A and 3C, should the need arise to address landowner conflicts.
4. 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

Standard Elk Management Zone:

1. This zone includes the portion of Unit 3B that lies south of State Route 60.
2. The population management objective is to maintain the elk population at a level that provides diverse recreational opportunities, while avoiding adverse impacts to the species, its habitat, or the habitat of other wildlife, and with minimal substantiated depredation complaints.
3. Continue efforts to complete wildlife-use only forage monitoring sites, which will provide habitat-based data for wild ungulate carrying capacities during both early and

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late growing seasons. Coordinate with the A–S National Forest (Lakeside Ranger District) to increase the number of forage monitoring sites to meet protocol.

4. Use all available data (e.g., population surveys, forage monitoring, substantiated private land depredation concerns, hunt success, and 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.

Winter Range Elk Management Zone:

1. This zone includes the portion of Unit 3B that lies north of State Route 60.
2. The population management objective is to manage to substantially reduce or eliminate spring through fall (generally April through October) elk populations to enhance habitat quality for wintering elk, and to reduce or eliminate conflicts with other public or private resources during spring through fall months.
3. 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. Provide information to hunters to increase harvest in areas affected by depredating elk.
4. Use all available data (e.g., surveys, hunt success, depredation complaints, hunter contacts, agricultural and commercial private land issues, and hunter success) to implement hunt structures.
5. In areas where standard hunts are not or cannot achieve the desired objectives, Population Management Seasons may be used.

Unit 3C:

Standard Elk Management Zone

Aripine-Pinedale Herd:

1. The population management objective is to maintain the elk population at a level that provides diverse recreational opportunities, while avoiding adverse impacts to the species, its habitat, or the habitat of other wildlife, and with minimal substantiated depredation complaints.
2. The current population goal is to stabilize the elk population. Manage the elk population within the Ari-Pine Resource Coalition objectives. One objective is to balance elk herbaceous forage use with the current forage capacity distributed to wild ungulates.
3. Coordinate with the A–S National Forest (Black Mesa and Lakeside Ranger Districts) to make certain our forage monitoring sites meet protocol. Continue to monitor wildlife forage use to help determine future herd unit objectives.
4. Use all available data (e.g., population surveys, simultaneous double count population estimation, population simulation modeling, hunt success, 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.

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Standard Elk Management Zone
Baca Herd:

1. The population management objective is to maintain the elk population at a level that provides diverse recreational opportunities, while avoiding adverse impacts to the species, its habitat, or the habitat of other wildlife, and with minimal substantiated depredation complaints.
2. The current population goal is to stabilize the elk population. Manage the elk population within the agreed upon forage distribution (50% livestock:50% wildlife). One objective 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. Continue to monitor wildlife forage use to help determine future herd unit objectives.
4. Use all available data (e.g., population surveys, simultaneous double count population estimation, population simulation modeling, forage monitoring, substantiated private land depredation concerns, hunter success, 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
Standard Elk Management Zone
Chevelon Herd:

1. The population management objective is to maintain the elk population at a level that provides diverse recreational opportunities, while avoiding adverse impacts to the species, its habitat, or the habitat of other wildlife, and with minimal substantiated depredation complaints.
2. The current goal is to stabilize the elk population. 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, hunter success, 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.

Minimal Occurrence Elk Management Zone

1. This zone includes the portion of Unit 4A that lies north of Territorial Road.
2. The population management objective is to reduce or eliminate conflicts with other public, private or wildlife resources by maintaining extremely low population densities, or eliminating populations, as deemed appropriate.
3. Lower resident elk numbers would reduce private land depredation and potential negative impacts to other wildlife species especially along the Little Colorado River corridor.

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4. Continue with non-permitted (over the counter permits) elk hunts to address private land conflicts.

Unit 4B

Standard Elk Management Zone

Apache-Sitgreaves National Forest:

1. This zone includes the portion of Unit 4B that lies within the Apache Sitgreaves National Forest.
2. The population management objective for that portion of the unit on the Apache Sitgreaves National Forest is to slightly increase elk numbers through reductions in antlerless elk harvest.
3. The current goal is to slightly increase the antlerless elk population. 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.
4. Use all available data (e.g., population surveys, population simulation modeling, forage availability and monitoring, substantiated private land depredation concerns, hunter success, hunter densities, 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.

Winter Range Elk Management Zone

1. This zone includes the portion of Unit 4B that lies north of the forest service boundary to McLaws–Territorial Road, comprising private, state, and BLM lands.
2. The population management objective is to substantially reduce or eliminate spring through fall (generally April through October) elk populations to enhance habitat quality for wintering elk, and to reduce or eliminate conflicts with other public or private resources during spring through fall months.
3. One objective is to manage the elk herd in this area to minimize depredation issues with private landowners.
4. In areas where standard hunts are not or cannot achieve the desired objectives, Limited Opportunity and/or Population Management Seasons may be used.

Minimal Occurrence Elk Management Zone

1. This zone includes the portion of Unit 4B that lies north McLaws–Territorial Road, comprising private, state, and BLM lands.
2. The population management objective is to reduce or eliminate conflicts with other public, private or wildlife resources by maintaining extremely low population densities, or eliminating populations, as deemed appropriate.
3. The population objective is 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 especially along the Little Colorado River corridor. Continue with non-permitted (over the counter permits) elk hunts to address private land conflicts.

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Unit 27:

The northern portion of Unit 27 is managed as a Standard Elk Management Zone. The southern portion of Unit 27 is managed as a Flexible Elk Management Zone.

1. Unit 27 elk population objectives will be managed based on habitat conditions and forage monitoring readings. Unit 27 will manage populations based on the following table. Following the Wallow fire of 2011 population numbers will be stabilized to allow for recovery of the habitat and to gather baseline data to determine if the population should be allowed to increase or should be decreased from current numbers.

Intensity of Use	Extent of Use	Management Guidelines
<15%	>50% of the monitored sites	Consider population increase if habitat conditions improving.
15-25%	>50% of the monitored sites	Consider Maintaining population at current level.
>25%	>50% of the monitored sites	Consider population decrease to address use problems and improve habitat conditions.

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. Maintain limited opportunity hunts in the southern end of the unit to minimize elk numbers in these areas to meet management objectives.
4. Continue monitoring wildlife forage use to help determine future population objectives.
5. Use all available data (e.g., population surveys, population simulation modeling, forage monitoring, hunter success, current and projected long-term climatic predictions) to support overall 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 to slightly increasing the resident Unit 1 and 2C elk population. The members also reached consensus of supporting the recommended change in the Unit 27 elk population objective of slightly increasing.

Literature Cited

Brown, R. L. 1990. Elk seasonal ranges and migration. Arizona Game and Fish Department Technical Report 1, Phoenix, Arizona, USA.

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Table 1. Region 1 elk herd units by area, land ownership and winter and summer range areas. Note: Some overlap occurs in summer and winter range areas within each unit.

