

**ATTACHMENT 3-6
INTERIM STORAGE PARTNERS (ISP),
WASTE CONTROL SPECIALISTS (WCS):
ECOLOGICAL RESOURCES REPORT**

INTERIM STORAGE PARTNERS (ISP), WASTE CONTROL SPECIALISTS (WCS): ECOLOGICAL RESOURCES REPORT



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1.0 INTRODUCTION AND PROJECT DESCRIPTION

Interim Storage Partners, LLC (ISP) is requesting authorization to construct and operate a Consolidated Interim Storage Facility (CISF) in Andrews County, Texas (**Figure 1** and **Figure 2**). ISP has submitted a license application for a CISF for approval by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the requirements specified in Title 10 of the Code of Federal Regulations (CFR), Part 72, Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste. The CISF would be constructed and operated on an approximately 100-acre initial footprint within approximately 320 acres, where security would be maintained. The CISF would be located north of and adjacent to the existing Waste Control Specialists (WCS) Low-Level Radioactive Waste Disposal Facilities licensed by the TCEQ in accordance with Texas Radioactive Material License No. R04100. This property will be referred to as the “survey area” henceforth. The Low-Level Radioactive Waste Disposal Facility is located on 1,338 acres in Andrews County, Texas.

CMEC understands that Ecological Resources Reports have been conducted for the survey area in 1997, 2004, and 2007 (Ecology Group 1997, Doug Regan & Associates 2004, and URS Corporation 2007). The purpose of this report is to document any site-specific changes from previously documented conditions and address specific issues of concern regarding ecological resources within the survey area. This Ecological Resources Report includes:

- A description of the principal ecological features of the survey area and immediate vicinity, transportation corridors, and region, with an emphasis on the plant and animal communities that may be affected by the proposed action;
- A description of ecological resources and habitat needs of species in the survey area;
- A complete species list of state and federally listed threatened and endangered species; and
- A summary of the consultations with appropriate agencies.

Survey area figures are included in **Attachment A**. **Figure 1** depicts an aerial image of the survey area, **Figure 2** depicts a topographic map of the survey area, **Figure 3** depicts the survey area geology, **Figure 4** depicts the survey area soils, **Figure 5** depicts the Vegetation Types of Texas (TPWD) within the survey area, **Figure 6** depicts the observed vegetation within the survey area, and **Figure 7** depicts the Texas Natural Diversity Database (TXNDD) Element Occurrence records within the survey area. **Figure 8** depicts Lesser Prairie-Chicken Critical Habitat and Listening Stations. Photographs of the survey area are included in **Attachment B**. Data forms from the Lesser Prairie-Chicken (LPC) Presence/Absence Survey are included in **Attachment C**. **Attachment D** includes the Andrews County Rare, Threatened, and Endangered Species of Texas List. **Attachment E** includes the USFWS Information for Planning and Consultation Report.

2.0 PROTECTED SPECIES REGULATIONS

Rare species are protected under the federal Endangered Species Act, the federal Bald and Golden Eagle Protection Act, and state regulations, as discussed below.

2.1 FEDERAL ENDANGERED SPECIES ACT

Federally listed threatened or endangered species and their habitats are protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544, 87 Stat. 884). Specifically, the Act authorizes the determination and listing of species as endangered or threatened; prohibits unauthorized taking, possession, sale, and transport of endangered species; provides authority for land acquisition for conservation of listed species using land and water conservation funds; authorizes the establishment of cooperative agreements and grants-in-aid to states that establish and maintain threatened and endangered species programs; authorizes assessment of civil and criminal penalties for violating the Act; and authorizes payment of rewards for information leading to arrest and conviction of violations of the Act. There have been various amendments to the Act, including provisions for designation of critical habitat, recovery plans, and monitoring for candidate and recovered species.

2.2 BALD AND GOLDEN EAGLE PROTECTION ACT

Bald Eagles (*Haliaeetus leucocephalus*) and Golden Eagles (*Aquila chrysaetos*) are afforded protection under the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668d, 54 Stat. 250). The law generally prohibits the taking, possession, and commerce of the two species. Amendments in 1972 and 1978 increased penalties for violation of the Act, provided rewards for information leading to arrest and conviction for violation of the Act, and authorized the Secretary of the Interior to permit taking of Golden Eagle nests that interfere with resource development or recovery. A 1994 Executive Memorandum set policy concerning collection and distribution of eagle feathers for Native American religious purposes.

2.3 STATE OF TEXAS ENDANGERED SPECIES REGULATIONS

The Texas Parks and Wildlife Department (TPWD) regulations prohibit the taking, possession, transport, or sale of individuals of any state-designated endangered or threatened animal species without issuance of a permit (Texas Parks and Wildlife [TPW] Code Chapters 67–68 and Texas Administrative Code [TAC] Title 31, Sections 65.171–65.176). Commerce of state-designated endangered or threatened plant species is also prohibited, as is collection of listed plant species from public land without a permit (TPW Code Chapter 88 and TAC Title 31, Sections 69.01–69.9).

2.4 MIGRATORY BIRD TREATY ACT OF 1918

The Migratory Bird Treaty Act of 1918 makes it unlawful to “pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment,

ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird... or any part, nest, or egg of any such bird” (16 U.S.C. 703).

3.0 METHODS OF HABITAT ASSESSMENT

3.1 LITERATURE REVIEW

Lists of threatened and endangered species maintained by the United States Fish and Wildlife Service (USFWS) and TPWD were consulted for Andrews County in order to determine which species could potentially occur in the survey area and whether critical habitat has been designated for those species (USFWS 2019; TPWD 2019b). Habitat requirements for each species were determined based on a number of sources, including USFWS, TPWD, and species-specific literature reviews.

TPWD's live version of the Texas Natural Diversity Database (TXNDD) was consulted on April 30, 2019, for information regarding recorded occurrences of listed and rare species (TPWD 2019a). TXNDD provides known historical records for rare, threatened, and endangered species. Occurrence data are generally presented by TPWD as large polygons rather than point location data (for protection of the species). Information files were reviewed for the known locations of species in the *Hobbs SE, Brinson Ranch, Eunice NE, Jumbo Hill, Eunice SE, and Frankel City SW, Texas* U.S. Geological Survey (USGS) 7.5-minute topographical quadrangle maps (which include the survey area and surrounding vicinity) (**Figure 3**).

3.2 FIELD HABITAT ASSESSMENT

Qualified biologists from Cox | McLain Environmental Consulting, Inc. (CMEC) conducted site visits in October 2018 and April 2019 in order to evaluate ecological conditions within the survey area. CMEC holds a USFWS-issued native endangered and threatened species recovery permit (#TE168185-5) and a TPWD scientific research permit (#SPR-0691-409).

During the field visits, CMEC biologists performed a native wildlife species survey and characterized observed vegetation types. Vegetation types were identified based on species composition, canopy cover, and morphology. The specific habitat requirements for each threatened or endangered species were then compared to the vegetation present to determine whether appropriate habitat for the species occurs within the survey area. Additionally, all audible calls were identified to species and visually observed wildlife were recorded for each site visit (October 2018 and April 2019). A full list of observed species identified is included in **Table 5**.

3.3 LESSER PRAIRIE-CHICKEN PRESENCE/ABSENCE SURVEY

The Western Association of Fish and Wildlife Agencies (WAFWA) Crucial Habitat Assessment Tool (CHAT) indicates that the survey area is located within modeled habitat for the LPC (**Figure 8**). Field investigations conducted in October 2018 by CMEC confirmed the potentially suitable habitat for LPC within the survey area.

The LPC was previously federally listed threatened by the USFWS. As of July 19, 2016, due to a court order, the LPC was removed from the List of Endangered and Threatened Wildlife. Currently, the LPC

is under review by the USFWS and has been designated as a Species of Greatest Conservation Need in Texas. While this species is not afforded any regulatory protection at this time, it is of federal and state importance.

A LPC survey was conducted in Andrews County in 2004 that yielded negative results (Lyons 2004). Despite the negative results of the survey in 2004, a presence/absence survey for the LPC was conducted by CMEC within the survey area during the April 2019 field investigations after observing potentially suitable habitat in October 2018 in the Havard Oak Dunes vegetation type (approximately 76 acres) within the northern extent of the survey area (**Figure 6**). The survey was conducted by Ryan Blankenship (who has completed WAFWA' technical service provider (TSP) training in 2016) in accordance with the *Western Association of Fish and Wildlife Agencies' LPC Survey Protocol for Project Clearance (Updated February 2016)*.

The survey was conducted over three days during the April 2019 site visit to verify the presence/absence of this species. Surveys were conducted in the morning hours, lasted approximately 1.5 hours, and consisted of utilizing seven fixed-point listening stations which were placed within the survey area and within a one-mile vicinity of the survey area (**Figure 8**). This diurnal survey time is optimal for observing LPC that may occur within or adjacent to the survey area. The survey was conducted during the LPC survey timeframe outlined in the *Western Association of Fish and Wildlife Agencies' LPC Survey Protocol for Project Clearance (Updated February 2016)* survey protocol. Observers listened for audible calls and visually surveyed suitable habitat within a 5-minute time period at each fixed-point listening station each day. **Attachment C** includes the dates and times for each survey event and atmospheric conditions (temperature, wind speed, and cloud cover).

4.0 DESCRIPTION OF THE SURVEY AREA AND SURROUNDING AREA

4.1 LAND USES

The survey area is located within the High Plains Level III Ecoregion (EPA 2013). The survey area primarily consists of vacant, undeveloped land. Surrounding land use is also primarily undeveloped land with heavy industrial sites in the vicinity of the survey area.

Bisecting the central extent of the survey area is a haul road. Additionally, there are several arterial two-track 4x4 roads within the survey area that provide increased access. East of the survey area, there are material stockpile areas. A portion of the westernmost stockpile partially enters the northeastern extent of the survey area.

Immediately south of the survey area is a 1,338-acre property currently owned by WCS. The facilities within this property comprise a commercial waste management facility. To facilitate operations within the commercial waste management facility, there is a maintained dirt road network that connects the various structures and features within the facility.

4.2 TOPOGRAPHY

Topography of the survey area is slightly sloping throughout. Elevations are highest in the northern extent and sloping down toward the southern extent. Elevations range approximately 3,485 feet in the southwestern extent to 3,521 feet above mean sea level in the northern extent.

The USGS topographic map (**Figure 3**) depicts a single drill hole in the central extent of the survey area. A two-track 4x4 road runs west to east in the western extent of the survey area. No water features are mapped within the extent of the survey area. A single open water feature is depicted adjacent to the eastern survey area boundary and existing rail line. The topographic features within the *Eunice NE* USGS 7.5-minute topographical quadrangle map were generally confirmed within the survey area during the October 2018 and April 2019 field investigations.

4.3 GEOLOGY AND SOILS

The survey area is located on four geologic substrates: Windblown Sand (dunes, dune ridges, and sheets undivided), Windblown Cover Sand, Ogallala Formation, and Playa Deposits (**Figure 3**) (Texas Natural Resource Information System 2018).

Information regarding soils within the survey area was obtained from the United States Department of Agriculture NRCS Soil Survey for Andrews County, Texas (NRCS 2019). Four soil map units are found within the survey area. Information regarding these soil map units are provided in **Table 1**, and the mapped soils are depicted on **Figure 4**.

Table 1: Survey Area Soils

Map Unit Symbol	Map Unit Name	Hydric?
BcB	Blakeney and Conger soils, gently undulating	No
JPC	Jalmar-Penwell association, undulating	No
RaB	Ratliff soils, gently undulating	No
TwB	Triomas and Wickett soils, gently undulating	No

Sources: USDA NRCS 2019.

5.0 VEGETATION

The survey area is located within the *Havard Shin-Oak-Mesquite Brush* Vegetation Type of Texas (TPWD 2003) (**Figure 5**). During field investigations, three distinct vegetation types were observed within the survey area. Identification of the vegetation types was based on species composition, canopy cover, and morphology. The observed vegetation types located within the survey area are summarized in **Table 2** and depicted on **Figure 6**.

Table 2: Observed Vegetation Types within the Survey Area

Observed Vegetation Type	Acreage within the Survey Area
Mesquite Thorn-Scrub	230.5
Havard Oak Dunes	76.0
Maintained Grassland	17.8

5.1 MESQUITE THORN-SCRUB

The Mesquite Thorn-Scrub observed vegetation type is mostly located within the central and southern extents of the survey area. The woody vegetation in this area is dominated by honey mesquite (*Prosopis glandulosa*) trees and saplings. Other woody vegetation includes Havard oak (*Quercus havardii*), fourwing saltbush (*Atriplex canescens*), Peruvian peppertree (*Schinus molle*), and Siberian elm (*Ulmus pumila*). The herbaceous community consisted of pricklypear (*Opuntia* sp.), silverleaf nightshade (*Solanum elaeagnifolium*), Lehmann lovegrass (*Eragrostis lehmanniana*), hooded windmill grass (*Chloris cucullata*), broom snakeweed (*Gutierrezia sarothrae*), blue grama (*Bouteloua gracilis*), soft goldenaster (*Chrysopsis pilosa*), prairie tea (*Croton monanthogynus*), scarlet globemallow (*Sphaeralcea coccinea*), red lovegrass (*Eragrostis secundiflora*), horse crippler (*Echinocactus texensis*), plains bristlegrass (*Setaria vulpiseta*), smut grass (*Sporobolus indicus*), purple threeawn (*Aristida purpurea*), annual ragweed (*Ambrosia artemisiifolia*), sand sagebrush (*Artemisia filifolia*), yucca (*Yucca* sp.), plains blackfoot (*Melampodium leucanthum*), coastal sandbur (*Cenchrus spinifex*), camphorweed (*Heterotheca subaxillaris*), longleaf jointfir (*Ephedra trifurca*), and twinleaf senna (*Senna bauhinioides*). Approximately 230.5 acres of this vegetation type would be impacted by the proposed project.

This vegetation type provides potentially suitable habitat for an array of migratory bird species as well as the state-listed Texas horned lizard. Animal species observed within this vegetation type during the October 2018 and/or April 2019 site visits included, but are not limited to: black-tailed jackrabbit, eastern cottontail, mule deer, javelina, robber fly, red harvester ant (and mounds), six-lined racerunner, and various bird species and inactive nests.

5.2 HAVARD OAK DUNES

The Havard Oak Dunes observed vegetation type is mostly located within the northern extent of the survey area. The woody vegetation in these areas is dominated by Havard oak. The herbaceous vegetation in this area consisted of Indiangrass (*Sorghastrum nutans*), camphorweed, coastal sandbur, field ragweed, woolly groundsel (*Packera cana*), touristplant (*Dimorphocarpa wislizeni*), narrowleaf four

o'clock (*Mirabilis linearis*), yucca, Texas wintergrass (*Nassella leucotricha*), dallisgrass (*Paspalum dilatatum*), little bluestem (*Schizachyrium scoparium*), queen's-delight (*Stillingia sylvatica*), Lehmann lovegrass, flaxflowered ipomopsis (*Ipomopsis longiflora*), and false boneset (*Brickellia eupatorioides*). Approximately 76.0 acre of this vegetation type would be impacted by the proposed project.

This vegetation type provides potentially suitable habitat for an array of migratory bird species, dunes sagebrush lizard (Species of Greatest Conservation Need (SGCN)), and Lesser Prairie-Chicken (SGCN). Animal species observed within this vegetation type during the October 2018 and/or April 2019 site visits included, but are not limited to western box turtle, queen butterfly, and various bird species and inactive bird nests.

5.3 MAINTAINED GRASSLAND

The Maintained Grassland observed vegetation type is mostly located within the central extent of the survey area along the maintained roadway and graded area. This area is maintained and largely devoid of woody vegetation. Sparse honey mesquite saplings are present. The herbaceous community consisted of threadleaf ragwort (*Senecio flaccidus*), soft goldenaster, lovegrass (*Eragrostis* sp.), silverleaf nightshade, hooded windmill grass, sandmat (*Chamaesyce* sp.), western tansymustard (*Descurainia pinnata*), coastal sandbur, annual ragweed, pigweed (*Amaranthus* sp.), hairy grama (*Bouteloua hirsuta*), scarlet globemallow, and prairie tea. Approximately 17.8 acres of this vegetation type would be impacted by the proposed project.

This vegetation type provides potentially suitable habitat for an array of migratory bird species as well as the state-listed Texas horned lizard. Animal species observed within this vegetation type during the October 2018 and/or April 2019 site visits included, but are not limited to eastern cottontail, various bird species, and inactive bird nests.

6.0 THREATENED AND ENDANGERED SPECIES HABITAT ASSESSMENT

6.1 LISTED SPECIES OF ANDREWS COUNTY

Lists of threatened and endangered species maintained by the USFWS and TPWD were consulted to determine species of potential occurrence in the vicinity of the survey area. In all, 41 federally listed endangered, threatened, candidate species or state-listed endangered, threatened species, or SGCNs were identified as having the potential to occur in Andrews County, TX (TPWD 2019b; USFWS 2019). **Table 2** contains a list of these species, their regulatory listing status, habitat description, and a determination of whether appropriate habitat for the species occurs in the survey area. Two insect species are listed on the Andrews County Rare, Threatened, and Endangered Species of Texas list provided by TPWD with no available habitat description (TPWD 2019b). Because no habitat information is available for these species, they are excluded from **Table 2**. The complete county list is available in **Attachment D**.

6.2 WILDLIFE

The survey area includes a mixture of native and invasive vegetative species. Habitat types contained within the survey area provide potentially suitable habitat for a variety of terrestrial and avian species. Numerous species of migratory and resident wildlife, including songbirds (*Passeriformes*) and game species, may utilize the survey area for breeding and foraging.

Wildlife species identified through sightings, tracks, or scat during spring October 2018 and April 2019 field investigations included plant, reptile, avian, and mammal species. A complete list of observations can be found in **Table 3**.

