

COMPATIBILITY DETERMINATION

Use: Recreational Hunting for Big Game (deer & hog), Upland Game (turkey), and Migratory Birds (dove)

Refuge Name: Balcones Canyonlands National Wildlife Refuge

Establishing and Acquisition Authorities:

Balcones Canyonlands National Wildlife Refuge (NWR or Refuge) was established under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1534); the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j Stat. 1119), as amended; and the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601 – 4601-11).

In order to meet specific Refuge and other broader U.S. Fish and Wildlife Service (Service) directives, the following purpose established the Balcones Canyonlands NWR:

“... to conserve (A) fish or wildlife which are listed as endangered species or threatened species or (B) plants ...” 16 U.S.C. § 1534 (Endangered Species Act of 1973) “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).

Refuge Purposes:

Balcones Canyonlands National Wildlife Refuge (NWR) was established by the Endangered Species Act (ESA) of 1973 to conserve fish, wildlife or plants which are listed as endangered species or threatened species. Upon establishment, the Service stated four criteria for the location of Refuge Boundaries. These are: “to ensure that (1) A sufficient representation of Golden-cheeked Warbler and Black-capped Vireo habitat is included; (2) Watersheds and water quality will be protected; (3) Destroyed or fragmented nesting habitats acquired have high potential for ecological restoration; (4) A protective buffer zone for nesting habitat and nesting populations is in place within the Refuge boundary.”

National Wildlife Refuge System Mission:

The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

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.

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. The hunting program 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.

Description of Use:

Balcones Canyonlands NWR proposes to open up 10 new tracts of land to deer, feral hog and turkey hunting and 1 tract to dove hunting.

Where would the use be conducted?

Hunting would continue on existing tracts (See Table 1: Current Hunt Units) and would also be on the new tracts of land (See Table 2). Balcones Canyonlands NWR would open 10 additional Refuge tracts totaling 730 acres to hunting for white-tailed deer, feral hog, and turkey; and 1 additional tract (97 acres) would be opened for dove hunting (Table 2 and Figure 1). It would also continue hunting on the Balcones Canyonlands National Wildlife Refuge on its existing tracts for big game (deer and feral hogs) and upland game (turkey) on 12,818 acres, and migratory birds (dove) on 274 acres (Table 1).

