PROTECTED SPECIES SURVEYS
MIKE MONRONEY AERONAUTICAL CENTER
FEDERAL AVIATION ADMINISTRATION
OKLAHOMA CITY, OKLAHOMA

Prepared by

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3.2.1.1. EXECUTIVE SUMMARY

The primary objective of this work was to survey and investigate the status of resident threatened and endangered species and wildlife habitat on the Mike Monroney Aeronautical Center (MMAC). Information regarding the status of currently recognized Federal and State-listed species on MMAC lands was obtained from historic literature, government documents, Federal and State statutes, and field surveys. Wildlife habitat characterization was performed using a combination of ground-based observation and Geographical Information System (GIS) database manipulation, aerial photography, U.S. Geological Survey (USGS) contour maps, Natural Resources Conservation Service Soil Surveys, and U.S. Fish and Wildlife Service NWI maps. Surveys performed during January and April 1998 to identify resident wildlife (including listed species) indicated a primarily Atolerant≅ or opportunistic fauna and did not indicate the presence of any listed species. Interpretation of collected data indicates that lands on the MMAC are intensively disturbed, low in plant species diversity, and do not possess the quality wildlife habitat necessary to support sensitive species such as Federal and State-listed species.

3.2.1.2. INTRODUCTION

3.2.1.2.1. <u>The Endangered Species Act</u>

The National Environmental Policy Act (NEPA) of 1969 requires all Federal agencies to consider Federally-listed threatened and endangered species when planning future activities, including training and construction projects. The Endangered Species Act (ESA) of 1973 requires all Federal agencies to conduct programs in a manner that will ensure the conservation and preservation of all Federally-listed threatened and endangered species.

The ESA was enacted to provide a program for the conservation of endangered and threatened species and to conserve the ecosystems upon which such species depend for survival. The ESA and its various amendments require Federal agencies to implement programs protecting threatened and endangered species and to use their authorities to further the purposes

of the Act. Section 7 of the ESA addresses the requirements of interagency cooperation.

U.S. Fish and Wildlife Service (USFWS)responsibilities under the ESA include: 1) identification of threatened and endangered species; 2) identification of critical habitats for listed species; 3) implementation of research on, and recovery efforts for, these species; and 4) consultation with other Federal agencies concerning measures to avoid harm to listed species.

3.2.1.2.2. Project Description and Location

This report describes services provided by the U.S. Army Corps of Engineers, Tulsa District (TD) regarding the status of Federally-listed threatened and endangered species and species listed as sensitive by the State of Oklahoma for the Mike Monroney Aeronautical Center (MMAC), Oklahoma City, Oklahoma (Figure 1). The work efforts of TD were performed as specified in Interagency Agreement FAA-97-2.

The MMAC is located on lands leased from the Will Rogers World Airport Trust within Sections 27, 28, and 33 in Township 11 North, Range 4 West in southwest Oklahoma City, about 1 mile east of Wheatland, Oklahoma. The MMAC is a service and support facility for the Federal Aviation Administration (FAA) and the U.S. Department of Transportation (DOT). The facility supports more than 5,000 employees, students, and contractors occupying 20 major buildings and 35 smaller structures within a 1,000-acre area. The MMAC=s primary activities include training, logistics, research, and administrative services. The Coast Guard Institute and the Transportation Safety Institute conduct a variety of training missions while the Civil Aeromedical Institute conducts medical research associated with aviation safety. These institutes are housed on the MMAC campus in Oklahoma City.

3.2.1.2.3. Listed Species

Federally recognized species listed by the USFWS that could be found in Oklahoma County and in the vicinity of the MMAC are:

Interior least tern (Sterna antillarum)
Endangered

Peregrine falcon	(Falco peregrinus anatum)	
Endangered		
Whooping crane	(Gnus Americana)	
Endangered		
Bald eagle	(Haliaeetus leucocephalus)	
Threatened		
Piping plover	(Charadrius melodus)	
Threatened		
Arkansas River shiner	(Notropis girardi)	Proposed

Species listed as ASpecies of Special Concern≅ by the State of Oklahoma Department of Wildlife Conservation (ODWC) that could be found in Oklahoma County and in the vicinity of MMAC are:

Texas horned lizard	(Phrynosoma cornutum)
Migrant loggerheaded shrike	(Lanius ludovicianus)
Barn Owl	(Tyto alba)
Bell=s vireo	(Vireo bellii)

Figure 1. The Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma.

Per Task 2.3.1 of Interagency Agreement FAA-97-2, only the Migrant loggerheaded shrike and the Texas horned lizard were surveyed at the MMAC.