HERD UNIT	Area (mi^2)	Land Ownership (%)			Seasonal Range Area (mi^2)			
		USFS	State	Private	Summer	(%)	Winter	(%)
Unit 1								
Greer-Greens Peak	293	59	25	9	224	(77)	154	(53)
Escudilla	94	89	1	10	71	(75)	14	(15)*
Milligan Valley	184	84	7	8	125	(68)	62	(34)
Black River	132	92	1	4	120	(91)	69	(52)
Unit 3B								
Woolhouse	242	63	9	24	140	(58)	196	(81)
Unit 3C								
Aripine-Pinedale	471	81	3	15	416	(88)	342	(73)
Unit 3C-4B								
Pinto Lake	648	65	13	21	541	(83)	496	(76)
Unit 4A								
Chevelon	364	83	4	13	361	(99)	226	(62)
Unit 27								
Bear Mountain	160	99	0	1	40	(25)	150	(94)
Hannagan	163	94	1	4	114	(70)	85	(52)
Beaver Creek	81	95	1	4	75	(92)	59	(79)
Campbell Blue	153	90	1	10	103	(67)	115	(75)

* Most winter range in New Mexico

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REGION 2

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 2 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 2011. The migration of a small portion of these animals to Regions 1 (Units 4A and 4B), 3 (Units 10 and 19B), and 6 (Units 21, 22, and 23) occurs mainly in the winter.

The Region 2 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 2 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 2 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. Antlerless permits were reduced by approximately half in most Region 2 Units beginning in 2011 to help stabilize the declining elk population.

Region-wide elk surveys have classified a healthy sex ratio of 35 bulls per 100 cows in 2010 and a reproductive rate of 30 calves per 100 cows.

Since 2004, Region 2 has implemented the simultaneous double count survey methodology in various units to estimate elk populations. This technique has proved useful in Unit 5, but has not produced valid results in the other Region 2 units due to dense forest cover.

Computer population modeling received little emphasis during 2006–2009, but began receiving greater emphasis again in 2010. Some units, which do not appear to be conducive to aerial surveys because of dense forest cover, continue to implement ground surveys. Elk are counted along standardized ground routes are surveyed each year in Unit 5A and 9. Ground surveys are also conducted in Unit 7 from high points.

In heavily forested areas, the Region has been experimenting since 2009 with helicopter surveys in Units 5A, 6B, and 8. These surveys have been useful for determining herd composition but are not suitable for estimating populations. Other survey techniques, such as winter-range counts will continue to be evaluated to determine the best way to detect elk densities in these units. An

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ideal elk survey tool will allow AGFD to determine current elk densities, detect future elk density changes, and allow for a comparison of elk densities in other units across elk range in Arizona.

Unit 7 elk hunts were split into Unit 7 East and 7 West beginning in 1999. This split allowed for greater flexibility in managing elk specifically in Unit 7E after growing concerns over the lack of aspen regeneration around the San Francisco Peaks. In 7E, antlerless elk hunts were designed to reduce and then stabilize the resident elk density beginning in 1999. In 7W, antlerless elk hunts were also specifically designed to reduce the resident elk density beginning in 2003, again over growing concerns over the lack of aspen regeneration in that unit. These hunt strategies were successful in reducing the elk density in both Unit 7E and 7W as seen in reduced hunt success on the antlerless elk hunts in both units. Lack of aspen regeneration is currently an issue in Unit 8.

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 Game Program Operational 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 2 has been and will continue to be a joint venture involving cooperation between multiple agencies and the public. 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 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 2 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 Kaibab National Forest Land Management Plan (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 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 2 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. In 2011, the South Kaibab National Forest implemented a Travel Management Plan that reduced the number of roads open to vehicle travel and restricts off-road travel, except to retrieve hunter-killed elk.

In 2009, the Department began working with the Hopi Tribe to develop a hunt framework for Hopi New Lands in portions of Units 5A and 5B. The goals of the program are to develop collaborative and shared wildlife management; provide seamless wildlife surveys, season dates and permit numbers; and provide access to both Hopi and State hunters. Since 2010, a specific proportion of elk permits have been allocated to Hopi tribal members annually.

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:

FRSG-USFWS-USFS Issue	AGFD Response
Elk identified as living yearlong on traditional winter range (mostly state and private land)	Creation of subunits in Units 5A and 5BN to focus hunting pressure on these herds
Road damage on late elk hunts	Movement of most 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
Late 1990s, lack of aspen regeneration around the San Francisco Peaks in Unit 7E	Significant increase in elk permits in Unit 7E and funding of elk-proof fencing to protect aspen
From 2005 to 2008, renewed concern about aspen regeneration in Units 5A, 5BS, 7, and 8	Increase antlerless permits in Units 7 and 8 to reduce the elk population. Stabilize the elk populations in Units 5A and 5B
From 2009 to 2011, concern about aspen primarily in Units 7 and 8.	Reduced then stabilized the elk population in 7E and 8. Created the Peaks Hunt Unit to increase harvest in the area that has the majority of the aspen in the Coconino National Forest
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	Implemented the recommended hunt structures

subdivision of hunts in Units 5A and 5BN	
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.

Objectives by Management Unit:

Hunt permits will continue to be allocated on a unit basis. Subunit 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) have been successful allowing ranchers more flexibility to manage cattle grazing and provides more forage for the main elk herd, which winters in these areas. Region 2 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. Region 2 also continues to work with landowners and constituent groups to improve habitat conditions and water availability and reliability in an effort to better manage the elk population.

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

1. Stabilize and slightly increase the herd in Units 5A 5B, and 6A because population modeling suggests these herd have been reduced dramatically, and these herds provide the bulk of elk hunting opportunity throughout the state. Habitat conditions have been good the last several years, which indicate the opportunity to slightly increase this herd. Close attention should be focused on calf crops, as this population can respond quickly.
2. Continue a cooperative agreement with the Hopi tribe for management of all wildlife on Hopi-state lands in northern 5A and 5B.
3. Continue to use specific subunits with Limited Opportunity hunts and coordinate with landowners to address concerns of elk residing yearlong on winter range on private and state lands in Units 5A and 5BN if needed, however in 2010 most the private land owners were concerned about the lack of elk.

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

1. Stabilize that portion of the herd in Unit 6B to compensate for recruitment from the Camp Navajo sub-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. Use telemetry information to help open additional areas to hunting that have been cleared of detonation risk.
4. Stabilize to slightly reduce the Unit 8 elk herd to address concerns from the Kaibab National Forest regarding aspen regeneration.

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5. Determine habitat use and herd linkage dynamics using satellite telemetry data from the elk research study on Interstates 17 and 40. Apply this information to improve highway safety and habitat linkage.

Unit 7 elk herd unit:

Lack of aspen regeneration at lower elevations continues to be an issue in both Units7E and 7W. Concerns over aspen and the short time period the root systems of burned trees have to successfully regenerate have increased since the Schultz fire in 2010 on the eastern side of the San Francisco Peaks. The Department recognizes elk are one of several causes leading to this lack of aspen regeneration in both units. To address adverse impacts to habitat by elk, a strategy was developed to reduce the elk population in both units. Specifically, the resident antlerless segment of the population was targeted for reduction with increases in general antlerless permits. The Peaks Hunt Area was created in 2011 around the San Francisco Peaks and the Hochderfer Hills to focus hunting pressure on the resident elk herd in the aspen habitat. The Peaks Hunt Area contains virtually all of the aspen in Unit 7E. Additional early general antlerless seasons have been used to further reduce the resident elk population in the aspen habitat and apply hunting pressure on elk within aspen stands during the time when aspen suckers appear to receive the most browsing pressure. Late-season general antlerless hunts may also be reinstated to help meet this objective. October general antlerless permits have been shifted to decrease hunting pressure outside of the Peaks subunit and increase pressure within.