Table 3: Rare, Threatened, and Endangered Species of Potential Occurrence in Andrews County, Texas

Species	Federal Status	State Status	Habitat Description	Potential Habitat Present?	Effect/Impact on the Species	Justification
PLANTS						
Cory's ephedra <i>Ephedra coryi</i>	NL	SGCN	Dune areas and dry grasslands in the southern Plains Country; Perennial; Flowering April-Sept; Fruiting May-Sept	Yes	May impact	Both dune areas and dry grasslands occur in the survey area. This species was observed within the survey area during the April 2019 site visit (Attachment B).
Dune umbrella-sedge <i>Cyperus onerosus</i>	NL	SGCN	Moist to wet sand in swales and other depressions among active or partially stabilized sand dunes; flowering/fruitlet late summer-fall	Yes	No impact	Although swales and other depressions among active or partially stabilized sand dunes are present, no individuals of this species were observed during the April 2019 site visit.
Dune unicorn-plant <i>Proboscidea sabulosa</i>	NL	SGCN	Deep, dry to seasonally moist loose sands on sparsely vegetated, unstabilized dunes and in openings in shinneries; in New Mexico, one location found as a secondary successional species in fallow fields; does not germinate in years with inadequate summer rainfall, but may be locally abundant during unusually wet summers; flowering July-August, with fruits maturing in fall	Yes	No impact	Deep, dry to seasonally moist loose sands on sparsely vegetated, unstabilized dunes are present within the survey area. However, no individuals of this species were observed during the April 2019 site visit.
Hinckley's spreadwing <i>Eurytaenia hinckleyi</i>	NL	SGCN	Loose sandy soils of the Monahans/Kermit Sandhills; Annual; Flowering/Fruiting May-July	No	No impact	While loose sandy soils are present within the survey area, the survey area is outside of the Monahans/Kermit Sandhills.
FISHES						
Blue Sucker <i>Cypleptus elongatus</i>	NL	T	Usually inhabits channels and flowing pools with a moderate current, with bottoms of exposed bedrock sometimes in combination with hard clay, sand, and gravel; generally intolerant of highly turbid conditions. Larger portions of major rivers in Texas; adults winter in deep pools and move upstream in spring to spawn on riffles	No	No impact	The survey area occurs within the Rio Grande basin. No water features occur within the survey area.

Species	Federal Status	State Status	Habitat Description	Potential Habitat Present?	Effect/Impact on the Species	Justification
Headwater Catfish <i>Ictalurus lupus</i>	NL	SGCN	Originally throughout streams of the Edwards Plateau and the Rio Grande basin, currently limited to Rio Grande drainage, including Pecos River basin; springs, and sandy and rocky riffles, runs, and pools of clear creeks and small rivers	No	No impact	The survey area does occur within the Rio Grande basin. However, no water features occur with the survey area.
Smalleye Shiner <i>Notropis buccula</i>	LE	T	Endemic to upper Brazos River system and its tributaries (Clear Fork and Bosque); apparently introduced into adjacent Colorado River drainage; medium to large prairie streams with sandy substrate and turbid to clear warm water; presumably eats small aquatic invertebrates	No	No effect	The survey area occurs within the Rio Grande basin. This species is endemic to the Upper Brazos River. In addition, no water features occur within the survey area.
AMPHIBIANS						
Woodhouse's toad <i>Anaxyrus woodhousii</i>	NL	SGCN	Extremely catholic up to 5000 feet, does very well (except for traffic) in association with man.	Yes	May impact	Survey area is vast and devoid of structures. Habitat is present within the survey area. No individuals of this species were observed during the October 2018 or April 2019 site visits.
REPTILES						
Dunes sagebrush lizard <i>Sceloporus arenicolus</i>	NL	SGCN	Confined to active sand dunes near Monahans; dwarf shin-oak sandhills with sagebrush and yucca; opportunistic insectivore; sit and wait predator; burrows in sand or plant litter to escape enemies	Yes	May impact	Sand dunes and dwarf shin-oak sandhills occur in the northern section of the survey area within the observed Havard Oak Dunes vegetation type. No individuals of this species were observed during the October 2018 or April 2019 site visits. A single individual was observed during a survey conducted in 2004 by others (Lyons 2004).
Massasauga <i>Sistrurus tergeminu*</i>	NL	SGCN	Quite common in gently rolling prairie occasionally broken by creek valley or rocky hillside.	Yes	May impact	The survey area is characterized by a gently rolling landscape. This species has the potential to occur within the survey area. No individuals of this species were observed during the October 2018 or April 2019 site visits.

Species	Federal Status	State Status	Habitat Description	Potential Habitat Present?	Effect/Impact on the Species	Justification
Texas Horned Lizard <i>Phrynosoma cornutum</i>	NL	T	Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area. Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September.	Yes	May impact	Open, arid, and semi-arid areas with sparse vegetation occur in the survey area. Harvester ant mounds (the primary prey item for this species) were identified within the survey area during field visits. No individuals of this species were observed during either the spring or fall field visits.
Western box turtle <i>Terrapene ornata</i>	NL	SGCN	Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.	Yes	May impact	Sandhills/dunes occur in the survey area. Multiple individuals of this species were observed during both the October 2018 and April 2019 field investigations (Table 3).
Western hognose snake <i>Heterodon nasicus</i>	NL	SGCN	Habitat consists of areas with sandy or gravelly soils, including prairies, sandhills, wide valleys, river floodplains, bajadas, semiagricultural areas (but not intensively cultivated land), and margins of irrigation ditches (Degenhardt et al. 1996, Hammerson 1999, Werler and Dixon 2000, Stebbins 2003). Also thornscrub woodlands and chaparral thickets. Seems to prefer sandy and loamy soils, not necessarily flat. Periods of inactivity are spent burrowed in the soil or in existing burrows. Eggs are laid in nests a few inches below the ground surface (Platt 1969).	Yes	May impact	Sandy and gravelly soils were observed within the survey area. The observed Mesquite Thorn-Scrub vegetation type was present within the central and southern extents of the survey area. The survey area is characterized by a gently sloping landscape. This species has the potential to occur within the survey area, however, none were observed during the October 2018 or April 2019 site visits.

Species	Federal Status	State Status	Habitat Description	Potential Habitat Present?	Effect/Impact on the Species	Justification
Western rattlesnake <i>Crotalus viridis</i>	NL	SGCN	Grassland, both desert and prairie; shrub desert rocky hillsides; edges of arid and semi-arid river breaks.	Yes	May impact	Observed vegetation types included Maintained Grassland and Mesquite Thorn-Scrub. This species has the potential to occur within the survey area, however, none were observed during the October 2018 or April 2019 site visits.
BIRDS						
American Peregrine Falcon <i>Falco peregrinus anatum*</i>	DL	T	Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	No	No impact	No breeding or wintering habitat is present within the proposed project area. The species is a potential migrant; any use of the survey area would be incidental.
Bald Eagle <i>Haliaeetus leucocephalus</i>	DL	T	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	No	No impact	No breeding or wintering habitat is present within the proposed project area. The species is a potential migrant; any use of the survey area would be incidental.
Franklin's Gull <i>Leucophaeus pipixcan</i>	NL	SGCN	Nests in marshes and along inland lakes. Winters along the coast in bays, estuaries, and along sandy beaches (Burger and Gochfeld 2009).	No	No impact	No breeding or wintering habitat is present within the proposed project area. The species is a potential migrant; any use of the survey area would be incidental.
Interior Least Tern <i>Sterna antillarum*</i>	LE	E	Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	No	No effect	No sand or gravel bars within braided streams occur within the survey area. Additionally, the USFWS only considers impacts to this species for Wind Energy Projects. No breeding or wintering habitat is present within the proposed project area. The species is a potential migrant; any use of the survey area would be incidental.

Species	Federal Status	State Status	Habitat Description	Potential Habitat Present?	Effect/Impact on the Species	Justification
Lesser Prairie-Chicken <i>Tympanuchus pallidicinctus</i>	NL	SGCN	Arid grasslands, generally interspersed with shrubs such as sand sagebrush, sand plum, skunkbush sumac, and shinnery oak shrubs, but dominated by sand dropseed, sideoats grama, sand bluestem, and little bluestem grasses; nests in a scrape lined with grasses	Yes	No impact	Priority Level 3 and 4 (“crucial”) habitat modeled by the Western Association of Fish and Wildlife Agencies Crucial Habitat Assessment Tool is present throughout survey area. Havard Oak Dunes and Maintained Grassland vegetation types were observed throughout the survey area. This species has the potential to occur within the survey area, however, no individual were heard or seen during field site visits at listening locations during the April 2019 site visit.
Mountain Plover <i>Charadrius montanus*</i>	NL	SGCN	Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous	No	No impact	No breeding is present within the survey area. The species is a potential migrant; any use of the survey area would be incidental.
Northern Aplomado Falcon <i>Falco femoralis septentrionalis*</i>	LE	E	Open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species	Yes	No effect	Inactive stick nests were observed throughout the survey area. Other raptor species (<i>Accipiter</i> sp. and <i>Buteo</i> sp.) were observed. The survey area is characterized by an open, gently sloping landscape and the Mesquite Thorn-Scrub vegetation type within the central and southern extents of the survey area. No individuals of the species were observed, and no active nesting was observed. The site visits conducted in October 2018 and April 2019 were both conducted during the breeding season, and no individuals were observed (Baich and Harrison 2005). The species is a potential migrant; any use of the survey area would be incidental.

Species	Federal Status	State Status	Habitat Description	Potential Habitat Present?	Effect/Impact on the Species	Justification
Piping Plover <i>Charadrius melodus</i> *	LT	T	<p>Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.</p>	No	No effect	<p>No beaches, sandflats, or dunes are located within the survey area. Additionally, the USFWS only considers impacts to this species for Wind Energy Projects. No breeding or wintering habitat is present within the proposed project area. The species is a potential migrant; any use of the survey area would be incidental.</p>

Species	Federal Status	State Status	Habitat Description	Potential Habitat Present?	Effect/Impact on the Species	Justification
Red Knot <i>Calidris canutus rufa*</i>	LT	NL	Red knots migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. The Red Knot prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Primary prey items include coquina clam (<i>Donax</i> spp.) on beaches and dwarf surf clam (<i>Mulinia lateralis</i>) in bays, at least in the Laguna Madre. Wintering Range includes- Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore.	No	No effect	No coastal shoreline with mudflats exists within the survey area. Additionally, the USFWS only considers impacts to this species for Wind Energy Projects. No breeding or wintering habitat is present within the proposed project area. The species is a potential migrant; any use of the survey area would be incidental.
Western Burrowing Owl <i>Athene cucularia hypugaea</i>	NL	SGCN	Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows	Yes	May impact	Maintained Grassland was observed within the central extent of the survey area. Mammal burrows were observed throughout the survey area, but no individuals of this species were observed during the October 2018 or April 2019 site visits.
White-faced Ibis <i>Plegadis chihi</i>	NL	T	Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.	No	No impact	No breeding or wintering habitat is present within the proposed project area. The species is a potential migrant; any use of the survey area would be incidental.
MAMMALS						
American badger <i>Taxidea taxus</i>	NL	SGCN	This species occurs west of the Great Lakes region throughout the Great Plains and Rocky Mountains. Locally, they are most common in portions of West and South Texas although they occasionally are sighted in the eastern part of the state.	Yes	May impact	This species has been documented within Andrews County (Schmidly and Bradley 2016). The survey area is relatively open with the potential for small mammals (prey) to occur. This species has the potential to occur within the survey area, however, no individuals were observed during the October 2018 or April 2019 site visit.

Species	Federal Status	State Status	Habitat Description	Potential Habitat Present?	Effect/Impact on the Species	Justification
Big free-tailed bat <i>Nyctinomops macrotis</i>	NL	SGCN	Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore	No	No impact	No roosting habitat (canyons or buildings) is located within the survey area. This species might use the air space within the vicinity of the survey area to forage.
Black-tailed prairie dog <i>Cynomys ludovicianus</i>	NL	SGCN	Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups	Yes	No impact	Sparsely vegetated areas occur with the survey area. No prairie dog town were observed during the Fall 2018 or Spring 2019 site visits. This species is not expected to occur within the survey area.
Eastern red bat <i>Lasiurus borealis</i>	NL	SGCN	Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.	No	No impact	The survey area contains Havard Oak Dunes and Mesquite Thorn-Scrub vegetation types. These areas are not densely wooded enough to provide suitable roosting habitat. This species might use the air space within the vicinity of the survey area to forage.
Hoary bat <i>Lasiurus cinereus</i>	NL	SGCN	Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.	No	No impact	Montane and riparian woodlands do not occur within the survey area. This species might use the air space within the vicinity of the survey area to forage.
Kit fox <i>Vulpes macrotis</i>	NL	SGCN	Open desert grassland; avoids rugged, rocky terrain and wooded areas.	Yes	May impact	The survey area contains Maintained Grassland and Mesquite Thorn-Scrub vegetation types. Mammal burrows were observed throughout the survey area, however no individuals of this species were observed.
Long-tailed weasel <i>Mustela frenata</i>	NL	SGCN	Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.	Yes	May impact	The survey area included brushlands, fence rows, and upland woods. Mammal burrows were observed throughout the survey area, however no individuals of this species were observed.
Mexican free-tailed bat <i>Tadarida brasiliensis</i>	NL	SGCN	Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.	Yes	No impact	The survey area is located in west Texas. This species might use the air space within the vicinity of the survey area to forage. No buildings or other structures that could be for roosting are present within the survey area.

Species	Federal Status	State Status	Habitat Description	Potential Habitat Present?	Effect/Impact on the Species	Justification
Mountain lion <i>Puma concolor</i>	NL	SGCN	Rugged mountains & riparian zones.	No	No impact	No rugged mountains or riparian zones occur within the survey area.
Pronghorn <i>Antilocapra americana</i>	NL	SGCN	Prefers hilly & plateau areas of open grassland, desert-grassland, & desert-scrub, where it frequents south-facing slopes & other sheltered areas.	Yes	No impact	The survey area does contain observed Maintained Grassland and Mesquite Thorn-Scrub vegetation types. However, the entire survey area is surrounded by fences, which this species is not expected to cross. This species was not observed during the October 2018 or April 2019 site visits and is not expected to occur within the survey area.
Thirteen-lined ground squirrel <i>Ictidomys tridecemlineatus</i>	NL	SGCN	Typical habitat is short-grass prairie, but they have invaded tall-grass areas where they live principally in pastures and along fencerows (Schmidly and Bradley 2016).	Yes	No Impact	The survey area is surrounded by fences, however, it does not contain prairie habitats. This species has not been observed within Andrews County and is not expected to occur within the survey area (Schmidly and Bradley 2016).
Western hog-nosed skunk <i>Conepatus leuconotus</i>	NL	SGCN	Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. <i>telmalestes</i>	Yes	No impact	Maintained Grassland was observed in the central extent of the survey area. This species has not been observed within Andrews county and is not expected to occur within the survey area (Schmidly and Bradley 2016).
Western spotted skunk <i>Spilogale gracilis</i>	NL	SGCN	This species has been recorded from the southwestern part of Texas, as north as Garza and Howard counties, and as east as Bexar and Duval counties (Schmidly and Bradley 2004).	Yes	No impact	The survey area occurs within Andrews County. The species has not been observed within this county and is not expected to occur within the survey area (Schmidly and Bradley 2016).
Status Codes:	E = State-listed Endangered T = State-listed Threatened LT= Federally Listed Threatened SGCN = Species of Greatest Conservation Need		LE = Federally Listed Endangered NL = Not Listed DL = Delisted			
* = Species not recognized by the TPWD as occurring within the county but designated by USFWS as potentially occurring within the survey area						

Sources: TPWD 2019b; USFWS 2019.

Table 4: Species Observed within the Survey Area

Common Name	Scientific Name	October 23, 2018	October 24, 2018	October 25, 2018	April 23, 2019	April 24, 2019	April 25, 2019
INSECTS							
Robber fly	<i>Asilidae</i>	X					
Queen butterfly	<i>Danaus gilippus</i>		X				
Dung beetle	<i>Phanaeus vindex</i>	X					
Red harvester ant	<i>Pogonomyrmex barbatus</i>	X		X		X	
Darkling beetle	<i>Tenebrionidae</i>	X					
REPTILES							
Six-lined racerunner	<i>Cnemidophorus sexlineatus</i>						X
Western Box turtle	<i>Terrapene ornata</i>	X			X		
BIRDS							
Grasshopper Sparrow	<i>Ammodramus savannarum</i>					X	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	X					
Swainson's Hawk	<i>Buteo swainsoni</i>				X	X	X
Lark Bunting	<i>Calamospiza melanocorys</i>				X		X
Scaled Quail	<i>Callipepla squamata</i>	X	X	X	X	X	X
Cactus Wren	<i>Campylorhynchus brunneicapillus</i>	X				X	
Northern Cardinal	<i>Cardinalis cardinalis</i>				X		
Pyrrhuloxia	<i>Cardinalis sinuatus</i>	X		X			
Hermit Thrush	<i>Catharus guttatus</i>			X	X		
Lark Sparrow	<i>Chondestes grammacus</i>					X	
Northern Harrier	<i>Circus hudsonius</i>	X	X	X	X		X
Northern Bobwhite	<i>Colinus virginianus</i>				X	X	X
American Crow	<i>Corvus corax</i>				X	X	
Chihuahuan Raven	<i>Corvus cryptoleucus</i>			X			
Ladder-backed Woodpecker	<i>Dryobates scalaris</i>	X			X		
American Kestrel	<i>Falco sparverius</i>	X		X	X	X	
Dark-eyed Junco	<i>Junco hyemalis</i>			X			
Loggerhead Shrike	<i>Lanius ludovicianus</i>	X	X	X	X	X	
Lincoln's Sparrow	<i>Melospiza lincolnii</i>				X		
Song Sparrow	<i>Melospiza melodia</i>					X	
Northern Mockingbird	<i>Mimus polyglottos</i>				X	X	X
Brown-headed Cowbird	<i>Molothrus ater</i>	X					
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>					X	X
Savannah Sparrow	<i>Passerculus sandwichensis</i>	X	X	X			
Vesper Sparrow	<i>Pooecetes gramineus</i>	X		X			

Common Name	Scientific Name	October 23, 2018	October 24, 2018	October 25, 2018	April 23, 2019	April 24, 2019	April 25, 2019
Great-tailed Grackle	<i>Quiscalus mexicanus</i>					X	
Ruby-crowned Kinglet	<i>Regulus calendula</i>			X			
Yellow-rumped Warbler	<i>Setophaga coronata</i>			X	X	X	
Dickcissel	<i>Spiza americana</i>			X			
Chipping Sparrow	<i>Spizella passerina</i>	X	X	X		X	
Field Sparrow	<i>Spizella pusilla</i>	X	X	X		X	X
Western Meadowlark	<i>Sturnella neglecta</i>	X	X	X	X	X	X
Curve-billed Thrasher	<i>Toxostoma curvirostre</i>			X			
Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>				X		X
Western Kingbird	<i>Tyrannus verticalis</i>					X	X
Cassin's Kingbird	<i>Tyrannus vociferans</i>				X		
Barn Owl	<i>Tyto alba</i>	X		X			
Mourning Dove	<i>Zenaida macroura</i>	X			X	X	X
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	X	X	X	X		
MAMMALS							
Mule deer	<i>Odocoileus virginianus</i>				X		
Black-tailed jackrabbit	<i>Lepus californicus</i>	X		X		X	X

6.3 DESCRIPTION OF STATE-LISTED SPECIES POTENTIALLY IMPACTED BY THE PROJECT

Texas Horned Lizard (*Phrynosoma cornutum*) – State-Listed Threatened (TX)

The Texas horned lizard is a flat-bodied lizard with horns on its head. It is found primarily in arid and semiarid habitats in open areas with sparse plant cover. Horned lizards dig for hibernation, nesting, and insulation purposes, and are commonly found in loose sand or loamy soils (TPWD 2010). The range of the Texas horned lizard stretches from the south-central U.S. (throughout much of Texas, Oklahoma, Kansas, and New Mexico) to northern Mexico. Once found throughout the state of Texas, populations have become increasingly rare in Central and North Texas and have nearly completely disappeared from East Texas. Now, they are mainly found throughout West Texas and the Panhandle (TPWD 2010). Horned lizards feed primarily on harvester ants (*Pogonomyrmex* sp.) and are typically found in areas with numerous harvester ant nests. The primary causes of the decline in Texas horned lizard populations is reduction in harvester ant populations (because of competition from imported fire ants [*Solenopsis invicta*]), as well as collection for the pet trade (TPWD 2009).

