

**Sequoyah National Wildlife Refuge
Big Game, Upland Game and Feral Hog Hunt Plan**

August 2016

U.S. Fish and Wildlife Service

**Sequoyah National Wildlife Refuge
107993 S. 4520 Road
Vian, OK 74962**

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I. Introduction

The purpose of this plan is to provide new public hunting opportunities for white-tailed deer, upland game, and the incidental take of feral hogs during designated hunting seasons on Sequoyah National Wildlife Refuge. This hunting plan precedes the overall Visitor Services Plan for Sequoyah NWR and will replace the big game and upland game hunting plans of 1996 and 1988. The refuge will open seven additional hunt units (Girty, Webber, Vian Creek, Possum Hollow, Shelby, Delta Island and Haskell) to big game (white-tailed deer) & feral hog. The refuge will also allow feral hog hunting on existing units where big game and upland game hunts already occur and will open one new hunt unit to upland game hunting (Possum Hollow). These game animals are classified as white-tailed deer (*Odocoileus virginianus*), eastern gray squirrel (*Sciurus carolinensis*), fox squirrel (*S. niger*), swamp rabbit (*Sylvilagus aquaticus*), and eastern cottontail rabbit (*S. floridanus*). Feral hogs (*Sus scrofa*) are considered invasive animals in this plan.

The Sequoyah National Wildlife Refuge (SNWR or refuge) is an overlay project of the U.S. Army Corps of Engineers (USACE) established on the 42,000 acre Robert S. Kerr Reservoir by Cooperative Agreement No. DACW56-3-71 on December 11, 1970, to "...be administered by him [Secretary of the Interior] directly or in accordance with cooperative agreements...and in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon..." 16 U.S.C. 664 (Fish and Wildlife Coordination Act).

The refuge is located in Sequoyah, Haskell, and Muskogee counties, in Oklahoma, a few miles south of Vian, Oklahoma (**Figure 1**). Strategically situated at the confluence of the Canadian and Arkansas Rivers, the refuge is a valuable sanctuary containing rich river-bottomland forests with numerous ponds and sloughs that provide food and cover for migratory and resident wildlife species. The distinct landscape, diversity of biological communities, and secluded location are inherent characteristics that contribute to the area's value as a natural preserve. The refuge provides a variety of protected habitats for wildlife, open space and nature-oriented recreational activities for the public.

This eastern section of Oklahoma has historically been a prime waterfowl migration and use area. The Arkansas River and surrounding lands provide ample water, food, and habitat that attract thousands of migrating waterfowl each year. Today, the refuge continues to offer sanctuary to migratory waterfowl in the fall, winter and spring. The refuge's land and water restoration activities are designed and implemented to improve waterfowl habitat, and to benefit more than 272 species of birds, 46 species of mammals, 94 species of reptiles and amphibians, and 73 species of fish. While the primary challenges on the refuge have centered on conservation and management of habitat for migrating birds and other native wildlife species, the refuge also conserves and manages habitat for federally listed threatened and endangered species, and several species of concern, including the American burying beetle (*Nicrophorus germanicus*) and interior least tern (*Sterna antillarum*).

Located in the heart of a rural community, the refuge receives increasing influences from the nearby urban areas of Muskogee, Tulsa and Oklahoma City to the west and Ft. Smith and Little Rock to the east. The refuge was established on the upper end of the Robert S. Kerr Reservoir in

eastern Oklahoma and overlaps the junction of Sequoyah, Muskogee and Haskell counties. The refuge headquarters is located 3 miles south of the Vian exit on Interstate 40 (I-40), 35 miles west of Fort Smith, Arkansas, and approximately 150 miles east of Oklahoma City, Oklahoma. Other refuges in proximity to the refuge include Ozark Plateau NWR, approximately 45 miles to the north, Deep Fork NWR, approximately 70 miles to the west, and Little River NWR, approximately 120 miles to the south.

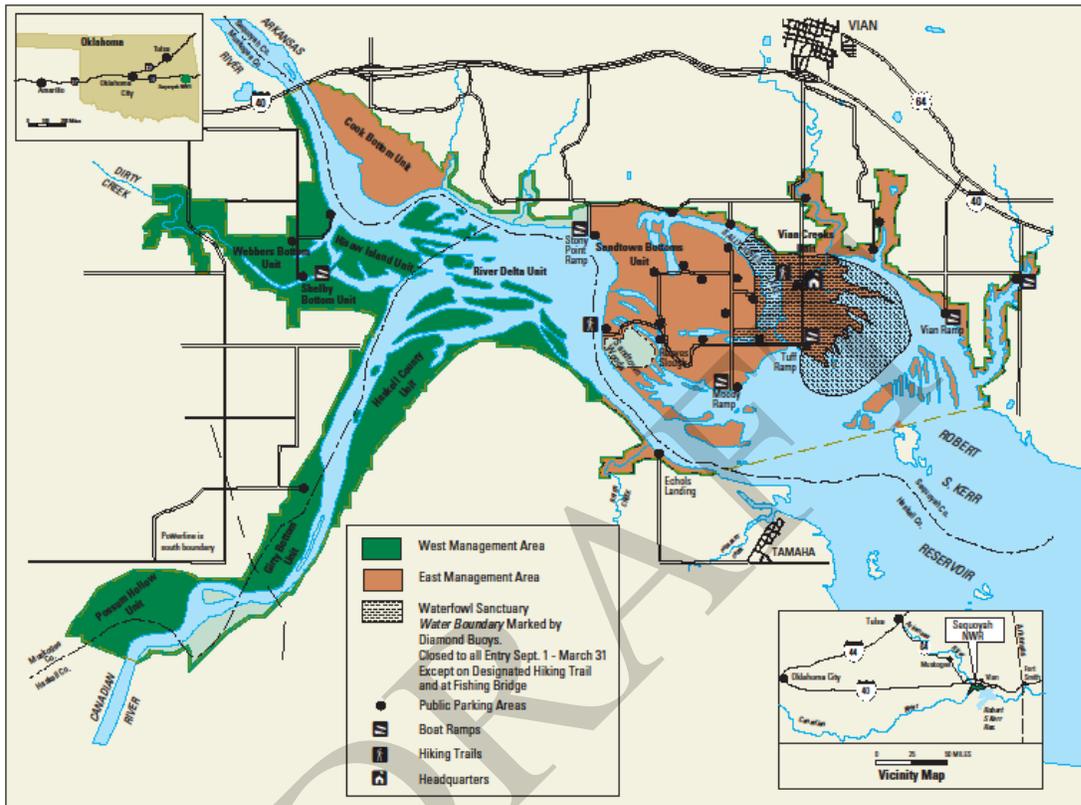


Figure 1. Map of Sequoyah National Wildlife Refuge

Before the establishment of SNWR, the land encompassed within Sequoyah County consisted of approximately 10,000 acres of large level bottomland/agricultural complexes. The existing habitat also contained large, shallow wetland areas where suitable farming practices could not occur. The Muskogee County acreage, consisted of several thousand acres, and was located at the upper end of the reservoir. The area is comprised of a large, level bottom of agricultural land that is well adapted to the creation of wetlands. Prior to the alteration of the native river ecosystems by the United States Army Corps of Engineers, many small islands and oxbows located along these river sections existed. In addition, numerous, large sandy flats lined the river corridors along the Arkansas and Canadian rivers that were highly utilized by shore birds and waterfowl.

