Appendix B

Wildlife Management Plan Strategies

This page intentionally left blank.

Wildlife Management Plan

Denver Federal Center

March 2005

GSA Contract No. GS10F0302L

GSA Work Order No. P0804JA0033

ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: (303) 830-1199

1.0 Background

1.1 Introduction

1.1.1 Purpose of the Plan

The purpose of the Wildlife Management Plan (WMP) is to establish a framework for setting priorities and provide specific management direction for wildlife resources within the Denver Federal Center (DFC) facility. Implementation of the WMP will assist the General Services Administration (GSA) in its efforts to balance wildlife preservation and management with facility operations and potential future development. Relevant information from several studies and environmental reports pertaining to the DFC and surrounding area has been reviewed and incorporated into this WMP.

1.1.2 How to Use the Plan

The WMP is a working document, which will change and evolve over time. Future planning efforts for potential facility development and management should incorporate the recommendations set forth in this WMP. As GSA implements management strategies and recommendations outlined in the WMP, and as objectives and goals change, this document should be updated to reflect those changes. This will further ensure that the document provides a foundation for long-term adaptive management of wildlife resources.

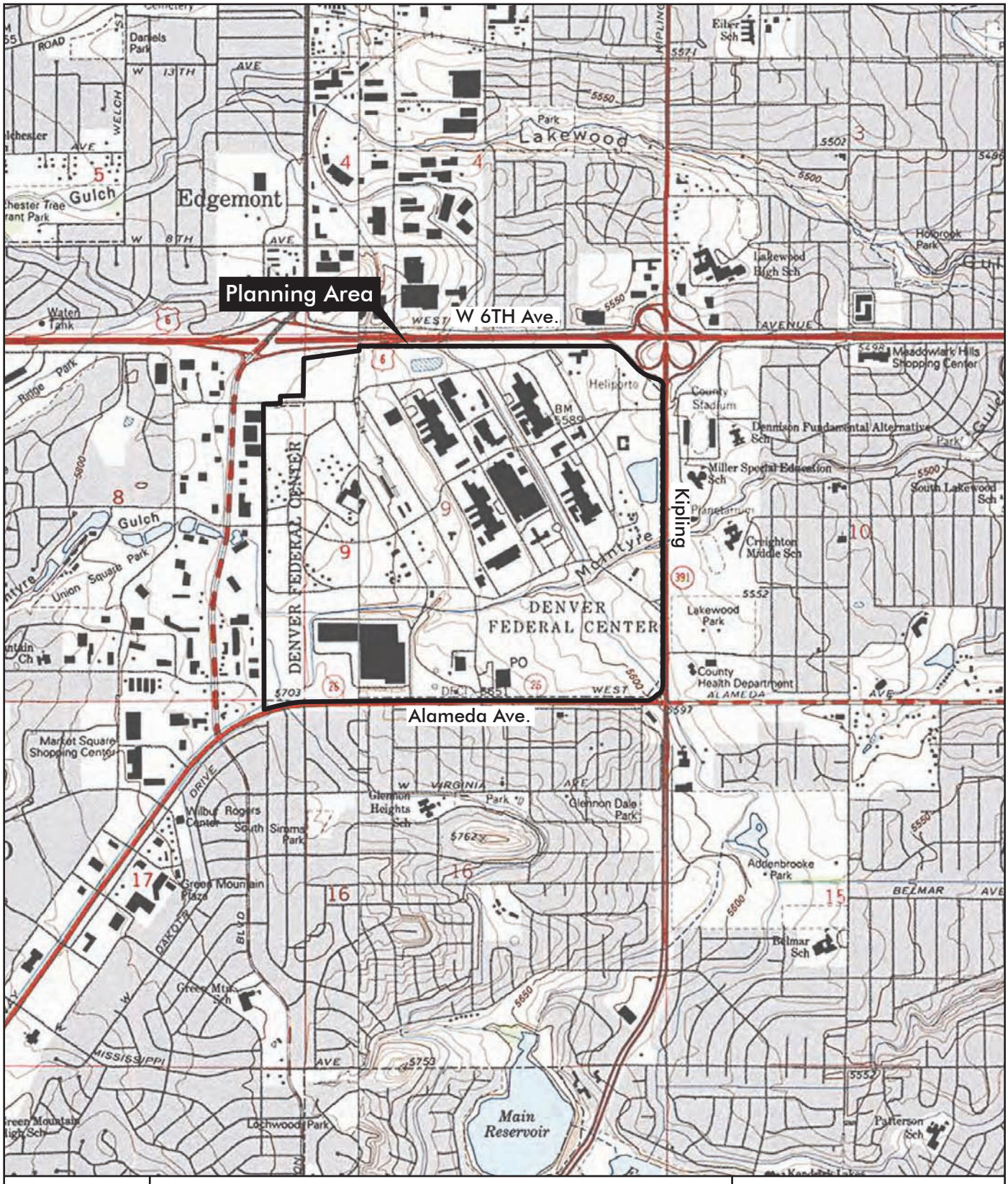
Adaptive management is an incremental approach to managing natural resources. This approach emphasizes monitoring, evaluation, and feedback. Knowledge of a resource, gained by monitoring management actions, is evaluated and incorporated into future management decisions, and planning.

1.1.3 Planning Area Description

The DFC is a 670-acre federal facility bounded on the north by West 6th Avenue, on the south by Alameda Avenue, on the east by Kipling Street, and on the west by Union Boulevard (Figure 1, page 1-2). Until the early 1940s, this area west of Denver (now Lakewood) was primarily used for dairy, vegetable farming, fruit orchards, and ranching. The site on which the DFC now sits was originally a 1,500-acre cattle ranch called Downingdale under the ownership of Major Jacob Downing.

In February 1913, the Thomas S. Hayden Realty Company purchased the ranch. The original parcel of land was added to until it encompassed 6,300 acres. Known as Hayden Ranch, this cattle ranch reached from Garrison Street west to Rooney Road and from West 6th Avenue to Alameda Avenue.

In January 1941, a portion of the ranch was approved as the site for the Denver Ordinance Plant to be operated by the Remington Arms Company for to manufacture munitions for the war. At its peak, the plant incorporated 230 buildings and employed 20,000 workers.



ERO
ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: (303) 830-1199

Denver Federal Center Wildlife Management Plan

USGS Ft. Logan and Morrison, CO Quadrangles
Jefferson County, Colorado

0 2000 4000 feet

1 Inch = 2,000 Feet

N

Figure 1
Planning Area

Prepared for: GSA
File: 9017 Figure 1.ai
July 2004

In 1945, the Denver Ordinance Plant was closed and declared surplus property. In 1946, the facility re-opened as the DFC with the Veterans Administration and the Bureau of Reclamation as the first federal tenants. In 1949, the GSA was created to manage the federal government's real estate and office needs. Since that time, GSA has operated the DFC office campus. The campus has:

- Over 4,000,000 rentable square feet of office, warehouse, lab, and special use space housed in over 90 buildings
- Over twenty-six different federal agencies on-site, which is the largest concentration of federal agencies outside of Washington, D.C.
- Over 6,000 federal employees on-site
- Large areas of undeveloped land that provide habitat for a variety of wildlife species.

1.1.4 Mission

GSA's mission is to improve the effectiveness of the federal government by ensuring quality work environments for all federal employees. GSA helps federal agencies better serve the public by offering, at best value, superior workplaces, expert solutions, acquisition services, and management policies.

The Public Buildings Service of GSA provides a full range of real estate services, from real estate brokerage, property management, and portfolio management to construction and facility repairs.