In fall 2011, aspen regeneration appears to be improving slightly under the current strategy. Antlerless permit numbers will be adjusted to begin stabilizing the current elk population in Units 7E and 7W. The Peaks Hunt Area will remain in place to focus hunting pressure in areas where aspen are present. The Region has asked both the Coconino and Kaibab National Forests to consider all causes of aspen decline, including lack of fire, warming climate, and impacts to aspen regeneration caused by cattle. Ecosystem type habitat improvement projects like the Hart Prairie Project in Unit 7E and aspen improvement projects in Unit 7W will continue to be used to improve forest health.

Unit 9 Elk herd unit:

1. Stabilize this population at current levels and manage within the capability of the habitat.
2. Manage the bull segment of the population to maintain a survey ratio of up to 40 bulls per 100 cows.

Current Issues:

1. Water is a limiting factor for the elk population in Unit 9. Unit 9 has no perennial streams, rivers, lakes, or springs. Natural waters consist of small ephemeral water bodies that develop in low-lying areas where seasonal runoff collects. Several new water catchments have been added since 2001 in Unit 9, including a water pipeline using reclaimed water from Tusayan. Several updated catchments now store around 20,000 gallons of water each, reducing the need for transporting water to fill them.
2. Repeated browsing by elk has impacted various tree and shrub species on the district, especially near existing water developments. These impacts are more pronounced when drought conditions persist and reliable water sources are more limited across the district.

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New water developments will be sufficiently well-distributed to allow AGFD to achieve its wildlife management objectives and lessen the undesirable levels of wildlife impacts to vegetation, soil, and watershed resources on the district.

Units 12A and 12B Elk herd unit:

1. Maintain the elk population at very low levels.
2. General non-permit elk tags have been offered in Units 12A and 12B since 2010. Anecdotal information indicates that a few elk are harvested each year in the area. This opportunity will continue to be available.
3. Region 2 will continue to monitor this herd and make hunt recommendations aimed at maintaining elk at very low densities on the Kaibab plateau. Since 2007, there appear to have been 6–12 elk on the Kaibab Plateau.

REGIONS 3 AND 4

Background and History:

The first elk population to become established in Region 3 is located in the Hualapai Mountains in Unit 16A. This population was transplanted in 1927 with elk from Yellowstone National Park. This population remains small and is currently estimated at about 100 animals. A large number of the elk in this unit live in and around the Hualapai Mountain Park and the surrounding community of Pine Lake. The elk have become habituated to people and are often fed by local residents. This has created numerous problems from elk with trash can lids caught around their necks to increased mountain lion predation adjacent to residences.

Elk populations began expanding into Region 3 beginning in the late 1970s moving west and south from the Williams area. This increase brought elk management in Region 3 to the attention of land managers, private landowners, ranchers, sportsmen, and wildlife managers. Ranchers and private landowners, in some areas, became concerned as elk population increased. Within 10 years, portions of Region 3 began experiencing property damage, crop depredation, and direct competition with livestock on private land as elk populations expanded into new areas.

Unit 10 was the first hunt area to be accepted as a viable population and has become an alternative management elk unit. Located in Coconino County, Unit 10 has become one of the most well known trophy elk hunting areas in Arizona and tags are in high demand. Antlerless tags have been increased over the past decade to stabilize the herd and balance it with other resources and landowner tolerance.

Scattered elk populations exist within the remainder of Region 3. In 1997, several units were combined into a single multi-unit hunt area. A number of large ranches are found within these units. A concerted effort was made by some of the ranches to force the Department to issue landowner elk tags to offset damage to fences and consumption of forage by the growing elk herds. Landowner tags were never issued, but as elk populations and corresponding tag numbers grew, many of the ranches began offering guided hunts to paying clients, charging trespass fees, limiting access or allowing foot access only. Although this multi-unit hunt has not been managed as an alternative trophy management area, the protection provided by these large

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ranches has allowed many bulls to reach trophy quality. A number of exceptional bulls have been taken over the past few years and interest for tags in these units has been increasing.

Most recently, elk have expanded into Units 16A and 44A along the border of Region 3 and Region 4 near Alamo Lake. This small elk herd is located in non-traditional elk habitat, in low desert and riparian habitat along the Big Sandy and Santa Maria River drainages. Elk can be found as far north as the Chicken Springs Ranch Road. Elk presence in these areas is not considered to be compatible with other resources and over-the-counter elk tags were issued for this area beginning in 2007 to begin reducing the population. These tags will be continued until the population is significantly reduced or eliminated.

General Management Objectives:

- Unit 10 will continued to be an alternative elk unit. It is a standard elk management zone, managed by alternative hunt guidelines. Harvest strategies are based on standard seasons and, if needed, limited opportunity seasons. The objective is to maintain a stable elk population.
- Unit 16A and Unit 19A are flexible elk management zones which are not managed by standard hunt guidelines (meaning there is no formal survey data collected). Harvest strategies will be for standard, limited opportunity, and/or population management seasons. The objective is to maintain a stable elk population, but elk are not the highest priority species in the unit. Elk populations will be managed to maintain a small but healthy population with minimal conflicts with other resources and species. The Department will continue to work with Hualapai Mountain residents to reduce impacts from feeding.
- Units 15A, 15B, 17A, 17B, 18A, 18B, 19B, 20A, and 20C are flexible elk management zones which are not managed by standard hunt guidelines (meaning there is no formal survey collected). Harvest strategies will use standard, limited opportunity, and/or population management seasons. All units will be managed to maximize hunter opportunity and to balance the elk population with available habitat to ensure conflicts with other wildlife resources and private landowners are minimized. The objective is to maintain a stable or decreasing elk population. The elk population will be managed at levels to minimize competition between the species.
- Verde Valley (portions of Units 6A, 19A, and 21) and Alamo Lake (portions of Units 16A and 44A) hunt areas are minimal occurrence elk management zones and are not managed by standard hunt guidelines. Harvest strategies will use liberal and/or population management seasons. Unlimited, nonpermit-tag elk hunts will occur through much of the year. The objective is to minimize the elk population, to reduce conflicts with other public, private, or wildlife resources.

Unit 10:

History:

Unit 10 was first open to elk hunting in the late 1940s 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

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population of elk throughout Unit 10 and the Region has begun managing for trophy elk (alternative management) hunts.

Management Objectives:

To manage Unit 10 as a standard elk management zone, with alternative management hunt guidelines and standard season structures. The objective is to maintain a stable elk population while limiting the elk population to no more than 400 pre-hunt adults on the Kaibab National Forest portion of the unit. The unit is managed as an alternative management unit, therefore the Department will manage for higher bull:cow ratios in accordance with Commission direction.

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 for elk were expanded to the western portion of the unit. The following survey data includes observations gathered in August-September from 1993 to the present.