Since the refuge's establishment in 1970, there has been an active cooperative farming program (6-10 cooperators) in which approximately 2,746 acres are planted annually. The program supplements natural foods with grain foods, such as corn, millet, sorghum, and green browse. Farming is an integral part of the refuge's habitat management program, providing food, browse,

cover, and resting areas for migratory birds and other resident wildlife. Cooperative farming has been used for more than 42 years to meet refuge objectives.

Sequoyah National Wildlife Refuge opened to hunting soon after its establishment date of December 11, 1970. The refuge operated under an Interim Plan in 1971 with revisions in 1972. The types of species hunted at the time were bobwhite quail, coots, squirrel, rabbit, goose, and duck. A comprehensive hunt plan was written in April 1973. A revised hunt plan was issued in May 1988 to restrict hunt days to Saturdays, Sundays, Mondays, and Tuesdays. An Opening package with a hunt plan for white-tailed deer was completed in May 1996. Due to biological concerns (low quail populations), quail hunting is no longer allowed on the refuge.

II. Conformance with Statutory Authority

The Refuge Recreation Act of 1962 (16 U.S.C. 460K) authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use. The Refuge Recreation Act requires 1) that any recreational use permitted will not interfere with the primary purpose for which the area was established; and 2) that funds are available for the development, operation, and maintenance of the permitted forms of recreation.

Fundamental to the management of lands within the National Wildlife Refuge System (System) is the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57), an amendment to the National Wildlife Refuge System Administration Act of 1966. The National Wildlife Refuge System Improvement Act of 1997 provided a mission for the System and clear standards for its management, use, planning, and growth. The National Wildlife Refuge System Improvement Act of 1997 recognized that wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation, when determined to be compatible with the mission of the System and purposes of the refuge, are legitimate and appropriate public uses of the System. Compatible wildlife-dependent recreational uses are the priority general public uses of the System and shall receive priority consideration in planning and management. Hunting as specified in this plan is a wildlife-dependent recreational use and the law states that as such, it “shall receive priority consideration in national wildlife refuge planning and management.” The Secretary of Interior may permit hunting on a refuge if it is determined that the use is compatible and would not materially interfere with or detract from the fulfillment of the purposes of the refuge or the mission of the National Wildlife Refuge System.

Recreational hunting authorized by the regulations should not interfere with the primary purpose for which SNWR was established. A Compatibility Determination has been prepared in conjunction with this hunting plan and environmental assessment.

III. Statement of Objectives

The objectives of implementing a big game, upland game, and feral hog hunting program on Sequoyah NWR are to:

Provide the public with a high quality recreational experience on refuge lands.

Educate the public about the benefits of the use of hunting as a wildlife management tool.

Preserve biological diversity by reducing or eliminating the negative environmental impacts associated with feral hogs and white-tailed deer overpopulation

Improve deer herd health.

IV. Assessment

A. Are wildlife populations present in numbers sufficient to sustain optimum population levels for priority refuge objectives other than hunting?

Feral hogs:

Feral hogs are not a native species, and there is no need to sustain a population for any refuge objective. In fact, eradication of these destructive, exotic, feral animals would positively benefit the refuge (and neighboring) habitat. Unfortunately, it is unlikely that feral hog eradication will occur at the refuge due to the high reproduction of feral hogs, the presence of substantial feral hog populations on surrounding private land, and the transport and introduction of feral hogs by private individuals. Approximately 1,000 hogs have been removed from SNWR in the last five years through trapping, aerial shooting, and by incidental shooting by law enforcement officers and refuge staff. Feral hogs can be very destructive to habitat and while total eradication is unlikely, the goal is to reduce the population as much as possible, through a variety of methods, including hunting.

White-tailed Deer:

Regional Analysis

In the early 1900's there were an estimated 500,000 white-tailed deer in the United States. Unregulated commercial hunting and subsistence hunting threatened to eliminate the white-tailed deer from much of its range. At that time, many state wildlife agencies were formed with the goal of conserving the Nation's depleted wildlife resources. Hunting regulations were put into place, and the harvest of antlerless (female) deer was prohibited. The rebound of white-tailed deer populations that followed is considered a wildlife management success story. Today there are over 20 million deer in the United States and numbers are rising (Swihart and DeNicola 1997).

Local Analysis

The white-tailed deer population at SNWR has grown rapidly since the 1980's. White-tailed deer were nearly eliminated from Oklahoma in the early 1900's, and the refuge population remained low through the 1980s. Spotlight surveys conducted at the refuge give a glimpse into general deer population trends. The spotlight surveys at SNWR in the early 1980's averaged about 17 deer, by the late 1990's; spotlight surveys averaged greater than 200 deer per survey. Following the increase in deer numbers, refuge staff started to notice significant browse lines, bedding sites, and deer trails throughout the refuge (SNWR White-Tailed Deer

Management Plan, 1996). As a result, the deer management objectives shifted from protection in the 1980s to population control in the late 1990s. Current spotlight surveys appear to indicate that the population has consistently averaged about 200 individuals per survey. Although browse lines and deer trails remain present at SNWR, it appears that control methods have at least stabilized deer populations on the Cook and Sandtown hunt units. The use of hunting as a herd management tool has not occurred in hunt units west of the Arkansas River. As a result, the Webbers Falls and the Shelby/Hi-Saw hunt units boast some of the greatest concentrations of deer on the refuge. The refuge will use an adaptive management plan to manage the deer populations, and hunt control methods will be implemented to meet desired goals.