At the DFC, GSA is responsible for operating and managing all of the buildings as well as the overall site. Within the framework of its mission, GSA recognizes that open spaces at the DFC provide an opportunity for contact with nature that enhances the quality of the work environment for federal employees at the DFC site. When appropriate for the overall operation of the site, management of these open space areas should emphasize the conservation and restoration of natural communities.

1.1.5 Goals

Preliminary goals for wildlife management at the DFC provide a philosophical foundation on which to base the WMP. The goals listed below are intended to balance with GSA's mission as described above. Section 2.0 presents related objectives and management strategies for wildlife.

- Further GSA's mission of providing a quality work environment and provide added value to the DFC and its tenants through wildlife management.
- Build and maintain positive community, tenant, and agency relations through wildlife management.
- Promote the conservation and restoration of natural communities and restore degraded plant communities at the DFC where appropriate and in concert with the overall operation of the site.
- Preserve wildlife and wildlife habitat through appropriate land stewardship.
- Build and maintain positive community and agency relations through wildlife management.
- When appropriate, promote and support regional conservation efforts.

1.2 Existing Vegetation

Plants provide the basic foundation and energy source for natural communities. Plant species diversity directly supports wildlife diversity by providing food and shelter. Significant areas of the DFC that were formerly shortgrass prairie are now either weedy or disturbed grasslands.

Shortgrass areas are dominated by two low-growing native warm season grasses, blue grama and buffalo grass; western wheatgrass is also present, along with taller vegetation, including widespread prickly-pear cactus and yucca. Mixed grass (needle-and-thread, side-oats grama) and tallgrass (big bluestem, little bluestem, switchgrass) communities occur locally.

An important habitat found on the DFC includes the stands of tall trees and underlying shrubs that border McIntyre Gulch and the Agricultural Ditch, a community commonly called "plains riparian habitat." This vegetative habitat is composed of large deciduous trees such as cottonwood with an

understory of shrubs including sandbar willow, and crack willow.

Considered some of the most productive wildlife habitat in Colorado, riparian habitats are perhaps the most threatened by human development and recreation pressures. The linear systems such as McIntyre Gulch are home to many breeding songbirds and are also portions of migration corridors for large mammals such as mule deer and coyote.

Former agricultural practices coupled with more recent development activities form the basis of the structure for the vegetation communities on the DFC today. Figure 2, page 6-1, shows vegetation mapping for the DFC, and each community is briefly described below. A list of plant species that occur or are likely to occur at the DFC can be found in Table 1-1.

1.2.1 Wetland and Riparian Areas

Wetland and riparian areas at the DFC are associated with the detention ponds on the north side, Downing Reservoir, the Agricultural Ditch, and McIntyre Gulch. According to the U.S. Army Corps of Engineers (Corps), the detention ponds, Downing Reservoir, and the Agricultural Ditch are not waters of the U.S. and therefore non-jurisdictional (see U.S. Army Corps of Engineers Wetlands Determination Letter in Appendix A, page 5-1).

Cattail Wetland

Cattail wetlands at the DFC are marshes dominated by broad-leaf cattail (*Typha latifolia*). Some areas have patches of sandbar willow (*Salix exigua*) and peachleaf willow (*Salix amygdaloides*).

Cattail/Willow Wetland

Drainages that support cattail/willow wetlands are characterized by a mixture of broad-leaf cattail interspersed with patches of sandbar willow.

Sandbar Willow Upland

The sandbar willow upland is a small willow patch with an understory of upland grasses in the northwest corner of the DFC. Smooth brome (*Bromus inermis*) dominates the understory of this community.

Mixed Wetland

The mixed wetland community is found around ponds with fluctuating water levels. These wetlands have a mixture of species and include a significant component of annuals such as curly dock (*Rumex crispus)* and smartweed (*Polygonum* sp.).

Willow Wetland

Sandbar willow with an understory of redtop (*Agrostis stolonifera*) characterizes the willow wetland community. Scattered peachleaf willows, cottonwoods (*Populus deltoides*), and cattail patches add structural diversity to this community type.

Riparian

Cottonwood uplands along dry swales and depressions form the riparian community at the DFC. The understory vegetation is characterized by smooth brome and other upland grasses with occasional patches of sandbar willow.

Riparian with Wetlands

Riparian woodlands have formed along the steeply banked portions of McIntyre Gulch and its side drainages. A fringe of wetland vegetation occurs along the stream while grasses and shrubs such as chokecherry (*Prunus virginiana*) are found on the upper banks. Woody vegetation in this community includes plains cottonwood, crack willow (*Salix fragilis*), peachleaf willow, Siberian elm (*Ulmus pumila*), and Russian olive (*Elaeagnus angustifolia*).

1.2.2 Grasslands

Mixed Grasslands

The mixed grasslands at the DFC primarily consist of introduced pasture grasses such as smooth brome and crested wheatgrass (*Agropyron cristatum*). Interspersed within the dominant pasture grass areas are patches of native grasses such as blue grama (*Bouteloua gracilis*), buffalograss (*Buchloe dactyloides*), and western wheatgrass (*Agropyron smithii*). Yucca (*Yucca glauca*) occurs scattered throughout the community.

Mixed Grassland-Urban Setting

This community occurs around various buildings at the DFC. A mix of native and introduced grasses,

mowed and maintained as an urban landscape, characterize this vegetation community.

1.2.3 Other Communities

Disturbed

Disturbed communities include those areas containing a wide variety of weeds and introduced grasses such as red-stemmed filaree (*Erodium cicutarium*), field bindweed (*Convolvulus arvensis*), crested wheatgrass, and cheatgrass (*Bromus tectorum*).

Urban Landscape

This community type is characterized by Kentucky bluegrass (*Poa pratensis*) lawn with scattered ornamental trees. Landscaped areas include much of the core area at the DFC, as well as recently constructed athletic fields on the south side.

Open Water

Open water communities include Downing Reservoir and the detention ponds on the north side of the DFC.

1.3 Vegetation Management

1.3.1 Constraints

Due in large part to landscape-level habitat fragmentation and local habitat alteration, there is a lack of habitat connectivity between open space at the north and south ends of the DFC and between DFC open space and adjacent lands.

The fragmentation is compounded by: the disturbed areas present throughout the southern and western portions of the DFC. These disturbed areas are characterized by little or no vegetation; extensive patches of noxious weeds; and traffic along Alameda and West 6th Avenues that disturbs wildlife species and may preclude their occurrence near the northern and southern DFC boundaries. Additionally—

- Much of the McIntyre Gulch area consists of nonnative vegetation and has some extensive erosion problems.
- Maintaining the structural diversity of forested and grassland communities is a challenge.
- Grounds maintenance (e.g., mowing) potentially conflicts with wildlife habitat enhancement.
- Most tree and shrubs occur in landscaped areas.
- Habitat enhancement at the DFC may conflict with security concerns. For example, enhancing or expanding forested areas along McIntyre Gulch, Downing Reservoir, and the retention pond on the north side may be in conflict with security needs to keep a clear field of view.

1.3.2 Opportunities

Within the DFC, the Agricultural Ditch presents a north-south movement corridor for wildlife and McIntyre Gulch presents an east-west movement corridor. Maintaining snags (i.e., dead/decaying trees) along these corridors would provide important denning and nesting habitat for bird and small mammal species. Additionally—

- Revegetation at Retention Pond 3 could be enhanced to include wetland plantings and additional trees.
- Timing of herbicide applications could minimize impacts to grassland birds, prairie dogs, and other wildlife species.
- Establishing buffer strips along wetlands and other riparian areas where mowing is prohibited would improve wetland/riparian habitat and increase vegetative composition.
- Some open space areas, particularly near the southeast corner and south side of the DFC site, are conducive to wildlife interpretation.
- Retention of some dead, decaying vegetation can increase denning and nesting habitat.
- Alterations in mowing frequency can improve the overall structural diversity of grassland habitat available at the DFC.