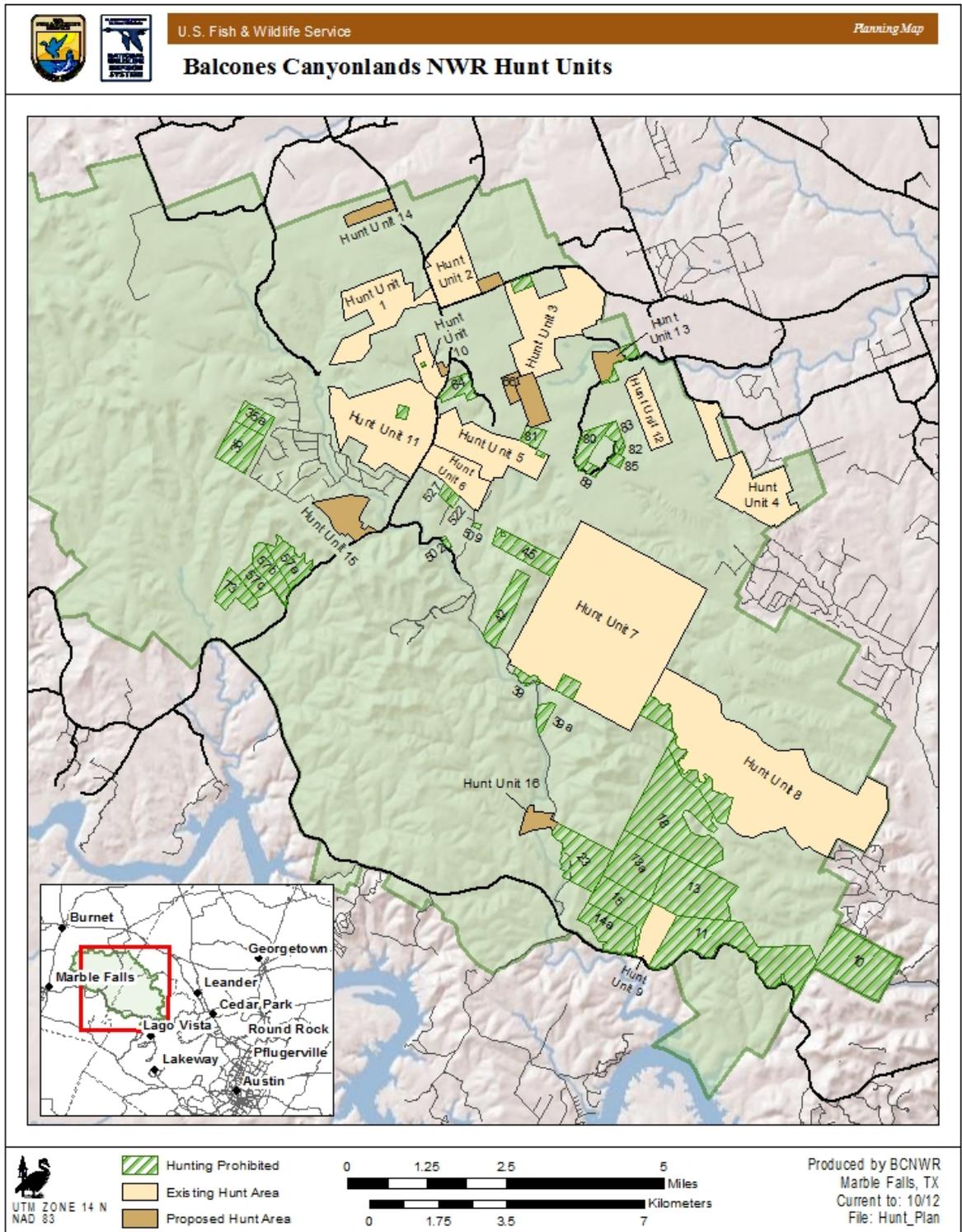
Table 1: Current Hunt Units

TRACT	Tract #	ACRES	HUNT UNIT #	SPECIES HUNTED	Max. # of PERMITS
Simons	99	631	1	Deer, Feral Hog, Turkey	3
Mullen	97	441	2	Deer, Feral Hog, Turkey	3
Eckhardt	10a	1020	3	Deer, Feral Hog, Turkey	6
Gainer/Kindred	62, 63	707	4	Deer, Feral Hog, Turkey	4
Nagel	58	630	5	Deer, Feral Hog, Turkey	3
Doeskin	54	357	6	Deer, Feral Hog, Turkey	2
Rodgers	40	3703	7	Deer, Feral Hog, Turkey	10
Webster	30	3527	8	Deer, Feral Hog, Turkey	6
Old Salem	14	207	9	Deer, Feral Hog, Turkey	1
Beard	61	164	10	Deer, Feral Hog, Turkey	1
Flying X/Hoyer	60, 70	1157	11	Deer, Feral Hog, Turkey	6
Johnson	120	274	12	Deer, Feral Hog, Turkey, Dove	2 (Big Game)

Table 2: Hunt Units (current units in black, new units in red)

TRACT	Tract #	ACRES	HUNT UNIT #	SPECIES HUNTED	Max. # of PERMITS
Simons	99	631	1	Deer, Feral Hog, Turkey	3
Mullen	97	441	2	Deer, Feral Hog, Turkey	3
D.Damrow	20	34	(2)	Deer, Feral Hog, Turkey	0
D.Damrow	20a	1.5			
N.Damrow	21	2.7			
Wier (combined w/ Mullen)	22	1.7			
Eckhardt	10a	1020	3	Deer, Feral Hog, Turkey	6
Kennedy	92	173	(3)	Deer, Feral Hog, Turkey	2
Heine (combined w/ Eckhardt)	66	60			
Gainer/Kindred	62, 63	707	4	Deer, Feral Hog, Turkey	4
Nagel	58	630	5	Deer, Feral Hog, Turkey	3
Doeskin	54	357	6	Deer, Feral Hog, Turkey	2
Rodgers	40	3703	7	Deer, Feral Hog, Turkey	10
Webster	30	3527	8	Deer, Feral Hog, Turkey	6
Old Salem	14	207	9	Deer, Feral Hog, Turkey	1
Beard	61	164	10	Deer, Feral Hog, Turkey	1
Owens (combined with Beard)	65	18	(10)	Deer, Feral Hog, Turkey	0
Flying X/Hoyer	60, 70	1157	11	Deer, Feral Hog, Turkey	6
Johnson	120	274	12	Deer, Feral Hog, Turkey, Dove	2 (Big Game)
Arnold (SW of road) (NEW Unit)	121	100	13	Deer, Feral Hog, Turkey	1
Russell (NEW Unit)	93	98	14	Deer, Feral Hog, Turkey	1
Tater Hill (NEW Unit)	57	241	15	Deer, Feral Hog, Turkey	1
McKeever (NEW Unit)	23a	97	16	Dove	0 (Big Game)