3.2.1.2.4. Species Considerations and Background Information

The Interior least tern was listed as endangered on May 28, 1985 (50 FR 21784). In Oklahoma, Interior least terns nest along most of the larger rivers as well as at the Salt Plains National Wildlife Refuge near Jet, Oklahoma. Primary cause for declining populations is loss of habitat from permanent flooding by impoundments and channelization (OSU 1993). The least terns arrive at breeding grounds from late April to early June, spending 4 to 5 months feeding on minnows and small fish and initiating nests. They participate in elaborate courtship postures and vocalizations to create and preserve pair bonds. Least terns nest in small colonies on exposed salt flats, mud flats, river sandbars, or reservoir beaches, scraping out shallow nests in the sand. Typically, least tern females lay two to three eggs that give rise to precocial young. Both parents feed and care for the young until fall migration when the birds fly to South America. They migrate through central Oklahoma as summer residents, using the Canadian and the Cimarron Rivers.

The American peregrine falcon was listed as endangered on June 2, 1970 (35 FR 8495). This crow-sized raptorial bird has a wingspan of about 3.5 feet, a long tail and narrow aspect, and pointed wings. The falcons are slate gray or dark brown (dorsal) over whitish (ventral), with black nape and crown. Most notably, they have a vertical Abandit=s mask≅ pattern over the eyes. Peregrines begin reproducing when they are 3 years old, and they are monogamous. Pairs perform elaborate aerial courtship displays at the start of the breeding season. Nests are typically established on high cliffs near water where prey species (other birds) are common. Three to four eggs are typically laid, but nest failure is common. Just as with most raptors, juvenile mortality can be high. They are capable of flight speeds over 200 miles per hour while diving for prey. Other than one pair using tall buildings in downtown Tulsa, nesting has never been recorded in Oklahoma. However, they migrate through and occasionally winter in Oklahoma, utilizing rivers and large bodies of water. Shooting, human disturbance, and collecting have decreased peregrine falcon numbers;

however, reproductive failure caused by pesticides was the major factor leading to their decline (OSU 1993).

The whooping crane was listed as endangered on June 2, 1970 (35 FR 8495). Critical habitat was designated May 15, 1978 (43 FR 20938). The whooping crane is the tallest American bird at 5 feet and has a wing span of approximately 7.5 feet. They are reproductively mature at 3 years old and mate for life. Nest construction begins in late April. Nests are made of bullrush and are located in tall vegetation near water. Typically, two eggs are laid each year, and both parents assist in the care of the young throughout the first winter. Whooping cranes eat a variety of foods: insects, frogs, small birds, rodents, minnows, and waste grains. Historically, whooping cranes were found from the Northwest Territories in Canada southward through the prairie provinces and northern prairie states to Illinois. A nonmigratory population existed in Louisiana. They formerly wintered in the Carolinas, along the Texas Gulf Coast, and on the intermountain plateau of central Mexico. Currently, an experimental population summers in Idaho and winters in New Mexico. The main population breeds in northern Canada and winters along the Texas Gulf Coast. This population passes through western Oklahoma, primarily utilizing wetlands, rivers, and grain fields as it moves between breeding and wintering grounds. The Salt Plains National Wildlife Refuge is a very important migratory stopover site for the main population. Whooping cranes have declined primarily because of loss of wintering and breeding habitat. Shooting and collisions with power lines or fences have been sources of mortality in recent years. Presently, the USFWS estimates the population of wild whooping cranes to be about 120 (OSU 1993).

The bald eagle was first listed as endangered on March 11, 1967. On October 31, 1995, bald eagle status was downgraded to threatened (50 FR 17.11). The bald eagle is a large bird with a wingspan of 6 to 7.5 feet. Adult eagles are dark brown with a white head and tail and a large yellow beak. Immature eagles are dark with mottled white under the wings and at the base of the tail. The feet of both adult and immature eagles are bare of feathers. They are long-lived birds, achieving full adult plumage in 4 to 5 years. Bald eagles build their nests on the tops of tall trees or on cliffs. Nests can be 6 feet across and 6 to 8 feet high, and pairs will use the same nest year after year. The female will lay two eggs which hatch after 35 days followed by fledging which could take as long as 12 weeks.

Fish are a major component of the bald eagle=s diet, but they also eat waterfowl, small mammals, and carrion. Typically, bald eagles breed and nest during the summer in northern Canada and all along the coast of Alaska, with isolated pockets of year-round residency scattered across the U.S. Most of the U.S., except for the desert southwest, is used by bald eagles for wintering, including Oklahoma, which provides an abundance of ideal water resources. Historical records indicate that bald eagles once nested in Oklahoma, but that population has since been extirpated. Presently, the population of nesting bald eagles in Oklahoma is increasing due to the work of the Sutton Avian Research Center (SARC) in Bartlesville, Oklahoma. The SARC has been involved in a captive breeding and release program the past 10 years which has resulted in several nesting pairs residing in eastern Oklahoma. The decline in the bald eagle population has been due to pesticide-induced reproductive failure, loss of riparian habitat, and human disturbances such as shooting, poisoning, and trapping (OSU 1993).