Table 1-1. Plant Species Likely to Occur on the DFC and Location Based on Vegetation Communities in Figure 2.

Scientific Name	Common Name	Native/Introduced	Location
DECIDUOUS TREES			
Acer negundo	Box elder	N	Urban Landscape
Acer rubrum	Red maple	I	Urban Landscape
Acer sacharinum	Silver maple	I	Urban Landscape
Acer sacharum	Sugar maple	I	Urban Landscape
Cercis canadensis	Redbud	I	Urban Landscape
Crataegus sp.	Hawthorn	N	Urban Landscape
Elaeagnus angustifolia	Russian olive	I	Riparian
Fraxinus pennsylvanica	Green ash	N	Urban Landscape
Gleditsia sp.	Thornless honeylocust	I	Urban Landscape
Juglans nigra	Black walnut	I	Urban Landscape
Koelreuteria paniculata	Golden rain tree	I	Urban Landscape
Malus pumila var.	Apple	I	Urban Landscape
Malus sp.	Flowering crabapple	I	Urban Landscape
Populus deltoides	Plains cottonwood	N	Riparian
Populus sp.	Cottonless cottonwood	I	Riparian
Populus tremuloides	Quaking aspen	N	Urban Landscape
Prunus persica var.	Peach	I	Urban Landscape
Prunus sp.	Purple plum	I	Urban Landscape
Quercus marcocarpa	Bur oak	I	Urban Landscape
Quercus rubra	Northern red oak	I	Urban Landscape
Robinia pseudoacacia	Black locust	I	Urban Landscape
Salix exigua	Sandbar willow	N	Cattail Wetland
Salix fragilis	Crack willow	I	Cattail Wetland
Tamarix chinesis	Tamarisk salt cedar	I	Riparian
Tilia sp.	Linden/basswood	I	Urban Landscape
Ulmus pumila	Siberian elm	I	Riparian
EVERGREEN TREES			
Abies concolor	White fir	N	Urban Landscape
Juniperus chinensis var.	Pfizers	I	Urban Landscape
Picea pungens	Blue spruce	N	Urban Landscape
Pinus nigra	Austrian pine	I	Urban Landscape
Pinus ponderosa	Ponderosa pine	N	Urban Landscape
SHRUBS			
Chrysothamnus nauseosus	Gray rabbitbrush	N	Mixed Grassland
Cornus sp.	Dogwood	I	Urban Landscape
Forsythia sp.	Forsythia	I	Urban Landscape

Scientific Name	Common Name	Native/Introduced	Location
Gutierrezia sarothrae	Snakeweed	N	Mixed Grassland
Hydrangea sp.	Snowball	I	Urban Landscape
Parthenocissus inserta	Virginia creeper	N	Urban Landscape
Prunus virginiana	Chokecherry	N	Riparian
Rhus typhina	Staghorn sumac	N	Riparian
Rhus trilobata	Skunkbrush	N	Mixed Grassland
Ribes aureum	Golden current	N	Riparian
Rosa woodsii	Woods rose	N	Riparian
Rosa sp.	Rose	I	Urban Landscape
Syringa sp.	Lilac	I	Urban Landscape
HERBACEOUS VEGETATION			
Asclepias speciosa	Showy milkweed	N	Riparian
Amaranthus retroflexus	Rough pigweed	N	Mixed Grassland
Ambrosia psilostachya	Western ragweed	N	Mixed Grassland
Argemone polyanthemos	Prickly poppy	N	Mixed Grassland
Artemisia ludoviciana	Prairie sage	N	Mixed Grassland
Carduus nutans	Musk thistle	I	Mixed Grassland
Chenopium incanum	Goosefoot	N	Mixed Grassland
Cirsium arvense	Canada thistle	I	Wetlands and Riparian
Conium maculatum	Poison hemlock	I	Wetlands and Riparian
Convolvulus arvensis	Field bindweed	I	Mixed Grassland
Dipsacus sylvestris	Teasel	I	Wetlands and Riparian
Eriogonum effusum	Bushy buckwheat	N	Mixed Grassland
Glycyrrhiza lepidota	Wild licorice	N	Mixed Grassland
Grindelia squarrosa	Gumweed	N	Mixed Grassland
Gaura parviflora	Velvety gaura	N	Mixed Grassland
Lactuca serriola	Prickly lettuce	I	Mixed Grassland
Liatris punctata	Blazing star	N	Mixed Grassland
Linaria vulgaris	Butter and eggs	I	Mixed Grassland
Medicago sativa	Alfalfa	I	Mixed Grassland
Melilotus officinale	Sweet clover	I	Mixed Grassland
Oenothera strigosa	Evening primrose	N	Mixed Grassland
Onopordum acanthium	Scotch thistle	I	Mixed Grassland
Opuntia compressa	Prickly pear	N	Mixed Grassland
Psoralea tenuiflora	Scurf pea	N	Mixed Grassland
Salsola collina	Russian thistle	I	Mixed Grassland
Sisymbrium altissimum	Tumbling mustard	I	Mixed Grassland
Solidago sparsiflorum	Few-flowered goldenrod	N	Mixed Grassland

Scientific Name	Common Name	Native/Introduced	Location
Tragopogon dubius	Salsify	I	Mixed Grassland
Trifolium hybridum	Clover	I	Mixed Grassland
Typha latifolia	Cattail	N	Cattail Wetlands
Verbascum thapsus	Common mullein	I	Mixed Grassland
Yucca glauca	Yucca	N	Mixed Grassland
GRASSES, SEDGES, AND RUSHES			
Agropyron cristatum	Crested wheatgrass	I	Mixed Grassland
Agropyron repens	Quack-grass	I	Mixed Grassland
Agropyron smithii	Western wheatgrass	I	Mixed Grassland
Bouteloua gracilis	Blue grama	N	Mixed Grassland
Bromus inermis	Smooth brome	I	Mixed Grassland
Bromus tectorum	Cheatgrass	I	Mixed Grassland
Buchloe dactyloides	Buffalo grass	N	Mixed Grassland
Dactylis glomeratus	Orchard grass	I	Mixed Grassland
Eleocharis macrostachya	Large-spiked spike-rush	N	Wetlands
Elymus canadensis	Canada wild-rye	I	Wetlands
Phalaris arundinacea	Reed canary-grass	I	Wetlands
Poa pratensis	Kentucky bluegrass	I	Urban Landscape
Scirpus sp.	Bulrush	N	Wetlands
Sporobolus cryptandrus	Sand dropseed	N	Mixed Grassland
Stipa viridula	Green needle-grass	N	Mixed Grassland

1.4 Existing Wildlife Resources

Due in large part to landscape-level habitat fragmentation and local habitat alteration, the overall diversity of wildlife at the DFC is expected to be low. However, management actions (e.g., restoration) effected at the community level may increase the overall variety and number of wildlife species at the DFC.

1.4.1 Mammals

The DFC contains some large areas of open habitat and remnant native vegetation. This provides a diversity of habitats that attract numerous mammal species. More than 40 species of mammals potentially occur on the DFC facility (NDIS 2004 and Fitzgerald et al. 1994). This diverse mammal assemblage that includes large ungulates (e.g., mule deer), small mammals (e.g., cottontail rabbits and prairie dogs), and carnivores (e.g., coyote) contribute to the overall health and function of the wildlife community.

