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The Benefits of Aerial Hunting for Feral Hog Management in Southeast Texas Pasture and Rangelands

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ABSTRACT: The feral hog is an Old World species introduced to Texas by early Spanish explorers. Populations in Texas are descended from European wild hogs introduced for sporting purposes, and from escaped domestic swine that have established feral populations. Today, Texas has a feral hog population estimated at about 2 million animals, the most of any state. Feral hogs are considered a pest throughout much of their range. They are responsible for damaging crops, pasture, rangeland, livestock, and wildlife resources. Because of their reproductive capacity and their omnivorous eating habits, the feral hog population has rapidly increased across the state over the past 25 years. This increasing population, and resulting economic losses, have led resource managers to investigate alternative methods of managing feral hog populations. The uniqueness of the Texas Coastal Plains habitat lends itself to aerial hunting more often than a habitat type with a more densely formed overstory. We review the impacts of aerial hunting operations in Matagorda County in the Southeast Texas Coastal Plains.

KEY WORDS: aerial hunting, feral hogs, southeast Texas, *Sus scrofa*, swine, wild hogs, Wildlife Services

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INTRODUCTION

Hogs (*Sus scrofa*) are an Old World species that date back before the Ice Age. There is evidence that indicates early man hunted swine for food. According to *Walker's Mammals of the World* (Nowak 1991), the first swine in the United States were those brought by the Polynesians to Hawaii around A.D. 1000, and those introduced by the 16th century Spanish explorers to the Southeast (Miller 1993). Since that time, these populations have grown into large self-supporting, feral populations. The term "feral hog" refers to European or Russian wild boars, domestic swine that have become feral, and hybrids of the two. These feral hogs have since spread throughout much of the United States. Texas is home to an estimated population of 2 million animals, about 50% of the entire population in the United States (Mapston 2004). Feral hogs in Texas range across most of the state, with the exception of far west Texas and the extreme western edge of the Panhandle.

Feral hogs are extremely adaptable to different environments. Their adaptability and high reproductive rates have allowed their populations to increase dramatically. According to Mapston (2004), the feral hog is the most prolific wild mammal in North America. With proper nutrition, a feral hog population can double in as little as 4 months. Under adequate conditions, a female can begin reproduction as early as 6 months of age. A sow may have 2 litters every 12 to 15 months, with an average litter containing 4 to 8 young, and a sex ration of 1:1. The young are usually weaned at 2 to 3 months.

The feral hog's diet is extremely varied. They require a diet that is high in protein and energy, and they will roam great distances while searching for food. Feral hogs are opportunistic omnivores, eating almost anything they can find. Their diet most often consists of vegetation, animal matter, and mast. They have been known to prey on other animals as well as cannibalize their own.

Given these factors, it is easy to recognize that feral

hogs are quite often detrimental to the resource manager. This paper outlines the benefits of aerial hunting as an ongoing management tool for feral hogs in Texas. This study was conducted on three separate occasions, all within the same year on the same properties. Data collected provided conclusions for future aerial hunting success in southeast Texas.

MANAGEMENT AREA

The study area was located in Matagorda County, Texas on 32,780 hectares (81,000 ac), approximately 60 mi south of Houston. This southeast Texas county was historically characterized by post oak savannah and coastal prairie habitat types, although much of the habitat has been altered for crop production, including corn, grain sorghum, soybeans, and rice. Feral hog management was conducted throughout these habitat types as well as on improved pastures and fresh and saltwater marshes. All these habitat types provide ideal areas for feral hogs to thrive.

CONTROL EFFORTS

Historically, feral hogs have occurred in southeast Texas, causing resource managers to seek a wide variety of methods to try and successfully manage them. Feral hogs cause considerable damage to crops and pasture land in the coastal plains of Texas. They also directly compete with domestic livestock and native wildlife for habitat and food, serve as vectors for disease, and host numerous internal and external parasites. Cage traps, snares, shooting, and dogs are some of the more commonly used methods by managers.

These techniques, while somewhat effective, often fail to provide the level of control needed to reduce damage. The amounts of annual losses within the study area that the managers reported prior to the aerial hunting operation were \$125,000 for pasture and rangeland, and \$287,000 for cropland.

USDA APHIS Wildlife Services has a cooperatively funded program in Matagorda County. This program provides one full-time employee who is responsible for conducting all wildlife damage management activities in the county. Additional personnel provide assistance with special projects such as aerial hunting. Due to the size of the county and the workload, control efforts dedicated specifically to feral hogs are not great enough to cause a substantial reduction in damage. Wildlife Services personnel use cage traps, snares, shooting, dogs, and aircraft to manage feral hog populations.

