

# Unit 21 Predation Management Plan

March 2015



Arizona Game and Fish Department  
5000 West Carefree Highway  
Phoenix, Arizona 85086

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APPROVED:  DATE: 3/19/15  
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## **Introduction**

The Unit 21 Predation Management Plan (Plan) is an area-specific plan that has been developed to address coyote and mountain lion management within Game Management Unit (Unit) 21 for the benefit of mule deer and pronghorn populations. The Plan follows the spirit and guidance of the Arizona Game and Fish Commission (Commission) contained within Species Management Guidelines, the Predation Management Policy (DOM A2.31), and the Arizona Game and Fish Department (Department) Predator Management Team Report. Predation management plans must be dynamic over time, to incorporate changes that occur from environmental biotic and abiotic factors, in addition to new data and technologies.

Specifically, the Department's Predation Management Policy states:

“Actions by the Department should be based on the best available scientific information. Mountain lions and coyotes will be managed to ensure their future ecological, intrinsic, scientific, educational, and recreational values, to minimize conflict with humans, and to minimize adverse impacts on other wildlife populations.

The Department will develop area-specific management plans when either of these two species is considered to be inhibiting the ability of the Department to attain management goals and objectives for other wildlife species.”

Furthermore, the Department's Predator Management Team Report states that “predators and their prey cannot be managed separately” and that “as a Department we must strive to develop the biological and social data necessary to manage predators with a program that is biologically sound and publicly acceptable.”

There are several objectives identified within this Plan which are in concert with the Department's Strategic Plan Wildlife 20/20, current hunt guidelines, the Unit 21 Management Focus Area (MFA) plan and the Wildlife Habitat Enhancement Initiatives (WHEI) projects to enhance mule deer and pronghorn populations within the project area.

- Wildlife 20/20
- 2014-2016 Hunt Guidelines
- Unit 21 MFA identifies mule deer and pronghorn as the focal species for the unit.
- Unit 21 was identified by the Game Program's WHEI as a focus area for enhancing mule deer populations through habitat enhancement projects.

## **Description of Area**

### **Project Location:**

The project area consists of portions of Unit 21 located in Yavapai County, Arizona. The unit boundary: beginning on I-17 at the Verde River; southerly on the southbound lane of I-17 to the New River Road (Exit 232); east on New River Road to Fig Springs Road; northeasterly on Fig Springs Road to the Tonto National Forest boundary; southeasterly along this boundary to the Verde River; north along the Verde River to I-17.

**Habitat Description:**

Unit 21 consists of more than 1,094 mi<sup>2</sup>. Varied terrain exists throughout the unit ranging from desert plains and low rocky mountains in the south, to extensive mesas in the west, the steep mountains of the Black Hills in the northeast, and the Verde River valley in the east. Elevations range from about 1,200 feet in the southern river valley to 6,814 feet on Pine Mountain in the northeast. Vegetation varies from Sonoran Desertscrub in the south, semidesert grasslands on the mesas, riparian woodlands/marshlands along creek sides and riverbanks, and juniper species, gambel oak, piñon and ponderosa pine on the mountains.

Black Mesa, Perry Mesa, Marlow Mesa and Yellow Jacket Mesa are all relatively flat, open, semi-desert grasslands with large canyons. Sycamore Mesa and the Reimer Draw area are made up of rocky, broken hills, with grassy depressions and valleys.

**Land Ownership within the Project Sites:**

There are multiple land management authorities within Unit 21; Perry Mesa is managed by the Bureau of Land Management (BLM) and Tonto National Forest (TNF), Black Mesa is managed by BLM, Reimer Draw – Hooker Basin, and Sycamore, Marlow, and Yellow Jacket Mesas by Prescott National Forest (PNF), and Cordes Junction by Arizona State Land Department (ASLD) and BLM. Landowner coordination will occur prior to implementing active predator reductions in the area for those cooperators that have BLM, ASLD, or U.S. Forest Service (USFS) leases. At the agency request, the Department will provide those agencies with the numbers and locations of coyotes harvested during these activities.