Numerous mouse and vole species occur on the property, of which a few get into buildings presenting a potential sanitation and health concern. The most likely species to inhabit human dwellings are two non-native species, the Norway rat (*Rattus norvegicus*) and the house mouse (*Mus musculus*).

Other mammal species that may cause concern are the larger carnivore species including stripped skunks (*Mephitis mephitis*), raccoons (*Procyon lotor*), coyotes (*Canis latrans*), and red fox (*Vulpes vulpes*). Stripped skunks and raccoons are mainly a concern because of the possible transmission of rabies and their ability to get into buildings and trash containers. Larger carnivores such as coyote can be a threat or a perceived threat.

1.4.2 Raptors

Raptors, specifically the red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), great horned owl (*Bubo virginianus*), barn owl (*Tyto alba*), and the eastern screech owl (*Otus asio*), potentially nest on, or in the vicinity of the DFC property.

Little is currently known about raptors nesting on the property, although great horned owls are known to have nested periodically on the DFC for numenrous years. An active Swainson's hawk nest has been identified in the northeast corner of the DFC for several years and during 2004 a successful Swainson's nest sites was located within a new nest in a large cottonwood along the northern property boundary.

Other raptors frequently forage on the DFC during migration and summer breeding seasons and several raptors have been observed on the property in winter, possible roosting. Red-tailed hawks were commonly observed foraging over the property in 2004 and a Cooper's hawk was observed perched in a tree in the southwest portion of the facility in June 2004. Any of these raptors nesting or foraging on the property would benefit DFC in helping control rodents and birds that can present health and sanitation hazards. In particular, red-tailed hawks are efficient predators of prairie dogs and other small rodents and great horned owls nesting or foraging on the DFC can suppress pigeon populations by directly preying on birds and by the constant threat and harassment posed by the owl's presence.

1.4.3 Birds

More than 315 species of birds have been observed in Jefferson County (NDIS 2004). Many of these species could occur on DFC property. All but three of these species are protected by the Migratory Bird Treaty Act (MBTA). It is these three species of unprotected birds - the house sparrow (*Passer domesticus*), the European starling (*Sturnus vulgaris*) and the rock dove or pigeon (*Columba livia*) - that generally cause the most problems within urban/commercial areas. House sparrows and starlings will nest on buildings and can create unsanitary conditions.

Pigeons thrive in human-made environments and are a bird pest problem on the DFC. This communal nesting and roosting species gathers in large groups wherever food and perching habitat is available. Concentrating in large groups and constantly using the same perches and roost sites, these birds tend to

defecate in large accumulations. Pigeons are a constant health problem, carrying or transmitting diseases such as encephalitis, histoplasmosis, cryptococcosis, and salmonella.

A few species of native birds can also pose health and sanitation problems, due to their behavior of nesting on human-made structures. These include American robin (*Turdus migratorius*), house finch (*Carpodacus mexicanus*), and barn swallows (*Hirundo rustica*).

1.4.4 Reptiles and Amphibians

Seventeen species of reptile and amphibian potentially occur on the DFC. Most of these species are uncommon and secretive, however, several species are common in the Lakewood area and likely to be encountered on the DFC. These species include the wandering garter snake (*Thamnophis elegans*), the western plains garter snake (*Thamnophis radix*), western rattlesnake (*Crotalus viridis*), bullsnake (*Pituophis melanoleucus*), northern leopard frog (*Rana pipiens*) and bullfrog (*Rana catesbeiana*).

Most of the snakes, particularly the bullsnake, are beneficial and help control rodent populations that could be a sanitation concern. However, the rattlesnake could pose a safety hazard if it occurs in areas where humans can come into contact with it. All snakes need cool, damp shelters and may take residence within debris piles under and inside buildings.

The bullfrog can also be an ecological hazard. This non-native species is large and voracious and can deplete populations of other frogs, fish and even ducklings.

Table 1-2. Wildlife Species Likely to Occur on the DFC and Habitat Based on Vegetation Communities in Figure 3.

Scientific Name	Common Name	Habitat
MAMMALS		
Canis latrans	Coyote	Mixed Grassland
Cynomys ludovicianus	Black-tailed prairie dog	Mixed Grassland
Lepus californicus	Black-tailed jackrabbit	Mixed Grassland/Urban Landscape
Mephitis mephitis	Striped skunk	Mixed Grassland/Urban Landscape
Microtus pennsylvanicus	Meadow vole	Mixed Grassland/Riparian/Wetland
Mus musculus	House mouse	Mixed Grassland/Urban Landscape
Odocoileus hemionus	Mule deer	Mixed Grassland/Urban Landscape
Odocoileus virginianus	White-tailed deer	Riparian/Wetlands
Ondatra zibethicus	Muskrat	Riparian/Wetlands
Pemoyscus maniculatus	Deer mouse	Mixed Grassland/Urban Landscape
Procyon lotor	Raccoon	All (except Open Water)
Rattus norvegicus	Norway rat	Riparian/Urban Landscape
Scirus niger	Fox squirrel	Riparian/Urban Landscape
Spermophilus tridecemlineatus	Thirteen-lined ground squirrel	Mixed Grassland
Sylvilagus audubonii	Desert cottontail	Mixed Grassland/Urban Landscape
Sylviagus floridanus	Eastern cottontail	Mixed Grassland/Urban Landscape
Vulpes vulpes	Red fox	All (except Open Water)
BIRDS		
Accipiter striatus	Sharp-shinned hawk	Riparian/Urban Landscape
Actitis macularia	Spotted sandpiper	Mixed Wetland
Aegolius acadicus	Saw-whet owl	Riparian
Agelaius phoeniceus	Red-winged blackbird	Cattail and Cattail/Willow Wetlands
Aux sponsa	Wood duck	Open Water/Mixed Wetland/Riparian
Anas acuta	Pintail	Open Water
Anas clypeata	Northern shoveler	Open Water
Anas crecca	Green-winged teal	Open Water
Anas cyanoptera	Cinnamon teal	Open Water
Anas discors	Blue-winged teal	Open Water
Anas platyrhynchos	Mallard	Open Water
Anas strepera	Godwall	Open Water
Anser albifrons	White-fronted goose	Open Water
Aquila chrysaetos	Golden eagle	Mixed Grasslands
Ardea herodias	Great blue heron	Mixed Wetland/Open Water
Aythya affinis	Lesser-scaup	Open Water
Aythya collaris	Ring-necked duck	Open Water
Aythya marila	Greater-scaup	Open Water