The two primary purposes of the controlled deer hunts are to: 1) preserve biological diversity by reducing or eliminating the negative environmental impacts associated with feral hogs and white-tailed deer overpopulation; and 2) to improve deer herd health (e.g. disease, genetic flow, etc.), age, and sex structure. Deer transect surveys or camera surveys will be utilized to assess deer populations at a minimum of every five years (Sequoyah Inventory and Monitoring Plan, 2015). The focus of most of our hunts will be to stabilize the deer herd population and will focus on controlled doe hunts. Of the nine hunt management units included in the hunt plan, six units may be hunted within a given year, and hunts will not occur simultaneously, on both the east and west sides of the river. However, if deer populations become overabundant in more than six units as determined by population surveys, browse lines, and deer herd health assessment etc. more than six units may be hunted in a given year. The amount and type of permits that are issued each year will be based on a combination of camera surveys, transect surveys, browse-line observations, and staff observations, and may adaptively change each year depending on available information.

Swamp and Eastern Cottontail Rabbit:

Regional Analysis

The State of Oklahoma does not monitor rabbit populations. The eastern cottontail is found throughout Oklahoma, while the swamp rabbit is restricted to central, northeast, and southeast Oklahoma. Cottontails are widely distributed throughout Oklahoma from bottomlands and marshes to uplands. Habitat requirements can be met in a variety of diverse areas, as no single plant community type describes habitat for the rabbit. Optimum habitat for the cottontail is composed of early successional stages with low structure, transitional zones, and disturbed areas. This includes moderately grazed, weedy pastures with native grasses and low, dense clumps of trees and shrubs. The presence of perennial bunch-type grasses and a variety of forbs is common to good rabbit habitat in a variety of plant community types. Escape cover is essential and can be provided by dense underbrush, low growing vines, thorny vines and bushes, and woody perennials. Cottontails are rarely found in dense, mature forests or highly-stocked, pole-sized stands. The swamp rabbit, however, can be found in greater numbers than cottontails in areas that have been selectively logged and also in mature forests. Swamp rabbits are generally associated with habitat types such as bottomlands, floodplains, wooded swamps and marshes, estuaries and tributaries of rivers and streams, and canebrakes. Preferred habitat for the swamp rabbit is a system of low ridges, small sloughs, and marshes that are grass-dominated. Grain fields can also be utilized

by the swamp rabbit in times of flooding as a source of food and cover. The swamp rabbit usually ranges no farther than 1.2 miles from a major water source.

Local Analysis

Rabbit populations will not be impacted by refuge hunting because of their prolific breeding capabilities and more than adequate refuge habitat. Swamp rabbits (*S. aquaticus*) have litter sizes from one to six, and produce two to five litters per year while eastern cottontail rabbits (*S. floridanus*) can have one to seven litters of 1 to 12 young per year (Chapman and Ceballos 1990). Since the refuge was established rabbit hunting has occurred on the refuge. A total of 10 rabbits are estimated to have been harvested during the two previous hunting seasons. Low harvest numbers of rabbits can be an indication of a few things such as a low number of rabbit hunters; rabbits tend to hide and stay motionless compared to squirrels. Additionally, the refuge's short season (December – January on Saturday thru Tuesday) is much more restrictive than the State season.

Eastern gray and Fox Squirrel:

Regional Analysis

There is no State data for squirrel populations for Oklahoma. However, the gray squirrel and fox squirrel are both arboreal species that require mature forest for shelter and food. They spend the majority of their time in native hardwood trees such as oaks and hickories, and occasionally in pines. They require mid- to late-succession forests, however, they will forage in some early successional stages such forest openings, or croplands. Both species can be found in bottomlands, on bluffs, and along rivers. Suitable habitat must contain food sources through all seasons. Food is provided by fruit- and nut-producing hardwoods, fungi, confers, agricultural crops, and the buds, flowers, an inner bark of some trees and shrubs. The most productive habitats have a variety of tree species. Both of these species are common on the refuge.

Local Analysis

Squirrel populations will not be impacted by refuge hunting because of their prolific breeding capabilities and more than adequate refuge habitat. Eastern gray squirrels breed twice a year and normally have two to six young in each litter, but this number can be as high as eight. Eastern gray squirrels can start breeding as early as 5 -1/2 months old (Lawniczak 2002). Fox squirrels can produce two litters in a year. Average litter size is 2-3, but litters range between one and seven. Sexual maturity is attained at eight months for females (Fahey 2001). Since the establishment of the refuge, squirrel hunting has occurred on the refuge. The estimated number of squirrels taken on Sequoyah NWR over a two year period was less than 30. The limit set by the State for 2015 for individual hunters is 10 squirrels per day. Additionally, the refuge's 76 day short season is much more restrictive than the 262 days the State allows.

B. Is there competition for habitat between target species and other wildlife?

Feral hogs:

Feral hogs negatively impact lands and vegetative communities by feeding and/or rooting. Rooting can alter plant community successional sequences. The effect these activities have on vegetation is negative. Negative effects may include soil erosion, consumption of native seed crops, altered plant succession into monocultures or native rangeland and reduction of overall species diversity (West et al. 2009; Stevens 1996).

Adult hogs do not have any natural predators other than humans. Smaller offspring may be taken by coyotes and bobcats; however, this predation is countered by large litter sizes and does not seem to have an effect on hog populations. Competitive interaction between feral hogs and game and non-game wildlife species presents a major concern. Feral hogs are omnivorous (Stevens 1996) and their diet includes oak mast, soft mast, succulent grasses, forbs, fungi, roots and tubers, and animal matter. Many of the food items utilized by feral hogs are staple items for native wildlife species. Feral hogs are highly adaptable when competing for food resources and have the ability to utilize different components of the habitat, and thus have an advantage over other species with a narrow tolerance of food items in the diet.

Wood and Roark (1980) found oak mast to be one of the more important seasonal food items for feral hogs. Tate (1984) indicated that feral hogs compete with deer, turkey, squirrel, waterfowl, and other wildlife species for this food resource. Yarrow and Kroll (1989) found that during years of low mast availability, deer populations might be seriously impacted by competition with feral hogs. Feral hogs have a distinct advantage over deer and turkeys in utilizing oak mast in their diet. Deer and turkeys feed primarily by sight and are limited to what is visible, whereas feral hogs use their keen sense of smell to locate the fallen crop. This gives feral hogs the ability to thoroughly deplete an area of the mast that would be utilized by wildlife species. Feral hogs also have the potential to impact ground-nesting species, particularly quail and turkeys, through nest destruction and predation. In addition, the consumption of agricultural grains reduces their availability for wintering waterfowl and may decrease the refuge's waterfowl carrying capacity.