The elk population in Unit 10 was estimated at 1,900 (± 200) pre-hunt adults in 2002. In 2004, the simultaneous double count survey method began being used. Using a density estimate obtained with this technique, the elk population estimate for this unit is about 3,900. The double count survey method was again used in 2005. The Unit 10 elk population estimate based on this double count survey was 2,544 elk. Helicopter flights were added in 2009, with different density estimates per habitat type. The estimated population in 2009 was just over 2,000 elk and in 2011 it was about 3,300 elk. The survey method has proven to be difficult in the dense juniper country, which comprises about 35% of the unit. While constant efforts are made to improve the survey the population estimate continue to fluctuate from year to year.

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. 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 expressed a desire to maintain a limit of 400 adult elk on those portions of Unit 10 within the Kaibab National Forest.

Solutions:

To reduce the population, the harvest of antlerless elk was increased substantially in 1999, 2000, 2003, 2004, and 2005. The harvest of antlerless elk fell below expectations during the 2005 hunting seasons. Antlerless permits were lowered slightly for the 2007 season but returned to the 1,600 permit level established in 2005 for the current seasons.

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Unit 16A:

History:

Originally transplanted in 1927, elk have increased to harvestable numbers and were hunted in the 1940s and 1960s. The elk population then declined until the early 1990s, but is believed to be stable at around 100 head of elk.

Elk hunts have been conducted sporadically in this unit 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. Current hunt structures offer 4 archery permits and 3 muzzleloader permits.

In 1992, several elk were killed on Interstate 40 east of Kingman, suggesting these animals moved north from the Hualapai Mountains. During 1995 through 1998, elk were also observed on Hualapai County Park, Laughlin Ranch, Cane Springs Ranch, Alamo Lake Wildlife Area and Planet Ranch. A population of elk has become established in the Big Sandy and Santa Maria drainages above Alamo Reservoir. This population has been increasing and the population is estimated to be around 70 animals.

Management Objectives:

To manage Unit 16A as a flexible elk management zone, with standard season structures. The objective is to maintain a stable elk population. Initiate late summer or fall ground surveys to gather population data. Continue to request that archery and muzzleloader hunters report their observations of elk.

Population Information:

No formal elk surveys are conducted in Unit 16A. Elk numbers in 1998 for the Hualapai Mountains were estimated at 40–60 adults. This was based upon incidental observations, hunter reports during archery and muzzleloader hunts, 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. As based upon limited information hunt data and Wildlife Manager sightings, current estimates indicate the population could be as high as 100 adults.

Specific Concerns:

Wildlife feeding is a serious problem with residents in the Hualapai Mountains who prefer to not have an elk hunt because they feed many elk daily. Local archery and muzzleloader hunters would like the present hunt to continue.

Solutions:

Continue to survey hunters and monitor elk numbers and movement. Monitor local opinion regarding elk, while educating Pine residents of potential harm caused by feeding elk and deer. Keep open communication with Mohave County Parks to encourage archery hunting within the park.

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Unit 19A:

History:

Elk began moving into Unit 19A in the mid 1980s. The center of elk activity was around Onion Mountain and Pinto Mesa. Elk hunting was initiated in 1993 with ten archery bull permits. As the elk population grew, additional hunts and permit numbers were added to prevent the herd from growing too rapidly in this newly-colonized area at the southern fringe of their range. A general bull hunt and two general antlerless hunts were added to the annual hunt structure. Permit numbers were relatively low, but the antlerless hunts were separated to minimize hunter overlap on the few available herd areas. Around 2009, elk numbers in Unit 19A appeared to be reduced because of the increased hunting pressure. Antlerless elk permits were then reduced in an effort to stabilize the population size.

Management Objectives:

To manage Unit 19A as a flexible elk management zone, with standard season structures. The objective is to maintain a stable elk population, at relatively low densities, but increasing the herd size to 2005 levels by slightly reducing antlerless elk harvest from present levels and by pursuing habitat and water development improvement projects in areas that do not promote conflicts with private landowners.

Population Information:

Currently, elk inhabit much of Unit 19A in small numbers. Elk reside in the Black Hills; including Woodchute Wilderness, Mingus Mountain, and the Pinto Mesa vicinity and the chaparral foothills of this range. Elk are rarely observed in Unit 19A south of Highway 169 or in the grasslands near Lonesome Valley and Chino Valley. The current population estimate for Unit 19A is 250 elk, based on incidental observations.

Specific Concerns:

Most of the elk activity in Unit 19A is within Forest Service lands, so there is little conflict with private landowner interests. The number of elk within the Unit 19A portion of the Verde Valley over-the-counter elk hunt area is minimal. Some elk use private lands at Mingus Springs Camp on Mingus Mountain. Conflicts here have been few over the years, with no recent concerns as the elk population has been reduced.

Solutions:

Because a small portion of Unit 19A is within the Camp Verde area, this corner of the unit should remain within the Verde Valley Hunt Area to help reduce elk conflicts on nearby agricultural fields.

Multi-Unit Hunt Structure (Units 15A, 15B, 17A, 17B, 18B, 19B, 20A, and 20C):

History:

In 1997, 5 units were combined (17A, 17B, 18A, 18B and 19B) into one hunt area, with the legal animal designated as any elk. Three seasons were opened to the new hunt area, including an archery hunt, an early firearms hunt in October, and a late firearms hunt in November. The objectives of the new hunts were to increase the harvest of elk, to increase hunt success, and to open private lands to access. The ultimate goal was to increase the Department's ability to manage these small elk populations and to reduce private landowner-elk conflicts. Instructions

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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 seasons. 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 seasons were received.

In 1998, the late firearm season split into 30 any elk permits and 70 antlerless permits. In 1999, the southern portion of Unit 17A south of Walnut Creek and Unit 17B were removed from the multi-unit hunt because the desired number of elk to be removed from this area had been achieved in 1997 and 1998. The 1999 general hunt structure changed to provide 17-day seasons for October, November, and December. For the 2000 season, emphasis was placed on the October season for harvesting larger numbers of elk, primarily females. Permits were increased, and a large segment of the available tags were issued as antlerless-only tags. A portion of Units 17B, 20A and 20C (the Skull Valley and Kirkland Junction areas) were included in the 2001 early general and early antlerless multi-unit 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. Units 15A and 15B were added to the 2002 general and archery seasons. For the 2004 season, the multi-unit 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.

The multi-unit hunt structure was modified for the 2006 seasons to significantly increase cow elk harvest, simplify hunts, and increase hunter opportunity. The new structure eliminated 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. Steady permit increases have occurred in response to increasing elk populations, especially the female segment.

This combined multi-unit hunt is now providing a significant amount of recreational opportunity for elk hunters and demand for tags has been increasing. In 2009, 1050 elk tags were offered for this hunt which is approximately 4% of the statewide total. For the 2011 season, the multi-unit hunt was changed once again. Units 15A, 15B and 18A were separated from the other units into a stand-alone hunt (due to increasing landowner, hunter-hunter, and hunter-guide conflicts). Permits were adjusted based on demand, total harvest and hunt success in an attempt to better distribute hunters while increasing overall harvest. Antlerless elk hunters continue to be less successful than the Department desires and the Region will continue to evaluate hunts in the multi-unit structure to meet management objectives.