No recorded occurrences of the species have been noted within 1.5 miles of the survey area. It is likely that individuals utilize the survey area as potentially suitable habitat as ample harvester ant mounds are present. The proposed project may impact individual Texas horned lizards (should they occur within

the survey area). If any individuals of this state-listed species are observed within the project area during construction, care should be taken to avoid harming them, and the contractor should be educated about the potential presence of this species.

Species of Greatest Conservation Need

Although of importance to TPWD, they currently are not afforded regulatory protection. Twenty-eight SGCNs that have no additional federal conservation status have the potential to occur within Andrews County. Two of these species, dunes sagebrush lizard and Lesser Prairie-Chicken, while not listed, are of federal importance. The dunes sagebrush lizard is the subject of the Texas Conservation Plan for the Dunes Sagebrush Lizard (USFWS 2012). The Lesser Prairie-Chicken is currently under review by the U.S. Fish and Wildlife Service. Because of their special status, these two species are discussed in further detail below.

Dunes sagebrush lizard

The dunes sagebrush lizard is a small, light brown lizard with an average total body length of from 2.6 inches (males) and 2.8 inches (females) (Degenhardt et al. 1996). This species is diurnal, active during the morning and late afternoon. The dunes sagebrush lizard is most active March through October, with activity peaking mid-April through July during the breeding season (Fitzgerald and Painter 2009). This species diet consists primarily of small insects and other invertebrates (Degenhardt and Jones 1972, Fitzgerald and Painter 2009). Primary predators include predatory birds and snakes associated with their habitat (Hughes 1996, Yosef 1996, Smallwood and Bird 2002). The dunes sagebrush lizard is a habitat specialist associated with Havard oak dunes found in southeastern New Mexico and west Texas (Axtell 1988, Painter et al. 1999, Laurencio et al. 2007, Fitzgerald and Painter 2009, Laurencio and Fitzgerald 2010). This habitat provides necessary shelter for the dunes sagebrush lizard while also providing the necessary prey (Sena 1985, Fitzgerald et al. 1997, Peterson and Boyd 1998). The dunes sagebrush lizard was listed as a candidate species by the USFWS in 1982 but was never formally listed.

There are no recorded TXNDD Elements of Occurrence within 1.5 miles of the study area (**Figure 7**). In 2004, an individual was observed within the survey area during a survey conducted by Reagan and Associates, LLC (2004). During the April 2019 survey, no dunes sagebrush lizards were observed; however, a formal presence absence survey was not conducted. The study area does include the Havard Oak Dunes vegetation type. The study area is located within an area with a high and very high likelihood of occurrence for the species (Texas Comptroller of Public Accounts 2019).

Lesser Prairie-Chicken

The Lesser Prairie-Chicken is a medium-sized, grayish brown bird with a total body length of approximately 38-41 centimeters (Johnsgard 1983). The historical range of this species included Colorado, Kansas, New Mexico, Oklahoma, and Texas (USFWS 2019). Male displays typically take place at dusk and dawn from late February to early May with females arriving in mid-April. Vocalizations made during this time can be used to identify Lesser Prairie-Chicken leks (Copelin 1963,

Haukos 1988). Lesser Prairie-Chickens prefer native short- and mixed-grass prairies with a shrub component dominated by sand sagebrush or shinnery oak (Taylor and Guthery 1980b, Giesen 1998). This species requires a relatively large, unfragmented, diverse nativescape that does not overlap with another lek. It was estimated by Taylor and Guthery (1980b) that a minimum contiguous area of at least 7,9000 acres and with at least 63 percent of preferred habitat would meet the minimum requirements for a single lek.

Although potentially suitable habitat for the LPC is located within the survey area, the April 2019 presence/absence survey did not locate any individuals of these species within the survey area. There are no recorded TXNDD Elements of Occurrence within 1.5 miles of the study area (**Figure 7**). It is believed that the habitat located within the survey area is not occupied by these species at this time. A summary of the Lesser Prairie-Chicken survey effort is included in **Table 5** and **Attachment C**. The results of this survey effort are consistent with a statewide survey conducted in 2000 and a survey conducted within and adjacent to the survey area in 2004 (NMDGF 2000, Lyons 2004).

6.4 ELEMENTS OF OCCURRENCE RECORDS

According to TPWD’s TXNDD data for the *Hobbs SE, Brinson Ranch, Eunice NE, Jumbo Hill, Eunice SE, and Frankel City SW, Texas* quadrangles (received on April 30, 2019), no elements of occurrence (EO) are mapped within the survey area (**Figure 7** and **Table 4**) (TPWD 2019a).

6.5 SUMMARY OF THREATENED AND ENDANGERED SPECIES PRESENCE/ABSENCE SURVEYS

The survey area includes potentially suitable habitat for the Lesser Prairie-Chicken. This species is not federally listed but is a Species of Greatest Conservation Need in Texas. A presence/absence survey was conducted within the survey area during the April 2019 site visit in accordance with the *Western Association of Fish and Wildlife Agencies’ LPC Survey Protocol for Project Clearance (Updated February 2016)*. The weather conditions, survey period times, and observations made during each survey were recorded and are provided in **Appendix C**. A complete summary of the survey dates and species observations is provided in **Table 5**.

Table 5: Presence/Absence Survey Results

Date of Survey	Number of Lesser Prairie-Chicken	Notes
April 23, 2019	0	No Lesser Prairie-Chickens observed or heard.
April 24, 2019	0	No Lesser Prairie-Chickens observed or heard.
April 25, 2019	0	No Lesser Prairie-Chickens observed or heard.

7.0 AGENCY COORDINATION

7.1 USFWS COORDINATION

Prior to the October 2018 and April 2019 field investigations, the USFWS Official Species lists were generated using IPaC to identify any potential federal resources within the survey area. Four species were identified by the Austin Ecological Services Field Office Official Species List: Least Tern (*Sterna antillarum*, Endangered), Northern Aplomado Falcon (*Falco femoralis septentrionalis*, Endangered), Piping Plover (*Charadrius melodus*, Threatened), and Red Knot (*Calidris canutus rufa*, Threatened). No Critical Habitats under the jurisdiction of the Austin Ecological Services Field Office were identified.

Based on the opinions of qualified biologists, none of the federal resources identified by the USFWS IPaC query are likely to be affected by the proposed project. Because a “no effect” determination was made for the identified federal resources, there is no need to seek concurrence with USFWS. Should the proposed project plans be altered in the future, the information and opinions contained in this report should be reevaluated.

7.2 TPWD COORDINATION

The TPWD Annotated County List of Rare Species for Andrews County was consulted prior to the October 2018 and April 2019 field investigations. Nine state-listed threatened or endangered species were identified as having the potential to occur with Andrews County. Twenty-nine species designated by TPWD as SGCNs have the potential to occur within Andrews County. Although of importance to TPWD, these species currently are afforded no regulatory protection.

According to TPWD’s TXNDD data for the *Hobbs SE, Brinson Ranch, Eunice NE, Jumbo Hill, Eunice SE, and Frankel City SW*, Texas quadrangles (received on April 30, 2019), no elements of occurrence are mapped as occurring within the survey area or within 1.5 miles of the survey area (**Figure 7**) (TPWD 2019).

Potentially suitable habitat for one state-listed threatened species, the Texas horned lizard, is present within the Mesquite Thorn-Scrub observed vegetation type within the survey area. There is no regulatory requirement to conduct pre-construction presence/absence surveys for this species. However, state law prohibits direct harm to state-listed species. If any individuals of these state-listed species are observed within the survey area during construction, care should be taken to avoid harming them, and the contractor should be educated about the potential presence of these species

8.0 SUMMARY AND RECOMMENDATIONS

8.1 LAND USES

The proposed project is anticipated to change the currently vacant, undeveloped land to facilitate the construction of a consolidated interim storage facility.

8.2 VEGETATION

Impacts to vegetation would be limited to the construction phase of the proposed project. Select site clearing and thinning of vegetation is proposed within footprint of the consolidated interim storage facility and associated facilities within the survey area. No impacts to vegetation would occur outside of these facilities. Approximately 230.5 acres of Mesquite Thorn-Scrub, 76.0 acres of Havard Oak Dunes, and 17.8 acres of Maintained Grassland could be impacted by the proposed project.

8.3 WILDLIFE

Construction-related activities may directly and/or indirectly affect animals that reside on or adjacent to the survey area. Heavy machinery could kill small, low-mobility animals or could cause soil compaction, impacting animals that live underground. Larger, more mobile species will typically avoid construction activities and move into adjacent areas. Fragmentation of wildlife habitats that may affect migratory birds and resident wildlife species is dependent on the final design of the proposed project. However, efforts should be made to maintain wildlife travel corridors and reduce the footprint of the project, where practicable.

The Migratory Bird Treaty Act of 1916 states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole, without a federal permit issued in accordance with the Act's policies and regulations. Site clearing should occur outside the migratory bird nesting season (which is approximately March through September) to reduce the risk to nesting migratory birds. If site clearing must occur during the nesting season, a pre-construction site visit by a qualified biologist should be conducted to document the occurrence and status of any nesting migratory birds.

Bald Eagles and Golden Eagles are afforded protection under the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668–668d, 54 Stat. 250). The law generally prohibits the taking, possession, and commerce of the two species. The survey area does not contain potentially suitable habitat for Bald or Golden Eagles. Additionally, no Bald or Golden Eagle nests were observed, and no Bald or Golden Eagles were observed or heard within the survey area during the October 2018 or April 2019 field investigations.

8.4 FEDERALLY LISTED AND STATE-LISTED THREATENED AND ENDANGERED SPECIES

The survey area does not contain potentially suitable habitat for any federally listed species. Additionally, no federally listed species were observed within the survey area during the October 2018 or April 2019 field investigations. The project has the potential to impact one state-listed endangered species for which potentially suitable habitat is located within the survey area: the Texas horned lizard. No state-listed threatened or endangered individuals were observed during the October 2018 or April 2019 field investigations. State law prohibits direct harm to state-listed species. If any individuals of these state-listed species are observed within the survey area during construction, care should be taken to avoid harming them, and the contractor should be educated about the potential presence of these species. No further coordination is required with the USFWS or TPWD at this time.

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Attachment A - Figures

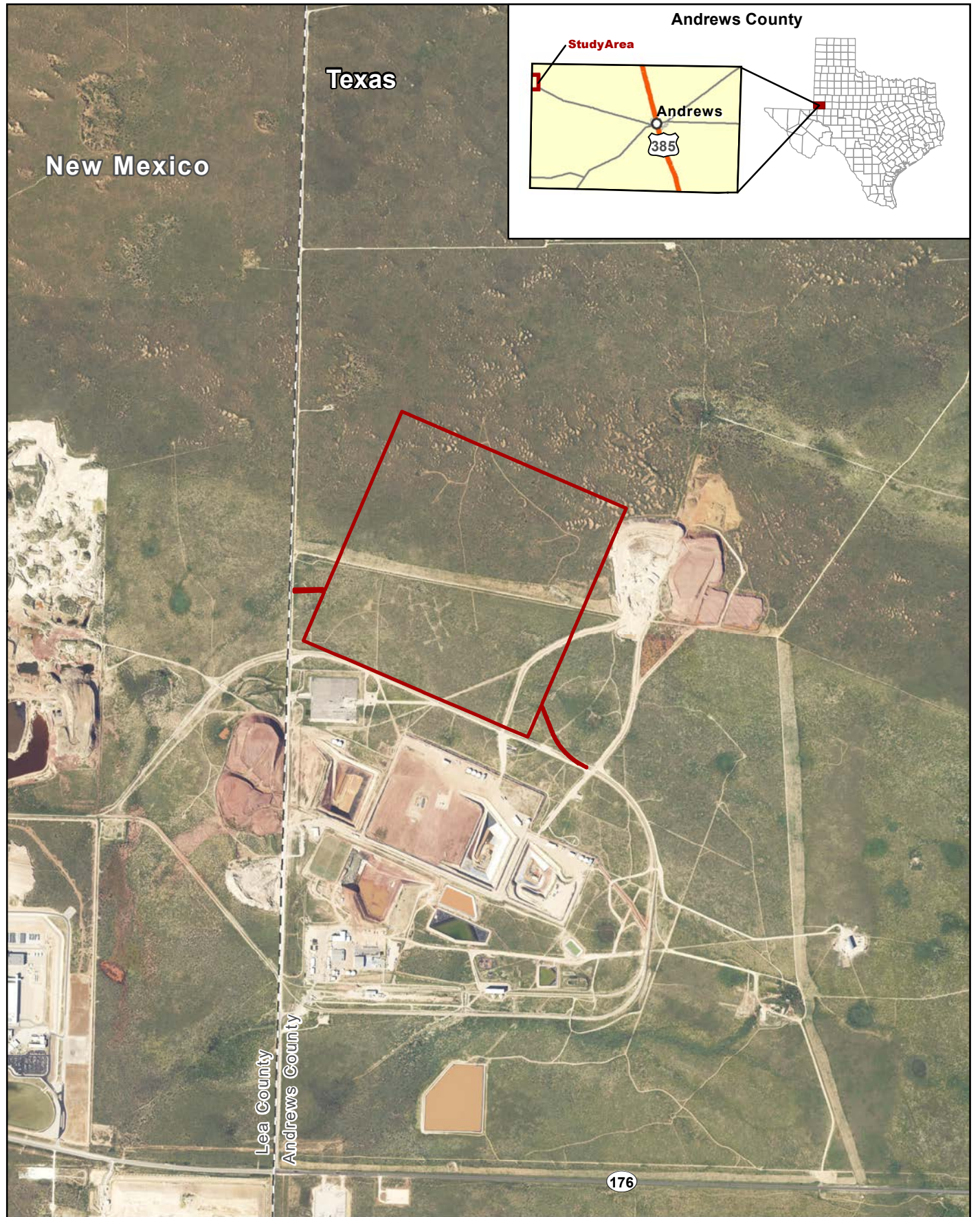



Figure 1
Project Location (Aerial Base)
Interim Storage Partners (ISP) Spent Fuel Storage Facility

 Study Area



COX | McLain
Environmental Consulting

0	2,000 Feet	1 in = 2,000 feet
0	600 Meters	Scale: 1:24,000
		Date: 6/20/2019

Aerial Source: NAIP (2016)

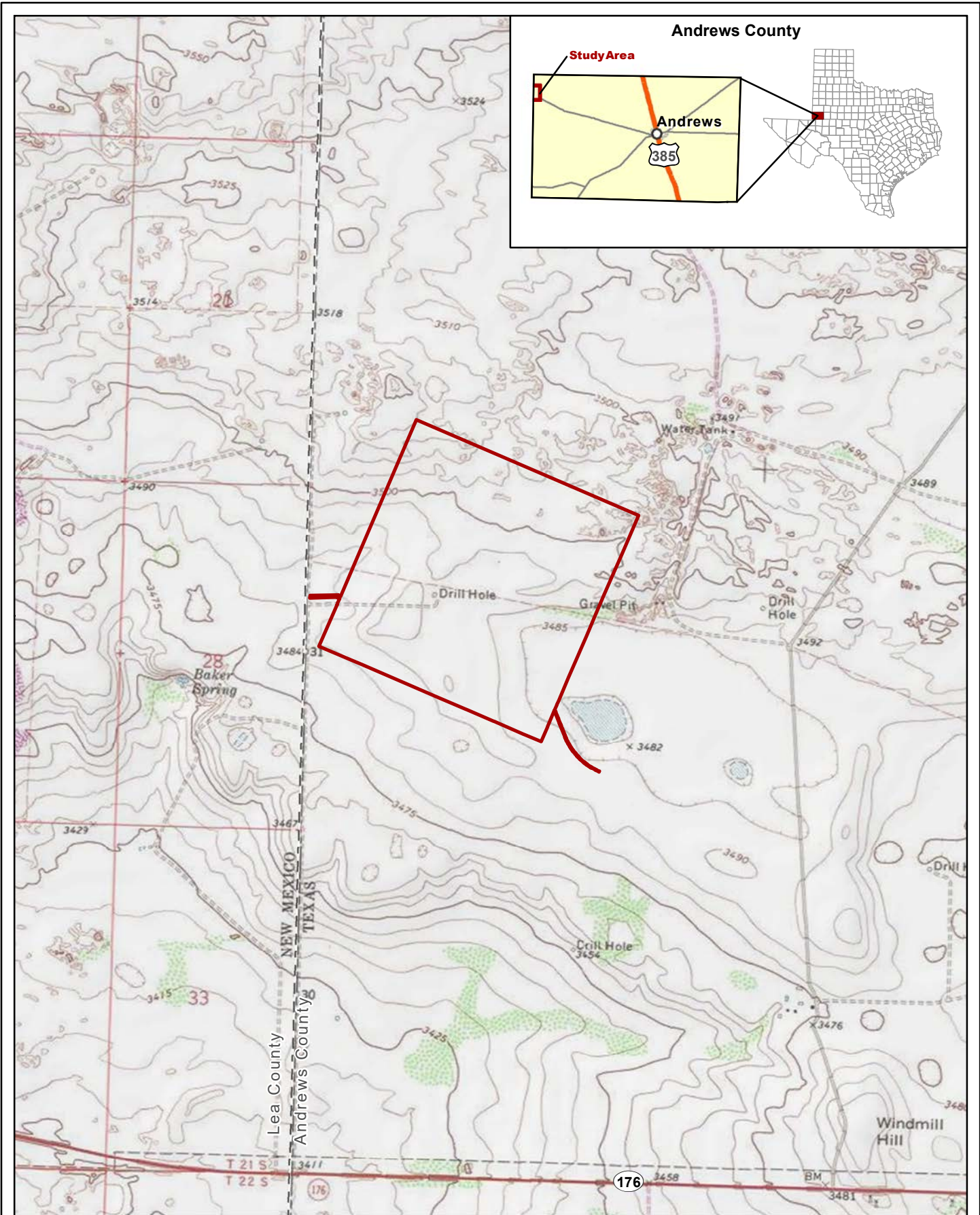



Figure 2
Project Location (Topographic Base)
Interim Storage Partners (ISP) Spent Fuel Storage Facility