White-tailed deer:

White-tailed deer food preference changes seasonally from browse and forbes in the spring and summer, to acorns, grains, and grass in the winter (Gee et al. 2011). In many situations, deer often target certain plant varieties over others, for example in the Missouri Ozarks, deer target *Vitis*, *Trifolium*, *Lespedeza*, *Ulmus*, *Rhus*, and *Lactuca* plant varieties (Korschgen et al. 1980). Large numbers of deer, or an overabundance, can alter the vegetation composition of an environment and in turn can affect the amount or type of wildlife, particularly those dependent on specific plant varieties for food, shelter, or nesting requirements. In addition, the refuge relies on the cooperative farming program to produce agricultural standing grains to meet the energetic requirements of wintering waterfowl during winter months. Consumption of agricultural grains by deer reduces their availability for wintering waterfowl.

Swamp and eastern cottontail rabbits:

There is possible limited competition for browse with deer.

Eastern gray and Fox Squirrel:

There is competition for acorns with deer and other wildlife that rely on acorns.

C. Are there unacceptable levels of predation by target species on other wildlife?**Feral Hogs:**

Predation levels by feral hogs on other wildlife on the refuge have not been measured. However, feral hogs are opportunistic omnivores which have the ability to impact ground-nesting birds, snakes, amphibians, and numerous other vertebrates and invertebrates (Beach 1993, Taylor 2003, West et al. 2009, and Stevens 1996).

White-tailed Deer:

It is highly unlikely that an unacceptable level of direct predation by white-tailed deer on other wildlife species exists at the refuge.

Swamp and eastern cottontail rabbits:

Rabbits are herbivores and do not predate on other wildlife species.

Eastern gray and Fox Squirrel:

Squirrels are herbivores and do not predate on other wildlife species.

V. Description of Hunting Program

The refuge hunting program is designed to provide quality hunting opportunities, while minimizing conflicts with non-hunting user groups.

A. Areas of the refuge that support targeted species.

With the exception of open water, all upland and wetland areas of the refuge support white-tailed deer, rabbits, squirrels, and feral hogs. Vegetation typically found throughout the hunt units include: oak (*Quercus spp.*), maple (*Acer spp.*), elm (*Ulmus spp.*), pecan (*Carya illinoensis*), green ash (*Fraxinus pennsylvanica*), hackberry (*Celtis occidentalis*), eastern cottonwood (*Populus deltoids*), and willow (*Salix spp.*). Typical grassland species include: little bluestem (*Schizachyrium scoparium*), broomsedge bluestem (*Andropogon virginicus*), Johnsongrass (*Sorghum halepense*), bermudagrass (*Cynodon dactylon*), crabgrass (*Digitaria spp.*), and bushy bluestem (*Andropogon glomeratus*). Unless directly managed, grass fields often revert to brush and eventually to woods. Refuge wetlands include marshes, ponds, wooded sloughs and moist soil units scattered throughout the refuge that is included in the hunt units. Typical vegetation includes smartweed (*Polygonum spp.*), willows (*Salix spp.*), cattails (*Typha spp.*), hibiscus (*Hibiscus spp.*), American lotus (*Neptunia lutea*), box elder (*Acer negundo*), buttonbush (*Cephalanthus occidentalis*) and eastern cottonwood (*Populus deltoides*). Wetlands provide essential habitat for waterfowl as well as a myriad of other species that utilize this extremely productive resource. Drawdowns in managed wetlands are conducted each spring and through summer months to encourage beneficial wetland plant production for waterfowl and resident wildlife. Approximately 2,754 acres of cropland is

allocated through a share crop program (75% cooperator/25% refuge). With its share of the farming program, the refuge provides winter browse and grain for waterfowl during the spring and fall migration. White-tailed deer, wild turkeys, and migratory songbirds/passerines also utilize these areas for food and cover. Typical wildlife crops include winter wheat, soy beans, millet, and corn.

B. Areas to be opened to hunting.

The Arkansas River separates two management areas on the refuge. The following units will be open to white-tailed deer, rabbits, squirrels and feral hog hunting on the refuge (Table 1, and Figure 2):

Hunt Units for SNWR Hunt Program:

| Hunt Units | Deer Hunting (Y/N) | # of Deer Permits per Hunt | Max # of Deer Permits Issued per Hunt | Rabbit and Squirrel Hunting (Y/N) |
|--------------------------|--------------------|----------------------------|---------------------------------------|-----------------------------------|
| Sandtown (5,571 ac) | Y | 20-25 | 50 | Y |
| Cook (1,305 ac) | Y | 6-10 | 20 | N |
| Vian Creeks (1,115 ac) | Y | 3-5 | 10 | Y |
| Webbers (1,075 ac) | Y | 3-5 | 10 | Y |
| Hisaw/Shelby (1,123 ac) | Y | 3-5 | 10 | N |
| Girty (1,127 ac) | Y | 3-4 | 8 | Y |
| Possum (1,193 ac) | Y | 2-4 | 10 | Y |
| Delta Islands (2,080 ac) | Y | 2-4 | 8 | N |
| Haskell (1,431 ac) | Y | 3-4 | 8 | N |

Table 1. Acreage, desired and maximum # of deer permits, and hunting status of white-tailed deer, rabbits, and squirrels in each hunt unit at Sequoyah NWR. Feral hog hunting would be incidental to all other hunting activities.