Figure 1. Proposed Hunt Units



When would the use be conducted?

The State of Texas' general gun season for white-tailed deer and turkey is open from early November to early January, while feral hog hunting is allowed year-round. The Refuge would allow four 3-day seasons within the two month State season by permit only.

The State of Texas' dove season for the central portion of the state is open from September 1 to late October, and again from late December through early January. The Refuge would allow hunting on four days during the State season, from noon until the end of legal shooting hours by permit only.

How would the use be conducted?

All Refuge hunts are shorter seasons than the State allows. Permits for hunting deer, hogs and turkeys are issued through lottery drawing, while permits for migratory bird hunting are issued on a first come, first served basis. Each participant is provided information regarding the unit they may hunt (and stand if applicable), the dates of the hunt, safety requirements, and general Refuge regulations – as well as a permit. Each participant is provided a map showing access points/entrances to units and allowed to drive personal vehicles in their respective units. Some units require participants to drive into the area to an assigned parking area. Participants in the Big Game and Upland Game hunts will attend an orientation session before their hunt to become familiar with Refuge regulations. No overnight camping is allowed. During the hunts, general public use of areas open to hunting would be closed.

Why is this use being proposed?

Since the hunting program was established on the Refuge, 34 additional Refuge tracts totaling 7,023 acres have been acquired. We evaluated our hunting program at the conclusion of the 2011 hunt season, and determined that 10 additional tracts totaling 730 acres could be included in the Big Game and Upland Game hunt program (white-tailed deer, feral hog, and turkey), and 1 additional 97 acre tract could be opened for dove hunting without impacts to other Refuge programs.

Another impetus for this action is to lessen the impacts to our non-hunting visitors at the Doeskin Ranch Public Use Area. This area is currently included in the hunting program, and is closed to non-consumptive activities during refuge hunts. By opening these additional proposed tracts, it would allow us to administratively close the Doeskin Ranch area and the adjacent Nagel tract to hunting – allowing for safe use of the hiking trails at Doeskin. These two areas are currently open to Big Game and Upland Game hunting, but hunting success in them is typically low. By opening the proposed additional areas, we can increase the quality of the hunting experience and maintain the level of hunting opportunity. Population surveys in the Doeskin Ranch and Nagel tracts would continue to be conducted, and if data indicate a need for management action (e.g. hunting), hunting could be re-opened administratively to address the need.

Big game hunting is a primary management tool used to enhance habitat for endangered species on Balcones Canyonlands NWR. The Golden-cheeked Warblers and Black-capped Vireos require an oak component in their preferred habitat for a feeding or nesting substrate. Deer, hogs and turkeys consume acorns, impacting recruitment or replacement of trees necessary for warbler survival. Deer browse seedling and sapling oaks and impact the density and height of the hardwood component in habitats that is important for vireo nesting. Our management objective is to deliberately maintain deer densities as a rate lower than twenty acres per deer in order to protect oak recruitment and structure.

Adding hunting for Big Game, Upland Game and Migratory Birds on these tracts will provide additional wildlife-dependent recreational opportunities. While similar opportunities exist on both private and public lands, these new units would provide more recreational opportunities for users who do not have access to private land (approximately 97 percent of land in Texas is privately owned). By conducting hunts on the Refuge, we will be encouraging family-oriented outdoor recreation and supporting the tradition of hunting by promoting outdoor family oriented activities.