The piping plover was listed as endangered in the watershed of the Great Lakes and threatened in the remainder of its range on December 11, 1985 (50 FR 50726). The piping plover is a small shorebird about 7 inches long, with a wingspan of about 15 inches. Adults have sand-colored upper parts and white undersides. During the breeding season, piping plovers have a single dark band across the breast and forehead. They can be distinguished from similar species by their bright orange legs. They arrive on their breeding grounds along the Atlantic Coast in late March and on their prairie breeding grounds in early May. Males defend territories and attract females with aerial displays. Piping plovers are monogamous and both parents participate with care of the young. They typically lay four eggs in a shallow scrape nest on sandbars, mud flats, sandy beaches, and gravel bars in rivers, ponds, alkali lakes, or along the shoreline of the ocean. Hatching occurs from 25 to 31 days after completion of the clutch. Adults depart from breeding areas as early as July 1. Piping plovers feed on a variety of invertebrates, including worms, crustaceans, and insects. They migrate through Oklahoma each spring and fall between breeding grounds on the northern Great Plains, Great Lakes, and Atlantic Coast and wintering grounds along the Gulf Coast. Piping plovers have declined due to loss of habitat, sandy beaches, and permanent flooding of riverine habitat by dams and channelization (OSU 1993).

The Arkansas River shiner is not as yet listed by the Federal government as endangered or threatened; however, listing is forthcoming. This small fish or Aminnow≅ is usually less than 2 inches long, relatively slightly compressed, and heavy-bodied. Historic range includes tributaries and the main channel of the Arkansas River in northern and central Oklahoma. The shiner is found in the main channels of large sandy-bottomed rivers and streams. It feeds on zooplankton and spawns in July. A large population continues to thrive in the South Canadian River from the southern edge of Oklahoma City to several miles south of Norman, Oklahoma. Another population in the Pecos River in New Mexico is also documented. However, the shiner is otherwise scarce to absent from the remainder of its former home range and likely does not exist in the main channel of the Arkansas River. Decline of this species is attributed to water resources developments in the Arkansas River Basin that have altered natural flow regimes (OSU 1993).

The Texas horned lizard is listed by the State of Oklahoma (Oklahoma Natural Heritage Inventory) as a sensitive species. This horned lizard is distributed state-wide. It is most abundant in the central and western areas of the state and rare in the wooded and mountainous Interior Highlands of eastern Oklahoma. These lizards are commonly found in open, sandy, or loose-soiled areas where they can burrow and access their primary food source, red harvester ants. Concern for this species relates to the apparent decline of red harvester ants that have likely decreased in overall density due to anthropogenic activities such as agriculture, livestock management, and urban development (OSU 1993).

The Migrant loggerheaded shrike summers and breeds in the northern one-fourth of the United States and southern-central Canada, migrating as far south as southern Mexico for winter. Loggerheaded shrikes are often confused with mockingbirds, exhibiting white wing bars with gray feathers on their head and back and a white breast. They have a black beak with a small raptorial hook and black eye band, wings and tail. Shrikes feed on small mammals and invertebrates and are most known by their habit of impaling their prey on barbwire fences, spines, and/or wedges on forks of trees. For this behavior, they have become known as the Abutcher bird≅. A population of loggerheaded shrikes remains in Oklahoma as year-round residents and is considered uncommon in distribution. It is not possible to distinguish among individuals the migrant and

resident populations in Oklahoma based on physical characteristics. Declines in loggerheaded shrikes appear to be related to increased use of organochlorines (circa 1940 - 1970's). Research data indicate that loggerheaded shrikes likely obtain pesticide contamination in wintering areas from the ingestion of prey taken in sprayed areas. Not only has pesticide use directly impacted these birds by contributing to reproductive failure due to softened egg shells, declines in grasshopper populations from dieldrin application have impacted the loggerheaded shrikes' primary food source (30-75% of the shrikes' diet)(OSU 1993).

3.2.1.2.5. Survey Dates

Survey dates in the winter were January 12-15, 1998, and in the spring were April 13-16, 1998

3.2.1.3. SURVEY METHODS

Six of the above listed species were avifauna, one was a reptile (Order Squamata), and one was a fish (Order: Cypriniformes, Family Cyprinidae). Surveys for these species, except the fish, were performed by a combination of observations from predetermined routes (pedestrian and drive) and spot locations. Effort was made to select sites for spot counts at locations that provided ideal or best available habitat for listed species. All surveys were conducted by a trained biologist permitted by the USFWS and the ODWC.

Adequate habitat for piping plover, Interior least tern, and whooping crane does not exist at the MMAC precluding any selection for spot locations on the basis of available habitat for these species. These species are only found in Oklahoma on a seasonal basis as they migrate through or nest along large rivers.

Because no adequate aquatic habitat exists for the Arkansas River shiner on the MMAC, surveys were not performed. No records documenting observation of this species at the MMAC were found.