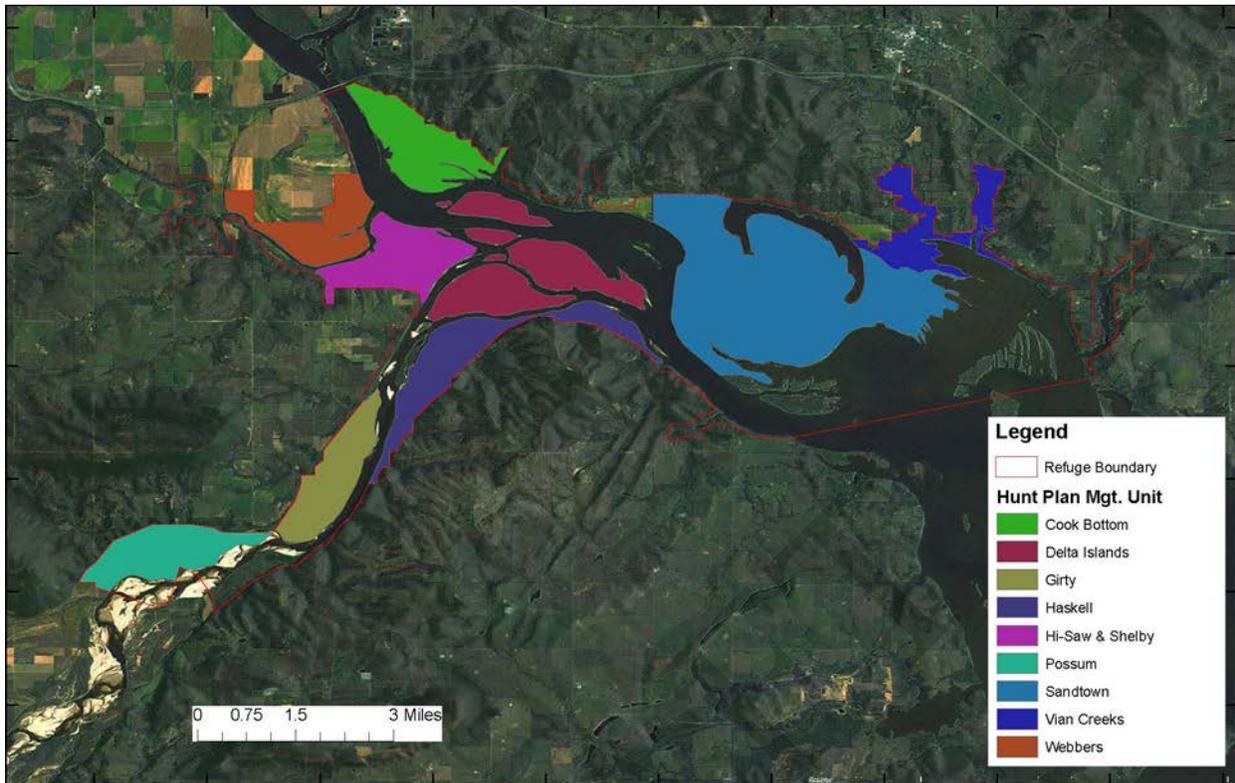


Figure 2. Hunt Units for white-tailed deer, rabbits, squirrels and feral hog hunts at Sequoyah NWR.

Sandtown Bottom Hunt Unit (5571 acres) in the East Management Area:

This unit is located south/southwest of refuge headquarters, and receives a steady concentration of public use. This unit contains an auto tour route which showcases wildlife/habitat, provides hunter/fisherman access, and allows opportunities for interpretation, wildlife observation and photography and environmental education activities. This unit (beyond Tuff Boat Ramp) includes a waterfowl sanctuary that is closed to all public entry (except for vehicle traffic) from September 1st to March 31st. During the big game hunts deer hunters are allowed in the waterfowl sanctuary.

Within this important multi-use area, refuge staff implements intensive management prescriptions, providing for both wildlife and public use. This hunt unit includes Armstrong Dike, Sally Jones Lake, Willow Slough Complex, and the Upper/Lower Scarboroughs, which are mechanically pumped to provide wetland habitats for waterfowl, shorebirds, wading birds, and invertebrates. Both cropland and natural vegetation are flooded in Sandtown Bottoms. Sally Jones Lake can be pumped down in order to stimulate desirable wetland vegetation.

Cook Bottom Hunt Unit (1305 acres) in the East Management Area:

This unit is located on the north section of SNWR, and is set aside primarily for wildlife use and native habitat restoration. The Arkansas River flows around the most of this unit and will flood large portions when the US Army Corps of Engineers is releasing significant amounts of water from the Webbers Falls and Eufaula dams. This unit is comprised primarily of cropland and bottomland hardwoods and is closed to public use except during big game hunts.

Webber Bottom Unit (1075 acres) in the West Management Area:

This unit is located on the northwest section of SNWR, directly across the Arkansas River from the Cook Bottom Unit. Dirty Creek serves as the southern border of this unit and frequent flooding occurs during wet periods. It is made up of cropland, bottomland hardwoods, and wetlands. It is open to public entry, except during muzzleloader hunts.

Vian Creeks (1115 acres) in the East Management Area:

This portion of the refuge includes Big Vian and Little Vian Creeks as they drain into Robert S. Kerr Reservoir. These areas experience frequent flooding during heavy rain events and are directly connected to the main lake system as low order streams. The habitat along these creeks is primarily bottomland hardwoods. This unit is open to public entry except during muzzleloader hunts.

Girty Bottom Unit (1127 acres) in the West Management Area:

This unit is located on the southwest section of SNWR, bordering the west bank of the Canadian River. This hunt unit exhibits light public use and is only accessible by foot. Frequent flooding occurs when large releases are made from the Eufaula Lake Dam. This unit is secluded from residential houses and is a considerable distance from the interstate highway. Previously farmed fields are now turning into early successional forests and they are bordered by late successional forests and forested wetlands.

Shelby Bottom/Hi-saw Island Unit (1123 acres) in the West Management Area:

Shelby Bottom Unit is located on the south side of Dirty Creek which serves as the border with the Webbers Bottom Unit. The habitat is much like the Webber Bottom Unit; however, this unit is closed to public access with the exception of deer hunters. Hi-saw Island is a small island on the far north part of the Delta Islands and is accessed by refuge staff through the Shelby Bottom Unit.

Possum Hollow Unit (1193 acres) in the West Management Area:

This unit is located on the southwest section of SNWR and borders the north bank of the Canadian River and the south border of the Girty Bottom Management Unit. This unit is very secluded with a small number of rural homes around its border and is a considerable distance from the interstate highway. This unit is closed to public access with the exception of big game and upland game hunters. This unit consists of open fields of grass surrounded by large stands of bottomland hardwoods. Frequent flooding occurs when large water releases are made from Eufaula Dam.

Delta Islands (2080 acres) in the West Management Area:

This unit consists of open water, islands and riparian zones within the central section of SNWR. These islands are directly connected to the main lake system. The unit is open to the public and use is at a moderate level. Although there is Interior Least Tern nesting activity on the small islands near Stoney Point and other islands located outside the refuge boundary, there is no known Interior Least Tern nesting activity on these islands.

Haskell Bottom Unit (1431 acres) in the West Management Area:

This unit is located on the southern middle section of SNWR, bordering the south and east banks of the Canadian River and is one of the most secluded units listed in this plan. It is made up primarily of large stands of bottomland hardwoods that are frequently flooded when large releases are made from Eufaula Dam. Public use is at a low level in this unit, mainly being used by big game hunters.

