SECTION 5
FISH AND WILDLIFE MANAGEMENT

5.1   PROGRAM DESCRIPTION AND OVERALL MANAGEMENT GOALS

The fish and wildlife management program at CSSA addresses a variety of topics, including the following:

- Habitat management;

- Wildlife management;

- Nuisance wildlife management;

- Fisheries management; and

- Natural resources law enforcement.

In accordance with the overall natural resources management approach of CSSA, fish and wildlife management focuses on protecting and enhancing biodiversity through ecosystem management. Virtually all natural resources management activities at CSSA affect fish and wildlife resources. Accordingly, fish and wildlife management issues and concepts have been integrated into all of the other management programs and there is significant interaction among programs.

The overall goal of the fish and wildlife management program is to manage fish and wildlife resources to maintain and enhance ecosystem functions and values in a manner that supports and is consistent with the military mission. Additional overall program goals include the following:

- Maintain healthy fish and wildlife populations;

- Maintain and enhance biodiversity;

- Use ecosystem management practices to achieve program goals; and,

- Ensure that wildlife populations do not conflict with the military mission at CSSA.

5.2   PROGRAM STATUS AND MANAGEMENT ISSUES

5.2.1   Habitat Management

Vegetation management, discussed in Subsection 4.2.1, will be a strong component of terrestrial wildlife habitat management. Specific targets of vegetation management will be the enhancement of terrestrial game and non-game habitat. Habitat management for non-game species, such as BCVI and GCWA, are discussed in Subsection 6.2. Specific projects for habitat management for game species will include:

- ***Brush management and cover enhancement.***   Brush sculpting will be combined with cover maintenance to enhance edge effect and to provide cover for target wildlife management species.

- *Prescribed burning.* Management objectives of burn plans will encompass game wildlife habitat enhancements, such as the improvement of the amount and quality of herbaceous cover.

- *Simulation of burns where prescribed burning is not possible.* Topping of low oak mottes will encourage lateral growth, providing more cover for wildlife management objectives.

- *Broadcast seeding with a native mix.* Broadcast seed mixes will include species beneficial to turkey, dove, and quail and will be applied to existing grassland areas in the North Pasture, as well as unimproved road ways. Forbs are high in protein and important to deer size, antler development, and fawn production, and will be added to seed mixes. Browse species will also be added to the seed mix. Only native species will be used to encourage better quality habitat for game and non-game species.

- *Food plot installation.* Food plots are typically used to bait and hold deer in an area. These food plots will be located near hunting blinds. Half of all food plots will be planted in early fall (with forage available during winter stress periods) and half will be planted in spring (with forage available during summer stress periods). All species planted will be native annuals and perennials.

5.2.2   Game Management

Hunting is an effective tool available to land managers to help maintain deer numbers at or below carrying capacity of the habitat, regulate sex ratios, and achieve long term goals and management objectives. A draft hunting plan (provided by the CSSA Wildlife Management Committee) along with supplemental hunting information is included in Appendix D). Specific projects for game management will include:

- *Deer spotlight census.* A crucial aspect of deer management is estimating the number of animals available for harvest. At CSSA, the Spotlight Census method will be used to estimate the number of deer available for harvest, supplemented by a daylight line survey to obtain herd composition variables (buck:doe ratio and doe:fawn ratio). Census techniques are taken from Jester and Dillard (1998) and TPWD (2005). Spotlight census methods are not intended to observe a total deer population, but rather to sample a representative portion of habitat and the number of deer found by sampling a given area of land and the density of deer found there.

   Spotlight counts will be conducted during September. Deer are generally well-distributed in their home ranges during this period of the year, and more easily identified by sex and age class (*e.g*., fawns). Each route will be counted three to four times to improve reliability of the data, and surveys will not be conducted in unfavorable weather (*e.g.,* rain, high wind) or following significant disturbance along the route (*e.g.,* mission-associated training activities, construction, or geophysical surveys involving seismograph work). The spotlight count routes are shown on Figure 5-1.

- *Bobwhite quail, turkey, and dove population estimates.* Numbers of bobwhite quail, turkey, and dove populations will be estimated through daytime flush surveys. Numbers and species of birds flushed will be recorded. Surveys will not be conducted in unfavorable weather (rain, high wind) or following significant disturbance along the

route (*e.g.*, mission-associated training activities, construction, or geophysical surveys involving seismograph work).

- **Determination of harvest numbers.**   Deer harvest numbers will be calculated by TPWD, and evaluated by the CSSA Wildlife Management Committee. Bobwhite quail, dove, and turkey harvest numbers will be determined by the CSSA Wildlife Management Committee.