The surveying biologist conducted drive surveys (i.e., windshield surveys) from a vehicle, stopping at spot locations

for a period of no less than 5 minutes and noting all bird species seen or heard.

Winter bird surveys were conducted from 8:00 a.m. through completion (usually 10:30 to 11:00 a.m.). Surveys were conducted by walking transect lines along and through four wooded parcels in Sections 28 and 33, driving the perimeter of the facility, and driving on streets within the MMAC. Bird species, time observed, location, and habitat type were noted (Figure 2). Frequent and sometimes lengthy stops were made during both types of surveys to enhance accuracy of survey. Counts for non-listed birds were not performed; however, presence was noted (Figure 3). The following locations were surveyed:

1. Upland woodland, Halaby Street, Section 28.
2. Upland woodland, Quesada Street, Section 28.
3. Cow Creek Tributary, Section 28.
4. Cow Creek Tributary, Section 33.
5. Vehicle Survey:
   A. Perimeter of facility
   B. Main and service roads within urban/industrial complex

Figure 2. Habitat, Land Use, and Wildlife Survey Routes at the Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma, 1998.

Figure 3. Faunal Distribution at the Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma, 1998.

Observations of avifauna in yards and open grassland habitats adjacent to woodlands and roads were made during walking and vehicle surveys. This procedure was followed during all pedestrian surveys for birds.

Spring bird surveys were conducted from 7:30 to 11:30 a.m. Surveys were conducted by walking transect lines along and through the above-mentioned wooded parcels and adjacent grassland parcels and driving the same route as in winter surveys. The following locations were surveyed:

1. Upland woodland, Halaby Street, Section 28.
2. Upland woodland, Quesada Street, Section 28.
3. Cow Creek Tributary, Section 28.
4. Cow Creek Tributary, Section 33.
5. Vehicle Survey:
   A. Perimeter of facility
   B. Main and service roads within urban/industrial complex

Texas horned lizards were surveyed by walking random transects within parcels ($\geq$10 acres) of open upland grassland habitats for 60 minutes/parcel. Effort was made to select survey sites that appeared to best conform to the species needs (i.e., adequate cover, soil type, forage). Candidate sites were scrutinized for the presence of sandy and/or loamy soils and moderate to sparse vegetative cover, preferred horned lizard habitat components. The most important habitat component for the Texas horned lizard is the presence of harvester ant colonies, the species' primary forage resource (ODWC 1997). Particular effort was made to discover harvester ant colonies during site selection.

3.2.1.4. RESULTS AND DISCUSSION

3.2.1.4.1. Site Description

Topography at the MMAC is level to gently rolling, with a majority of the drainage conveyed by Cow Creek and associated tributaries. Soils are of the Renfrow-Vernon-Bethany association which are deep and shallow, nearly level to sloping, loamy and clayey soils on prairie uplands. Uplands are primarily open mixed-grass prairie/improved lands with some woodlands along ephemeral drainages. Bethany silt loam (BeA) 0 to 1% slopes dominate uplands of the western one-third of Section 28 and all but the eastern quarter of Section 33.

Renfrow clay loams (RfB) dominate the remaining uplands. Soils of the BeA type (Loamy Prairie Range) have a loam or silt loam surface layer that is granular and porous, permeable to water, easily penetrated by roots, and with good water storage capacity. This is the most productive range site in the uplands. Typically, in minimally-disturbed areas of excellent condition, the climax vegetation is about 80% decreaser grasses, about 5% legumes and forbs, and about 15% increasers. Renfrow clay loams (Claypan prairie) are underlain by compact clay which restricts water movement and plant growth, providing less than ideal substrate for vegetative cover. Soils associated with drainages of the MMAC are primarily RfB, with one drainage located in the northwest quarter of Section 33 underlain by Vernon-Zaneis complex 3 to 5% slopes (VzC). A small area associated with a south-flowing tributary to Cow Creek located in the southeast quarter of Section 33 (immediately north of S.W. 89th Street) is composed of Breaks-Alluvial land complex (Red Clay Prairie Range). Breaks-Alluvial land complex soils absorb water slowly and are considered erodible. Soils in Section 27 and in the eastern one-half of Section 28 are highly disturbed and in urban land use and consequently are not identified or described by the Natural Resources Conservation Service (Fisher and Chelf 1969).