**Statement of Need**

Declines in mule deer populations have been observed across the western United States, including Arizona, and have received much attention and funding to determine causes for the declines, and concurrently increase populations (Carpenter 1998, Ballard et al. 2001). Arizona's pronghorn populations also chronically suffer from low fawn recruitment rates, resulting in population declines. Although there are a variety of reasons for these population declines, wildlife managers have identified habitat and predation as two contributing factors (Gill 1999, deVos et al. 2003, Jacques et al. 2007).

Unit 21 contains about 220 square miles of semi-desert grassland habitat which currently supports about 300 pronghorn and 700 mule deer. Although mule deer can be found throughout the unit, the largest concentrations of mule deer are found on these semi-desert grasslands. To address habitat quality, Unit 21 was the recipient of Central Arizona Grassland Conservation Strategy funds, in which 3,000 acres of encroaching juniper species were removed from Sycamore Mesa and Perry Mesa while undergoing a 7 year rest from livestock grazing. Despite these habitat improvements the mule deer and pronghorn populations have demonstrated little population growth. Therefore, Unit 21 was selected to receive \$400,000.00 each year, for a minimum of three years, to improve habitat for mule deer as part of the WHEI. Under the WHEI, a significant proportion of funding has been earmarked for habitat improvement on Tule and Arnold Mesas, in which juniper encroached grasslands will be dramatically improved using mechanical treatments for thinning, prescribed burning and other approved methods. Also, at least 7 new water development projects are proposed to be completed over the next two years.

The WHEI is currently solely funded by monies allocated through the Pittman-Robertson Act which cannot be used for predator control. However, predators have been shown to accelerate deer declines caused by poor habitat quality and delay the recovery of deer populations after a decline (Connolly 1978, Ballard et al. 2001). With widespread habitat improvements completed and planned in Unit 21, the Department has

determined that the timing is right for targeted coyote and mountain lion control in conjunction with habitat improvement projects to increase mule deer survival and pronghorn fawn recruitment.

### **Management Goals, Strategies and Actions**

The goal of this project is to increase mule deer survival and pronghorn fawn survival by reducing coyote predation levels just prior to and during the fawning period and by increasing hunter opportunities to assist in reducing mountain lion predation levels year round. An increase in fawn survival should allow for an increase in recruitment to the adult segment of the populations. Given the openness of the areas within the project site that will be flown and results from previous coyote control efforts in other units with similar habitat, it is believed that the coyote population can be temporarily reduced to allow for a marked increase in fawn survival.

### **Strategies and Management Actions**

- A. **Aerial Gunning:** Aerial gunning of coyotes is one tool the Department may use to increase mule deer and pronghorn fawn survival. This method is very effective in large, open grasslands and rough terrain where visibility of coyotes is high (Mason et al. 2002). The Department will contract with USDA-Wildlife Services to conduct aerial gunning of coyotes on the grasslands in Unit 21 between March 1 and May 30. Department personnel will provide the “ground crew” and logistical support, as well as locating coyotes from the ground and conveying information to Wildlife Services.
- B. **Multiple Bag Limit Harvest:** Multiple bag limit (MBL) hunts may be offered in a unit to focus and increase mountain lion harvest in units where prey populations are below management objectives and mountain lion predation is implicated as a contributing factor. The Department, through the regular hunt recommendation process, will propose a MBL hunt structure for mountain lions in Unit 21 with daylong hours and a MBL of 12. The MBL was set at 12 based on the assumption that hunter harvest comprises 10-20% of the mountain lion population. Using an average of 5 lions harvested annually from Unit 21 from 2009-2014, the resident population is estimated at 25-50 mountain lions within and adjacent to Unit 21. To effectively reduce mountain lion populations, sustained harvest of >40% of a mountain lion population over several years may be required (Stoner et al. 2006). A MBL of 12 removes between 24% and 48% of the population in Unit 21. This recommended removal level is comparable to MBLs in other areas within the state with similar predation management goals and objectives. If the MBL season in Unit 21 is approved by the Commission, the season would start July 1, 2015.
- C. **Promote Unit 21 Predator Removal:** Focused coyote and/or mountain lion hunting opportunities will be used to assist in reducing coyote and mountain lion densities within Unit 21. The Predator, Furbearer, and Large Carnivore Biologist and Wildlife Manager for Unit 21 will work with local hunting groups to advise their members of this project and encourage hunters to aid in predator reductions in Unit 21 during the Predation Management Plan project period.