Scientific Name	Common Name	Habitat
Bonbycilla cedroum	Cedar waxwing	Urban Landscape
Branta canadensis	Canada goose	Urban Landscape/Mixed Grassland/Open Water
Bubo virginianus	Great horned owl	Riparian/Urban
Bucephala albeola	Bufflehead	Open Water
Bucephala clangula	Common goldeneye	Open Water
Buteo cooperii	Cooper's hawk	Riparian
Buteo jamaicensis	Red-tailed hawk	Mixed Grassland/Riparian
Buteo striatus	Sharp-shined hawk	Urban Landscape/Riparian
Buteo swainsoni	Swainson's hawk	Mixed Grassland/Riparian
Carduelis pinus	Pine siskin	Riparian/Mixed Wetland
Carduelis tristis	American goldfinch	Urban Landscape/Willow Wetlands
Carpodacus mexicanus	House finch	All except Open Water
Cathartes aura	Turkey vulture	Mixed Grassland
Charadrius vociferus	Killdeer	Mixed Grassland/Mixed Wetland
Chordeiles minor	Common nighthawk	All except Open Water
Colaptes auratus	Common flicker	All except Open Water
Corvus brachyrhnchos	Common crow	All except Open Water
Cyanocitta cristata	Blue jay	All except Open Water
Dendrocopos pubescens	Downy woodpecker	Riparian/Urban Landscape
Dendrocopos villosus	Hairy woodpecker	Riparian/Urban Landscape
Dendroica cornata	Yellow-rumped warbler	Riparian
Dendroica magnolia	Magnolia warbler	Riparian
Dendroica pensylvenica	Chestnut-sided warbler	Riparian/Urban
Dendroica petechia	Yellow warbler	Riparian/Urban
Euphagus cyanocephalus	Brewer's blackbird	Mixed Grassland/Riparian
Falco sparverius	American kestrel	Mixed Grassland/Riparian
Fluca americana	American coot	Open Water
Hirundo rustica	Barn swallow	Urban Landscape
Icterus galbula	Northern oriole	Riparian
Junco caniceps	Grey-headed junco	Urban Landscape/Mixed Grassland
Junco hyemalis	Dark-eyed junco	Urban Landscape/Mixed Grassland
Lanius excubitor	Northern shrike	Mixed Grassland
Larus argentatus	Herring gull	All
Larus californicus	California gull	All
Larus delawarensis	Ring-billed gull	All
Lophodytes cucullatus	Hooded merganser	Open Water
Megaceryle alcyon	Belted kingfisher	Riparian/Open Water
Mergus merganser	Common merganser	Open Water

Scientific Name	Common Name	Habitat
Molothrus ater	Brown-headed cowbird	Mixed Grassland/Urban Landscape
Myadestes towndsendi	Townsend's solitaire	Riparian
Nycticorax nycticorax	Black-crowned night heron	Wetlands
Otus asio	Eastern screech owl	Riparian
Oxyura jamaicensis	Ruddy duck	Open Water
Parus atricapillus	Black-capped chickadee	Riparian/Urban Landscape
Passer domesticus	House sparrow	Urban Landscape
Passerculus sandwichensis	Savannah sparrow	Mixed Grassland/Riparian
Petrochelidon pyrrhonota	Cliff swallow	Riparian
Phalacrocorax auritus	Double-crested cormorant	Open Water
Phalaropus fulicarius	Red phalarope	Open Water
Pica pica	Black-billed magpie	All except Open Water
Picoides pubescens	Downy woodpecker	Riparian/Urban Landscape
Piranga ludoviciana	Western tanager	Riparian/Urban Landscape
Podiceps auratus	Horned grebe	Open Water
Podiceps nigricollis	Eared grebe	Open Water
Podilymbus podiceps	Pied-billed grebe	Open Water
Polioptila caerulea	Blue-grey gnatcatcher	Riparian
Quiscalus quiscula	Common grackle	Mixed Grassland/Urban Landscape
Regulus satrapa	Golden-crowned kinglet	Riparian
Riparia riparia	Bank swallow	Riparian
Sayornis phoebe	Eastern phoebe	Riparian
Sayornis saya	Say's phebe	Mixed Grassland
Seirus aurocapillus	Overnbird	Riparian/Urban Landscape
Sialia mexicana	Western bluebird	Mixed Grassland
Sitta canadensis	Red-breasted nuthatch	Riparian/Urban Landscape
Sitta carolinensis	White-breasted nuthatch	Urban Landscape/Riparian
Spizella arobrea	American tree sparrow	Riparian
Spizella passurina	Chipping sparrow	Mixed Grassland/Urban Landscape
Steganopus tricolor	Wilson's phalarope	Open Water
Stelgidopteryx serripennis	Northern rough-winged swallow	Riparian
Sturnella neglecta	Western meadowlark	Mixed Grassland
Sturnus vulgaris	Starling	All
Tachycineta thalassina	Violet-green swallow	Riparian
Tachycineta bicolor	Tree swallow	Riparian
Toxostoma rufum	Brown thrasher	Riparian
Tringa flavipes	Lesser yellowlegs	Mixed Wetland
Trinbga solitaria	Solitary sandpiper	Mixed Wetland

Scientific Name	Common Name	Habitat
Troglodytes aedon	House wren	Riparian/Urban Landscape
Turdus migratoris	American robin	All except Open Water
Tyrannus tyrannus	Eastern kingbird	Mixed Grassland
Tyrannus verticalis	Western kingbird	Mixed Grassland
Vermivora celata	Orange-crowned warbler	Cattail Willow Wetlands
Xanthocephalus xanthocepalus	Yellow-headed blackbird	Cattail and Cattail Willow Wetlands
Zenaida macroura	Mourning dove	All except Open Water
REPTILES		
Coluber constrictor flaventris	Eastern yellow-bellied racer	Mixed Grassland
Coluber constrictor mormon	Western yellow-bellied racer	Mixed Grassland
Pituophis mealnoleucus sayi	Bullsnake	Mixed Grassland
Thamnophis radix hayeni	Western plains garter snake	Mixed Grassland
Thamnophis sirtalis	Common garter snake	Mixed Grassland
AMPHIBIANS		
Ambystoma tigrinum	Tiger salamander	Riparian/Open Water
Rana catesbiana	Bullfrog	Riparian/Open Water
Rana pipiens	Northern leopard frog	Riparian/Open Water

2.0 General Management

2.1 Management Direction

The following sections present goals, objectives, and strategies; resource management areas for the DFC; and general prescriptions for wildlife management at the DFC. The sections provide the basis for the species profiles in Section 3.0.

2.1.1 Goals, Objectives, and Strategies

Goals, objectives, and strategies are recommendations dependant upon funding and overall site operations. The strategies that appear in this section should be considered a suite of ideas that may be used to support the overall goals and objectives of wildlife management at the DFC.

Goal: Further GSA's mission of providing a quality work environment and provide added value to the DFC and its tenants through wildlife management.

Objective: Protect and manage open space for wildlife conservation, observation, and education opportunities.

Strategy: Establish management areas that distinguish between zones suitable for wildlife and those focused on providing a safe, healthy, and effective work environment.

Strategy: Maintain areas of wildlife habitat accessible to tenants where appropriate.

Strategy: Install interpretive signs along trails and at picnic areas.

Strategy: Educate tenants on the dangers of feeding wildlife and the ethics of wildlife viewing.

Goal: Promote the conservation and restoration of natural communities and restore degraded plant communities at the DFC where appropriate and in concert with the overall operation of the site.

Objective: Protect and enhance important wildlife habitat and the movement corridor along McIntyre Gulch.

Strategy: Identify habitat enhancement needs and opportunities.

Strategy: Continue habitat enhancement programs such as restoring native plant communities, improving wetlands, or enhancing cottonwood regeneration.

Strategy: Maintain standing dead (snags) and down cottonwood trees that do not present a public safety hazard, create aesthetic complaints, or inhibit drainage.

Strategy: Enhance natural habitat or create artificial habitat on a species-specific basis to encourage species of concern (e.g., barn owls, bank swallows, cavity-nesting birds, and bats).

Strategy: Maintain migrant waterfowl stopover habitat.

Strategy: Coordinate habitat enhancement projects with neighboring landowners (e.g., City of Lakewood) who may be interested in or affected by the project.

Strategy: Consult with the Colorado Division of Wildlife (CDOW) during the planning of any significant wildlife habitat enhancement projects.

Goal: Preserve wildlife and wildlife habitat through appropriate land stewardship.