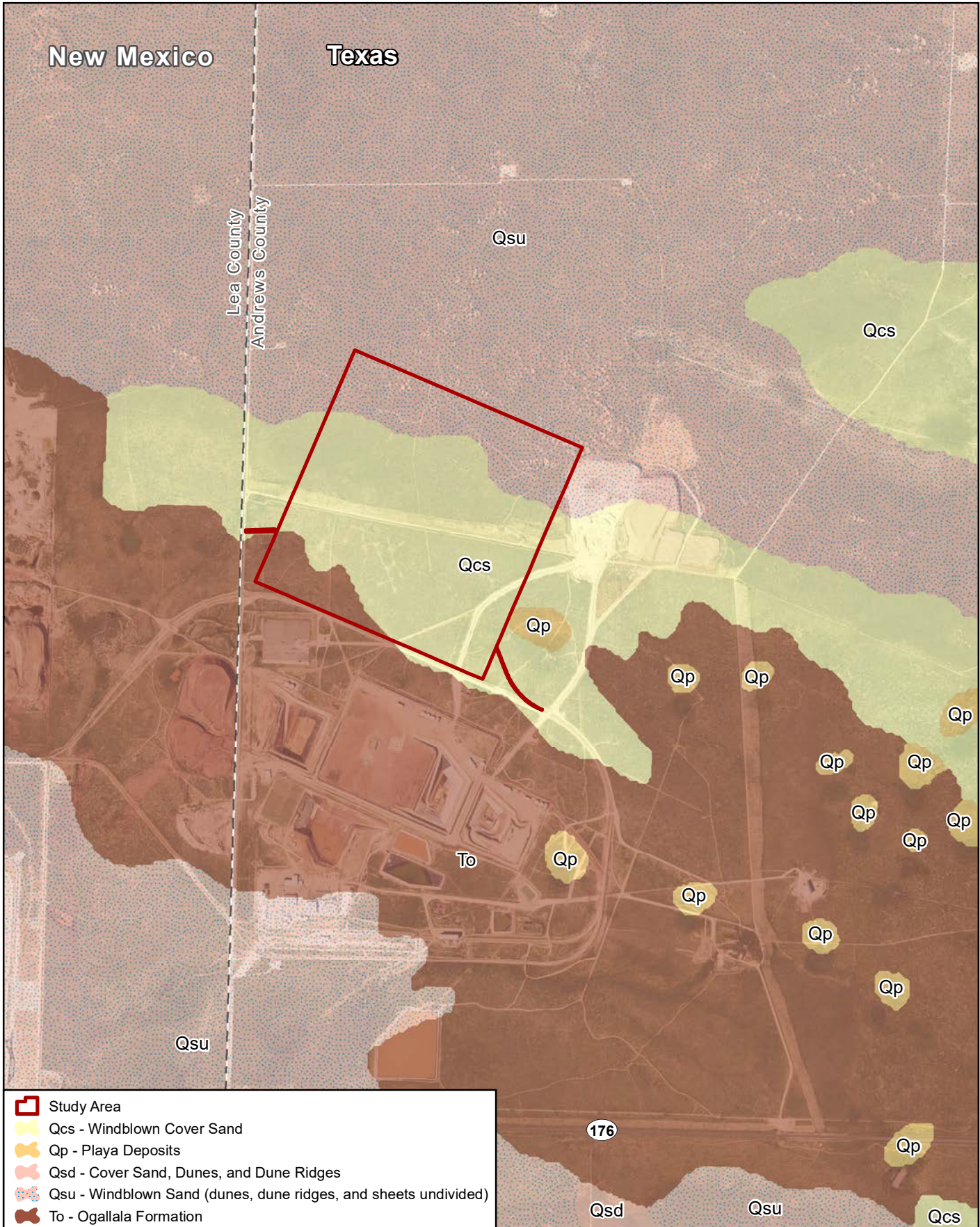
 Study Area



COX | McLain
Environmental Consulting

Basemap Source: USGS Eunice NE
 7.5' Quadrangle (1983)

0 2,000 Feet 1 in = 2,000 feet
 0 600 Meters Scale: 1:24,000
 Date: 6/18/2019



- Study Area
- Qcs - Windblown Cover Sand
- Qp - Playa Deposits
- Qsd - Cover Sand, Dunes, and Dune Ridges
- Qsu - Windblown Sand (dunes, dune ridges, and sheets undivided)
- To - Ogallala Formation

Figure 3
Project Area Geology
Interim Storage Partners (ISP) Spent Fuel Storage Facility

Data Source: Geologic Database of Texas (2007)/
 Geologic Atlas of Texas Hobbs Sheet (1976)
 Aerial Source: NAIP (2016)

COX | McLain
 Environmental Consulting

0 2,000 Feet 1 in = 2,000 feet
 0 600 Meters Scale: 1:24,000
 Date: 6/18/2019

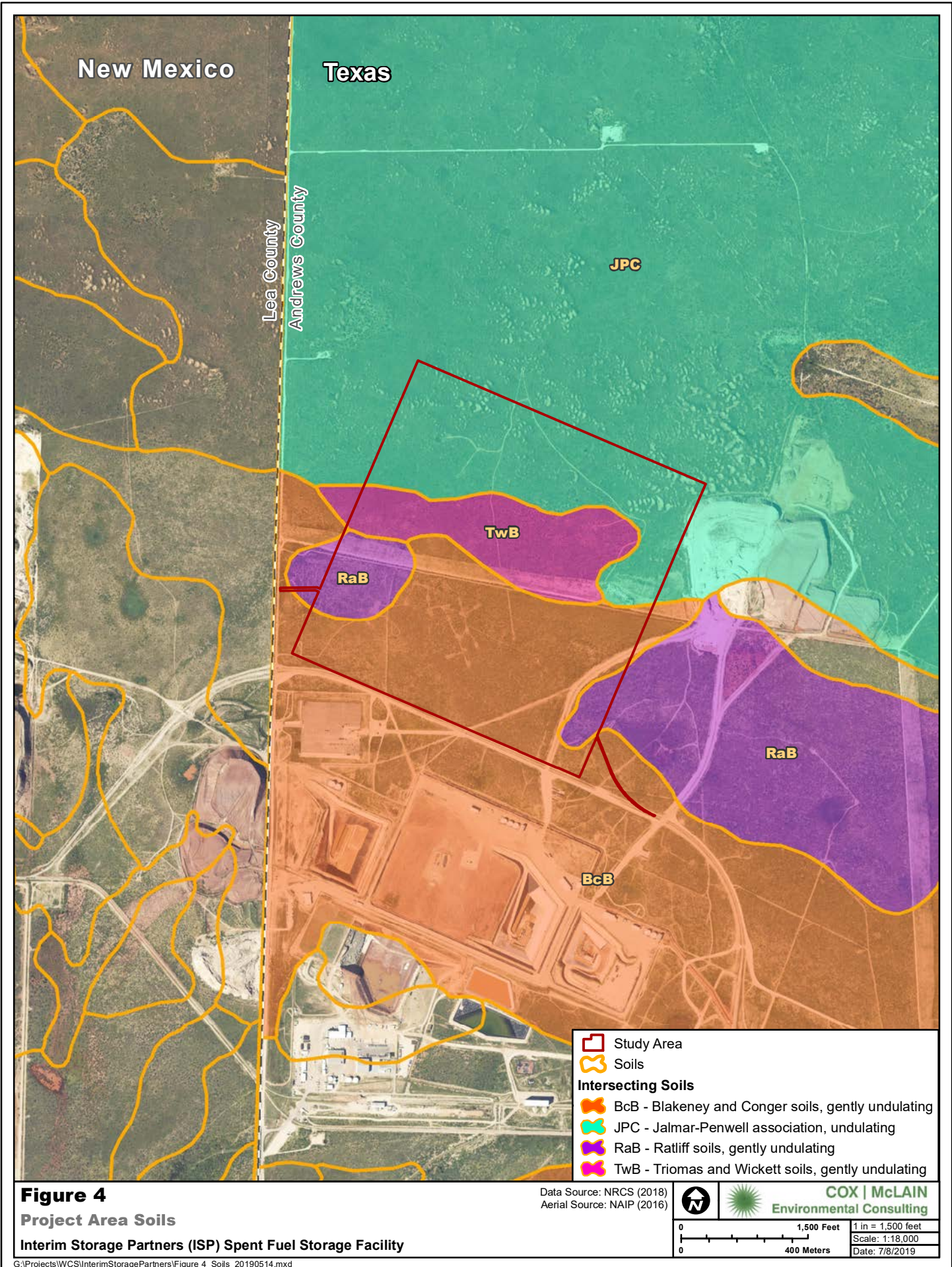


Figure 4
Project Area Soils

Interim Storage Partners (ISP) Spent Fuel Storage Facility

Data Source: NRCS (2018)
 Aerial Source: NAIP (2016)



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0	1,500 Feet	1 in = 1,500 feet
0	400 Meters	Scale: 1:18,000
		Date: 7/8/2019

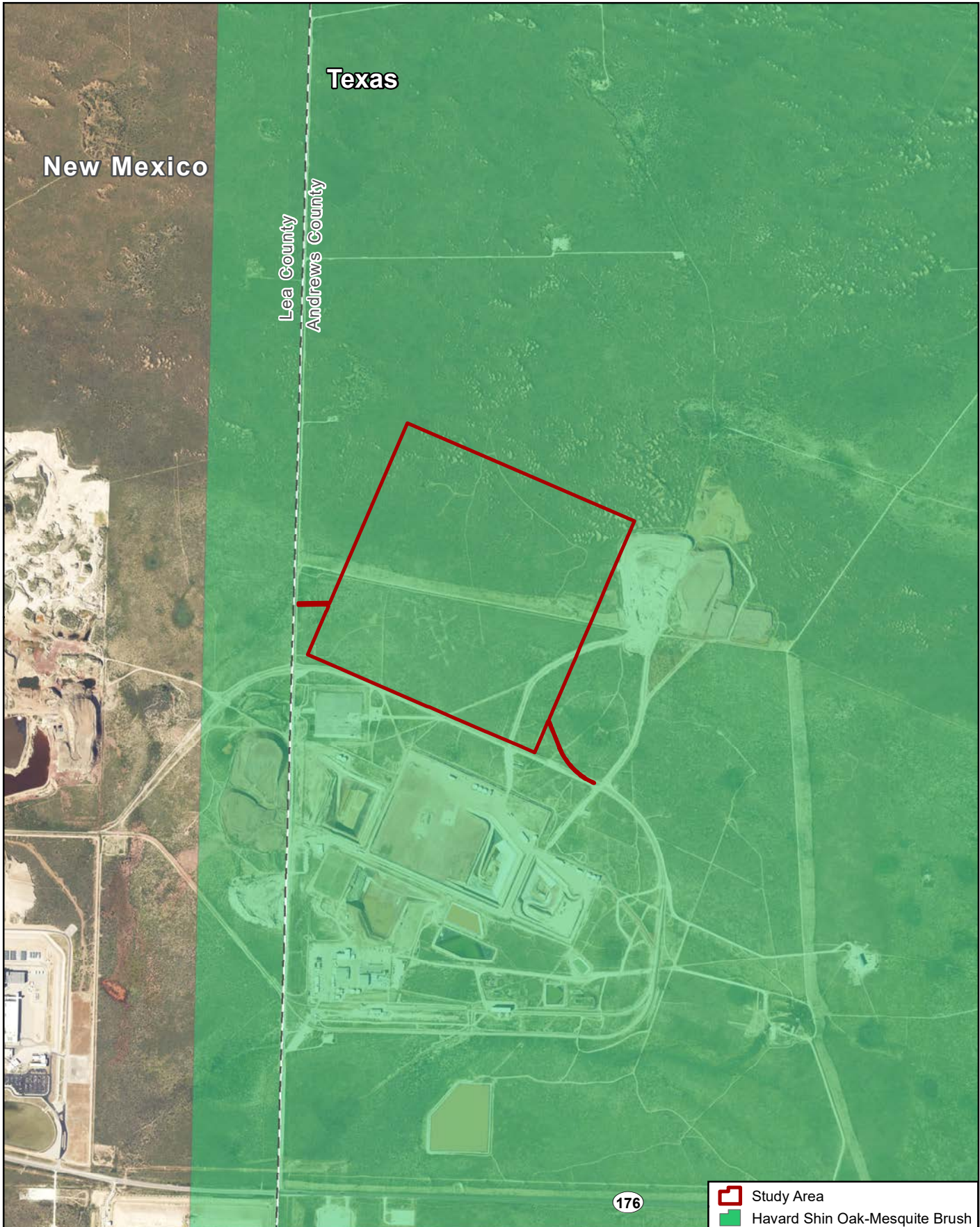

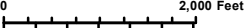
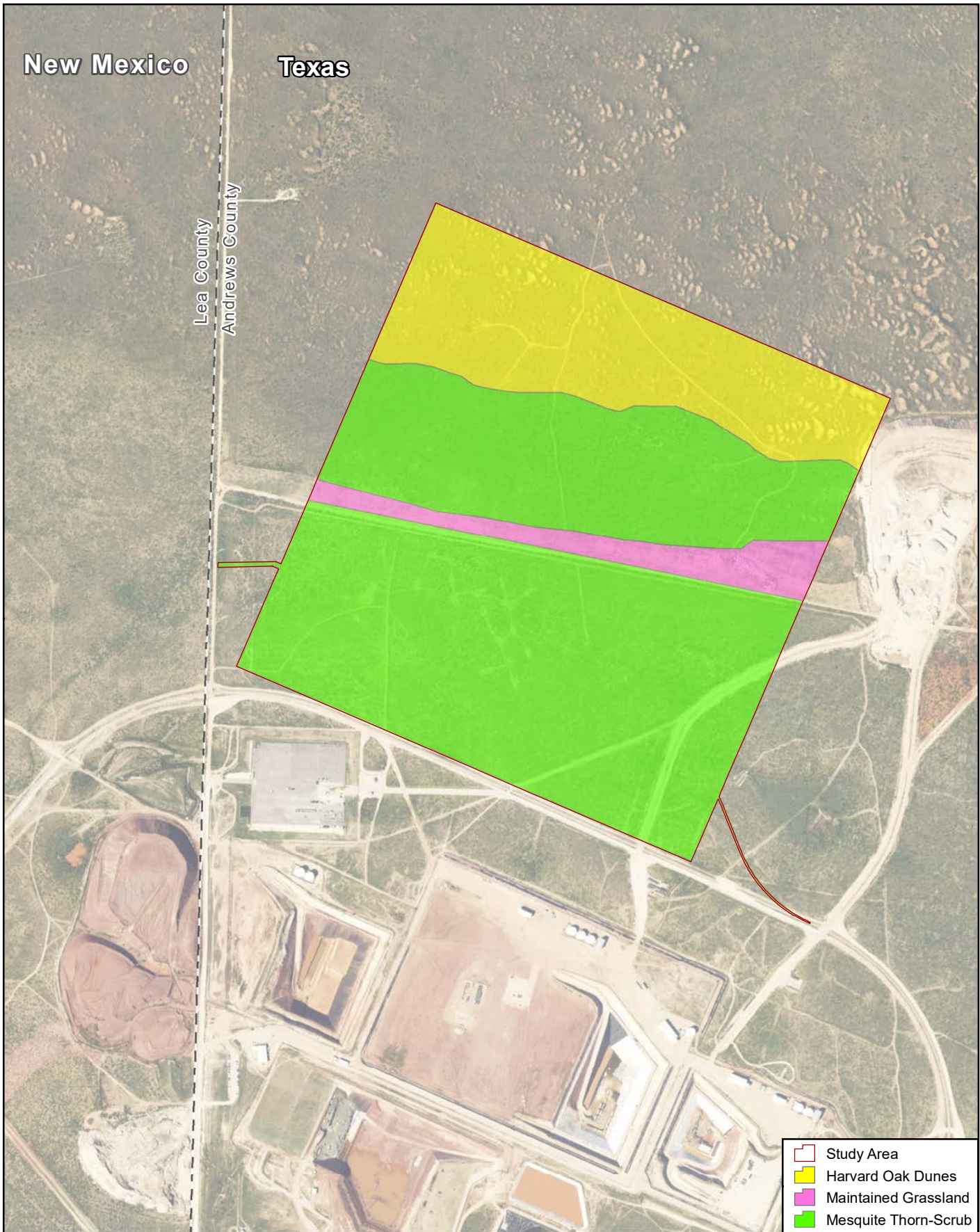


Figure 5
Vegetation Types of Texas

Interim Storage Partners (ISP) Spent Fuel Storage Facility

Data Source: TPWD (2003)/McMahan, et. al (1984)
 Aerial Source: NAIP (2016)

	Study Area
	Havard Shin Oak-Mesquite Brush
	COX McLAIN Environmental Consulting
	2,000 Feet
	600 Meters
	1 in = 2,000 feet Scale: 1:24,000 Date: 6/18/2019



- Study Area
- Harvard Oak Dunes
- Maintained Grassland
- Mesquite Thorn-Scrub

Figure 6
Observed Vegetation Types
Interim Storage Partners (ISP) Spent Fuel Storage Facility