<u>Management Objectives</u>:
To manage Units 15A, 15B, 17A, 17B, 18A, 18B, 19B, 20A, and 20C as a flexible elk management zones, with limited opportunity season structures or, if needed, population management hunt seasons. The objective is to maintain a stable elk population. The primary management objective for elk in the multi-unit hunt area is to maximize hunter opportunity and to minimize conflicts with other wildlife resources and private landowners. Elk damage on croplands, wet meadows, and ranch fencing may be substantial in specific sites such as on K-4 Farms, Chino Grande, and the Las Vegas Ranch. Alternative methods, such as fencing and use

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of noise cannons, have been unsuccessful in reducing this problem. The multi-unit hunt structure allows for hunting of elk that seasonally move into problem areas; however recent closures to these ranches may force the Region to look at population management seasons to solve some elk conflicts.

Providing recreational hunting opportunities is a part of the Department's Mission. By combining adjacent units into larger hunt areas, sportsmen are provided with a greater opportunity to harvest an elk. However, due to the widely dispersed elk population in these units, hunters may have a difficult time finding elk without spending a significant amount of time scouting the area prior to hunting. Wildlife waters and habitat improvement projects will be pursued to improve habitat in areas where there is unlikely to be landowner conflicts and/or conflicts with other resources. These habitat improvement projects may also be developed to attract elk away from problem areas.

Elk surveys are not conducted in these units. Although numerous survey methods have been used and evaluated in the past, none have been successful in monitoring this widely dispersed, low-density elk population. However, hunt success through several significant permit increases and incidental observations of elk and elk use by Wildlife Managers, hunters and livestock operators, suggest that elk numbers are slowly but steadily increasing across much of this area. Because of this, harvest strategies will continue to focus on the female segment of the population to balance the population with available habitat and private property constraints.

Specific Concerns:
Several large ranches within the boundaries of the multi-unit hunt have been selling guided hunts for elk. A number of exceptionally large bulls have been taken on these ranches and the corresponding publicity has generated a surge in popularity for elk tags. Unfortunately, outside of these large ranches, elk are widely scattered in small pockets and hunting can be difficult. Access can also be very difficult because a large amount of the land is checker-boarded state and private land. Hunters unfamiliar with this area may have a hard time finding elk or may run into access problems with private land. Increasing antlerless harvest continues to be an issue. Even with the significant antlerless permit increases, a significant increase in harvest isn't occurring.

Multi-Unit Hunt Area (Unit 15A, 15B, and 18A):

Units 15A and 15B:
History:
Elk sightings and elk sign were first documented in 1995 in the upper elevations of the Music Mountains (Unit 15A). Elk numbers have been increasing along the western boundary of the Hualapai Reservation. Trails and fence crossings suggest that Unit 15A elk may be dispersing west from the Reservation. Since the mid-1980s, elk have occasionally been observed in Hualapai Valley. It is unknown when elk first appeared in the Peacock Mountains (Unit 15B), believed to be dispersing from Unit 18A, or possibly from the Hualapai Mountains in Unit 16A. Hunters, ranchers and Department personnel have reported other elk sightings further west in the Cerbat (Unit 15B) and Black Mountains (Unit 15A).

Management Objectives:

Monitor elk sign by ground or aerial surveys, emphasizing areas of reported sightings. Management emphasis is focused primarily on mule deer and bighorn sheep. Elk numbers are currently low in these units and the primary objective is to manage elk numbers at levels that will minimize conflicts with other wildlife resources, private landowners, and livestock permittee. Including these units to the multi-unit limited opportunity hunt structure will provide some public hunting opportunity while maintaining elk numbers to avoid conflicts. Several catchments in the Music Mountains that were developed for mule deer are being used by elk. The objective for these catchments is to redevelop as needed with more storage and protected aprons so that they will be available to both elk and mule deer.

Population Information:
No annual elk surveys are conducted in Unit 15A or Unit 15B. The number of elk in the Music Mountains is unknown. Many elk are transient but some elk are present on a yearlong basis in both the Music Mountains and the Peacock Mountains. At this time, data are insufficient to support a harvest objective.

Specific Concerns:
In the past, two of the grazing permittee in the Music Mountains have expressed concern over forage competition and fence damage. In the past, some members of the Kingman Habitat Partnership Committee have expressed concern about the presence of elk populations in non-historic range. Elk are presently not a problem in this unit.

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.

Solutions:
Provide permittees with elk jumps and monitor herd levels in areas of concern. Units 15A and 15B were added to the multi-hunt structure for 2002 and continue to offer hunt opportunities to multiple elk hunters.

Unit 18A:
History:
Department personnel first observed elk in this unit in 1985. 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, Unit 18A was combined with the multi-unit hunt structure combination of 15A, 15B, 17A, 17B, 18B and 19B. In 2010 the present hunt structure was initiated, which separated Unit 18A from the multi-unit structure and combined it with Units 15A and 15B.

Management Objectives:
Maintain an elk population that continues to provide recreational opportunity and minimize elk-landowner conflicts. Water developments and habitat improvement projects will be pursued to improve habitat in areas where there is unlikely to be conflicts with private landowners and/or other resources and to draw elk off the private lands which are closed to hunting.

Population Information:
Annual aerial surveys were conducted from 1992 to 2000. Elk observations since this time have been incidental to deer and pronghorn surveys. Elk populations have been stable to increasing in Unit 18A. The X-1 and Fort Rock Ranches have significant populations of elk but are not open to the general public for hunting. The highest concentrations of elk in this unit are found on or adjacent to these ranches. Elk are dispersing south from Unit 10 and the Hualapai Reservation, where higher bull:cow ratios are managed for.

Specific Concerns:
The past owner of the Willows Ranch was very concerned with the elk population in Unit 18A in general and on his ranches in particular. 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 presently states no elk problems.

The owner of the X-1 Ranch, has expressed concern about elk foraging on privately owned pastures that are being rested from livestock grazing. This rancher does not allow open public access for elk hunting but instead offers guided elk hunts. This ranch is currently selling guided hunts for trophy elk and has become nationally recognized in this regard. Since the numbers of permits in the multi-unit hunts were increased, we have not received any further complaints about elk numbers.

The Robinson Ranch, composed mostly of public lands managed by the Bureau of Land Management (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 and the present owner has not communicated any complaints to the Department as of this date.

Managers of Fort Rock Ranch complained about increasing elk numbers and competition with livestock in years past but presently feel elk populations are acceptable. The ranch was recently purchased by a new owner who is using the property as a personal retreat and private hunting area. Elk numbers appear to be acceptable and there are no complaints.

Solutions:
Continue to work with landowners to seek solutions to elk issues.

Multi-Unit Hunt Area (Unit 17A, 17B, 18B, 19B, 20A, and 20C):

Units 17A and 17B:
History:
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 mid 1970s. In the late 1970s, elk herds gradually increased. During 1988, elk were regularly observed on Juniper Mesa and the adjacent Baca Float Land Grant in Unit 18B.

Management Objectives:
Maintain elk populations at or below the 1996 pre-hunt level for Units 17A and 17B. This will reduce the potential for overuse of the available habitat and conflict between local ranchers and the elk. Attempt to reduce elk numbers as low as possible in conflict areas defined by the southeastern portion of Unit 17A, and the south and eastern portions of Unit 17B. This geographic description defines locales where, until recently, there were no historical records of elk. Adhere to the 50–75 elk population limit on the Yavapai Ranch as agreed to in the Coordinated Resource Management Plan for the Ranch. Since elk depredation problems in these units are difficult to manage with standard hunt structures, population management hunts may be needed to achieve the objective of reducing crop damage. Continue to provide recreational opportunities for viewing and harvesting elk in the other portions of the units not described above. Continue to survey elk when feasible, or when a method is found that is cost effective.