Objective: Integrate wildlife population and habitat protection and enhancement activities into other resource management objectives and actions.

Strategy: Protect wildlife from short-term activities such as utilities construction or maintenance through cooperation with the appropriate agencies and contractors.

Strategy: Use seasonal closures to protect sensitive wildlife species where appropriate (e.g., voluntary temporary closure of raptor nesting areas).

Strategy: Identify weed management priorities annually that benefit wildlife habitat.

Strategy: Identify and provide natural and/or artificial habitat on a species-specific basis for wildlife species to assist with Integrated Pest Management (e.g., bat roosts to assist in controlling mosquitoes).

Goal: Build and maintain positive community and agency relations through wildlife management.

Objective: Integrate a non-lethal approach to wildlife management at the DFC.

Strategy: Implement an aggressive outreach program for DFC employees and contractors regarding living with wildlife in urban areas.

Strategy: Develop protocols and Best Management Practices to reduce and minimize human/wildlife conflicts.

Goal: When appropriate, promote and support regional conservation efforts.

Objective: Inventory wildlife populations that use the DFC and monitor changes in their frequency, distribution, and behavior.

Strategy: Coordinate wildlife surveys and studies with other agencies to share information and efforts (City of Lakewood).

Strategy: Encourage and conduct research that targets inventories of vertebrate and invertebrate wildlife species and assess impacts (e.g., recreation, commercial and regional transportation development, domestic animals) on wildlife populations and habitat.

Strategy: Coordinate efforts with DFC employees to make sure that wildlife sightings and information are shared.

Strategy: Maintain a wildlife database as a usable repository for information and for analyses and make results available to the public and land managers.

2.1.2 Resource Management Areas

In attempting to balance wildlife management with facility use, GSA established ten management areas (Figure 4, page 6-3) that describe the emphasis of use and wildlife management within the DFC. The areas distinguish between zones suitable for wildlife resource protection or restoration and zones where operations do not support protection or restoration. Significant factors influencing the management areas are:

- The protection of valuable wildlife habitat and the movement corridor along McIntyre Gulch.
- Maintenance of black-tailed prairie dogs in appropriate areas on the DFC site.
- The desire to manage human-wildlife conflicts on the DFC site.
- The potential of restoring both upland and riparian areas.
- The location of potential future development on the DFC.

With these factors in mind, each management area is discussed below in terms of the portion of the DFC it encompasses, wildlife attributes, and management activities.

Management Area 1

Encompasses: The area bounded by Main Avenue on the south, North Avenue on the north, First Street on the east, and 7th Street on the west.

Wildlife Attributes: Short, succulent grass make landscaped areas ideal for geese. Some debris piles provide habitat for rabbits.

Management Activities: Should concentrate on education and especially on mitigating conflicts between wildlife and facility personnel. Remove debris piles. Goose nest construction should be discouraged. Prairie dogs should not be tolerated.

Management Area 2

Encompasses: The area bounded by McIntyre Gulch on the south, North Avenue on the north, 7th Street on the east, and the area just west of Building 85 and the USGS Lab on the west.

Wildlife Attributes: Storage lot on south side provides habitat for rabbits. Black-tailed prairie dogs have the potential to spread into this management area.

Management Activities: Should concentrate on debris pile removal. Monitor potential expansion of prairie dogs into management area. Potential future development limits overall activities for wildlife enhancement. Prairie dog town may need to be removed depending on impacts to underground utilities adjacent to buildings.

Management Area 3

Encompasses: Capped landfill in southwest corner and west side of DFC facility.

Wildlife Attributes: Several black-tailed prairie dog towns. Large trees in the southwest corner provide nesting and denning habitat. Debris piles and maintenance facility provide extensive habitat for rabbits.

Management Activities: Should concentrate on retention of large trees. Prairie dog town in the southwest corner may need to be removed to allow for effective overall operation of the site and potential redevelopment.

Management Area 4

Encompasses: Area includes McIntyre Gulch and small associated tributaries.

Wildlife Attributes: Large trees provide nesting and denning opportunities.

Management Activities: Should concentrate on retention of large trees along gulch and on preventing bank erosion. The effectiveness of this management area as a wildlife corridor can be enhanced by increasing and maintaining the buffer area along McIntyre Gulch.

Management Area 5

Encompasses: Area includes potential future development areas adjacent to Post Office and Building 810. Athletic fields and large area of grassland also included.

Wildlife Attributes: A small prairie dog town and portion of a larger town are included within this management area. Grassland area provides nesting and foraging habitat for songbirds.

Management Activities: Prairie dog expansion should be contained to allow for effective overall operation of the site and potential redevelopment.

Management Area 6

Encompasses: Area bounded by Main Avenue to the north, Alameda Avenue to the south, Kipling Street to the east, and 5th Street to the west.

Wildlife Attributes: Area largely occupied by prairie dog towns. Agricultural Ditch bisects management area. Coyote den located in agricultural ditch. Large trees along agricultural ditch and McIntyre Gulch provide denning, nesting, and roosting habitat.

Management Activities: Should concentrate on retention of large trees along Agricultural Ditch and McIntyre Gulch. Noxious weed management (e.g., Canada thistle) is important.

Management Area 7

Encompasses: Downing Reservoir, adjacent uplands, and an area extending south to McIntyre Gulch.

Wildlife Attributes: Large water source attractive to waterfowl.

Management Activities: Reservoir margins could be enhanced with wetland plantings. Upland vegetation south of reservoir could be enhanced to maintain connectivity to McIntyre Gulch.

Management Area 8

Encompasses: Large area of grassland in the northeast corner of DFC site

Wildlife Attributes: Large trees for denning and nesting. Active Swainson's hawk nest identified and mapped.

Management Activities: Potential to restore area to native grasses. Could enhance immediate foraging opportunities for nesting raptor.

Management Area 9

Encompasses: Central portion of north side of DFC site between North and 6th Avenues.

Wildlife Attributes: Retention pond provides water source attractive to waterfowl.

Management Activities: Vegetation surrounding retention pond could be enhanced to provide additional cover for waterfowl and other wildlife.

Management Area 10

Encompasses: Main entrance and immediate area surrounding Buildings 1 and 1A.

Wildlife Attributes: Prairie dog town occupies majority of area. Conifer trees provide cover for a variety of songbirds.

Management Activities: Prairie dog town may need to be removed depending on impacts to underground utilities adjacent to buildings.

2.2 General Prescriptions

The following management prescriptions for reptiles and amphibians, birds, mammals, and injured wildlife are presented as overall management programs that address broad-based issues and can be implemented across the DFC. When site-specific management prescriptions are appropriate (e.g., specific threatened and endangered species) they should be used on a case-by-case basis. Threatened and endangered species are included in this section to facilitate Environmental Assessment (EA) and Environmental Impact Statement (EIS) preparation under the National Environmental Policy Act (NEPA)

2.2.1 Threatened, Endangered, and Sensitive Species

The best way to address threatened, endangered and sensitive species is to first identify any species that could occur on the DFC, based on habitat affinities and the distribution of the species. This step has been done in the development of this document. The next step is to identify potential habitat for any threatened, endangered and sensitive species that could occur on the facilities. Once potential habitat is identified it may be necessary to perform surveys to determine the presence or absence of the species in order that management guidelines can be developed to address each individual situation.

Black-Tailed Prairie Dog

Due to population declines across its historical range, the black-tailed prairie dog was proposed for listing as a threatened species under the Endangered Species Act (ESA). On February 4, 2000, the U.S. Fish and Wildlife Service (Service) issued a 12-month petition finding, which concluded that the listing of the black-tailed prairie dog as threatened is warranted, but an immediate proposal to list is precluded by other, higher priority actions. This finding established the black-tailed prairie dog as a candidate species for federal listing for protection under ESA.