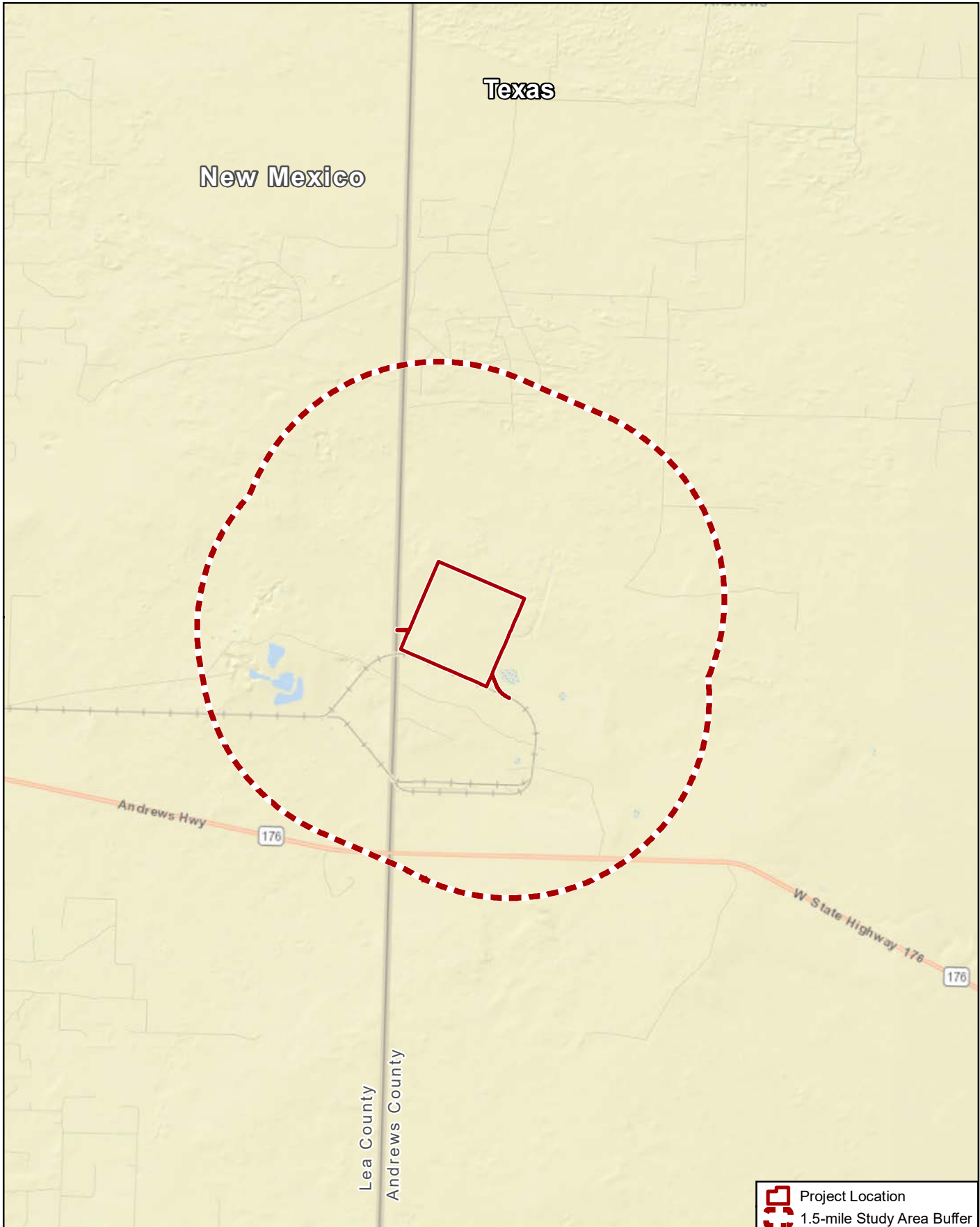
Data Source: CMEC (2019)
 Aerial Source: NAIP (2016)

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0 1,000 Feet 1 in = 1,000 feet

0 300 Meters Scale: 1:12,000

Date: 6/18/2019





 Project Location
 1.5-mile Study Area Buffer

Figure 7

TXNDD Elements of Occurrence

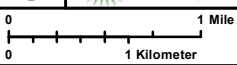
Interim Storage Partners (ISP) Spent Fuel Storage Facility

Note: no elements of occurrence within the map extent

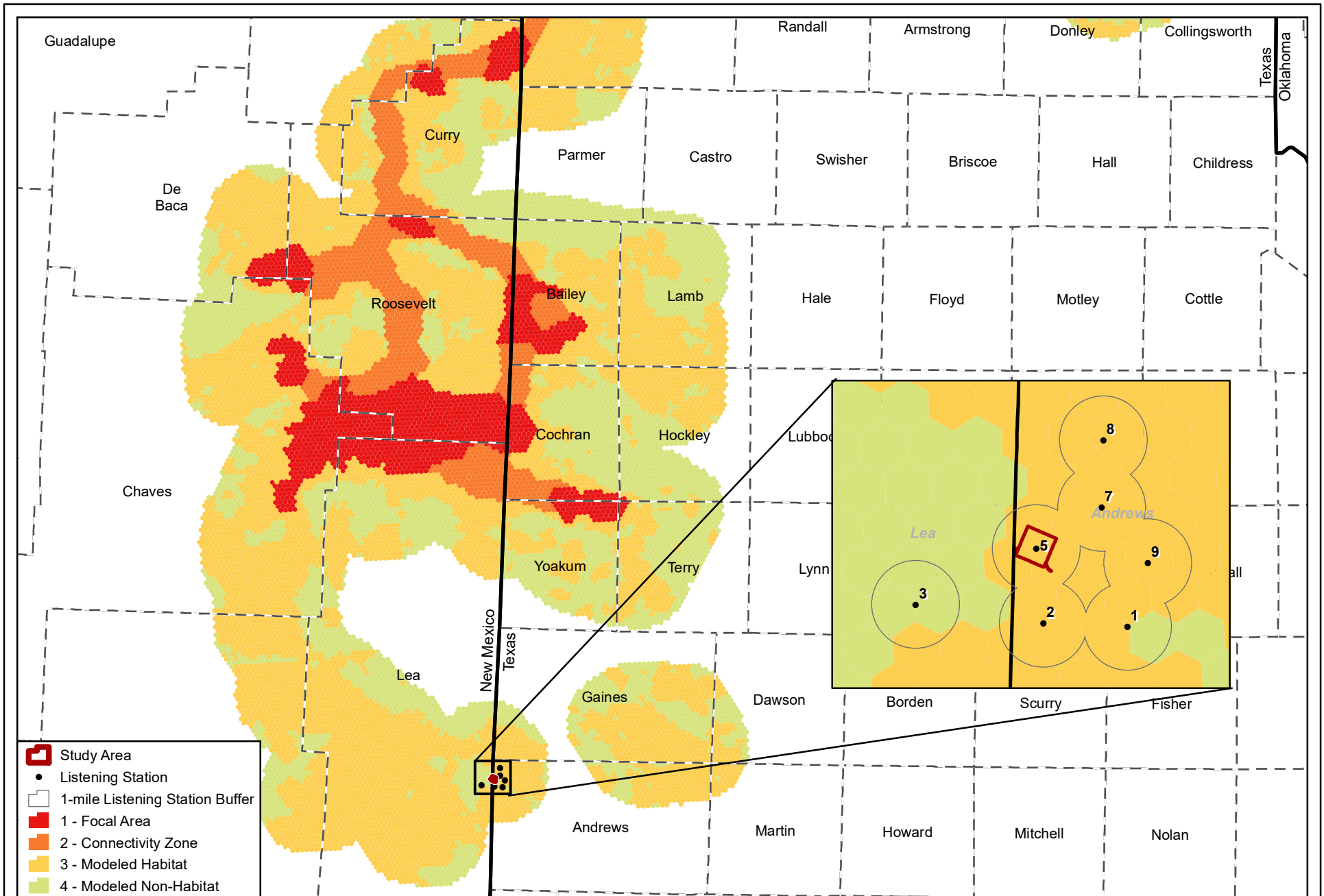


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Data Source:
TPWD (04/22/2019)
Basemap Source:
ESRI (2019)



1 in = 1 mile
Scale: 1:63,360
Date: 6/18/2019



- Study Area
- Listening Station
- 1-mile Listening Station Buffer
- 1 - Focal Area
- 2 - Connectivity Zone
- 3 - Modeled Habitat
- 4 - Modeled Non-Habitat

Figure 8
Lesser Prairie-Chicken Critical Habitat and Listening Stations
Interim Storage Partners (ISP) Spent Fuel Storage Facility

Data Source: WAFWA CHAT (2019)

COX | McLAIN
 Environmental Consulting

1 in = 30 miles
 Scale: 1:1,900,800
 Date: 6/18/2019

0 30 Miles 40 Kilometers

Attachment B – Survey Area Photographs

Photos taken in Fall 2018



Photo 1: The Mesquite Thorn-scrub vegetation type observed in the southern extent of the project area during the Fall 2018 site visit.



Photo 2: The Mesquite Thorn-scrub vegetation type observed in the southern extent of the project area during the Fall 2018 site visit.



Photo 3: The Mesquite Thorn-scrub vegetation type observed in the southern extent of the project area during the Fall 2018 site visit.



Photo 4: The Mesquite Thorn-scrub vegetation type observed along the western rail spur of the project area during the Fall 2018 site visit.



Photo 5: The Mesquite Thorn-scrub vegetation type observed along the eastern rail spur of the project area during the Fall 2018 site visit.



Photo 6: The Havard Oak Dunes vegetation type observed in the northern extent of the project area during the Fall 2018 site visit.



Photo 7: The Havard Oak Dunes vegetation type observed in the northern extent of the project area during the Fall 2018 site visit.



Photo 8: The Havard Oak Dunes vegetation type observed in the northern extent of the project area during the Fall 2018 site visit.



Photo 9: The Maintained Grassland vegetation type observed in the central extent of the project area during the Fall 2018 site visit.



Photo 10: White tridens (*Tridens albescens*) observed within the project area on October 23, 2018.

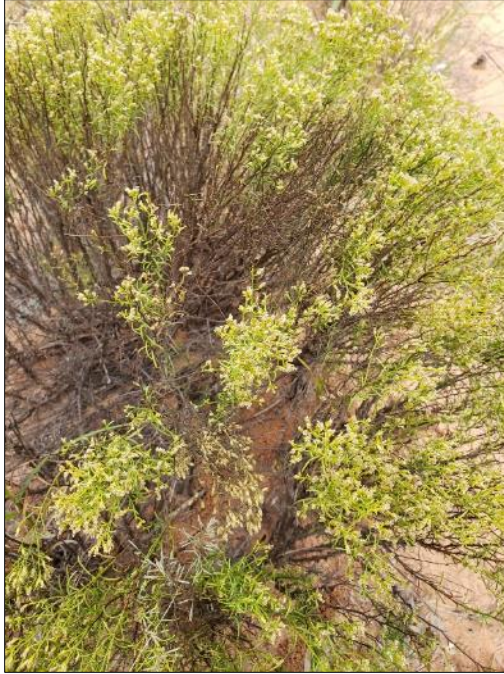


Photo 11: Broom snakeweed (*Gutierrezia sarothrae*) observed within the project area on October 23, 2018.



Photo 12: Red lovegrass (*Eragrostis secundiflora*) observed within the project area on October 23, 2018.



Photo 13: Camphorweed (*Heterotheca subaxillaris*) observed within the project area on October 23, 2018.



Photo 14: Riddell's ragwort (*Senecio riddellii*) observed within the project area on October 23, 2018.



Photo 15: Palmer's spectaclepod (*Dimorphocarpa candicans*) observed within the project area on October 23, 2018.



Photo 16: Four o'clock (*Nyctaginaceae* sp.) observed within the project area on October 23, 2018.



Photo 17: Flaxflowered ipomopsis (*Ipomopsis longiflora*) observed in the project area on October 23, 2018.



Photo 18: Cory's jointfir (*Ephedra coryi*) observed in the project area on October 23, 2018.



Photo 19: Scarlet globe mallow (*Sphaeralcea coccinea*) observed in the project area on October 23, 2018.

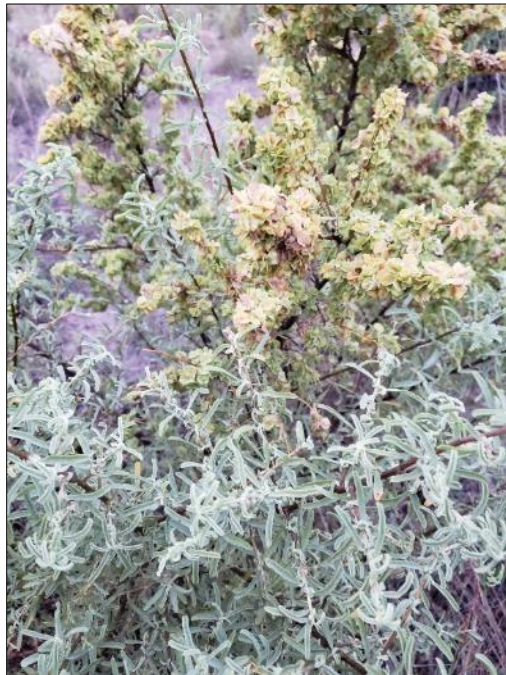


Photo 20: Fourwing saltbush (*Atriplex canescens*) observed within the project area on October 24, 2018.



Photo 21: Purple threeawn (*Aristida purpurea*) observed within the project area on October 24, 2018.



Photo 22: Prairie flameleaf sumac (*Rhus lanceolata*) observed within the project area on October 24, 2018.



Photo 23: Siberian elm (*Ulmus pumila*) observed within the project area on October 24, 2018.



Photo 20: A robber fly (*Asilidae*) observed in the project area on October 23, 2018.



Photo 25: A western box turtle (*Terrapene ornata*) observed in the project area on October 23, 2018.



Photo 26: A darkling beetle (*Tenebrionidae* sp.) observed in the project area on October 23, 2018.



Photo 27: A queen butterfly (*Danaus gilippus*) observed in the project area on October 24, 2018.



Photo 28: A short-horned grasshopper (*Acrididae* sp.) observed in the project area on October 25, 2018.



Photo 29: An inactive bird nest observed in the project area during Fall 2018.



Photo 30: An inactive bird nest observed in the project area during Fall 2018.



Photo 31: An inactive bird nest observed in the project area during Fall 2018.

Photos taken in Spring 2019



Photo 32: The Mesquite Thorn-scrub vegetation type observed in the southern extent of the project area during the Spring 2019 site visit.



Photo 33: The Mesquite Thorn-scrub vegetation type observed in the southern extent of the project area during the Spring 2019 site visit.



Photo 34: The Havard Oak Dunes vegetation type observed in the northern extent of the project area during the Spring 2019 site visit.



Photo 35: The Havard Oak Dunes vegetation type observed in the northern extent of the project area during the Spring 2019 site visit.



Photo 36: The Havard Oak Dunes vegetation type observed in the northern extent of the project area during the Spring 2019 site visit.



Photo 37: The Havard Oak Dunes vegetation type observed in the northern extent of the project area. Visible sand dune blow-out habitat observed during the Spring 2019 site visit.



Photo 38: The Maintained Grassland vegetation type observed in the central extent of the project area during the Spring 2019 site visit.



Photo 39: Lazy daisy (*Aphanostephus ramosissimus*) observed in the project area on April 23, 2019.



Photo 40: Indian blanket (*Gaillardia pulchella*) observed in the project area on April 23, 2019.



Photo 41: Matted bluet (*Houstonia humifusa*) observed in the project area on April 23, 2019.



Photo 42: Plains yucca (*Yucca campestris*) observed in the project area on April 23, 2019.



Photo 43: James' holdback (*Pomaria jamesii*) observed in the project area on April 23, 2019.



Photo 44: Woolly locoweed (*Astragalus mollissimus*) observed within the project area on April 23, 2019.



Photo 45: White-stem evening-primrose (*Oenothera albicaulis*) observed within the project area on April 23, 2019.



Photo 46: Texas winter grass (*Nassella leucotricha*) observed within the project area on April 23, 2019.



Photo 47: Scarlet beeblossum (*Oenothera suffrutescens*) observed within the project area on April 23, 2019.



Photo 48: Thicksepal cryptantha (*Cryptantha crassisejala*) observed within the project area on April 23, 2019.



Photo 49: Fendler's penstemon (*Penstemon fendleri*) observed in the project area on April 23, 2019.



Photo 50: Firewheel (*Gaillardia pulchella*) observed in the project area on April 23, 2019.



Photo 51: A western box turtle (*Terrapene ornata*) observed in the project area on April 23, 2019.



Photo 52: Horse crippler (*Echinocactus texensis*) observed in the project area on April 24, 2019.



Photo 53: Tree cholla (*Cylindropuntia imbricate*) observed in the project area on April 24, 2019.



Photo 54: Prairie spiderwort (*Tradescantia occidentalis*) observed in the project area on April 24, 2019.



Photo 55: Havard Oak (*Quercus havardii*) observed in the project area on April 24, 2019.



Photo 56: Palmer's spectaclepod (*Dimorphocarpa candidans*) observed in the project area on April 24, 2019.



Photo 57: Pygmy bluet (*Houstonia wrightii*) observed in the project area on April 24, 2019.



Photo 58: Purple mat (*Nama demissum*) observed in the project area on April 24, 2019.



Photo 59: Snowball sand verbena (*Abronia fragans*) observed in the project area on April 24, 2019.



Photo 60: Viviparous foxtail cactus (*Escobaria vivipara*) observed in the project area on April 24, 2019.



Photo 61: Hartweg's sundrops (*Oenothera hartwegii*) observed in the project area on April 25, 2019.



Photo 62: Notch-leaf scorpion-weed (*Phacelia crenulate*) observed in the project area on April 25, 2019.



Photo 63: Silverleaf nightshade (*Solanum elaeagnolium*) observed in the project area on April 25, 2019.