5.2.3   Nuisance Wildlife Management

Nuisance wildlife at CSSA include four mammals, one insect, and three birds. The mammals that may become a nuisance include: coyotes, domestic and semi-domestic house cats, and potential occurrences of wild dogs and wild pigs, although there are no confirmed reports of the latter two at CSSA. The insect of concern is the red imported fire ants, and the birds include brown-headed cowbirds, European starlings, and grackles. The following projects are associated with nuisance wildlife management:

- **Mammal predator control.** Coyotes are documented at CSSA (SAIC 1997b; Parsons 2005). Coyotes can directly affect survival rates of young fawns and turkeys, but may be utilized as a population control check if actual deer and turkey takes are less than target harvest numbers. Coyote control will be closely coordinated with harvest projections of game wildlife. Coyote control will be achieved through contracting with a wildlife predator control specialist. Methods for control include trapping, poisoning, and shooting.

  Domestic and semi-domestic house cats are documented at CSSA (SAIC 1997b; Parsons 2005). House cats are known predators of game birds, such as bobwhite quail and dove, as well as on non-game birds including, but not limited to, BCVI and GCWA. Feeding of outdoor cats at CSSA is forbidden.

- **Red imported fire ant control.**   Fire ants are documented at CSSA (Parsons 2005), and have been associated with direct impacts to bird hatchlings, young fawns, and other ground nesting animals. Fire ants also attack and destroy seeds, fruit, shoots, and seedlings of numerous native plants. Further, fire ants have been documented to "tend" other invertebrate pests such as scales, mealy bugs, and aphids (VDAC 2003). Chemical treatment in areas where game wildlife is not consumed involves application of products, such as hyramethylon (Amdro), fenoxycarb (Award), acephate (Orthene), and chlorophyriphos (Dursban). Areas that are hunted and the game consumed should be considered agricultural areas (Drees 2002) and only pesticides certified for agricultural areas will be used.

  Chemical treatment in wildlife habitat will only be considered in areas that have an excess of 20 mounds per acre, as recommended by the University of Arkansas Red Imported Fire Ant Working Group (2005). Treatment near facility buildings will be part of the routine grounds maintenance schedule. Fire ant mound densities were not recorded in previous surveys, and such density calculations will precede any chemical applications.

- **Brown-headed cowbird (BHCO) control.** BHCOs are documented at CSSA (Parsons 2005). The BHCO is a brood parasite that lays its eggs in the nests of more than 225 other species of bird, including BCVI and GCWA. A host that has its nest

parasitized will usually raise cowbird young at the expense of its own eggs or young fledglings (Barber and Martin 1997). BCVI are especially vulnerable to BHCO because of the typical BCVI open cup nest structure. Therefore, a trapping program is essential to BCVI management.

Prior to cattle introductions, BHCO followed migratory bison herds. Because of the herd mobility, impacts to adjacent song bird nests were reduced. After cattle were introduced by Europeans, removal of bison, and subsequent pasture enclosure, BHCOs quickly became associated with sedentary cattle herds, and impacts increased to adjacent songbird populations. BHCO trapping on Fort Hood Military Reservation has reduced parasitism rates of BCVI from 90.9 percent of all BCVI nests in 1987 to 8.6 percent by 1999 (Eckrich, *et al.* 1999) and at Kerr Wildlife Management Area to less than 20 percent (TPWD 1999).

Because cattle grazing at CSSA was recently discontinued (December 2005), it is likely the BHCO population at CSSA will decrease. The BHCO population will be reevaluated during the next bird survey, and if a decrease in impact on endangered bird species is not noted, a BHCO trapping program will be considered. Trapping BHCO involves construction of a large trap specifically designed for BHCO entry, with a few live BHCOs inside the trap. BHCOs are gregarious and will be attracted by the bait birds. Traps will be operated between March 1 and June 20 (TPWD 1999) and will be located in open pastures.

- *European starling and grackle control.* European starlings and grackles are documented at CSSA (Parsons 2005). Starlings and grackles compete with native cavity nesting birds such as bluebirds, flickers, woodpeckers, purple martins, and wood ducks (Johnson and Glahn 1994). Frightening of birds through loud noises has been a proven dispersal technique (Lynch and Messmer 2000), and this control method is probably served through on-going CSSA mission activities, such as munitions testing. Another technique is exclusion of starlings from building openings larger than 1-inch (Johnson and Glahn 1994). An assessment of buildings at CSSA will be conducted to identify potential exclusion actions.