An updated evaluation of the best available scientific information has led the Service to determine that the black-tailed prairie dog is not likely to become an endangered species within the foreseeable future and no longer meets the definition of threatened under the ESA. Based on this determination, the prairie dog will be removed as a candidate for listing under the ESA. A finding that the black-tailed prairie dog does not warrant listing was published in the Federal Register on August 18, 2004 (FR 69 no, 159). This eliminates the requirement that any federal action, including permitting actions, consider the prairie dog as a listed species under the ESA; however, state and

local regulations and guidelines pertaining to prairie dogs remain in place (see Section 3.1).

Preble's Meadow Jumping Mouse

The DFC is within the Denver metropolitan area block clearance for the Preble's meadow jumping mouse (*Zapus hudsonius preblei*). The establishment of the block clearance zone is based on the likely absence of the Preble's within the area, due to negative trapping surveys and the presence of residential, commercial, and other development.

The Service's Colorado Field Office has eliminated the need for individuals or agencies to coordinate with the Service regarding Preble's if their activities occur within the block clearance zone.

Black-footed Ferret

The black-footed ferret is listed as endangered under the ESA. Black-footed ferrets are associated with prairie dog colonies where they depend on this species for food and shelter. Over the past century, prairie dog distribution has been substantially reduced due to habitat loss, plague and poisoning practices. Due to the loss of prairie dog habitat, the black-footed ferret has nearly been completely extirpated. Current the Service's criteria for defining potential black-footed ferret habitat consist of any black-tailed prairie dog town or complex of greater than 80 acres (USFWS 1989).

A block clearance area where black-footed ferret surveys are not required has been established for parts of the Denver-Boulder metropolitan area. The DFC falls within this clearance area.

2.2.2 Reptiles and Amphibians

As of January 2001, all but three of Colorado's native species or subspecies of reptiles and amphibians are classified as "nongame wildlife." Three species, including the larval form of the tiger salamander, the western (prairie) rattlesnake, and the common snapping turtle are classified as "game" species, and are regulated under Chapters 1 (fishing) and 3 (small game) of the Colorado Wildlife Commission Regulations. All other reptiles and amphibians are classified as non-game wildlife and are protected by state law.

According to the CDOW it is legal to kill rattlesnakes only during an open season or when necessary to protect life or property, provided the method used is in accordance with local ordinances. Bullfrogs are non-native to Colorado and are classified as a game animal with a year-round open season.

Regulations for Game Species

Tiger Salamander (larval form)

Season: Year round.

Daily bag and possession limit:

- The daily bag and possession limit for the gilled (larval) form of salamander is 50 animals less than 5 inches in length. The possession of adult (terrestrial) tiger salamanders is limited to four animals, subject to the same provisions as apply to other herptile species listed in Chapter 10, #1000, a, 6.

License and manner of take: May be taken by fishing, by hand, traps and the use of seines and nets by any person with a valid standard or commercial Colorado fishing license.

Bullfrog

Season: Year round.

Daily bag and possession limit: Unlimited.

License and manner of take: Bullfrogs may be taken by anyone in possession of a valid Colorado fishing license by means of fishing, archery, by hand, the use of gigs, and nets. Artificial light may be used while frogging.

Snapping Turtle

Season: Statewide, from April 1 through October 31.

Daily bag and possession limit: Unlimited. License and manner of take: Snapping turtles may be taken by anyone in possession of a valid Colorado fishing license or small game hunting license, and by any method not specifically prohibited by regulation or law.

Western or Prairie Rattlesnake

Season: June 15 through August 15.

Daily bag and possession limit: Daily bag limit - 3, possession limit - 6.

License and manner of take: Prairie rattlesnakes may be taken by anyone in possession of a valid Colorado small game hunting license, and by any method not specifically prohibited by regulation or law.

NOTE: Colorado State Statutes provide that "any person may kill rattlesnakes when neccessary to protect life or property"[33-6-107(9), C.R.S.].

The only poisonous snake in the Lakewood area is the western rattlesnake. There are six basic ways to distinguish a poisonous snake in Colorado from non-poisonous snakes:

- Rattles at the end of the tail.
- Fangs in addition to rows of teeth.
- Facial pits between the nose and eyes.
- Vertical and elliptical pupils that may look like thin lines in bright light (non-poisonous snakes have round pupils).
- A single row of scales between the vent and the tip of the tail (non-poisonous snakes have two rows of scales).
- Broad triangular head and narrow neck.

There are currently no frightening devices or legal toxicants or fumigants available to control snakes. The two basic strategies to avoid problems with snakes, rattlesnakes and other poisonous snakes in particular, are Prevention and Removal.

Prevention. Three basic methods can be used to discourage snakes from entering into buildings or other areas of human activity:

- Eliminate cool, damp areas where snakes hide; remove brush and rock piles, keep shrubbery away from foundations and cut tall grass in human activity areas.
- Control prey populations (primarily rodents) in human activity areas.
- To prevent snakes from entering buildings and crawl spaces, seal all openings ¼-inch or larger with mortar, caulking compound, or ⅛-inch hardware cloth. Check for access points around doors, windows, waterpipes, electrical lines, etc.

Removal. When snakes seek shelter in places they don't belong it becomes necessary to remove the snake by one of the following humane methods:

- Non-poisonous snakes can be swept into a large bucket with a broom than released a distance away from buildings.
- Damp burlap sacks covered with dry sacks to retain moisture are attractive denning sites when placed along a wall where snakes have invaded. Check bags daily and remove with a shovel.
- Glue boards or glue trays are effective to remove snakes from buildings (Knight 1986). These boards are made of heavy cardboard or plastic rectangles coated with a tacky substance that traps snakes as they move across them. Fasten about 144-square inches of glue boards to a ¼- x 24- x 18-inch piece of plywood and place the plywood along a wall where snakes are likely to cross. Remove snakes as soon as possible. To release captured snakes harmlessly, pour vegetable oil over the animal to break down the glue.

2.2.3 Birds

The primary issues concerning birds are:

- Geese nesting in the Core Area of the DFC
- Pigeons nesting and roosting on buildings and other structures.
- Passerine birds (native and non-native songbirds) nesting on buildings and structures
- Woodpeckers drumming on and excavating holes in buildings

The following sections briefly describe management actions to address general management issues with

birds. Since Canada geese and pigeons present more of a management challenge at the DFC, they are addressed in more detail in Sections 3.8 and 3.9 respectively.

Native Songbirds

Few problems currently exist concerning native songbirds. However, some species will nest on man-made structures and may pose a health or safety concern. All native songbirds are protected by the MBTA and by state regulations. Basically it is unlawful to willfully damage any nest or their eggs, or to harass any wildlife. The following management actions provide a step-by-step prescription for addressing songbird issues in the most humane and least disruptive manner possible:

- Eliminate attractive substrate from areas where nesting birds could be a concern.
- When birds build nests in areas where they're not wanted, but present no immediate health or safety concern, birds can be allowed to fledge nestlings and once birds have left the nest, the nest should be immediately removed and actions taken that decrease the attractiveness of that nest site.
- When bird nests pose an immediate health or safety concern, nests should be immediately removed (prior to egg laying is ideal) and actions taken that decrease the attractiveness of that nest site. Active nest sits require a Nest Depredation Permit from the Service.
- Educate employees not to feed birds or any other wildlife. Feeding songbirds will attract these species into areas that may pose a health or safety concern. Also educate employees to maintain sanitary conditions by cleaning up food and trash from outdoor eating areas and placing trash and other refuse in proper closed receptacles.