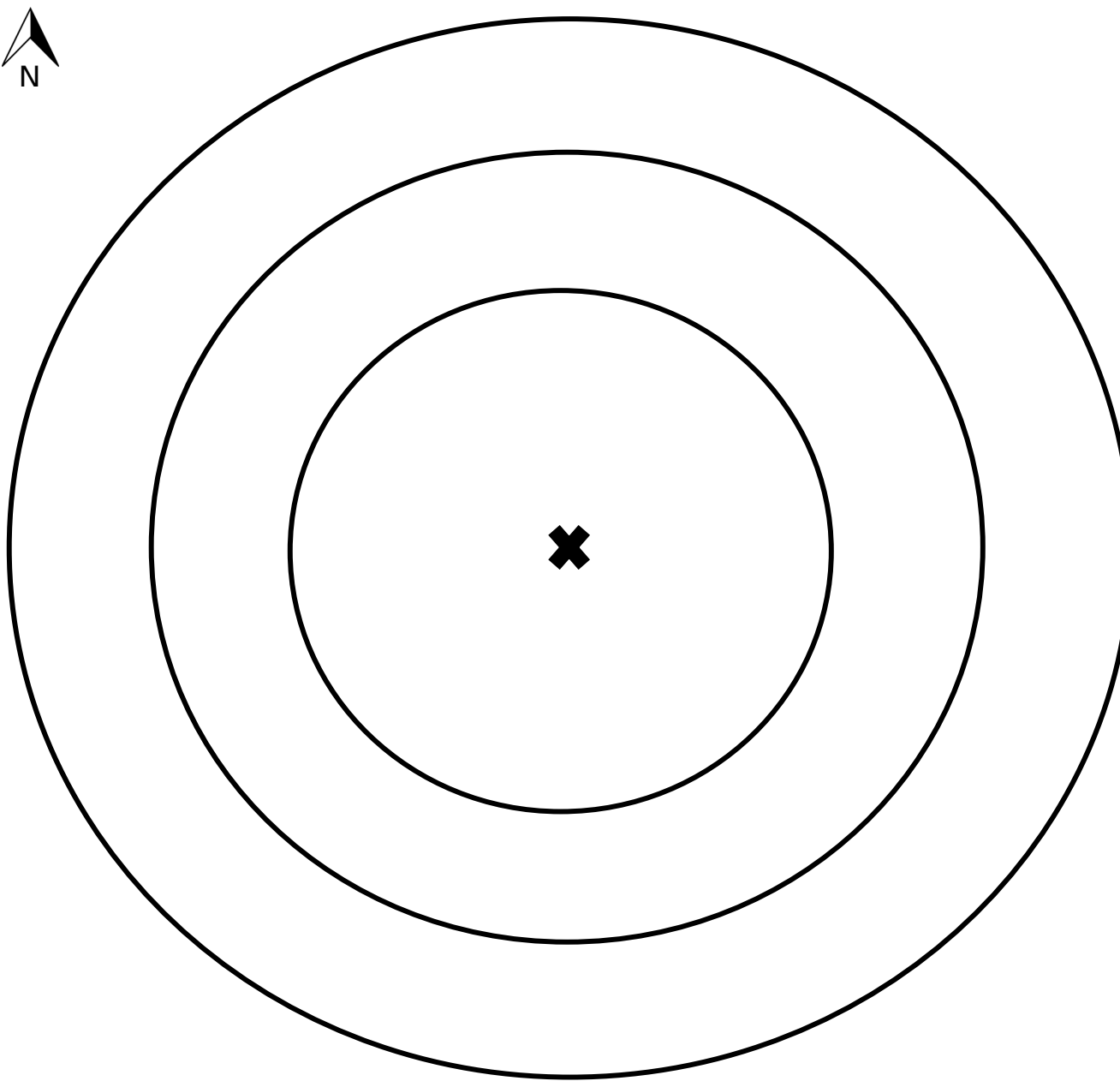


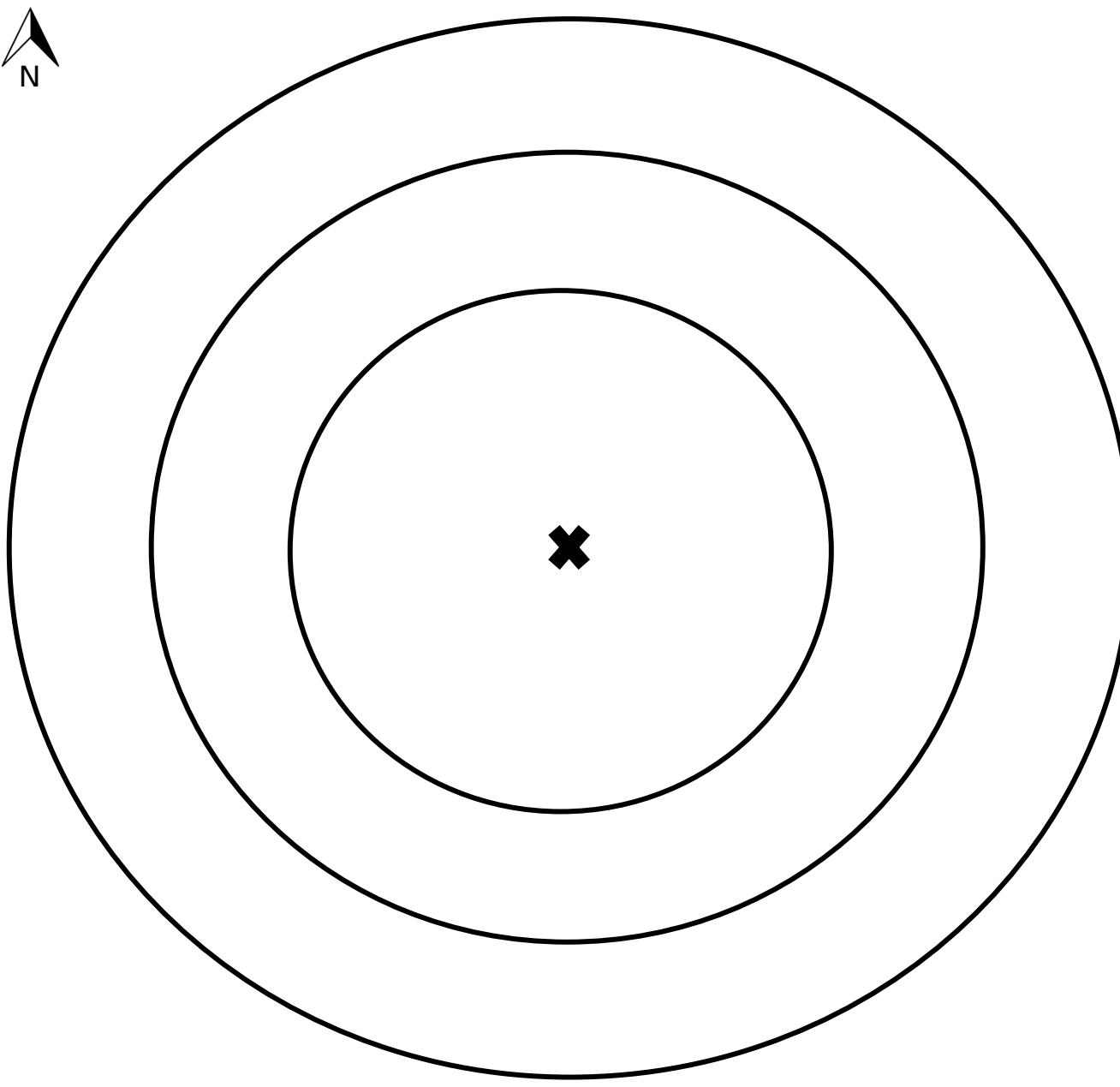
Photo 64: An inactive bird nest observed in the project area during Spring 2019.

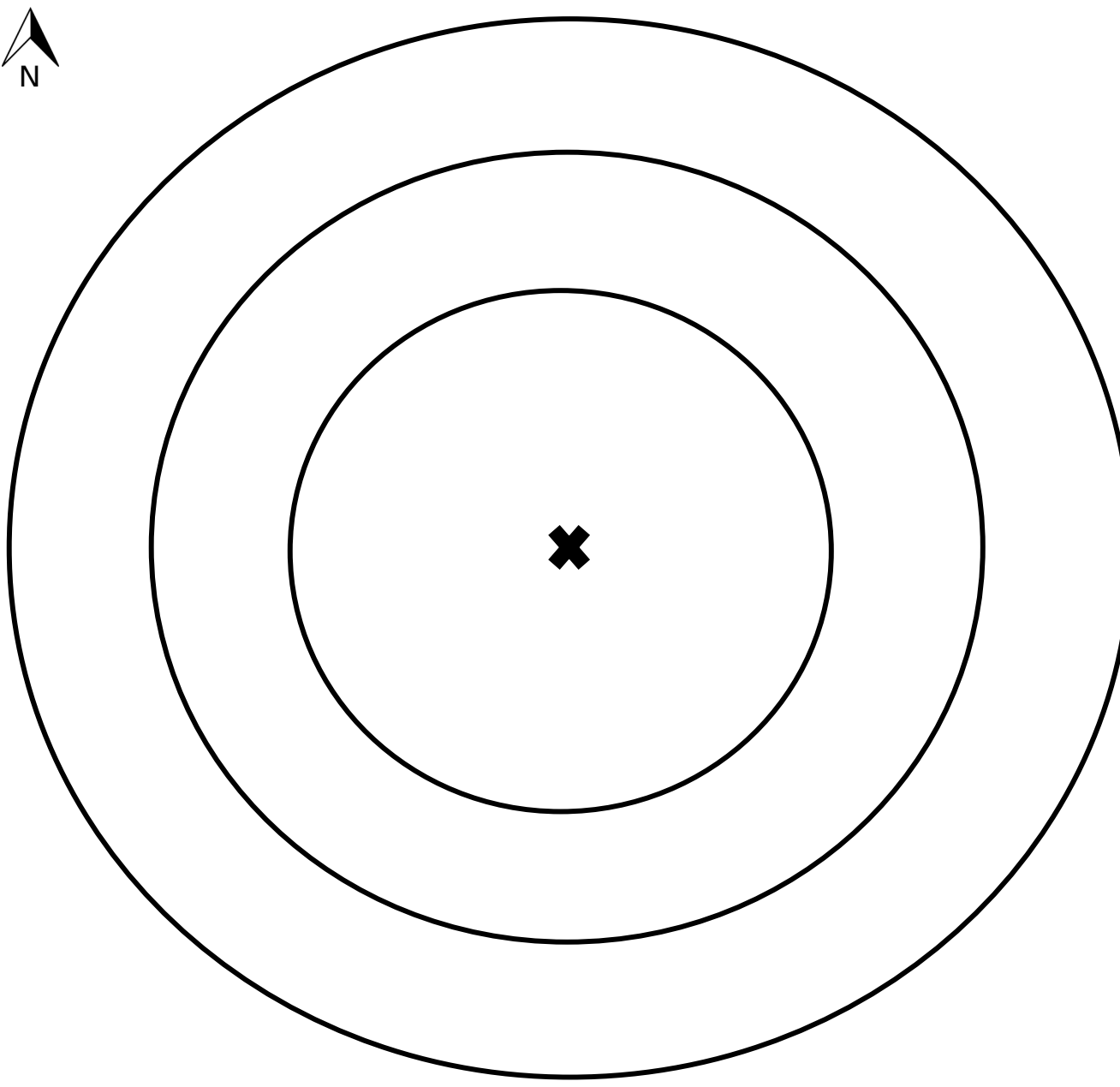


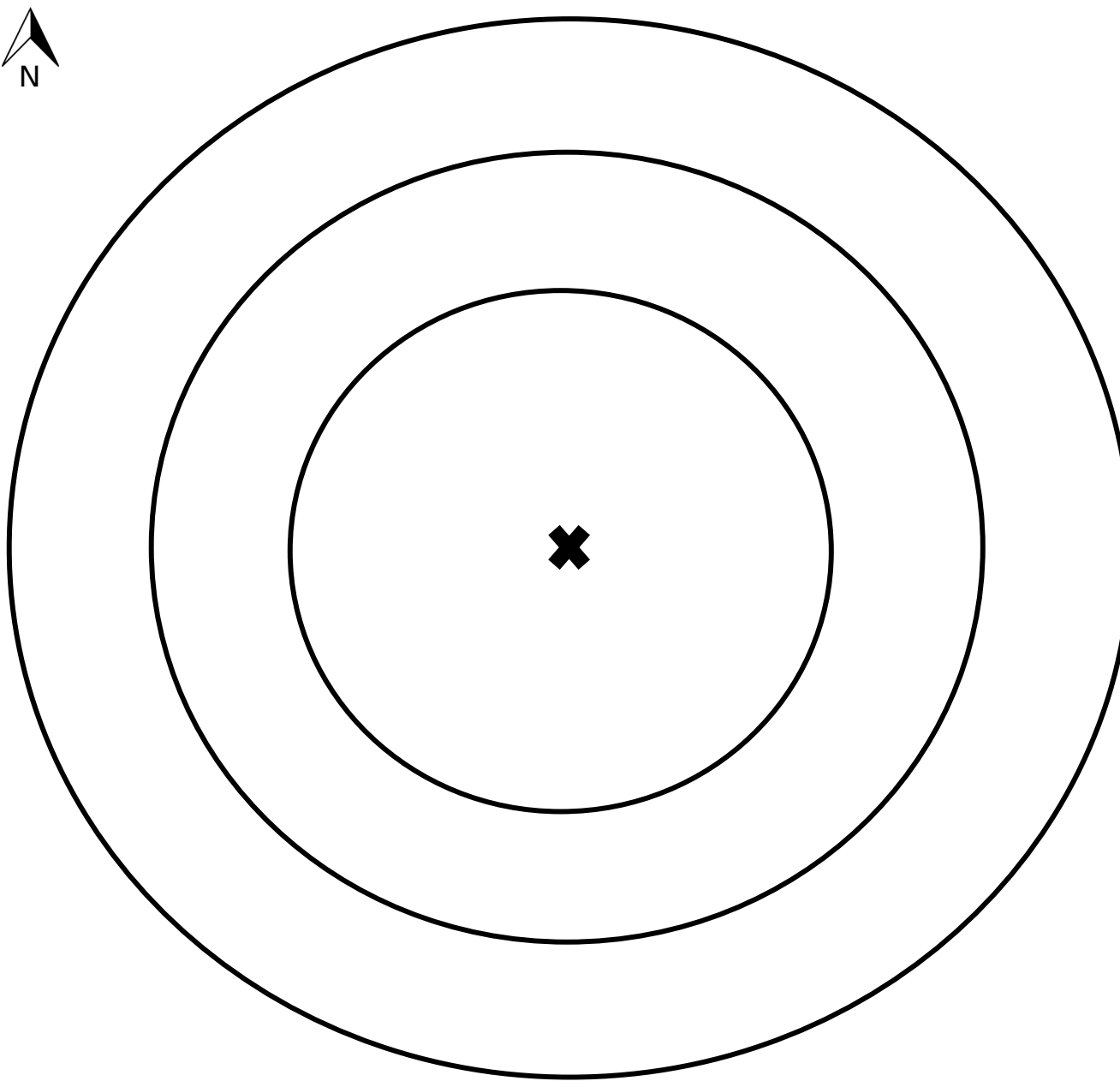
Photo 65: An inactive bird nest observed in the project area during Spring 2019.

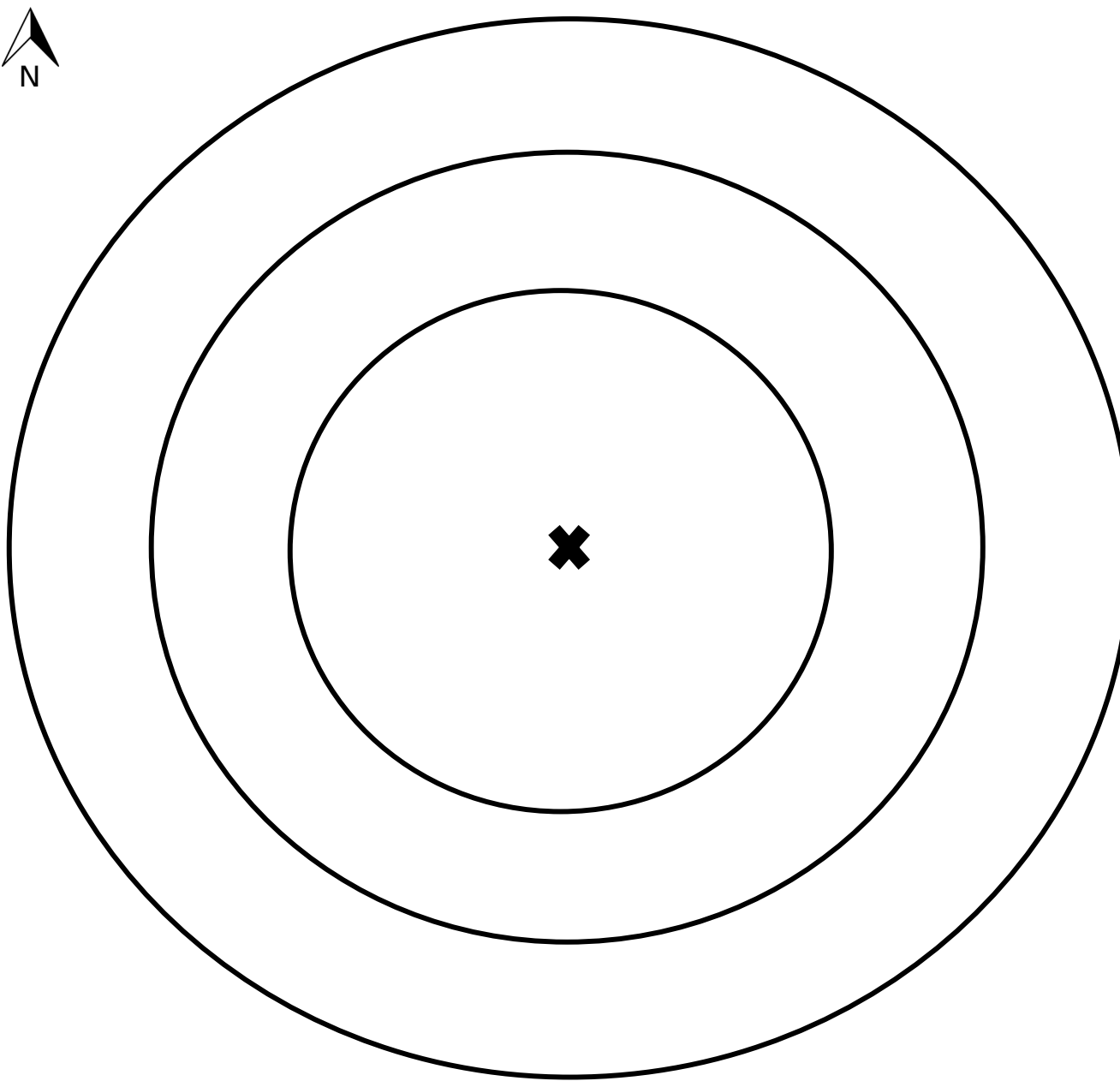
Attachment C – Lesser Prairie-Chicken Presence/Absence Survey Data Forms