Population Information:
In the past, multiple methods have been employed to survey the elk in Units 17A and 17B including helicopter flights, fixed-wing aircraft flights, spotlighting and calling (bugling) during the rut. 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.

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:
In 1996, the owner of the Cross U Ranch voiced his concern about elk depredation on his 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 arisen recently 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.

Solutions:
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. The

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multi-unit elk hunts were initiated in 1997 to reduce elk numbers in Units 17A and 17B. The Department provided information on sportsman access (including how to contact cooperating landowners) to all hunters. Maps showing potential elk concentration areas were also given to hunters to assist them with locating elk.

Continue to seek funding for projects such as water tank cleaning, elk jump installation, burning, and juniper cutting on Forest Service 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.

Unit 18B:

History:

Elk were first observed in the Yolo-7Up Ranch area in the 1940s. Although there were no reports of elk in the 1950s until the mid 1970s, by the late 1970s, elk sighting and herds observations gradually increased. During 1988, elk were regularly observed on the Baca Float Land Grant and the adjacent Juniper Mesa (Unit 17A). During the 2000 season, the elk on the Baca Float Land Grant and Pine Creek Portions of Unit 18B were found in lower concentrations than the previous years, thus suggesting movement easterly into Unit 17A.

Management Objectives for Unit 18B:

Maintain elk populations at or below the 1996 pre-hunt level for Units 17A, 17B, and 18B. This will reduce the potential for overuse of the available habitat and conflict with local ranchers.

Population Information:

The majority of elk in Unit 18B inhabit about 300 square miles of pinyon-juniper habitat mixed with open grasslands and ponderosa pine woodlands. Land ownership is about 80% private, 15% state and 5% Bureau of Land Management. 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. The majority of elk use the borderlands of Units 18A, 17A, and 17B, but have been reported on the west side of the unit along the Mohon and Aquarius Mountains.

No successful method has been found to survey elk in this dense pinyon-juniper habitat. The Unit 18B population estimates are based on hunt success and elk numbers observed by Wildlife Managers, hunters and ranchers. The majority of these observations have taken place on the Baca Float and Pine Creek portions of Unit 18B.

Specific Concerns:

The majority of Elk in Unit 18B occur on the ORO Ranch and Baca Float Land Grant, which is all private property. In past years the ranch manager charged an access fee for bull elk hunts but not for antlerless hunts. The ranch is currently leased to a private outfitter for trophy elk hunts. 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 about 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.

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The ranch also serves as a refuge for elk that are chased out of adjacent units. This creates problems for both the ORO Ranch and hunters. 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

Unit 19B:

History:

In the early 1980s, elk were infrequently encountered in this unit. By 1990, elk were common at the irrigated croplands in Big Chino Valley. Although occasionally observed during wildlife surveys in June and December, elk are frequently seen crossing U.S. Highway 89, the unit boundary south of Ash Fork. 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.

Management Objectives:

Minimize damage on private croplands (K-4, T-C, and Chino Grande (CV) Farms). Obtain information on elk crossing areas on Highway 89 to improve public safety. Since elk depredation problems in this unit are difficult to manage with standard season dates, a population management hunt is more likely to achieve the objective of reducing crop damage. Multi-unit seasons continue to be the best tool to manage elk unit-wide.

Population Information:

Formal elk surveys are not economically feasible because of the low density, widely dispersed population. Population estimates area based on incidental observations and hunt success. Elk seasonally move 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. Small herds of elk have been spotted on Picacho Peak.

Specific Concerns:

Elk damage to the irrigated alfalfa and cornfields at K-4 Farms in Big Chino Valley has continued since the mid-1990s. The two operating farms in Big Chino Valley, T-C Farms and Chino Grande (CV) Farms, are experiencing the same elk related problems as K-4 Farms had historically. Elk are frequently seen crossing U.S. Highway 89 from Unit 8 and constitute a traffic hazard.

Solutions:

Continue to use population management seasons to remove elk from private cropland when contacted by landowners. This hunting strategy has become limited with the closure of the K-4

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Ranch and Chino Grande (CV/CF) Ranch to public access. 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.

Unit 20A and 20C:
History:
In 1984 and 1985, archery deer hunters on Big Bug Mesa observed 8 cow elk. Three cows were the only elk observed in 1986. Two bulls were observed fighting on George Lees' Ranch in the Sierra Prieta Mountains in 1987.

In 1998, an experimental hunt combining parts of Units 17B, 20A, and 20C (Skull Valley-Kirkland Valley) was formulated to address elk depredation on private lands. This subunit 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 subunit was included with the Region 3 multi-unit hunt. If elk are not present in the subunit during the season, hunters have the opportunity to hunt other areas.

Management Objectives:
Use hunting to reduce elk numbers. Minimize elk conflicts with ranchers and landowners in Unit 20A and Unit 20C. Since elk depredation problems in this unit are difficult to manage with standard hunt structures, a limited opportunity hunt is more likely to achieve the objective of reducing damage and adverse impacts caused by elk. Combining Units 20A and 20C with the Region 3 multi-unit hunts will provide opportunities for hunters to locate elk elsewhere if they are not present in these two units.

Population Information:
A population estimate based on information gathered from hunters, ranchers, and landowners, indicate a resident elk population of about 25 elk in Unit 20A. During deer surveys in 2005 a herd of 5 elk were observed in the proximity of the Ruger Ranch Estates in Unit 20C. Due to the lack of credible sightings and lack of observations during annual deer surveys the current elk population in Unit 20C is unknown. It is likely that the population is transient and utilizes the riparian corridor of Kirkland Creek to maximize resources where they are most abundant and disturbance is restricted to private landowners. It is unknown if they utilize upland habitat in Unit 20C to any considerable degree.

Specific Concerns:
Private land owners in Skull Valley and Kirkland Creek expressed concern that elk competed 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.

Elk were not historically in Unit 20A. These elk may not stay in predictable areas long enough to be harvested during Population Management hunts. This limits the effectiveness of the short season.

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Solutions:
The Department initiated, and monitored a special 4-month, 24-permit hunt designed to reduce elk numbers. Eighteen elk were taken. The hunt was not determined to be necessary for 1999, or 2000. Portions of Units 20A and 20C were included with the Region 3 limited opportunity multi-unit hunt in 2001. It is desired to continue including 20A with the multi hunt structures as means to achieve population objectives. This is a pro-active measure to control the population and reduce elk conflicts. Rewrite the Department Strategic Plan so Unit 20A is not managed to maintain a specific elk population.

Alamo Lake Hunt Area (Portions of Unit 16A and 44A):
History:
During 1995 through 1998, elk were also observed on Hualapai County Park, Laughlin Ranch, Cane Springs Ranch, Alamo Lake Wildlife Area and Planet Ranch. A population of elk has become established in the Big Sandy and Santa Maria drainages above Alamo Reservoir. This population has been increasing and the population is estimated to be around 70 animals.