Aerial Operations

Texas Wildlife Services' aerial hunting operations are conducted using a helicopter or a fixed-wing aircraft. The helicopters used in the program are Hughes 500's. The fixed-wing aircraft are Piper Supercubs. For the Matagorda County operation, a Hughes 500 was used. The flight crew for aerial hunting operations includes a pilot and a gunner. Aerial hunting operations were conducted using a 12-gauge shotgun with 3-inch magnum #1 buckshot to dispatch feral hogs.

In addition to the helicopter crew, several other staff are needed as ground crew. This crew is usually comprised of a fuel hauler, who meets the helicopter on site and refuels it when necessary, and several support personnel. The support personnel perform various jobs including making emergency contacts, locating landmarks used by the flight crew to identify property boundaries, conducting drives to push animals out of brushy areas, carrying needed supplies, and serving as backup gunners. Normally, on an operation of this magnitude, 6 to 8 employees are needed to ensure the project runs safely and efficiently.

Wildlife Services conducted aerial hunting operations on 3 separate occasions in the project area. Aerial hunting operations were conducted April 5-7, May 31-June 1, and August 3-5, 2005. The latter date was chosen to correspond with the annual rice harvest, as feral hogs often damage these fields immediately prior to harvest. Unlike some other areas in the state, the large areas of relatively sparse cover typical in this area of the county allow for easy spotting of target animals. Therefore, aerial hunting operations can be effective during spring and summer months, when temperatures typically range between 25° and 34°C. The study area had experienced a period of dry weather as well. This weather pattern was typical for the area during the time period aerial hunting operations were conducted. These weather patterns were also a factor in determining the time of year to fly. Because of the dry and warm weather, the feral hogs tended to be concentrated around wet areas in the habitat. This led to the success of the operation, as it allowed the aerial hunting crew to locate the hogs with a minimal amount of searching.

RESULTS

The results for each hunting operation are listed in Table 1. The decrease in the number of hogs taken from the first project to the last project can be explained by two factors. The number of hogs removed is likely to decrease as the population is reduced, unless the

population recovers significantly as a result of reproduction or immigration. The short time period between flights did not allow reproduction in the local population to cause a large population increase. However, immigration may be a major factor when hogs are attracted to an area as the result of available water and food supplies, during periods when these supplies are limited over a large area. Immigration did not appear to be a major factor during the period when this operation was conducted. Additionally, the temperature was increasing. This leads to a decrease in hog activity during daylight hours, as they frequently seek dense cover to escape the heat. It should be noted that during August, hunts were conducted during the early morning and late afternoon hours. During the April and May hunting operations, flights were conducted throughout the day.

Table 1. Results of aerial hunting operations.

Dates	Hours Flown	Feral Hogs Removed	Weather Conditions
April 5-7, 2005	18	581	25°-28°C Dry
May 31 - June 1, 2005	9.5	243	30°-32°C Dry
August 3-5, 2005	8.4	73	32°-34°C Dry

CONCLUSIONS

Aerial hunting can be an effective tool for reducing damage caused by feral hogs. It does, however, have its limitations. Aerial hunting may not be cost-effective during hotter months of the year unless preliminary scouting indicates that hogs are concentrated in areas where they can be observed and taken from an aircraft. The density of hot air, common in the coastal areas during the summer months, limits helicopter maneuverability and payload. Warmer weather conditions also push the feral hogs into dense vegetative cover; it is often impossible to locate the hogs in this cover. Vegetative cover should be short and less dense to allow the helicopter pilot and gunner to locate the hogs and then maintain a low, safe altitude to make effective shots. Local and state laws should also be consulted when planning aerial hunting operations.

It is imperative the control area be evaluated repeatedly to determine the safety of conducting low-level flight operations, as temporary flight restrictions (TFRs) and notices to airmen (NOTAMs) can change daily. During these operations, the South Texas Nuclear Power Plant "no fly zone" was directly over some of the areas that were to be flown. The flight plan had to be altered to avoid these areas.

To successfully conduct an aerial hunting operation, widespread landowner participation and support is needed to secure a large contiguous work area. This requires extensive preliminary efforts including contacting landowners, coordinating the aerial hunting activities, scouting areas, and using the data collected from scouting along with reports from the landowners to determine where the largest concentrations of feral hogs are likely to be. Although relatively costly at \$600 an hour, when conditions are optimum, aerial hunting can be used to

remove large numbers of feral hogs in short periods of time, resulting in fewer economic losses to land owners and resource managers.

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