C. Species to be taken, hunting periods, hunting access, fees

Big Game (White-tailed deer)

Muzzleloader:

Hunting period: hunts conducted for three to five days during October, November, and December. Muzzleloader hunts may occur simultaneously among hunt units, and will be limited to no more than 4 total hunts per hunt unit each season. Of the nine hunt units, typically six units will be hunted within a given year, and hunts will not occur simultaneously on the East and West Management Areas.

Access: Vehicles are confined to public access roads and designated parking areas. Boat access will be allowed for Haskell and the Delta Islands hunt units. Horses are prohibited. Persons with disabilities (meeting ODWC qualifications for deer hunts with a Non-ambulatory or Motor vehicle permit issued by ODWC for a disability hunting license) will be provided special accommodations.

Fees: The muzzleloader hunts (adult, and youth) will be conducted with the State of Oklahoma conducting the draw and the refuge serving as host for the event. Hunters wishing to participate in one of the special draw hunts for deer must apply through the Oklahoma Department of Wildlife Conservation (ODWC) website (www.wildlifedepartment.com). The ODWC is responsible for handling all applications and conducting the draws and collecting fees. Hunters are notified by ODWC that they have been selected for one of the hunts and a complete package with permits and instructions are sent to the hunters. Persons with disabilities (meeting ODWC qualifications for deer hunts with a Non-ambulatory or Motor vehicle permit issued by ODWC for a disability hunting license) will be provided special accommodations.

Archery Hunt:

Hunting Period: Archery hunts conducted four to seven days, between October, November, and December. Archery hunts may occur simultaneously among hunt units, and will be limited to no more than 2 total hunts per hunt unit each season.

Access: Vehicles are confined to public access roads and designated parking areas. Boat access will be allowed for Haskell and the Delta Islands management units. Horses are prohibited. Persons with disabilities (meeting ODWC qualifications for deer hunts with a Non-ambulatory or Motor vehicle permit issued by ODWC for a disability hunting license) will be provided special accommodations.

Fees: The archery hunts (adult) will be conducted with the State of Oklahoma conducting the draw and the refuge serving as host for the event. Hunters wishing to participate in one of the special draw hunts for deer must apply through the Oklahoma Department of Wildlife Conservation (ODWC) website (www.wildlifedepartment.com). The ODWC is responsible for handling all applications and conducting the draws and collecting fees. Hunters are notified by ODWC that they have been selected.

Feral Hog

There are no hunting programs specifically for taking feral hogs. This plan only provides for the incidental take of feral hogs by the general public during established hunting seasons for other species (e.g. big game and upland game).

Upland game - (rabbit and squirrel):

Rabbit – open in December 1st - January 31st – Saturday through Tuesday

Squirrel – open in September, December and January, Saturday through Tuesday.

Access: Vehicles are confined to public access roads and designated parking areas.

Fees: no fees are required for this hunt. Hunters must report number of migratory bird/upland game taken on OMB form 3-2361

Method of take: 17/22 rimfire rifle and shotguns.

D. Justification for the permit, if one is required.

Big game:

Hunters wishing to participate in one of the special draw hunts for deer must apply through the ODWC website (www.wildlifedepartment.com). ODWC is responsible for handling all applications and conducting the draws. Hunters are notified by ODWC that they have been selected for one of the hunts and a complete package with permits and instructions are sent to the hunters. The draw system for the white-tailed deer hunts allows the refuge to better manage these hunts to benefit the overall health of the deer herd. The number of hunters participating on any given hunt can be limited and the season lengths can also be limited. The refuge does not require a refuge permit. However, a state -controlled hunt permit is required.

Upland game:

Hunters that participate in upland game hunting are required to obtain and carry a signed annual hunting permit included within the annual refuge hunting brochure. These permits are free of charge and available at the refuge headquarters, kiosks at entry points of the refuge, and the SNWR website (<http://www.fws.gov/refuge/Sequoyah/>). The refuge is ensuring that all hunters have read and understand all hunting regulations and also have the hunting map before they begin hunting. This also facilitates compliance with refuge regulations and promotes communication between refuge law enforcement and hunters.

E. Consultation and Coordination with the State

The hunting program will be reviewed on an annual basis by refuge staff in consultation with ODWC. Necessary changes and/or modifications to the hunt will be incorporated if populations, habitat, or hunter success rates significantly change or effect wildlife populations. The contents of the plan were formally discussed with ODWC, senior biologist, on October 19th, 2015, during a meeting at the SNWR headquarters.

A letter describing the proposed hunts in this plan and requesting input and feedback was sent to ODWC in June 2016. A response in support of the proposal was received July 13, 2016.

F. Law Enforcement

Sequoyah NWR currently has one full-time officer. This officer, along with two State Game Wardens assigned to Sequoyah County, three in Muskogee County, and two in Haskell County will enforce state/federal regulations and refuge specific laws and rules.

All applicable State and Federal regulations will be enforced, along with refuge specific regulations. Law enforcement efforts will include field compliance checks for licenses, permits, legal means and methods, and legal equipment. Officers will also frequently work the hunter check station to enforce compliance.

The following methods would be used to control and enforce hunting regulations:

Refuge and hunt area boundaries will be clearly posted;

The refuge will provide a brochure that shows hunt areas;

Service law enforcement staff will randomly check hunters for compliance with Federal and State Laws as well as refuge-specific regulations pertinent to the hunt, including compatibility stipulations;

Service law enforcement staff will coordinate with ODWC and other law enforcement agencies for all hunting on the refuge; and information would be made available at the Refuge Headquarters and Visitor Center.

A briefing for hunters in the controlled deer hunts is conducted prior to each hunt. Refuge law enforcement reviews the rules and regulations with the hunters during these meetings.

G. Funding and Staffing Requirements

The annual costs for the hunting program is anticipated to be paid by the law enforcement program (1264), visitor services program (1263), maintenance program (1262), and general station funds (1261). It is estimated that the hunt program's annual cost will be \$10,400. Since the hunting program for the refuge is already established for deer, squirrel and rabbit and a new species (Feral hog) will be added as incidental take while deer hunting and upland game hunting, there should be no additional cost for the hunt program. Hunters participating in the deer hunts pay a \$20 federal user fee to the Oklahoma Department of Wildlife Conservation (ODWC). ODWC pays the refuge 100 percent of the money that is collected in this process. The refuge submits the fees to the recreational fee program and receives 80% of the funds in return. The refuge uses these recreational fee funds to pay salaries of staff that perform work on these hunts and also to purchase any needed materials that are associated with the hunting program.