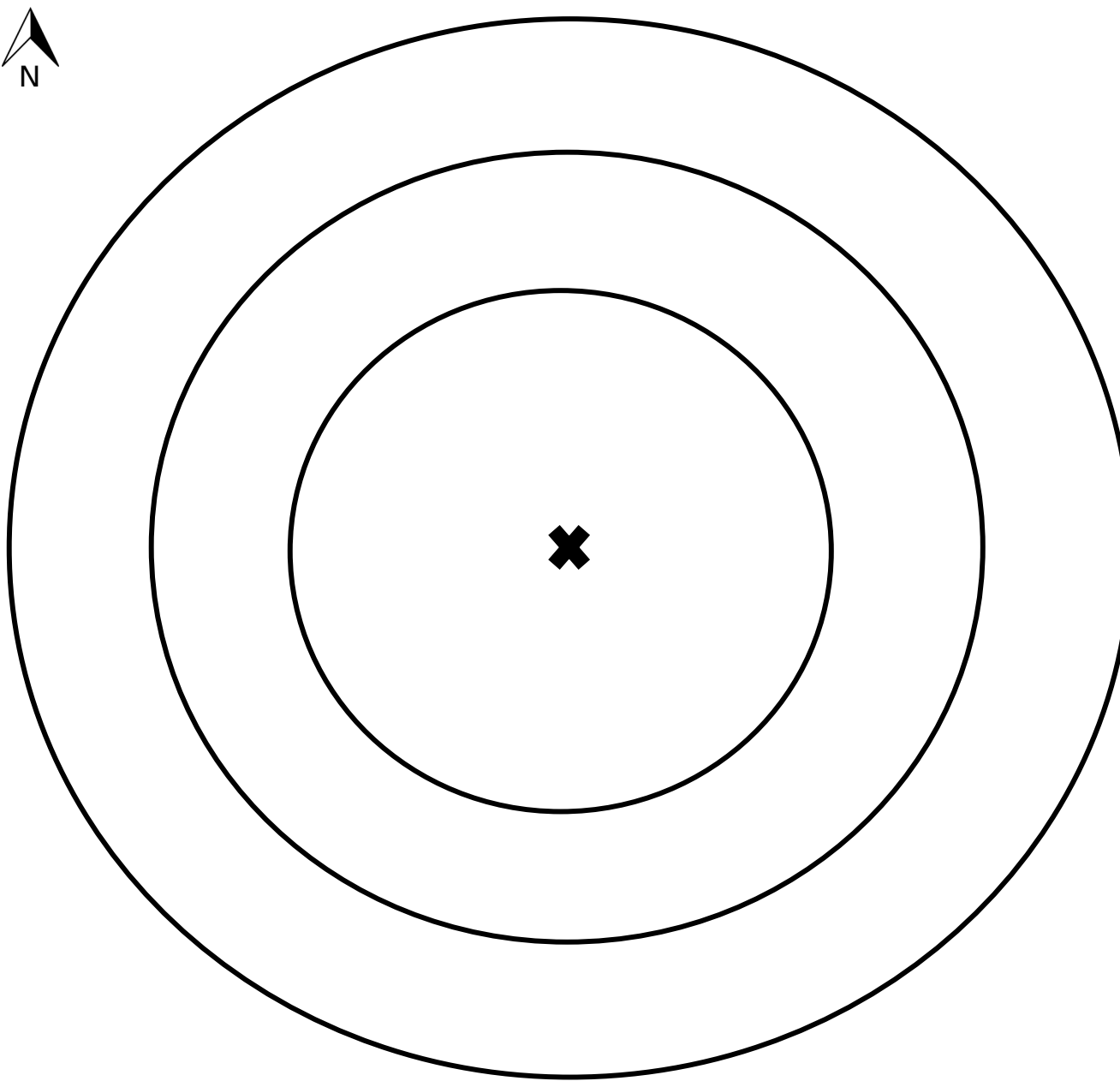
PROPERTY NAME/ID: WCS	DATE:4-23-2019
START TIME: 0656	END TIME: 0701
GPS LOCATION:32.43322585, -103.1024278	Listening Station: 3
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 54.8° F, Wind Speed Max: 7.2mph, Average: 4.5mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise High	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

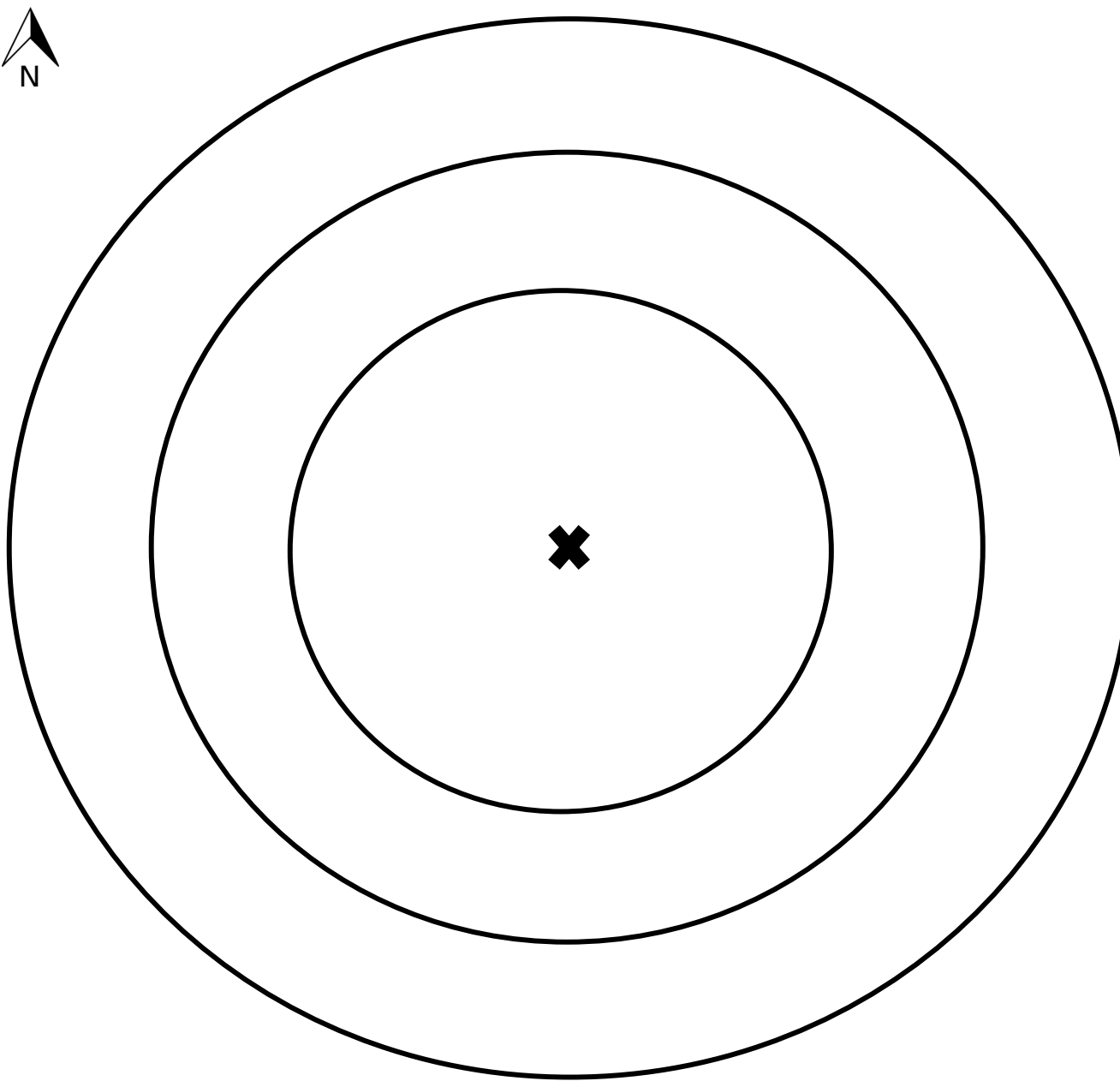
PROPERTY NAME/ID: WCS	DATE:4-23-2019
START TIME: 0706	END TIME: 0711
GPS LOCATION:32.42819737, -103.0525019	Listening Station: 2
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 54.7° F, Wind Speed Max: 10.4mph, Average: 6.2mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise High	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

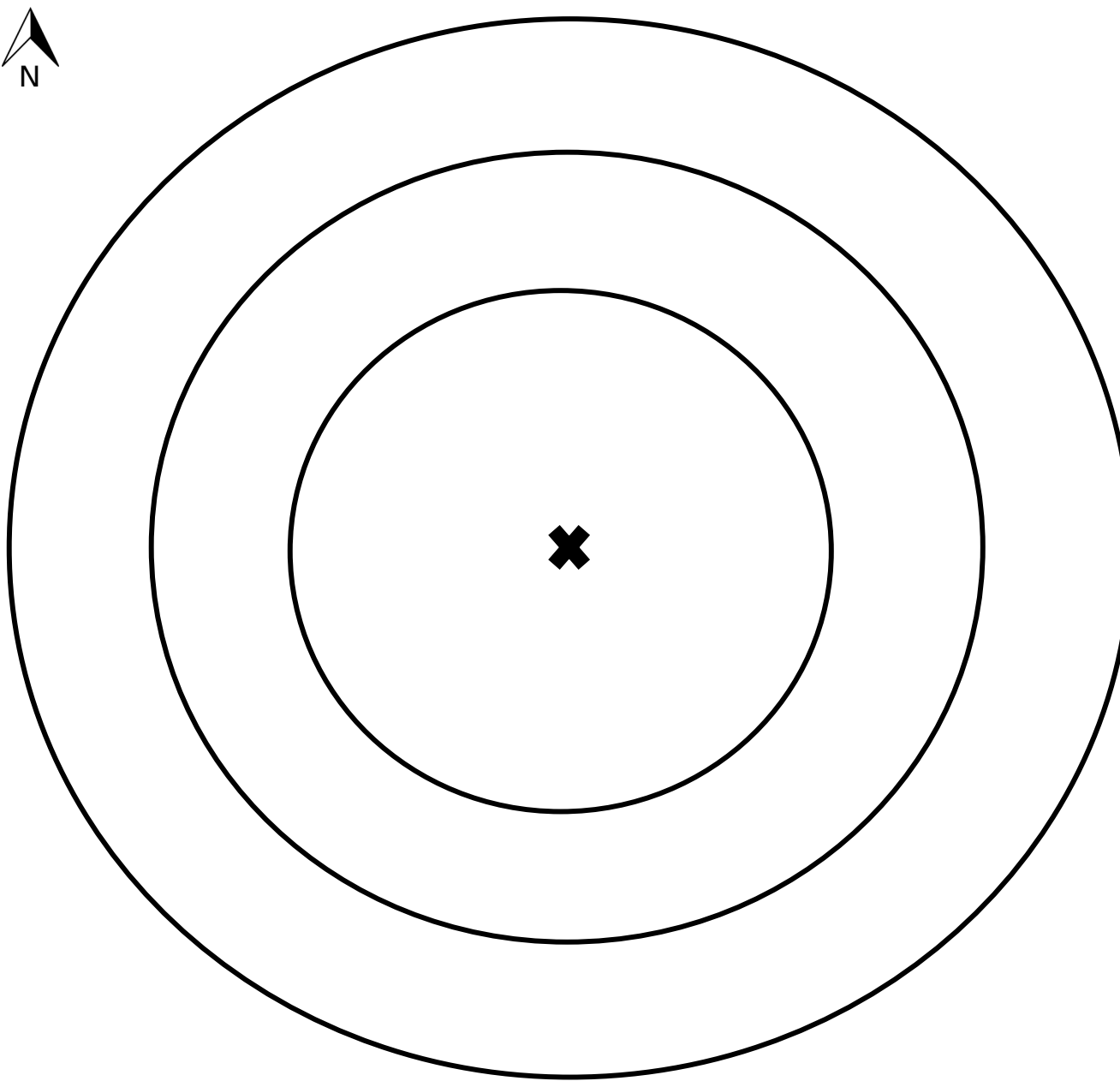
PROPERTY NAME/ID: WCS	DATE:4-23-2019
START TIME: 0713	END TIME: 0718
GPS LOCATION: 32.42790229, -103.0196225	Listening Station: 1
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 55.8° F, Wind Speed Max: 10.3mph, Average: 5.2mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise High	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

PROPERTY NAME/ID: WCS	DATE:4-23-2019
START TIME: 0738	END TIME: 0742
GPS LOCATION: 32.44915362, -103.0123435	Listening Station: 9
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 56.4° F, Wind Speed Max: 6.3mph, Average: 3.2mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise Low	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

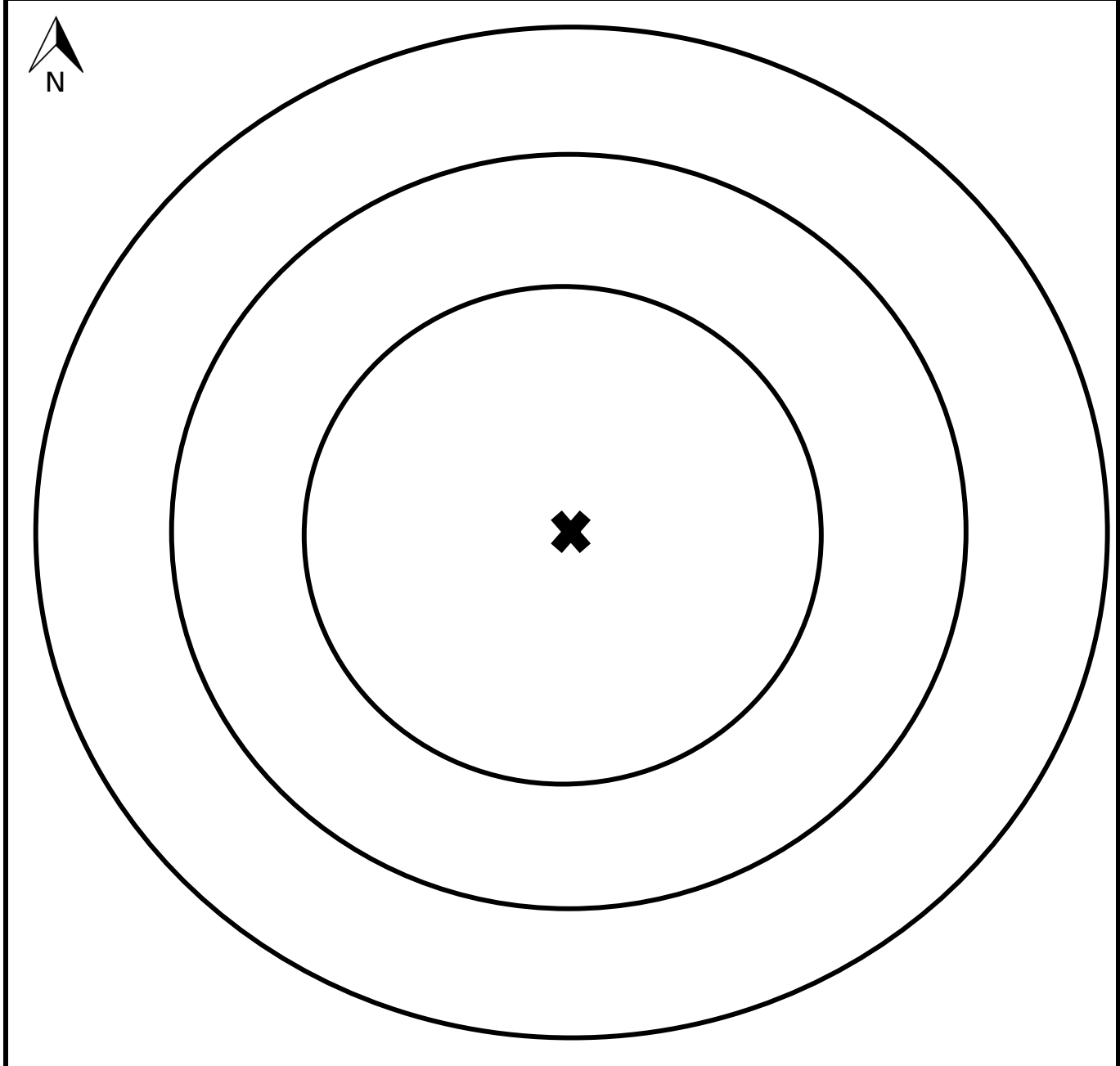
PROPERTY NAME/ID: WCS	DATE:4-23-2019
START TIME: 0756	END TIME: 0801
GPS LOCATION: 32.45281831, -103.0560104	Listening Station: 5
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 54.5° F, Wind Speed Max: 10.3mph, Average: 6.7mph	
HABITAT DESCRIPTION: Grassland, Noise- none	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

PROPERTY NAME/ID: WCS	DATE:4-23-2019
START TIME: 0808	END TIME: 0813
GPS LOCATION: 32.46703654, -103.0309761	Listening Station: 7
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 54.6° F, Wind Speed Max: 12.4mph, Average: 7.9mph	
HABITAT DESCRIPTION: Grassland, Noise- none	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

PROPERTY NAME/ID: WCS	DATE:4-23-2019
START TIME: 0825	END TIME: 0830
GPS LOCATION: 32.47649487, -103.031017	Listening Station: 8
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 54° F, Wind Speed Max: 11mph, Average: 6.7mph	
HABITAT DESCRIPTION: Grassland, Noise- low, pumpjacks	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