### **Intensity and Duration of Management Actions**

Aerial gunning coyotes from a fixed wing aircraft is planned for a three year period (2015-2017), and may be continued if prey populations have not met the management objectives identified below. The predator control flights would occur for about six days during March 1 and May 30; 3 consecutive days the first

week then return at least two weeks later to fly an additional 3 consecutive days. The amount of time actually flown will be dependent upon the weather and the number of coyotes observed while flying. Wildlife Services will document the number of coyotes harvested in the treatment area and report it to the Department each year.

Stoner et al. (2006) showed that high levels of harvest over several years may be effective in reducing numbers of lions. McKinney et al. (2006) experimentally removed mountain lions from bighorn sheep habitat in Unit 22 also found that short-term removal of mountain lions by lethal harvest contributed to higher growth and productivity, and decreased mortalities of a small, isolated population of bighorn sheep. Therefore, the MBL and daylong season structure for mountain lion hunting in Unit 21 will remain in place for 3 years after completion of the scheduled habitat enhancement projects and may continue until the fawn to doe ratios have met management objectives identified in hunt guidelines or additional Department plans, goals and objectives. If additional years are appropriate hunt recommendations will reflect that direction.

### **Measurable Objectives**

Standard summer pronghorn survey flights, winter mule deer survey flights, and ground surveys will be conducted annually to assess mule deer and pronghorn populations in Unit 21. Population trends, buck and fawn to doe ratios, total number observed, number seen per hour, number of permits, and harvest levels will be evaluated to determine effectiveness of coyote control and mountain lion MBL treatments in the unit.

Specific objectives set to evaluate the effectiveness of the strategies and actions outlined in this plan:

- 1) Increase the pronghorn fawn to doe ratio to meet management objectives identified in hunt guidelines and the Unit 21 MFA for the last two years of the project.
- 2) Increase the pronghorn population to 350 adults.
- 3) Increase the mule deer population in the semi-desert grassland habitat types to meet management objectives identified in hunt guidelines, MFA and Department plans, goals and objectives.
- 4) Reduce the coyote and mountain lion populations in the grassland areas.

### **Public Outreach**

The planned coyote control described in this plan is to be conducted on BLM, ASLD, and USFS Lands. The Department has coordinated with all landowners within Unit 21. This project will also be presented at the annual coordination meetings with the BLM, Prescott National Forest and Tonto National Forest.

The Region VI Public Information Officer (PIO) will be responsible for all routine public information coordination including news postings and publicizing the Plan on the AZGFD website. The PIO will seek opportunities to periodically publicly highlight progress in the execution of the Plan through press releases, website postings, and other appropriate media venues.

MBL hunt recommendations for Unit 21 will be presented to the public at the annual regional public meeting. The public will have the opportunity to comment on proposed mountain lion hunt recommendations in person at the meetings or via email or during scheduled Commission meetings in accordance with Arizona Open Meeting Laws.