The best way to address songbird issues is to eliminate attractive substrate from areas where nesting birds could be a concern. Birds like to build nests in protected areas on surfaces that provide a sturdy base to support their nest. Common structures for building nests include stairway structures, open I-beams, gutters and downspouts, heat ducts, and under eves and other structures that provide overhead cover. Eliminating attractive nesting substrate can be accomplished by complete removal or enclosure of attractive substrates, or the addition of structural features that decreases that attractiveness of the substrate. Possible structural features that can be attached to existing buildings include adding smooth surfaced curves to eaves, or stringing monofilament from eves and overhangs to discourage bird use.

Non-native Songbirds

Most problems with birds are caused by three species of non-native birds: European starling, house sparrow, and pigeon. These species are not protected under the MBTA; however, they are protected by state statute in Colorado. Again, under most state statutes, these birds can be removed when causing health and safety concerns or damage to property.

Starlings and sparrows are currently not much of a concern on the DFC and most issues involving these two species can be addressed with the prescriptions under *Native Songbirds*. Pigeons are a concern on the DFC and require constant management and control activities. They are addressed separately in Section 3.9.

Woodpeckers

Woodpeckers present a separate management challenge at the DFC where the birds excavate holes in buildings; particularly Building 20, which is has stucco as siding. In Colorado and at the DFC, the northern flicker is the most abundant woodpecker species. It can be found drumming on wood siding, eaves and shingles of buildings. The birds are territorial; drumming marks their territories and attracts mates. Woodpeckers also drill holes for nesting and roosting. As with other species, the northern flicker is protected by law. GSA can employ a number of different techniques to discourage flicker activities:

- Provide an alternative drumming site by nailing two boards together at just one end (producing resonation) and hang on a secure surface.

- Place lightweight plastic mesh netting, at least 3 inches, from affected wood or stucco areas.
- Nail plywood over the excavated area.
- Hang aluminum foil strips, colored plastic streamers, hawk silhouettes or mirrors near the affected wood or stucco areas.
- Eliminate any ledges or cracks on which the woodpecker is able to stand while drumming.
- Eliminate all feeding of birds.
- As a last resort, a special permit can be obtained from the Service to destroy the birds.

2.2.4 Mammals

The primary issues concerning mammals at the DFC include the following:

- Large carnivores (coyotes) presenting a perceived threat to the safety of children and employees.
- Smaller carnivores such as raccoon and striped skunk entering buildings, causing damage and possibly transmitting diseases, such as rabies.
- Large ungulates colliding with vehicles leading to injury of employees and the animal and causing property damage.
- Small rodents entering buildings causing health and safety concerns
- Muskrat and beaver potentially damaging canals, reservoir impoundments, and storm drainage ditches.
- Handling and caring for injured wildlife.

The following subsections provide brief descriptions of management action and prescriptions to be used to address each of these issues.

Small Carnivores

The best way to minimize conflicts with smaller carnivores, such as raccoon and skunks, is to remove potential habitat from human occupied areas. Landscaped areas around buildings, parking lots, and pedestrian walkways should be kept trim and open, removing any cover that can hide carnivores. Potential entryways into buildings should be closed and sealed. Openings under foundations or small buildings, such as storage sheds, need to be filled with concrete or large boulders and fill material. Protective metal guards or heavy wire mesh can be placed over frequent problem areas. If exclusion and avoidance methods fail then animals can be live-trapped and relocated.

Large Ungulates

Most deer on the DFC travel along vegetated corridors, such as McIntyre Gulch and the Agricultural Ditch, that provide protective cover and security. In areas where these corridors cross roads and other high traffic areas, wildlife-vehicle collisions can occur. The following three management prescriptions are presented to mitigate and minimize potential collisions:

- Identify any potential collision areas.
- Remove vegetation and improve sight lines next to roads in problem areas.
- Post signs directing vehicle drivers to slow down and be aware of ungulates in corridors and deer-crossing areas.
- Provide alternate travel routes for ungulates that direct animals away from problem areas or to natural underpasses. Trees, shrubs and fencing can be used to direct ungulates toward alternate travel routes.

Small Rodents

The best way to minimize infestations of rodents in buildings is to remove habitat and food sources. All trash and food scrapes need to be cleaned up and placed in closed containers as soon as possible. Cracks and openings into buildings that provide access for rodents need to be closed and sealed. Rodents that are able to still sneak into buildings then can be captured with various types of live-traps or glue boards and relocated. The house mouse and the Norway rat are non-native species that can displace and damage native wildlife populations. In the case of these two species the best management for the protection of employee health, product

safety, and native wildlife may be the use of lethal traps.

Muskrat and Beaver

Currently muskrat and beaver are not a management issue at the DFC. However, these two aquatic mammals can cause severe damage by digging holes into dikes and earthen dams, and building lodges and log dams that block irrigation ditches, water intakes, and storm drainages. Currently there is no effective, non-lethal method for control populations of these animals and minimizing damage. Additionally, the recently passed C.R.S 0-3.4-181.3, Section 13, prohibits the use of leghold traps and other kill traps for controlling beaver and muskrat. With these limitations the following management prescriptions can be implemented to minimize damage:

- Remove lodges and dams from undesirable areas (this can be labor intensive).
- Provide fences and exclosures around culverts (described below).
- Plug holes in dikes and dams and cover problem areas with rocks or other material to discourage further digging.
- Live-trap and relocate.
- If dams are built in appropriate areas, water levels can be controlled by inserting a series of drain pipes at the desired water level.
- Sterilize one individual of each mated pair and thereby decreasing reproduction (this has been tried on Clear Creek in Wheat Ridge and on Bear Creek in Denver with very disappointing results).

Beaver probably view culverts under roads as a hole in an otherwise good dam. So they plug the hole creating ponds and flooded roads. Semi-circular fences of two by four inch wire mesh around road culverts can protect the culverts from being plugged. In some cases, more complete exclosures may be needed. These exclosures consist of a four-foot high semi-circular welded fencing around culverts with 4 inches PVC drain pipes anchored through the fence. Beaver build dams against the fence while water continues to drain through the pipes. These systems require seasonal maintenance that takes mush less time and money then typically expended unclogging culverts.

Relocation has been prescribed as a management prescription for several species, however, there are several significant drawbacks associated with relocation, particularly involving beaver. The primary problem is finding areas to relocate animals. Presently there are very few drainages in Colorado that do not already have beaver and the few areas that will accept relocated beaver are disappearing rapidly. Relocation is also expensive and labor intensive, and can severely stress the relocated animal. Animals removed from a territory are typically just replaced by another animal that immigrates in.

Most wildlife will reach carrying capacity within the habitat and will self-regulate populations through behaviors such as territoriality and dispersal. The problem with beaver in urban areas is that young born in these situations do not face predation and other natural forms of population regulation and can quickly over-populate a habitat. Then as young beaver disperse from their parent territory they are forced to move into marginal habitats, such as irrigation canals and drainage ditches where their dam building activities cause severe problems. Additionally, beaver habitat has been greatly reduced in urban areas and beaver, in their search for food and building materials, can cause severe damage to trees and shrubs valued by human inhabitants

2.2.5 Injured Wildlife

When injured wildlife is encountered at the DFC, the best policy is to leave the animal alone and contact an expert to collect and rehabilitate the animal. Several respected wildlife rehabilitators for specific groups of animals are present in the Denver area and are listed in Appendix C, page 5-8.