Staffing is the most significant limiting factor for conducting the refuge hunting program. One Law Enforcement Officer is tasked with addressing all enforcement needs of the public use program throughout the 20,800 acres of the refuge. The Outdoor Recreation Planner administers all projects associated with wildlife observation, wildlife photography, hunting, fishing, environmental education, and interpretation. Volunteers are often utilized to enhance the public use programs provided by the refuge. All other refuge staff provides some support for public use programs such as hunting.

| | |
|------------------------|---------------|
| Staff salaries | \$6000 |
| Brochures | \$400 |
| Fuel/misc. | \$1000 |
| Road/parking lot rehab | <u>\$3000</u> |
| | \$10,400 |

VI. Measures Taken to Avoid Conflicts with Other Management Objectives

A. Biological Conflicts

Endangered/Threatened Species: At present there has been no documented direct or indirect conflict from deer or feral hogs on the threatened and endangered species either present, or potentially present, at SNWR. Interior Least Tern colonies are known to nest along the South Canadian River System within the SW section of SNWR, during the months of May-June. Tern nesting is limited to this unique location due to favorable conditions (i.e. sandbar islands, open habitat, clear shallow water). Also, Interior Least Terns have been observed foraging within large, shallow wetlands scattered throughout the refuge. Hunting activities will neither occur on, or directly adjacent to, open sandbar islands or known tern nesting habitat. Further interaction between foraging least terns and hunters is unlikely, as hunters generally prefer forested areas and terns generally use open water-bodies for foraging. Interior Least Tern nesting activity does not occur during the fall months when hunters are active. The potential for least tern nest depredation does exist, therefore control

opportunities that reduce the feral hog population, would likely reduce least tern nest depredation.

American Burying Beetles (ABB's) are known to inhabit oak-pine woodlands, open fields, oak-hickory forests, open grasslands, and edge habitats adjacent to/within Sequoyah NWR. A census in 1992 and again in 2015 indicated a small population of beetles within the Sandtown & Cook Bottoms Management Units. Feral hogs could potentially depredate ABBs or indirectly eliminate the presence of carcasses needed for forage and brood-rearing. Hunting and hog population control could reduce the potential for competition between ABBs and feral hogs for carcasses. However, there is no evidence that feral hogs compete with American burying beetles for carcasses. Direct impacts/conflicts between ABB's and hunters are unlikely, and therefore no conflict is expected as hunting would neither directly affect ABB's or habitat. Most hunting will occur outside the ABB active period.

The endangered gray bat (*Myotis grisescens*) and the threatened northern long-eared bat (*Myotis septentrionalis*; hereafter NLEB) could potentially utilize the refuge for foraging and for cavity nesting (in the case of the northern long eared bat. However, their abundance is not likely to be affected by any changes to abundance or distribution of either feral hogs or deer. Gray bats are unlikely to use SNWR as roosting habitat and all foraging activities occur at night or during dusk and dawn, therefore conflict between gray bats and hunters is unlikely. NLEBs have never been confirmed to utilize SNWR for roosting habitat; yet, it is possible, although extremely unlikely, that hunters would erect a temporary tree stand on a tree utilized by a NLEB. As there are no known suitable hibernacula for NLEB at the refuge, and NLEB would only utilize trees for roosting in spring-fall, the likelihood of conflict between hunters and NLEB is very low. Further, NLEBs has never been confirmed to use the refuge so any conflict is unlikely.

Migratory Birds: SNWR provides habitat for a variety of migratory birds such as raptors, waterfowl, shorebirds, and songbirds. Songbirds, raptors, and rails breed at the refuge, whereas shorebirds and waterfowl primarily utilize the refuge as wintering and migratory habitat. The active breeding season for most birds (with the exception of winter breeding raptors) is within April-July. Hunting will not occur during this period and therefore no conflict is expected. Breeding raptors (e.g. bald eagles) may initiate nesting during periods of hunting activity. To mitigate this possible conflict, during the active breeding season, hunters will be instructed stay at least 600 feet from an active bald eagle nest. Known bald eagle nests will be pointed out, and mitigation methods will be described to the hunters during the safety orientation for each deer hunt (if active nesting were to begin that early in the season). Flight is energetically expensive to wintering waterfowl, and unnecessary flight could strain the energetic budget of wintering waterfowl.

Water Management: Essential water management activities will still occur during hunts. Water management activities will occur before or after hunting periods, and activities will be minimized whenever possible. However, as water management is essential to meeting waterfowl objectives, this activity will still occur. Hunters will be informed of known activities during the safety orientation. No conflict is expected between water management objectives and hunts.

Prescribed Burning: Sequoyah NWR has a prescribed burning program. However, prescribed fires typically occur outside of the hunting season so no conflict is expected.

Mowing/Farming: Refuge staff will not conduct these activities during deer hunts. Farming activities by cooperative farmers will be discouraged, but may still be allowed if farming activities are time-sensitive. Deer at the refuge are accustomed to farming, and farming activities typically don't alter their movements. However, as farming activities will be discouraged, and are unlikely to occur during hunts, the likelihood of a conflict with the hunts is low.

B. Public Use Conflicts

Sequoyah NWR has an extensive public use program with many opportunities to grow. The refuge has been open to public use activities such as hunting, fishing, wildlife observation, and wildlife photography since its establishment in 1970. Hunting is open to coot, snipe, mourning dove, woodcock, rabbit, gray squirrel, fox squirrel, and all waterfowl species allowed by the Oklahoma hunting regulations. Deer hunting, established in 1996, is allowed through a draw and is currently carried out by four adult hunts and one youth hunt.

Sequoyah NWR is made up of a number of public use areas and access points. These areas consist of 28 parking lots, three fully developed boat ramps with courtesy docks, six primitive boat ramps, eight fishing/observation decks, two photography/observation platforms, and two hiking trails that are each paved and one mile long. Refuge hunting and fishing brochures complete with maps and regulations are available to the public at distribution boxes throughout the refuge.

The entire Sandtown Bottom Unit is closed beginning at Tuff Boat Ramp during the special deer muzzleloader hunts. The maximum number of days the unit may be closed, during any calendar year, will be twenty. In order to mitigate conflicts with other uses during this time the refuge notifies the public through press releases and website notifications prior to the hunt and by signs on the refuge during the hunt. If other conflicts arise, the refuge manager may limit or restrict other public uses during the hunting season to ensure public safety. The Sandtown Unit will be left open to other public uses during the special deer archery hunts. The safety concerns during an archery hunt are minimal and keeping the refuge open reduces the conflict the archery hunts have on other public uses.