Expansion of hunting of feral hogs into additional areas of the Refuge will provide benefits to the endangered species and other indigenous species and their habitats. Hogs are highly adaptable, have high reproductive capabilities, and can be found in a wide range of habitat types. They are opportunistic omnivores and compete with native wildlife (game and non-game) for food, cover, water, and space. Rooting and digging activities negatively impact vegetative communities, soil properties, and plant successional patterns (Stevens 1996). Wood and Roark (1980) found oak mast to be one of the more important seasonal food items of feral hogs. Tate (1984) found that feral hogs compete with deer, turkey, squirrels, waterfowl and other wildlife species for this food resource. Feral hogs can impact ground-nesting species, particularly quail and turkey, through nest destruction and predation. Beach (1993) also found that feral hogs prey on fawns and ground nesting birds.

Refuge staff will continue to promote native flora and fauna through active habitat management that achieve Refuge wildlife habitat priorities and objectives. The proposed expansion of hunting into additional Refuge tracts will help us accomplish that goal.

Availability of Resources:

The current full-time Refuge staff of eighteen, along with some volunteers (or interns) can assist with the hunt program. Additional Law Enforcement support may be available from other refuges.

Special equipment, facilities, or improvements necessary to support the use:

Maintenance of access roads, gates, trails, and parking areas would be on-going. The addition of hunting signage for new units would also be needed.

The figures shown below are first year estimated costs and include big game, upland game, and migratory bird hunting. Subsequent yearly costs may be substantially less once infrastructure is in place.

1. Preparation of Units - parking lot development, posting boundaries, and recurring road and parking lot maintenance (most of these activities must be done whether hunted or not).	\$ 6,000
2. Administrative Time - NEPA compliance, drawing and permit process, hunter inquiries, completing hunting & fee report, etc.	\$ 2,000
3. Biological Review - consultation with State and wildlife surveys. Post-hunt data review.	\$ 2,000
4. Enforcement of Hunt - includes overtime or hiring temporary staff.	<u>\$ 2,000</u>
Estimated Total	\$12,000

Offsetting revenues: Gross revenues from application and hunt fees amount to about \$9,000 annually - of which approximately \$2,500 is paid to the vendor who conducts the lottery drawing and issues the permits. The net hunting revenue amounts to about \$6,500 per year (using 2011 totals) under the current hunt program. The Refuge receives 80 percent of this amount under the recreation fee program – about \$5,200 annually.

Based on a review of the Refuge budget and staff allocation for the hunt program, resources are adequate to insure compatibility and to administer and manage the current hunt program and the addition of the new units.

Anticipated Impacts of the Use:

Short-term Impacts:

Direct mortality to hunted species (deer, feral hogs, turkey and dove) would, of course, occur. Some wounding of animals may occur as well. In all cases, the Refuge would seek to provide a quality hunt experience while minimizing negative impacts to Refuge resources. Foot travel associated with these hunting activities could potentially result in vegetation trampling. However, these impacts are expected to be minimal.

The activity of hunters could disturb some wildlife species. Hunters driving or walking in or adjacent to wildlife habitat and gunfire from hunting can result in behavioral responses by other resident wildlife. The permitted activity will cause minor disturbances of limited duration and the effects are likely to be minimal.

Whether hunting occurs or not, none of the additional units proposed for inclusion in the hunt program are open for other wildlife-dependent public uses. Management decisions resulting from an Intra-Service Section 7 Consultation leave all of the refuge except three Public Use

Areas closed to the public at all times. Adding new hunting tracts to the program will, in fact, allow us to administratively remove the Doeskin Ranch and Nagle Units from the hunt program, and allow Public Use opportunities to safely occur at the Doeskin Ranch area during the Big Game hunts. We have elected to continue to include those units in the list of hunting units open for hunting under the proposed plan in the event our Public Use offerings change in the future, or in case we need to re-open the units due to future changes in habitat conditions or wildlife populations that require reduction of deer or hog populations.

Unforeseen future changes in the Public Use offerings on the Refuge may necessitate modification of the hunting program. By addition of these units, the Refuge will have a greater measure of flexibility to administratively remove areas from the hunt program, without requiring a major revision of the Hunt Plan, Environmental Assessment or Compatibility Determination.

The average breakdown of the approximately 18,000 annual visitor use days is as follows: hunting - 2%, environmental education – 5%, wildlife observation – 76%, interpretation – 13%, and special events - 4%. Addition of the proposed new hunting units will not negatively affect any other segment of refuge visitation.