Management Objectives:
To manage the Alamo Lake Hunt Area as a minimal occurrence elk management zone, with liberal season structures or, if needed, population management hunt seasons. The objective is to minimize the elk population. The Department will 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.

Population Information:
No formal elk surveys are conducted in Unit 16A and Unit 44A. It is unknown how many elk reside within the Alamo Lake Hunt Area

Specific Concerns:
Ranchers and the Bureau of Land Management have voiced concerns regarding the recent arrival of elk along the Santa Maria River and Big Sandy River above Alamo Lake.

Solutions:
Continue to monitor elk numbers in southern 16A near Alamo Lake. Over-the-counter elk tags were issued for the Alamo lake area beginning in 2007. The hunt area was increased to include areas South of Wickiup in 2009. Elk are not compatible with existing resources in the area, therefore over-the-counter tags will continue to be issued until the population is significantly reduced or eliminated.

Verde Valley Hunt Area (Portions of Units 6A, 19A, and 21):
History:
In the late 1990s, elk began using cornfields within the town of Camp Verde. In the summer of 2000, the Department purchased and erected an electric fence around the sweet corn fields on 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

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the cornfields. The Department received the loaned fence back from the farm prior to the 2003 growing season.

August 15–24, 2003: initiated a population management hunt (PMH) for elk on two separate farms in Camp Verde. Because the farms are within town limits, hunters were restricted to archery equipment. None of the five hunters harvested an elk.

November 2003: learned of 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 elk were causing much damage to this field. In response, the Department and Rocky Mountain Elk Foundation (RMEF) purchased and erected (on loan) an electric fence around this new alfalfa field.

Jan. 03, 2004 – Feb. 15, 2005: conducted a rifle PMH elk hunt in the vicinity of the alfalfa field. The 35 permit-holders harvested 15 elk.

Summer 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 reportedly damaged by elk when it was turned off after the 2005 growing season.

Fall 2004: initiated limited opportunity hunts for elk in a broader area surrounding Camp Verde to create a lower-density elk buffer around the town. These hunts included portions of Units 6A, 19A, and 21. Hunts offered included archery antlerless, archery any elk, general antlerless, and general any elk. This hunt structure was continued for the 2005–2007 seasons. Harvest levels for these hunts were fair to good, with the exception of the archery antlerless hunt, in which hunt success was poor.

2008: offered liberal seasons, unlimited, nonpermit archery elk tags for the Verde Valley hunt area which could be purchased over-the-counter (OTC). Most of the elk that visit crop fields were within the town limits of Camp Verde, where firearms use was unlawful. These tags allowed hunters to hunt any time between January 1–March 31, August 1–September 11, and December 1–31, 2008.

2009-2012: to increase hunter success in the Verde Valley hunt area, the Department changed the hunt structure from archery to general (firearms). This allowed firearms use in the uplands surrounding Camp Verde, while still enabling archers to hunt within the Camp Verde town limits. A bull-only season was also added to the hunt structure in the summer months (April 1–July 31) to further increase harvest.

<u>Management Objectives</u>:
To manage the Verde Valley Hunt Area as a minimal occurrence elk management zone, with liberal season structures or, if needed, population management hunt seasons. The objective is to minimize the elk population. Although elk did not historically occur within the Verde Valley, this area is currently on the fringe of their range. Because of conflicts with agriculture, the management objective is to reduce elk numbers in the Camp Verde town limits as low as possible and maintain a low-density elk buffer on the surrounding public lands, through which elk will not readily re-inhabit the town.

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Population Information:
The highest elk populations within this limited opportunity hunt 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, elk population estimates within the Camp Verde town limits have ranged from 25 elk in the late 1990s, 70 elk in 2003, and 25 elk in 2005. The farmer's use of electric fencing, along with PMH, limited opportunity, and liberal unlimited, nonpermit-tag hunts have decreased elk numbers in the Camp Verde area, thus reducing elk damage to agricultural crops.

Specific Concerns:
Elk continue to cause damage to crops on Hauser & Hauser Farms and Burbacher Farms in Unit 6A, within the Camp Verde town limits and on the Verde River Ranch, south of Camp Verde.

Solutions:
The use of limited opportunity elk hunts had the desired effect of reducing the localized elk population and associated crop damage. The over-the-counter elk hunt structure that was initiated in 2008 sought to further reduce elk numbers by allowing many elk hunters the chance to harvest an animal in the Verde Valley, throughout much of the year. Although the Population Management Hunts have not been used in the Verde Valley since 2004, this capability has been maintained within the Department hunt structure in case the immediate need arises.

REGION 5

History and Background:
Elk did not historically occur in southeastern Arizona and are an unplanned addition to the native wildlife found there. Early elk sources such as Murie's 1951 "*Elk of North Americ*a" 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 5 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, and 32

Year	Number of Bulls Harvested	Number of antlerless Harvested
2001	7	0
2002	2	2
2003	1	2
2004	2	4
2005	1	3
2006	0	15 reported[a]
2007	6	9 (incl. 2 calves)
2008	5 spikes	0

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Year	Number of Bulls Harvested	Number of antlerless Harvested
2009	3	3
2010	13	0

[a]Extrapolated from 13/45 responses – may not be accurate

Solution:
Continue to be adaptive and use alternative hunt structures as means to achieve our management objectives. We are continuing our management with the use of "limited opportunity" elk hunts again in 2011 with a limited archery season with 5 tags and an early any-elk season with 10 tags. Recently we have added a "general nonpermit tag" season for any elk during the last half of November through the end of December. This will allow any of the locals with knowledge of the areas the elk inhabit an opportunity to harvest an animal in attempts to meet our goal of reducing the current numbers of elk in the Gila Mountains and Sulphur Springs Valley.

Management Objectives:

- Use hunting to reduce the levels of elk in the Gila Mountains and Sulphur Springs Valley.
- 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.
- Consider the use of companion tags should the current hunt structure fail to meet management objectives.

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 6

Background and History:
Region 6's elk management efforts are mainly confined to the northern portions of Units 22 and 23, with small extensions of resident elk populations into the southern portions of these units and also into Units 21 and 24A. This range is also used by elk from Regions 1 and 2, as well as from the Fort Apache and San Carlos Indian Reservations as wintering grounds. This influx of non-resident elk complicates elk management efforts. Information gathered from Department research has helped understand some of these complexities. All elk habitat in Units 22 and 23 is occupied year-round. The Region will continue to monitor any expansion of elk range outward from the Unit 22/23 core. For current management, as expressed in this plan, we are focused on the resident elk population below the Mogollon Rim.

Elk have been observed in Unit 21 since the early 1980s. Sightings were rare and it was uncertain if the elk were residents, or just a wintering population. By 1990 reported sightings were on the increase, with elk being seen year-round. 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, which has continued to date. The amount of permits has increased, the season has been stratified, and antlerless permits have been introduced. Fixed-wing (Supercub) surveys have been conducted with very limited success in Unit 21. The terrain does not support fixed-wing surveys as being a safe or effective.