C. Administrative Conflicts

Administrative conflicts are not anticipated. As the refuge encounters new needs for hunting, the refuge manager will set station priorities to assure that administrative staff time required to administer the hunting program is adequate. Assistance may be sought from other refuges and from the State if serious conflicts do arise.

VII. Conduct of the Hunt

The conduct of the hunt is guided by refuge-specific hunting regulations as outlined in the 50 CFR.

A. Refuge-specific Hunting Regulations

Listed below are refuge-specific regulations that pertain to Sequoyah NWR as of the date of this plan. These regulations may be modified as conditions change or if refuge expansion occurs.

B. Upland Game Hunting: We allow hunting of Eastern gray and fox squirrel and swamp and Eastern cottontail rabbit on designated areas of the refuge. Incidental take of feral hogs may occur during squirrel and rabbit hunting season. Upland game hunting is in accordance with State and Federal regulations subject to the following conditions:

1. A3-5,A8 and A12 apply
2. You must possess and carry a signed refuge brochure (which serves as your Upland Game Hunting Permit). The permit/brochure is available free of charge at the refuge headquarters, at various entry points to the refuge, and on our Web site. We require hunters to abide by all rules and regulations listed on the permit.
3. We prohibit hunters entering the Sandtown Bottom Unit prior to 5 a.m. during the hunting season. Hunters must leave the Sandtown Bottom Unit by 1 hour after legal sunset.
4. We only open the refuge to hunting on Saturdays, Sundays, Mondays, and Tuesdays. We generally designate open units as: Sandtown Bottom, Webber Bottom, Girty Bottom, Possum Hollow, and Vian Creek.
5. Season lengths and bag limits will be in accordance with State regulations with the exception that all upland game hunting will close on January 31 of each year.
6. We only allow legal shotguns and approved nontoxic shot (see § 32.2(k)). You must plug hunting shotguns so they are incapable of holding more than three shells. We also allow .22/.17 rimfire rifles for hunting upland game. You must unload and case hunting firearms (see § 27.42(b) of this chapter) while transporting them by vehicle or boat.
7. The east portion of the Sandtown Bottom Unit and the portion of Robert S. Kerr Reservoir, from Tuff boat ramp to the confluence of Vian Creek, are designated as a Waterfowl sanctuary that is closed to all entry, except for the designated hiking trail, from September 1 through March 31. The closed area is marked with signs and buoys.
8. Squirrel and rabbit hunting is not allowed in the Cook, Hi-Saw/Shelby, Delta Islands, Haskell Management Units.

C. Big Game Hunting: We allow hunting of white-tailed deer on designated areas of the refuge. Incidental take of feral hogs may occur during deer hunts. Big game hunting shall be in accordance with State and Federal regulations subject to the following conditions:

1. A8-9 and A12 apply

1. Hunters must possess and carry a refuge-controlled hunt permit (State issued permit), and comply with the designated refuge season, hunting methods, and location guidelines for that year.

2. Hunters must apply to the State-controlled deer hunt drawing administered by the Oklahoma Department of Wildlife Conservation for selection. We require those hunters to attend a pre-hunt briefing, and they must follow all applicable State regulations.

3. We require payment of State and Federal special deer hunting fees.

B. Anticipated Public Reaction to Hunting Program

Public scoping was initiated on October 1, 2015 to request input from the public about the upcoming development of new units for white-tailed deer and upland game and adding feral hog to the big game and upland game hunting plan and EA. A public notice was produced and displayed at refuge headquarters and posted in towns throughout Sequoyah County. It is anticipated that additional hunting opportunities will be highly desirable and appreciated by our consumptive users. The refuge received one comment concerning the development of this plan.

“As a hunter I would love to help preserve the habitat by thinning out the feral hogs, but during upland game hunting we only carry upland game load. I think the EA hunt plan should look into that and maybe even doing some controlled hunts for the hogs that would allow the hunters to carry something other than upland game load?”

C. Hunter Application and Registration Procedures (if applicable)

Everyone participating in upland game hunting is required to obtain and carry with them an annual refuge hunting brochure for hunting. The permit is located on the annual hunting brochure. These permits are free of charge and obtained by simply visiting the refuge headquarters, various kiosks at refuge entrance points, or by printing one from the Sequoyah NWR website. <http://www.fws.gov/refuge/Sequoyah/>.

Hunters wishing to participate in one of the special draw hunts for deer must apply through the ODWC website. The site is www.wildlifedepartment.com. ODWC is responsible for handling all applications and conducting the draws. Hunters are notified by ODWC that they

have been selected for one of the hunts and a complete package with permits and instructions are sent to the hunters.

D. Media Selection for Announcing and Publicizing the Hunt

The refuge uses press releases to notify the public of upcoming hunting seasons and any special information that needs to be communicated. The Oklahoma hunting regulations book that is published each year contains information about the special draw hunts and instructions on how to apply. It also contains special regulations for upland game hunting on the refuge. Refuge specific information about the hunts is also available on the refuge hunt brochure for each year. Newspaper articles following the hunts are published in the Sequoyah County Times and the Vian-Tenkiller News about the achievements of the hunts and they give information for anyone interested in applying for a future hunt.

F. General Requirements

General information regarding hunting and other public uses can be obtained at the refuge headquarters at 107993 S. 4520 Rd, Vian, Oklahoma, or by calling (918)773-5251. Information on these activities can also be found on our website at: www.fws.gov/refuges/sequoyah.

G. Hunter Requirements

Generally, all hunting will be in accordance with State regulations. Additional specific hunting regulations will be provided in refuge hunting brochure annually.

Equipment – Muzzleloaders and bow and arrow will be allowed for white-tailed deer and feral hogs. Shotguns and rim fire rifles (.22/.17) may be used for upland game and feral hogs. For shotguns, only legal non-toxic shot is allowed and must be plugged and only capable of holding three shells. Baiting is prohibited. We require upland game hunters to follow State blaze-orange regulations.

License and Permits – All hunters must possess a valid State of Oklahoma hunting license and any State required stamps or tags. Hunters must also sign the refuge brochure/permit and carry it with them at all times while hunting. Deer hunters will receive an official letter and permit from ODWC stating that they have been drawn to participate in a hunt.

Reporting Harvest – Hunters must complete a harvest information form (OMB form 3-2361) at the end of each upland game hunt. Forms are provided for hunters at the harvest report stations.

VIII. Compatibility Determination

A draft compatibility determination has been completed in conjunction with this hunt plan and the Environmental Assessment. Hunting and all associated program activities proposed in this plan are expected to be found compatible with the purposes of the refuge.

DRAFT

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