Deer:

Population density data from annual spotlight counts conducted by Refuge staff since 1996 range from a high of one deer per twelve acres (2004) to a low of one deer per twenty-nine acres in 2007. This range roughly corresponds to the average density of deer in the Edwards Plateau region of Texas at 15 acres per deer (Armstrong and Young, 2000).

The data indicate that the Refuge deer herd is at or below the “carrying capacity” (*simplistically defined as the number of individuals an environment can support without significant negative impacts to the given organism and its environment*) in areas of the Refuge that has been hunted over the past fifteen years. While the proposed limited deer hunt will only marginally impact the number of deer on the Refuge, hunting is the only management tool currently available to the Refuge to affect the deer population.

Feral Hog:

The Refuge makes a concerted attempt to control and/or eliminate invasive species in accordance with Executive Order 13112. The feral hog is a destructive invasive species that degrades Refuge habitats and adversely impacts native wildlife. Hunting is one management tool used to try to control this species. While the Refuge’s hunting program may not impact the overall feral hog population, any reduction in feral hog numbers will reduce the negative impacts caused by this species.

Turkey:

Hunting for wild turkey is offered to provide recreational opportunity rather than to manage the population (as with deer and hogs). The Refuge does not offer hunting for turkeys during the spring season due to conflicts with endangered species, and interviews with refuge hunters indicate that because turkeys are hunted concurrently with deer and feral hogs, Refuge hunters are reticent to harvest a turkey and potentially spoil a chance to shoot a deer. As a result, very few turkeys have been taken during Refuge hunts (average < .7 turkeys per year). Across their

range in Texas, there are currently between 600,000 and 1,000,000 Rio Grande wild turkeys. The Texas Parks and Wildlife Department uses data collected from surveys to establish annual bag limits. The bag limit set by the State in Burnet, Williamson and Travis counties is 4 birds per year. The Refuge's 12 hunting day season is much more restrictive than the 107 hunting days allowed by the State. Turkey populations will not be impacted by Refuge hunting because low hunter demand and adequate Refuge habitat.

Dove:

Hunting for doves (mourning, white-winged, rock, and Eurasian collared-doves) is offered to provide recreational opportunity. The current dove hunting unit encompasses 274 acres and the proposed additional unit includes 97 acres. The Texas Parks and Wildlife Department uses data collected from surveys to establish annual bag limits. The bag limit set by the State is 15 doves per day per hunter. The Refuge's 4-day season is much more restrictive than the 60 hunting days allowed by the State. Participation in the Refuge hunt usually amounts to less than 25 persons (< 75 hunting days). Dove populations will not be impacted by Refuge hunting due to low hunter demand, reduced season length, and limited hunt areas.

Long-term Impacts: (for the four hunted species)

Fifteen years of Refuge survey data, hunter comments, and staff observations, indicate that deer populations will likely remain stable with minor fluctuations due to rainfall or off-refuge hunting pressure. The feral hog populations continue to rise even with hunting and Refuge trapping. Hunting programs (both on and off Refuge) are not sufficient to control feral hogs. Harvesting game species depends on factors such as: population number of animals, condition of habitat, number and experience level of hunters, type of weapon allowed, length of season, and weather conditions. If yearly monitoring surveys, staff observations, or future research data indicate dramatic changes in populations, the Refuge may further limit or increase the deer hunt by changing the number of days or the number of hunters, or by administratively opening or closing areas included in this proposal. For reasons stated above, there will not be any long-term impacts to turkey or doves.

Cumulative Impacts:

Deer:

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). Anticipated annual deer harvest on the Refuge and other national wildlife refuges open to deer hunting is an extremely small percentage of the state's annual harvest and just a fraction of the national population. TPWD estimated 196,949 deer were harvested in the Edwards Plateau region of the State in 2010-2011 season (Purvis, 2012). The highest number of deer harvested on the Refuge since the program began is 58 and the average number of deer bagged each year is 39

(Table 3). Harvesting 100 deer a year on the Refuge would only represent 0.05% of the Edwards Plateau region harvest. Compared to the estimated four million white-tailed deer found in Texas (Graves 2004), the impact of removing an estimated 20-60 white-tailed deer from Balcones Canyonlands NWR is negligible.