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 marginal, and elk are not regularly observable. 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 6 is primarily comprised of USFS land. Due to the minimal amount of private lands within elk range, Region 6 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 influencing 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 were 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 estimated to be 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. The Dude Fire of 1990 vastly increased effective elk habitat in Unit 22 and by 1991, about 235 elk in Units 22 and 23 were observed from the ground during the fall survey and the total pre-hunt population was estimated between 843 and 1,265 elk. In more recent years the population continued to grow despite aggressive management, with some stabilization perhaps since about 2008.

Due to non-resident winter elk immigration it is estimated that the Unit 22 elk numbers double and the Unit 23 elk numbers increase by about 50% each winter. This increase is variable from year to year, dependent on winter snowfall. The following table reflects the estimated pre-hunt adult elk population for Units 22 and 23 (combined) from 1988 to 2011.

UPDATE OF THIS TABLE WILL BE DONE PRIOR TO COMMISSION MEETING

YEAR	ADULT POPULATION ESTIMATE	% CHANGE	PERMIT NUMBERS	BULL HARVEST	ANTLERLESS HARVEST	TOTAL HARVEST

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	1547[a]	+ 00	1040	259	171	430
1998	1459	- 06	1160	265	251	516
1999	1647[a]	+ 11	995	230	128	358
2000	2208[a]	+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	2143[b]	+42	1537	426	177	603
2007	3686[b]	+72%	1973	497	188	685
2008	3488	-5%	2351	573	297	870
2009	3874	+11%	2382	585	292	877
2010			2432	553	242	795
2011			2354	537	165	702

[a]adjusted mean from revised population model estimate
[b]adjusted based on Unit 22 and Unit 23 double count population estimate
[c]projected 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 this moving back and forth between 24A and the San Carlos Reservation. Elk have been observed year round in 24A but the population seems to have decreased somewhat in the northern portion of the unit due to low to no harvest in the last three years during the limited opportunity hunt. A few elk have spread to the Apache Mountains which is a concern. Hunt strategies in the future will be used to eliminate elk in these desert grassland areas. Due to the low number of elk that occur in Unit 24A, data is insufficient to determine population trend and these same low numbers dictate that management of this herd is to be viewed as one of hunter opportunity under a Limited Population Management designation.

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Specific Concerns of HPC:

The Payson Natural Resource Committee holds about four meetings annually. The Committee annually submits 5–10 habitat projects for funding each year. Projects are for improvement of water catchments, juniper thinning, prescribed burns, and new drinkers. Elk forage monitoring was conducted through 2011 in accordance with Region 6 Elk Forage Monitoring Protocol in Units 22 and 23 in key areas where elk are known to feed and congregate. This trend data indicated use of forage by elk in these key areas was in the light category, with use by elk of 30% or less. This forage monitoring was discontinued beginning in 2010 due to the consistent trend of light use and staffing considerations.

Another concern of the HPC is the quality of the hunts in Unit22; the majority of the members have requested that Unit 22 be considered as an alternative hunt management unit. Members have voiced their concerns with perceived decline of higher age class bulls and the high density of hunters. This recommendation was not adopted in the Guidelines for the 2012-2013 and 2013-2014 Hunting Seasons. However, the a narrower bull to cow ratio was adopted and it should alleviate these concerns as Unit 22.

Objectives by Unit:

Unit 21: The objective for elk management for Unit 21 is to maintain a recently established population at densities that are socially and biologically suitable. Unit 21 falls into two separate categories for elk management. The portion of Unit 21 north of the Bloody Basin Road (FR 269) will be managed as a flexible elk management zone. The portion of Unit 21 included in the Verde Valley hunt area and south of the Bloody Basin Road (FR 269) will be managed as minimal occurrence elk management zones.

There are very few complaints related to elk depredation in Unit 21 except in the Camp Verde Area. The Verde Valley Hunt Unit includes this small portion of Unit 21 (as well as portions of Units 6A and 19A), and was specifically designed to manage elk in the Camp Verde area. The Verde Valley Hunt Unit is managed by Region 3, and has had a positive impact on human-elk conflicts in the Camp Verde area.

The Unit 21 elk management objectives will be reached by continuing to monitor elk hunter harvest data, and maintain an open dialogue with landowners in the rural areas of Unit 21 in more traditional elk habitat. Region 6 may continue limited surveys of elk in Unit 21 in order to monitor population trends. Due to the small population, data gathered from these surveys may not be statistically valid.

Unit 21 falls into two separate categories for elk management. The portion of Unit 21 north of the Bloody Basin Road (FR 269) will be managed as a flexible elk management zone. The portion of Unit 21 south of the Bloody Basin Road (FR 269) will be managed as a minimal occurrence elk management zone.

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Population Management Hunts may also be used to address elk that may persist in areas of the Agua Fria Grasslands if conflicts with other species management objectives are impacted.

Unit 22: The objective for unit 22 is to stabilize the resident population at the current level. Unit 22 is managed as Standard Population Management Zone.

To achieve this objective Region 6 will annually adjust the harvest of resident adult elk to keep the population stable and hunt success parameters within Department guidelines; monitor elk impact and/or forage use in key areas (e.g., riparian areas, isolated meadows associated with the Dude Fire) as needed; monitor the elk population through annual surveys; monitor habitat conditions in conjunction with the U.S. Forest Service; and harvest bull elk and antlerless elk in accordance with elk hunt guidelines.

Conflicts exist in Unit 22 between elk and other uses of the land. 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. The golf courses have hired personnel to clean up elk droppings and haze elk off the courses rather than construct fencing. There is also an increase in elk conflicts due to people feeding elk from their residences.
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. People are also discouraged from feeding elk through education from a wildlife manager and a citation for creating a public nuisance if it becomes the only option to stop the feeding activity. 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 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: Unit 23 is managed as a Standard Population Management Zone. Alternative hunt management structures allow for higher bull:cow ratios. The objective in Unit 23 is to keep the bull:cow ratio between 30 and 40 bulls per 100 cows. To achieve these objectives, Region 6 will annually adjust the harvest of resident adult elk to keep elk population and hunt success

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parameters within elk hunt guidelines. Manage for higher bull:cow ratio in accordance with Commission direction. Monitor the elk population through annual surveys.

At this year's survey the bull:cow ratio was 35:100. Over the past five years, the pre-hunt population estimates stayed between 2,000 and 2,350 elk. A 10-year forage monitoring effort in Unit 23 showed that elk had a minimal impact on the grasses and forbs in the unit. In the past five years, there have been 3 complaints about elk depredating on private property. To keep depredation to a minimum, the objective is to keep the elk population stable between 2,000 and 2,600 elk.

Conflicts between elk and other uses of the land exist in Unit 23. 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.

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 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.

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Unit 24A: The objective for Unit 24A elk is to provide hunter opportunity at a level consistent with stabilizing a very small elk population that may or may not be resident in the unit. Unit 24A will be managed as a Minimal Occurrence 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. The Region will continue to monitor the elk population while completing other tasks in the area and through reports from recreationists, landowners and others. Because it is a Minimal Occurrence Management Zone, structured elk surveys will not be conducted. If observations of elk increase in the future, elk survey time may be requested 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.

Habitat Management:

Regional personnel continue to coordinate on wildlife and related habitat management issues with the USFS through various scoping and planning processes. Regional personnel will also coordinate with the Payson HPC on development and funding of habitat enhancement projects.

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.

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