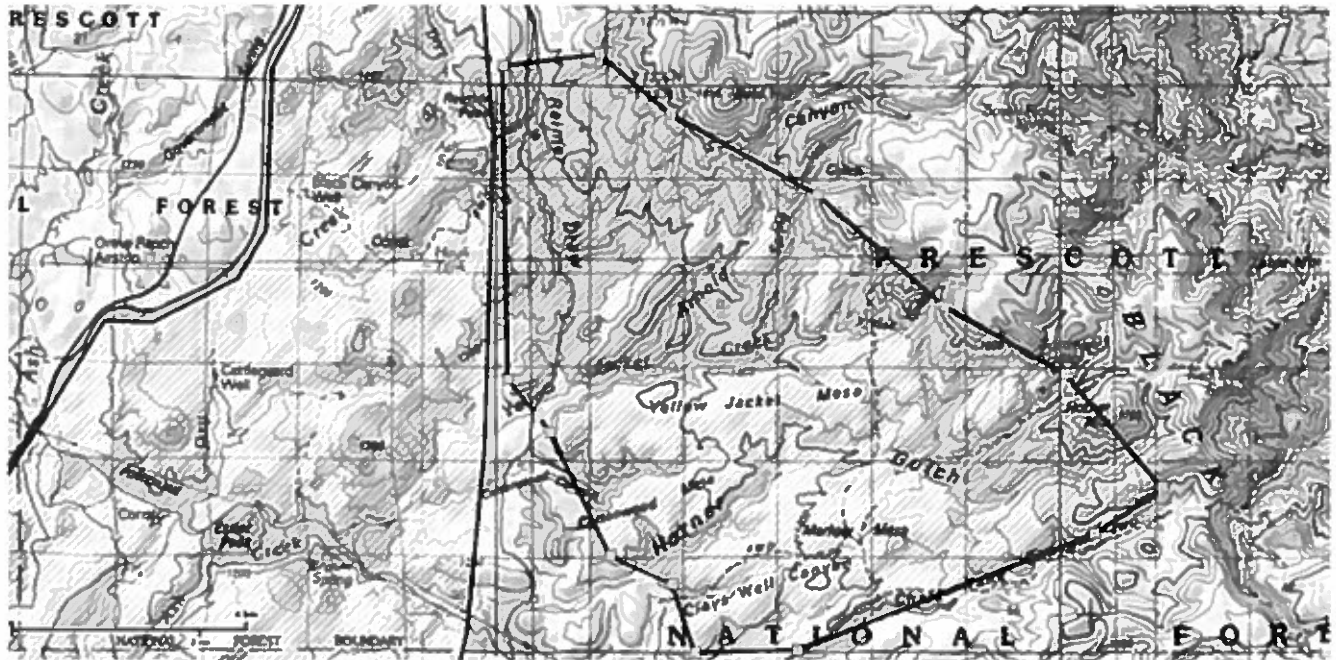
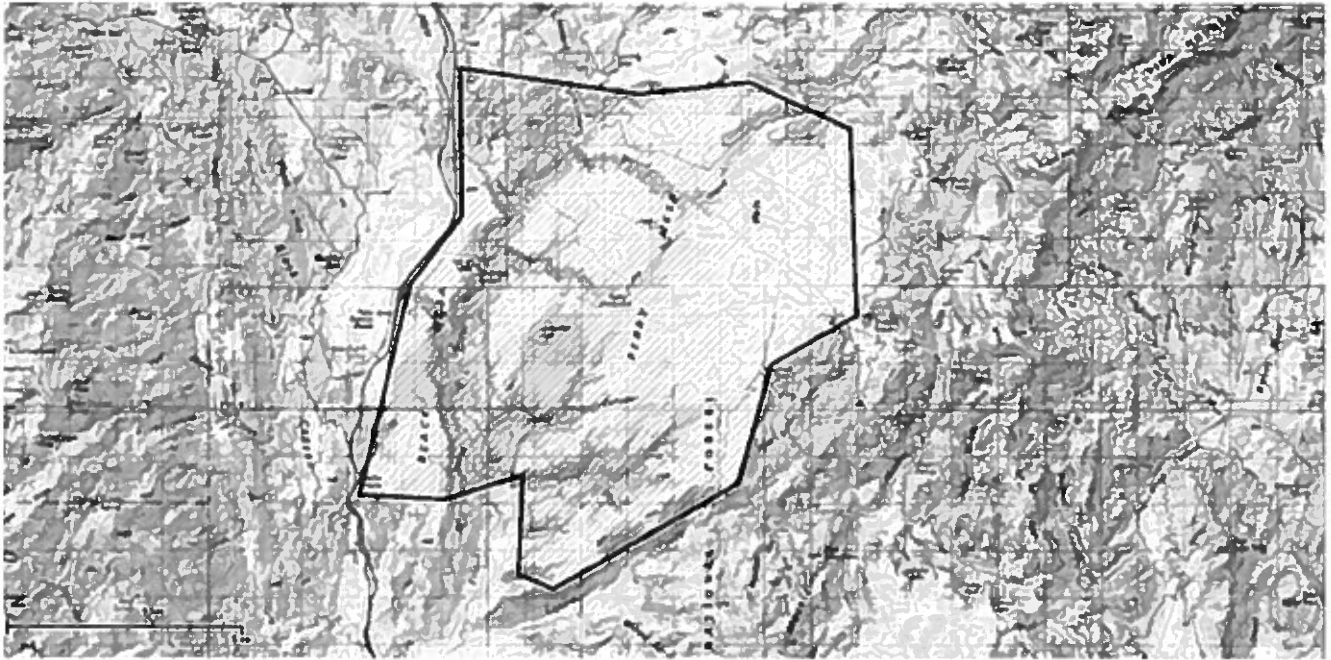
Project Maps