Dominant vegetation on upland grasslands within the MMAC is representative of disturbed mixed grass prairie (AImproved Lands≅). Grasses here include bermuda, brome, fescue, ryegrass, mat sandbur, crabgrass, Scribner panicum, broomsedge, and Johnsongrass. Herbaceous legumes include vetch, white clover, and bur clover. Other herbaceous vegetation observed includes common sunflower, compass plant, various thistles, goldenrod, giant ragweed, western ragweed, dandelion, pigweed, yarrow, Japanese brome, yellow wood sorrel, daisy fleabane, spring beauty, plantain, false garlic, chickweed, tooth-leaved primrose, and prickly pear cactus. Because most of the minimally-developed areas west of the commercial/industrial complex (Section 28) were part of a World War II air base, much of the flora associated with long-abandoned structures are ornamental shrubs and flowers. Lilac, purple iris, honeysuckle, and rose are abundant along vestigal fencelines, roadways, driveways, and building foundations. Lands in Section 28 west of Halaby Street were historically farmed and/or hayed prior to World War II and continue to be mowed without cultivation or grazing. Lands in

the eastern half of Section 33 have been recently cultivated and are presently disturbed by construction activities associated with radar training facilities. Several oil production facilities (pump jacks) are scattered throughout Sections 28 (west of Halaby Street) and 33. Improved lands comprise 651.4 acres within the MMAC (Figure 2).

Upland woodlands on the MMAC are limited to a narrow corridor of 30.3 acres bounded on the north by S.W. 59th Street between Foster Street on the east and Halaby Street on the west, terminating 0.5 mile south (Figure 2). This assemblage of scrub-shrub woodlands interspersed with prairie openings is relatively young (<40 years), small in size, and not very diverse (typically dominated by American elm and hackberry). It has been significantly disturbed from land uses associated with MMAC missions. Roads, underground utility and gas lines, radar facilities, and pedestrian traffic partition and disrupt these woodland resources, diminishing benefits to wildlife. Other upland woody species on the MMAC include eastern redcedar, redbud, sandplum, rough-leaved dogwood, blackberry, and buck brush.

Riparian woodlands (36.7 acres) on the MMAC are associated with three major and two minor tributaries to Cow Creek (a tributary to the South Canadian River) located just east of MacArthur and a short (75 meters) controlled drainage that flows south to north from the detention pond immediately east of the radar facility on Halaby Street, south of S.W. 59th Street. The Cow Creek tributaries generally drain northwest to southeast. These habitats, although more productive than the scrub-shrub uplands, are narrow and also disturbed from activities associated with MMAC missions, providing marginal resources to wildlife. Cottonwood and willow are common within the channels and along the banks of all tributaries, while elm and hackberry provide the majority of cover throughout the riparian corridor. Herbaceous cover of the understory includes poison ivy, curly doc, various sedges, goldenrod, and wild parsley. The Cow Creek tributary located at the south-central extremity of Section 33 also supports the only bottomland hardwood habitat located at the MMAC. This small strip (3.0 acres) of relatively young bottomland habitat is composed of Honey locust, American elm, and cottonwood trees, with a maximum height of approximately 40 feet. This area is likely in transition as the floodplain of the stream has recently been exposed to backwater effects from downstream

impoundment creating conditions favorable for establishment of bottomland species (Figure 2).

A significant portion of MMAC lands (310.8 acres) is comprised of the commercial/industrial complex where the majority of administrative, maintenance, training, and research missions are performed. Land use includes the flight line, all buildings and facilities (administrative, technical, leisure), most paved roads, security facilities, oil production sites, and parking lots. Primarily located in the eastern one-third of Section 28 and the western one-third of Section 27, fragments of this land use are distributed throughout the entire MMAC. Radar antennae, along with associated technical and operations buildings, and oil production sites are found throughout Sections 27, 28, and 33. Generally, this land use is urban in character, providing very limited resource value to wildlife. Management and anthropogenic activity is intensive, excluding sensitive plant and animal species. Most woody vegetation is exotic ornamental with bermuda and/or fescue grasses dominating most yards. Bald cypress, hackberry, elm, various oaks, and redbud are abundant throughout this area (Figure 2).

A small portion of MMAC lands is surface water (4.3 acres) that is impounded in four small ponds located in Sections 28 and 33. The ponds likely provide only temporary resources for migratory waterfowl while providing limited resources for birds such as red-winged black birds, herons, egrets, resident ducks, and mourning dove. Small mammals, domestic dogs and cats, and invertebrates (crustaceans, insects, molluscs, oligochaetes) also use these small ponds and surrounding lands.

3.2.1.4.2. Description of Species Surveyed

Federal and State-Listed Species.

Table 1. Federally-Listed and State-Listed (Sensitive) Threatened and Endangered Species That Occur in the Vicinity of the Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma.

Species	Preferred Habitat
Federally-Listed	
Interior least tern	Sandbar/mudflat on riverine
Peregrine falcon	Cliffs close to water
Whooping crane	Wetlands and marshes
Bald eagle	Tall trees or cliffs near water
Piping plover	Sandbar/mudflat on riverine
Arkansas River shiner	Prairie Rivers (i.e., Cimarron and South Canadian Rivers)
State-Listed	
Migrant loggerheaded shrike	Prairie and woodland edges
Texas horned lizard	Upland prairie with sparse vegetation and abundant red harvester ants

Winter Surveys.

Surveys for Federally-listed and State-listed species were initiated on January 12, 1998, at the MMAC. Additionally, all avian species were surveyed, identified, and associated with habitat types found within MMAC lands (Table 2).