Table 3. Game Harvest records, Balcones Canyonlands NWR

Game	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total	Average
Deer	50	42	38	38	35	47	58	54	56	52	18	30	26	24	18		586	39
Hogs	1	3	0	5	2	7	2	1	2	3	5	1	6	3	2		43	2.8
Turkey	0	1	1	1	0	1	0	0	1	0	0	1	2	1	1		10	0.6
Dove	-	-	-	-	-	-	19	95	1	12	8	6	0	119	117	137	514	51.4

The Refuge will continue to support a substantial deer herd that will be at or around the habitat's carrying capacity to the detriment of other wildlife species. The timing, duration and anticipated harvest levels of the Refuge's hunt program would result in negligible cumulative impacts to Refuge resources, wildlife populations or the surrounding environment.

Feral hogs:

Feral hogs are an extremely invasive, non-native species and not considered a game species by the State of Texas. There is an estimated population in excess of 1.5 million feral hogs in Texas (Taylor 2003). This is due in part to intentional releases, improved habitat, increased wildlife management, disease eradication, limited natural predators, and high reproductive potential. There seem to be very few inhibiting factors to curtail this population growth (Taylor 2003). No bag limits or set seasons are established for feral hogs. Hunting of feral hogs provides the Refuge with another management tool in reducing this detrimental species, and at the same time provides additional recreational opportunity for hunters. Cumulative effects to an exotic species should not be of concern because the Refuge would like to extirpate this species on Refuge lands. Hunting of hogs is not considered detrimental to the biological integrity of the Refuge, is not likely to create conflict with other public uses and is within the wildlife dependant public uses to be given priority consideration. They are a priority species for Refuge management only in terms of their negative impacts on Refuge biota and need for eradication. The public interest would best be served by allowing this activity on the Refuge. However, even with hunting, feral hogs are likely to always be present because they are prolific breeders. Through a combination of trapping and shooting, the Refuge staff removed 143 hogs during 2011. Participants in Refuge hunts took 2. The State of Texas allows for year-round hunting (day and night) of feral hogs.

Turkey:

The highest number of turkeys harvested in a single year on the Refuge since the program began is 2 and the average number of deer bagged each year is 0.6 (Table 3). For reasons stated above, there will not be any long-term cumulative impacts to turkeys.

Dove:

The highest number of doves harvested in a single season on the Refuge since the program began is 137 and the average number of doves bagged each year is 51.4 (Table 3). For reasons stated above, there will not be any long-term cumulative impacts to doves.

Public Review and Comment: Initial scoping for the Hunt Plan was conducted from November 1, 2012 – November 15, 2012. The Environmental Assessment was released for Public Comment from December 1, 2012 – January 1, 2013. **A summary of comments will be included at the conclusion of the Public Comment period.**

The Refuge received comments prior to the initial opening of hunting in 1997 and again in 2000 when the plan was amended to include dove hunting. Public meetings were held for the preparation of the Refuge Comprehensive Conservation Plan (CCP) in 1996 and 1997 and the public provided written comments until March 2001. A public meeting was held on January 17, 2001 to accept public comments. The hunting program is addressed in the CCP and we received several comments regarding hunting during the Public Scoping process.

An updated 2012 DRAFT hunt plan is being reviewed by Service personnel to include proposed expansion of the current hunt program on the Refuge (USFWS 2012).

Determination (check one below):

- Use is Not Compatible
- Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

- 1.) Ensure that hunting regulations are enforced or followed based on seasons, weapon type, etc.
- 2.) Any hunt program would need to be carried out in accordance with State laws and Service policy for the protection of Refuge resources and safety of participants.
- 3.) Dogs, feeders, baiting, campsites, fires (except use of dogs during the dove hunt) are prohibited.
- 4.) Gather and review (annually) population survey data in coordination with Texas Parks and Wildlife Department to ensure potential harvest from hunting would not unacceptably impact target populations.
- 5.) Hunting opportunities will be based on the availability of adequate staff and funding along with interagency coordination to insure a quality hunt experience while maintaining sustainable populations.
- 6.) Vehicle use by hunters will be restricted to prevent damage to Refuge resources.

Justification:

Hunting is an appropriate use of the Refuge System when compatible. It is also a priority general public use of the Refuge System and increases opportunities for families to experience compatible wildlife dependent recreation, particularly opportunities for parents and their children to safely engage in traditional outdoor activities as described in the

National Wildlife Refuge System Improvement Act of 1997, and receives enhanced consideration over non-priority uses.