5.2.4   Fisheries Management

With the exception of stocking of fish in CSSA's ponds, fisheries management projects will be addressed by projects associated with riparian and wetlands enhancements. Appendix E includes pond management information. Restocking of fish will involve the following projects:

- *Fish population analysis.* Poor quality fishing in most small ponds is caused by unbalanced or undesirable fish populations (Texas AFS 2005). Electroshocking is a method for analyzing fish populations and involves sending an electronic current through the water which stuns fish, causing them to float to the surface. Fish species and characteristics are then assessed. Beneficial fish species in Texas ponds include channel and blue catfish, large mouth bass, bluegill, redear sunfish, hybrid striped bass, fathead minnow, and threadfin shad. Undesirable species include gizzard shad, golden shiners, crappie, and flathead catfish.

- *Pond Stocking.* Stocking has included the introduction of sterile carp for algae and aquatic weed control, as well as sport fish. Stocking rates will be determined by results

of the fish population analysis, as well as management objectives defined by the Wildlife Management Committee.

5.2.5   Natural Resources Law Enforcement

CSSA does not have in-house staffing assigned to or specifically trained for natural resources law enforcement. The entire property is surrounded by a high perimeter security fence (including common boundaries with Camp Bullis), and the perimeter fence is posted against trespass. Security personnel also routinely patrol much of the facility. CSSA is a restricted access facility; therefore, natural resource law violations are a minimal concern. The Wildlife Management Committee supervises the installation hunting program and makes recommendations to the Installation Manager on violations of internal regulations and policy. Any trespassers or others suspected of natural resources law violations are reported to local law enforcement. TPWD has the authority to enforce natural resource law violations at CSSA.

5.2.6   Injured Wildlife

Incidents of injured wildlife are referred to Wildlife Rescue and Rehabilitation, Inc., a wildlife rescue facility located in Kendalia, Texas, which maintains a 24-hour hotline (210-698-1709) for incident advice

5.3   PROJECT AND GOALS SUMMARY

Table 5.1 presents a list of fish and wildlife management projects with specific goals. Figure 5.1 shows project locations.

Table 5.1   Fish and Wildlife Management Projects

Project ID	Project Name	Description and Goals	Duration and Schedule	Priority Classification
5A	Broadcast seeding	Enhancement of dove and quail foraging habitat in existing grassland areas, primarily in the North Pasture.	2 days in March 2006	Stewardship / Class III
5B	Food Plot Installation	Establish 20 cool season food plots and 20 warm season food plots.	1 day in late February 2006 1 day in November for planting,	Stewardship / Class III
5C	Spotlight Census for Deer	Conduct annual deer spotlight surveys using established methods.	1 night occurring annually in September	Stewardship / Class III
5D	Bobwhite quail, dove and turkey population estimations	Conduct pedestrian surveys to flush quail, dove, and turkey for population estimation	2 days occurring annually in September	Stewardship / Class III
5E	Determination of harvest numbers	Provide population data to qualified TPWD staff for harvest targets.	Delivery of data to TPWD staff after census data compilation in October.	Stewardship / Class III

Table 5.1   Fish and Wildlife Management Projects (*continued*)

Project ID	Project Name	Description and Goals	Duration and Schedule	Priority Classification
5F	Mammal predator control	Contracting with a wildlife control specialist to trap, poison, or shoot predator mammals, such as coyotes and house cats. Coyote control will be contingent on utilizing coyotes to control young, sick, or less viable deer.	1 week, annual, in November 2006	Stewardship / Class III
5G	Red imported fire ant control	Evaluate threats to wildlife by fire ants and identify areas for potential action. Potential treatments include chemical application. Chemical treatment will only be considered when mound density exceeds 20 mounds per acre.	1 day evaluation in May 2006	Stewardship / Class III
5H	BHCO control	Purchase or construct one mobile BHCO trap to be placed in the North Pasture near cattle. This project will be cancelled if the BHCO population decreases before the next bird survey.	February - 1 day for trap placement. From March 1 to May 31, 45 days for trap checks. From 1 June to 20 June, 20 days for trap checks June 21, 1 day for trap demobilization	Stewardship / Class III
5I	European starling and grackle assessment	Pedestrian survey to identify buildings that would be candidates for exclusion structures.	1 day, February 2006	Stewardship / Class III
5J	Fish population analysis	Electroshocking in small ponds at CSSA for fish population analysis. Metrics will include species, size and weight, sex (if possible), and niche analysis (habit).	2 days, February 2006	Stewardship / Class III
5K	Pond Stocking	Purchase of fish stock from local vendors. Species composition will be contingent on results from the fish population analysis	3 days, February 2006	Stewardship / Class III