The Migrant loggerheaded shrike, a species of concern listed by the Oklahoma Natural Heritage Inventory (ONHI), was the only listed species observed during this survey. One loggerheaded shrike was observed on January 14 at 10:20 a.m. on the fence line along Rockwell Avenue, 0.5 mile north of S.W. 74th Street. Habitat here was disturbed scrub-shrub. This was the only observation noted for this species during this survey.

Table 2. Avifauna Recorded at the Mike Monroney Aeronautical Center, January 1998

Woodlands	Improved Grassland	Commercial/Industrial
Redtailed hawk	Redtailed hawk	House sparrow
Black-capped chickadee	European starling	European starling
Bewicks wren	Meadowlark	Mockingbird
American crow	American crow	American crow
American kestrel	American kestrel	Blue jay
Red-bellied woodpecker	Bobwhite quail	Northern cardinal
Horned lark	Brown thrasher	Rock dove
Northern cardinal	Loggerheaded shrike	
Blue jay	Red-winged black bird	

Note: Canada geese were observed in flight over the study area daily. Mallard ducks were observed on a small pond 0.1 mile west of the woodland habitat type on Halaby Street in Section 28 on January 13, 1998.

Other wildlife species observed included eastern cottontail rabbit, cotton rat, white-footed deer mouse, and opossum.

Spring Surveys.

Surveys for Federally-listed and State-listed species were initiated on April 13, 1998, at the MMAC. Just as during the winter surveys, all avian species were surveyed, identified, and associated with habitat types found within MMAC lands (Table 3).

The loggerheaded shrike, a species of concern listed by the ONHI was the only listed species observed during the spring survey. One loggerheaded shrike was observed on April 15 at 10:00 a.m. on the power/telephone line along Rockwell Avenue, 0.5 mile north of S.W. 89th Street. Habitat at this location is a combination of improved pasture and cropland. This observation was made in relative proximity to the observation noted during the winter survey, suggesting that the observed individual(s) was (were) part of a resident population as opposed to being a migrant. It was not possible within the scope of this work to capture, band, and track individual shrikes therefore precluding clear differentiation between migrant and resident individuals. Because observations of this bird were very scarce, it is likely that use of the MMAC by any population(s) of shrikes is minimal.

Table 3. Avifauna Recorded at the Mike Monroney Aeronautical Center, April 1998

Woodlands	Improved Grassland	Commercial/Industrial
Redtailed hawk	Redtailed hawk	House sparrow
Black-capped chickadee		
Yellow-rumped warbler	Eastern meadowlark	Mockingbird
European starling	European starling	American crow
American crow	American crow	Blue jay
American kestrel	American kestrel	

Red-bellied woodpecker	Brown-headed cowbird	Northern cardinal
Horned lark	Brown thrasher	Rock dove
Northern cardinal	Loggerheaded shrike	American Robin
Blue jay	Red-winged black bird	Mourning dove
American Robin	American Robin	Common grackle
Mourning dove	Mourning dove	Boat-tailed
Chipping sparrow	Common grackle	Grackle
Common grackle	Common flicker	
Brown-headed cowbird	Scissor-tailed	
Common flicker	flycatcher	
Brown thrasher	Killdeer	
Coopers hawk	Grasshopper or	
Tufted titmouse	Savannah sparrow	

Note: Numerous great blue herons, great egrets, cattle egrets, and double-crested cormorants were observed flying over the MMAC every day during survey periods.

Three sites were selected for Texas horned lizard surveys: upland/improved lands west of a warehouse-depot, upland/improved lands north of the dry detention pond on Halaby Street, and upland/improved lands surrounding the radar tower on Halaby Street near S.W. 59th Street (Figure 2). All three locations were greater than 10 acres in area and appeared to have the best horned lizard habitat available on the MMAC, providing an open environment on dry uplands. However, ideal Texas horned lizard habitat was not observed on the MMAC due to the absence of several important resources. According to the ODWC (1997), Texas horned lizards appear to prefer sandy soils, sparse vegetation, and an abundance of red harvester ants for forage. Much of the soil associated with the open grasslands of the MMAC is hard-pan red clay densely covered with prairie and domestic grasses and a diversity of wildflowers, providing marginal habitat at best. In addition to the lack of ideal landscape features, thorough preliminary surveys conducted April 13, 1998, revealed no sign of harvester ants on any of the improved lands at the MMAC. No Texas horned lizards were observed after two days of surveys

at these locations, and it is likely that the area supports few, if any, individuals of this species.

Other wildlife species observed during this survey period included eastern cottontail rabbit, cotton rat, white-footed deer mouse, opossum, white-tailed deer, and pocket gopher.

Summary.