Hunting is not expected to have any significant effects on other Refuge/public use management activities because:

1. this use is compatible with the general Service policy regarding the establishment of hunting on National Wildlife Refuges;
2. this use is compatible with the purposes for which Balcones Canyonlands NWR was established;
3. this use does not initiate widespread controversy or litigation;
4. there are no conflicts with local, regional, state, or federal plans or policies; and
5. hunting is accepted as an important recreational use of Texas' natural resources.

Additionally, hunting provides wildlife-oriented recreation to the public in a region where these opportunities are quickly vanishing. The Refuge is located within 35 miles of Austin (population 790,390) and within 120 miles of San Antonio (population 1,327,407 according to the 2010 census – with an estimated 4 million residents in the Austin/San Antonio corridor (Texas Department of State Health Services, 2012). Private hunting leases for deer are expensive (most cost over \$1,500 per person). The Refuge provides a low cost, safe, and enjoyable option.

It is our conclusion that hunting conducted at Balcones Canyonlands National Wildlife Refuge is in accordance with the analysis of the Environmental Assessment and stipulations above, and will not “materially interfere with or detract from the fulfillment of the mission of the System or the purpose of the Refuge was established” or conflict with any of the other priority public uses, adversely impact other biological resources or detract from Refuge goals, objectives and Refuge management activities as described in the National Wildlife Refuge System Improvement Act of 1997.

Signature: Refuge Manager _____
(Signature and Date)

Concurrence: Regional Chief _____
(Signature and Date)

Mandatory 10- or 15-year Re-Evaluation Date: 1/2028

References Cited:

- Armstrong, W.E. and E.L. Young. 2000. White-tailed Deer Management in the Texas Hill Country. Texas Parks and Wildlife Department. Austin, Texas. PWD RP W7000-0828 (05/02).
- Beach, R. 1993. Depredation problems involving feral hogs. Pages 67-93 in C.W. Hanselka and J.F. Cadenhead, eds. Feral Swine: A compendium for resource managers. Texas Agric. Ext. Service, College Station, Tex.
- Graves, R. 2004. Deer World. In Texas Parks and Wildlife Magazine. Accessed 10/09/2012 at http://www.tpwmagazine.com/archive/2004/dec/ed_3/
- Purvis, J. 2012. Big Game Harvest Survey Results 2001-2001 Thru 2010-2011. Austin: Texas Parks and Wildlife Dept. PWD RP W7000 0718b (7/12).
- Stevens, R.L. 1996. The feral hog in Oklahoma. Samuel Roberts Noble Foundation, Ardmore, Oklahoma.
- Swihart, R. K. and A. J. DeNicola. 1997. Public involvement, science, management, and the overabundance of deer: Can we avoid a hostage crisis? Wildlife Society Bulletin 25:382-387.
- Tate, J. 1984. Techniques in controlling wild hogs in Great Smokey Mountains National Park; Proceedings of a workshop National Park Service Research/Resources Manage. Report SER-72, Nov. 1984.
- Taylor, R. 2003. The Feral Hog in Texas. Texas Parks and Wildlife Department. Austin, Texas. PWD BK W7100-195 (10/01).
- Texas Department of State Health Services. 2012. Population Data (Census 2010) for Texas Counties, 2010. Accessed on November 5, 2012 at <http://www.dshs.state.tx.us/chs/popdat/ST2010.shtm>
- U.S. Fish and Wildlife Service. 1996. Proposed Opening Package for Hunting at Balcones Canyonlands National Wildlife Refuge.
- _____. 1997. FINAL Big Game Hunting Plan for Balcones Canyonlands National Wildlife Refuge.
- _____. 2000. FINAL Addendum to 1997 Balcones Canyonlands NWR Hunting Plan.
- _____. 2001. FINAL Comprehensive Conservation Plan and Environmental Assessment.

_____. 2012. DRAFT Big Game, Upland Game, and Migratory Bird Hunt Plan for Balcones Canyonlands National Wildlife Refuge.

Wood, G.W. and D.N. Roark. 1980. Food habits of feral hogs in Coastal South Carolina. *J. Wildl. Manage.* 44: 506-511.