**Game Management Unit 21**

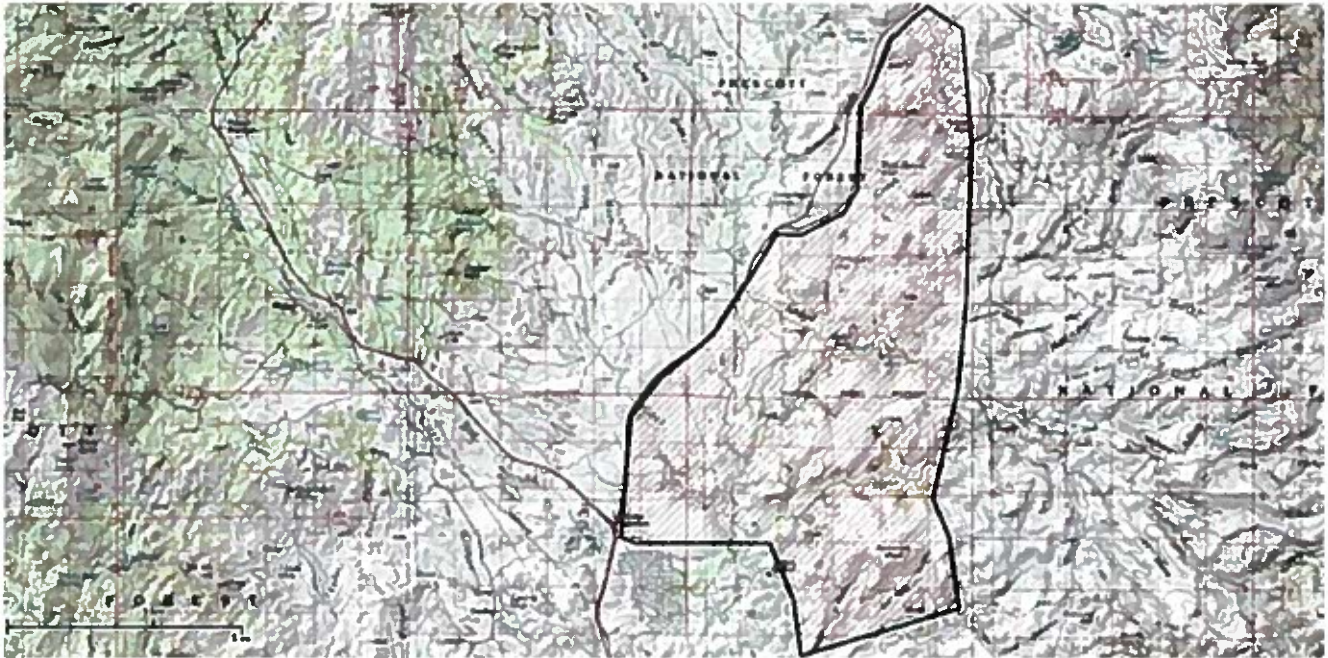


### Aerial Gunning Project Area

These areas do not include private land but do include BLM, ASLD, and USFS lands.







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