Field surveys and documentation research indicate that neither Federally-listed (threatened and endangered) nor State-listed species (species of concern or sensitive) occur at the MMAC. Additionally, there is no evidence that any habitat critical to the existence of these listed species is present on the MMAC. The MMAC encompasses lands that are intensively managed for agency missions (i.e., aeronautical surveillance, safety, administration, maintenance, etc.). Management actions include frequent mowing; oil production outgrants; and new construction of buildings, fences, radar installations, electrical power facilities, and roads. Since this land was first used as an Army Air Base during World War II, wildlife habitat has likely declined as the result of aeronautical facility expansion, urbanization encroachment upon adjacent lands, and Will Rogers World Airport operation and expansion. Limited cover and forage resources and extended periods of anthropogenic activity and disruption have rendered this area low in overall species diversity and an unlikely refuge for any sensitive wildlife. Dominant wildlife species observed during winter and spring surveys on the MMAC (i.e., European starlings, house sparrows, northern cardinals, blue jays, opossum, cotton rats, pocket gophers, common grackles, and cottontail rabbits) are common to urban areas and are known to be adaptive to anthropogenic activities (Figure 3).

3.2.1.4.3. Federal and State Regulations

Several Federal laws and State regulations affect the management of Federal lands or installations in regard to Federally-listed threatened and endangered species and State-listed species (endangered, threatened, and species of special concern). The following paragraphs provide information about these laws.

The Endangered Species Act, Section 7.

First enacted in 1973, the Endangered Species Act (ESA) was legislated to protect and conserve native wildlife species in danger of extinction. Section 7 mandates Federal agencies to consult (informally or formally) with the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) regarding proposed and authorized Federal actions (i.e., construction, funding, licensing, real estate transactions, etc.) that could possibly impact any Federally-listed threatened and/or endangered species.

For projects not already under construction on November 10, 1978, construction agencies must request the Secretary of the Department of Interior (DOI) or the Secretary of the Department of Commerce (DOC) to furnish information regarding any species, listed or proposed for listing, that reside in the action area. If any listed species are provided by this request, the Aaction agency≅ must undertake a biological assessment to be completed within 180 days (or otherwise agreed-upon term). No construction contract can be awarded before completion of the assessment. The assessment may be undertaken as part of the Environmental Impact Statement (EIS) process in compliance with the National Environmental Policy Act (NEPA). Based on the biological assessment results, the action agency shall initiate consultation with the Secretary (DOI or DOC) if listed species may be affected. Consultation shall be concluded within a 90-day period (or otherwise agreed-upon term). During consultation, the Federal action agency shall not make any irreversible or irretrievable commitment of resources that would have the effect of foreclosing the formulation or implementation of any reasonable and alternative measures. Promptly after conclusion of consultation, the Secretary (DOI or DOC) shall provide the agency with an opinion on how the Federal action will affect the species or its critical habitat and shall suggest reasonable and prudent alternatives. The Federal action agency or the Governor of the State in which the project is located may apply to the Endangered Species Committee for an exemption if, in the Secretary=s opinion, an adverse effect will result from the action. If species proposed to be listed as endangered or threatened might be affected, the action agency must confer with the Secretary (DOI or DOC) on the action.

The Fish and Wildlife Coordination Act.

This legislative act mandates Federal action agencies that perform work affecting any stream or body of water to first consult with the USFWS and the State wildlife agency with a view to prevent losses and damages to wildlife resources while providing for development and improvement of wildlife resources. Reports generated by the Secretary (DOI) and the State wildlife agency during the planning process shall be an integral part of any report to Congress. All suggestions by the Secretary and the State wildlife agency shall be given full consideration, and reports shall include such justifiable means and measures for wildlife purposes, including mitigation measures, as they find should be adopted to obtain maximum overall project benefits. Any report recommending authorization of a new project shall contain an estimate of wildlife benefits and losses, the costs and amount of reimbursement. Adequate provision must be given for the use of project lands and waters for conservation, maintenance, and management of wildlife resources, including their development and improvement. Lands to be managed by a State for the conservation of wildlife or by the Department of the Interior as a migratory bird refuge shall be managed in accordance with a general plan approved jointly by the head of the Federal agency exercising primary administration, the Secretary of the Interior, and the head of the State fish and wildlife agency.

The Clean Water Act Section 404(e).

Section 404(e) of the Clean Water Act authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue general permits for specific categories of activities involving discharge of dredged or fill material if the activities are similar in nature, and will cause only minimal adverse effects singly or cumulatively. General permits for certain types of construction activities are conditioned on the issuance of a Section 401 water quality certification or a State Section 404(g) permit, unless exempted by the provisions of Section 404(r). General permit applications are submitted for agency review, including the USFWS, for ESA issues.

The Clean Water Act Section 404(r).

Discharge of dredged or fill material as part of the construction of a Federal project specifically authorized by Congress is exempt from provisions of the Act (except toxic substances) if information on the effects of the discharge, including consideration of 404(b)(1) guidelines, is included

in an EIS submitted to Congress prior to the discharge in connection with authorization or appropriations, or a Section 404 evaluation was completed before December 27, 1977. Otherwise a 404(b)(1) evaluation must be made, public notice issued, and State water quality certificate obtained (unless the U.S. Environmental Protection Agency has transferred the 404 permit program to the State, in which case a State permit is required).

The National Environmental Policy Act.

This statute, legislated in 1969, declared a national policy to use all practicable means and measures in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

Section 102 of the NEPA is the principal operative section and directs that all Federal agencies shall:

1) Use a systematic, interdisciplinary approach that integrates natural and social sciences and environmental design arts in planning and decision making;

2) Identify and develop methods to insure that presently unquantified environmental amenities and values may be given consideration in decision making along with economic and technical considerations;

3) Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources;

4) Support international programs to prevent decline of mankind=s world environment;

5) Initiate and utilize ecological information in planning and development of resource-oriented projects;

6) Assist the Council on Environmental Quality established by this Act. Subsection 102(2)(c) requires Federal agencies to include a detailed Environmental Impact

Statement (EIS) in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment. Prior to preparing an EIS, the responsible Federal official shall consult with and obtain comments from any Federal agency that has the jurisdiction by law or special expertise with respect to any environmental impact involved. The EIS and comments and views of appropriate Federal, State, and local agencies that are authorized to develop and enforce environmental standards shall be available to the President, the Council on Environmental Quality (CEQ), and the public, and shall accompany the proposal through the existing agency review process.

Bald and Golden Eagle Protection Act.

This law provides for the protection of bald and golden eagles and makes it illegal to take; possess; sell; purchase; barter; offer to sell, purchase or barter; transport; export; or import any bald or golden eagles, dead or alive, without a lawful permit. It also prohibits the same actions for nests, eggs, and bodily parts of these birds. Consequences for violation of this statute include fines ($5,000 to $10,000), imprisonment (1 to 2 years), property forfeiture, and lease/license forfeiture.

Title 800 OAC, Section 25-19 Oklahoma Endangered Species (1992).

The purpose of this Oklahoma State statute is to facilitate the perpetuation of self-sustaining population levels of native wildlife species and thereby maintain the diversity of wildlife in Oklahoma. This document sets forth the criteria for the classification of wildlife into State threatened, State endangered, and special concern species. Subchapter 19-3 defines classifications and Subchapter 19-6 provides the official list of classified species according to provisions of this statute.

3.2.1.4.4. Historical Records of Threatened and/or Endangered Species at the Mike Monroney Aeronautical Center

An examination of MMAC records regarding Federally-listed and State-listed threatened and endangered species was conducted. These records do not indicate that Federal actions on MMAC

lands have ever been halted or delayed due to issues associated with the ESA. An investigation of critical habitat for threatened and endangered species conducted in 1990 did suggest that habitat for the prairie mole cricket (Gyrllotalpa major) might exist on a native prairie site on the MMAC. However, associated official correspondence from the USFWS and the ODWC did not indicate scientific or regulatory concern. Information from previously filed Environmental Assessments (EA=s), Environmental Impact Statements (EIS=s) and other pertinent correspondence (USFWS, ONHI, and ODWC) indicates that no threatened and/or endangered species have been reported to exist on the MMAC.

3.2.1.4.5. Occurrence Records of Threatened and/or Endangered Species

Because field surveys and MMAC records did not reveal the presence of any recorded history of threatened and endangered species existing on the MMAC, no discussion of occurrence is presented. Refer to paragraph 3.2.1.2.4 for regional occurrence information.

3.2.1.4.6. Literature Cited

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Oklahoma Department of Wildlife Conservation. 1997. Oklahoma=s Most Wanted: The Texas Horned Lizard. Wildlife Diversity Program, Public Brochure.

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U.S. Fish and Wildlife Service. 32 CFR 4001, March 11, 1967; Bald Eagle (Haliaeetus leucocephalus). Endangered.

U.S. Fish and Wildlife Service. 43 CFR 6233, February 14, 1978; Bald Eagle (Haliaeetus leucocephalus). Endangered.

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U.S. Fish and Wildlife Service. 35 CFR 8495, June 2 1970; American Peregrine Falcon (Falco peregrinus anatum). Endangered.

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U.S. Fish and Wildlife Service. 35 CFR 8495, June 2, 1970; Whooping Crane (Gnus Americana). Endangered.

U.S. Fish and Wildlife Service. 43 CFR 20938, May 15, 1978; Whooping Crane (Gnus Americana). Critical Habitat Designation.

U.S. Fish and Wildlife Service. 50 CFR 21784, May 28, 1985; Interior Least Tern (Sterna antillarum). Endangered.

U.S. Fish and Wildlife Service. 50 CFR 50726, December 11, 1985; Piping Plover (Charadrius melodus). Endangered.

3.2.1.4.7.

Field Notes

3.2.1.4.8.

Correspondence