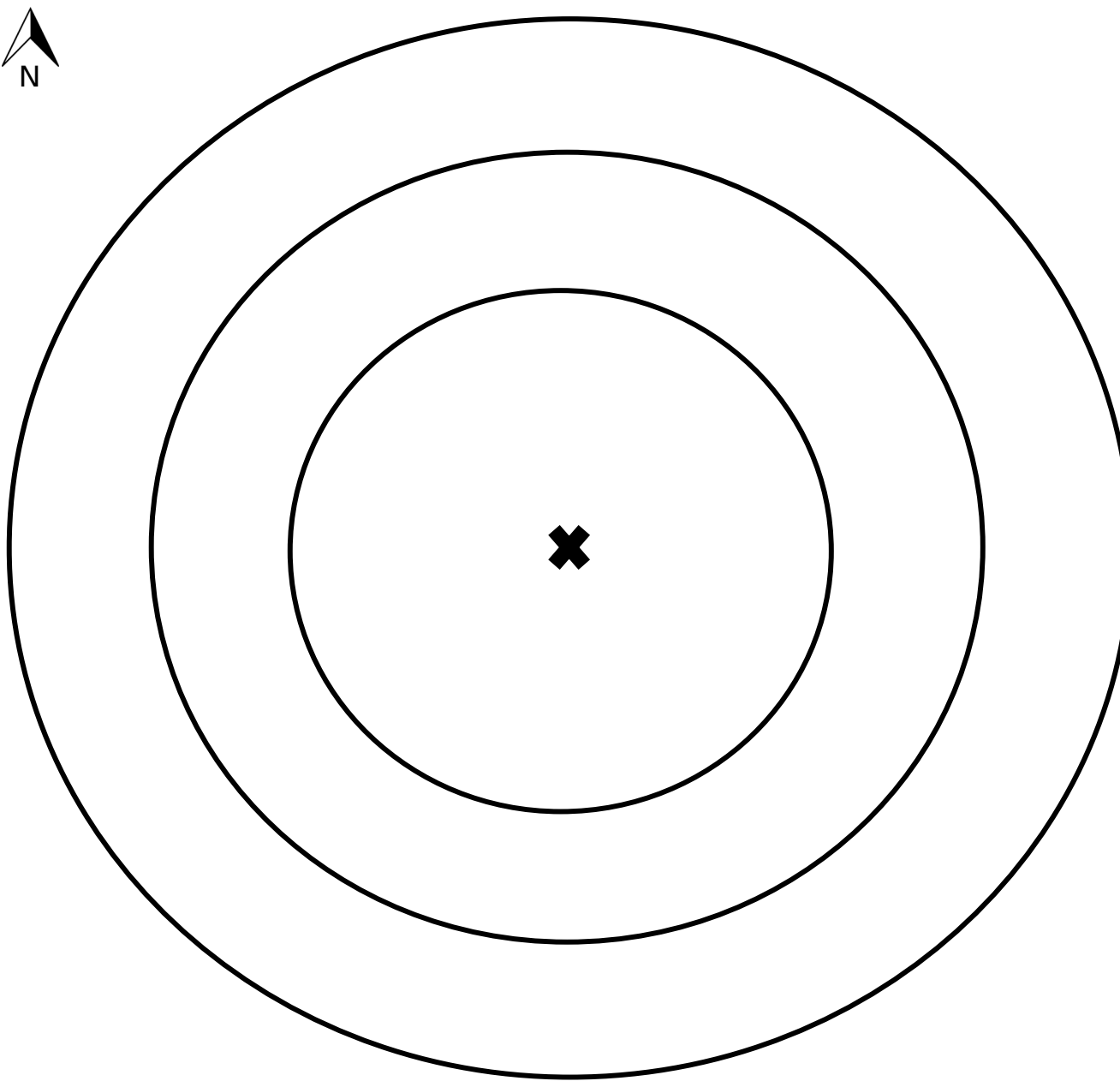
PROPERTY NAME/ID: WCS	DATE:4-24-2019
START TIME: 0658	END TIME: 0703
GPS LOCATION: 32.43322585, -103.1024278	Listening Station: 3
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 50.2° F, Wind Speed Max: 3.3mph, Average: 1.4mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise High	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

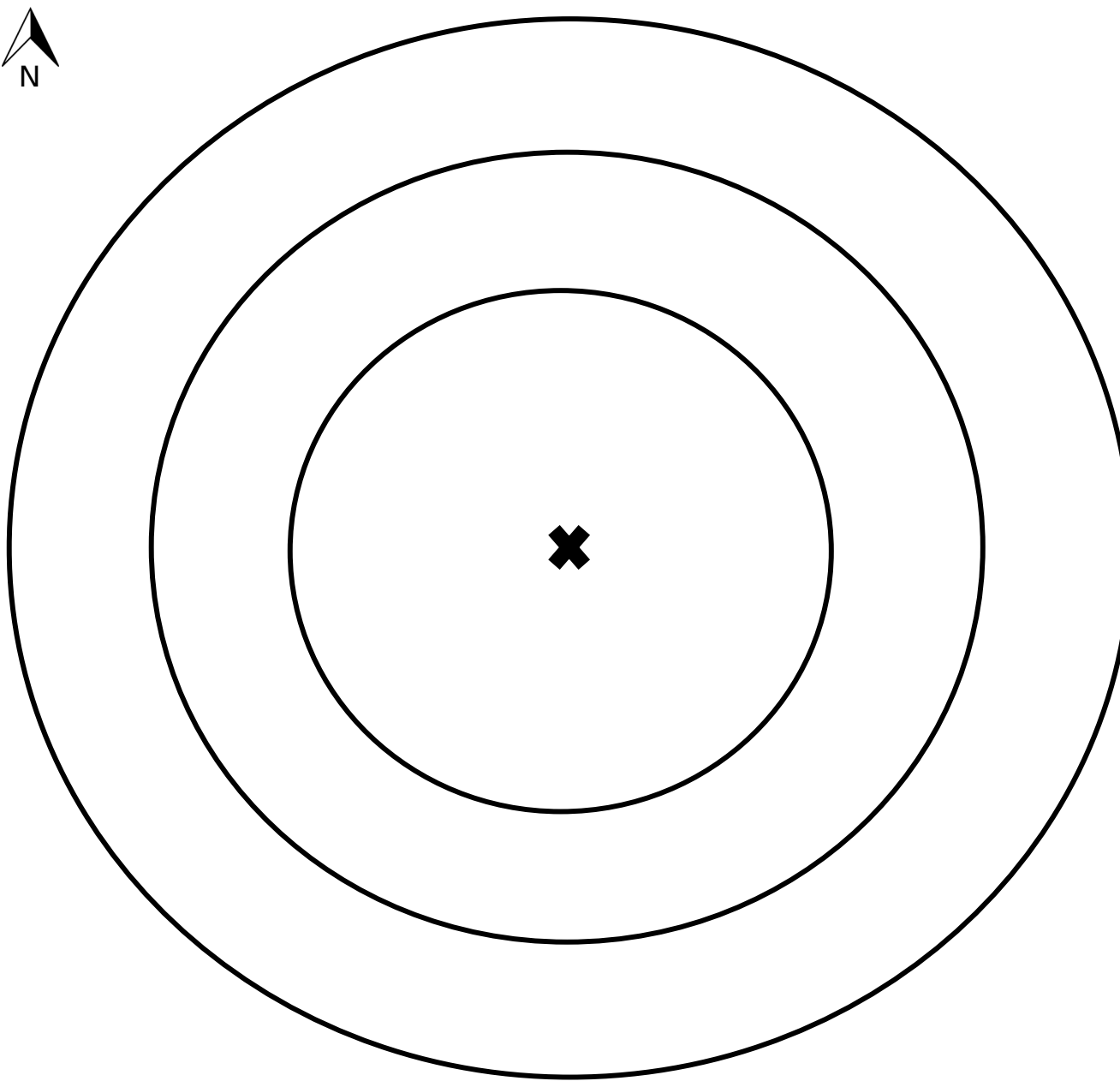
PROPERTY NAME/ID: WCS	DATE:4-24-2019
START TIME: 0707	END TIME: 0712
GPS LOCATION: 32.42819737, -103.0525019	Listening Station: 2
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 51.8° F, Wind Speed Max: 5.2mph, Average: 3mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise High	

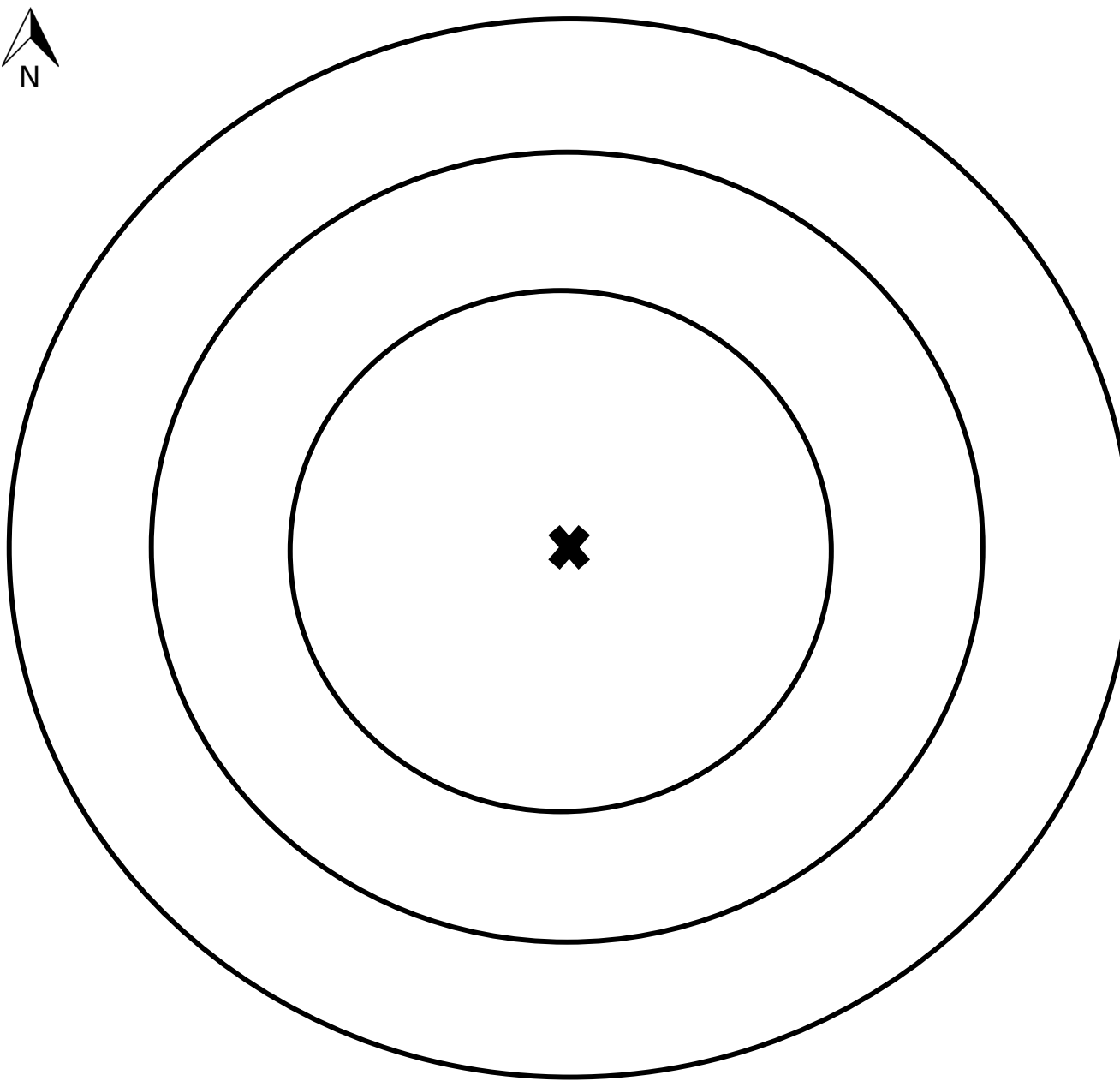


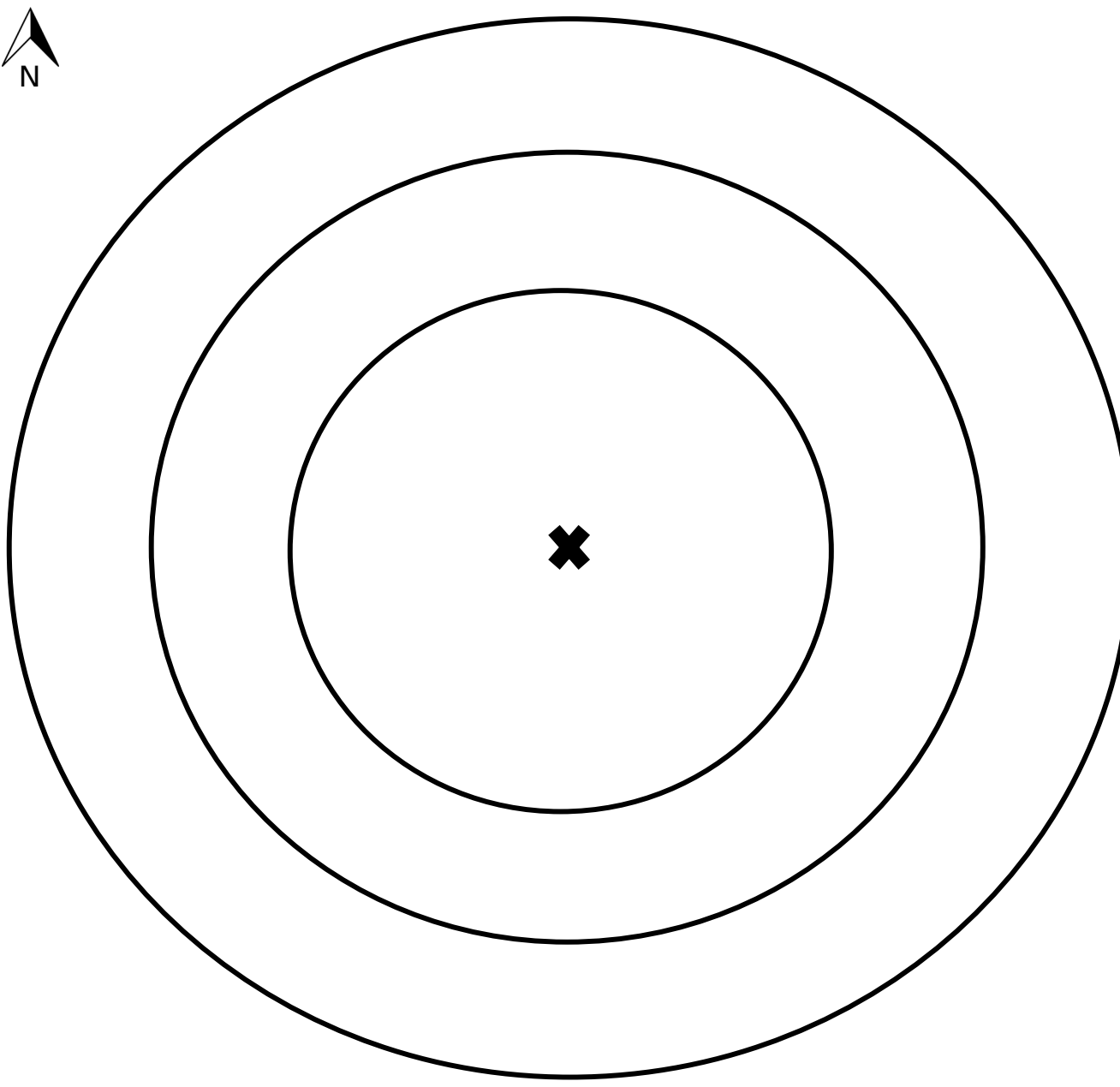
NUMBER OF ROOSTERS/COVEYS: N/A

CALL TALLY: N/A

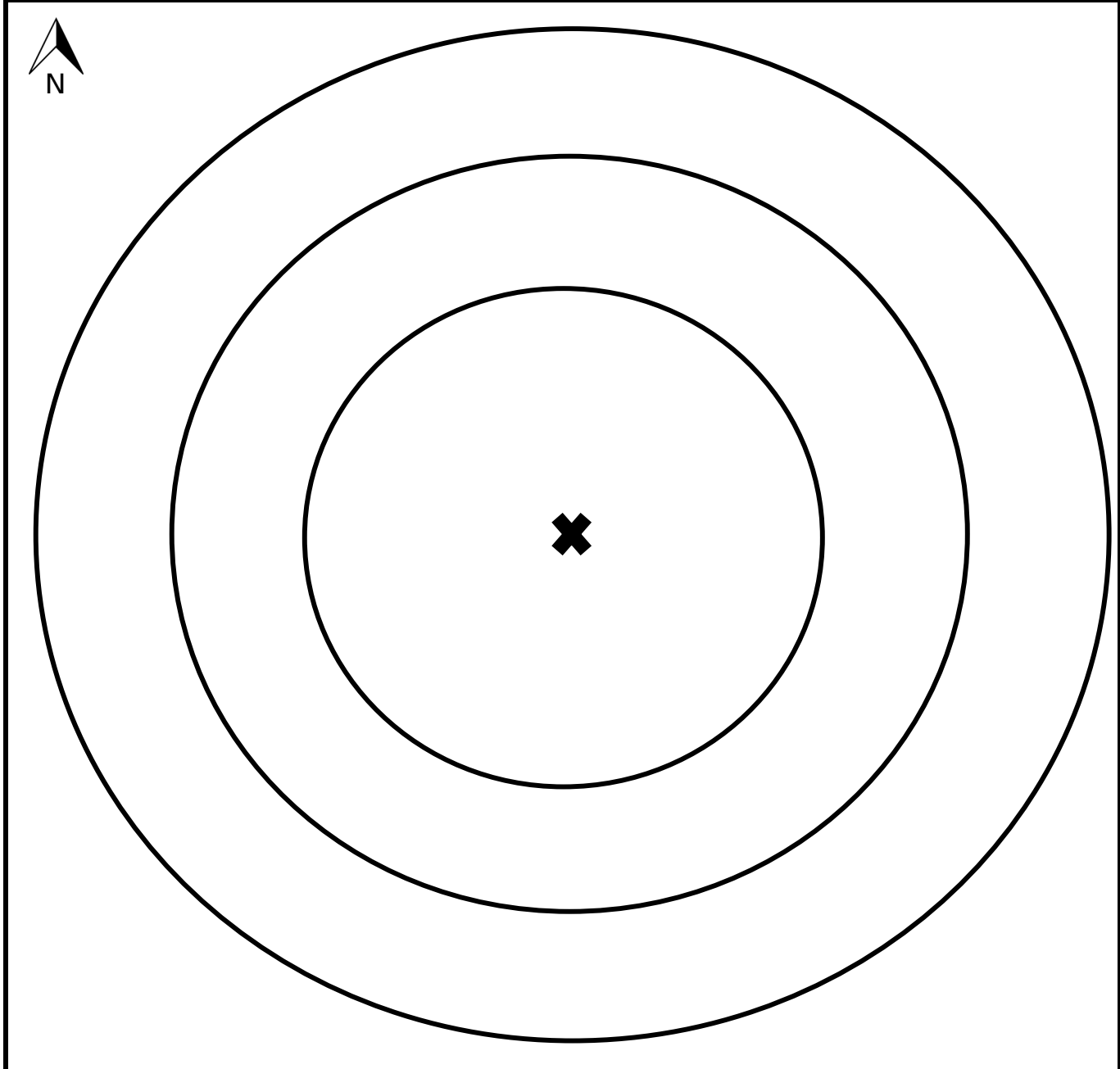
PROPERTY NAME/ID: WCS	DATE:4-24-2019
START TIME: 0714	END TIME: 0719
GPS LOCATION: 32.42790229, -103.0196225	Listening Station: 1
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 49.2° F, Wind Speed Max: 4.9mph, Average: 3.1mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise High	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

PROPERTY NAME/ID: WCS	DATE:4-24-2019
START TIME: 0738	END TIME: 0742
GPS LOCATION: 32.44915362, -103.0123435	Listening Station: 9
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 50.4° F, Wind Speed Max: 5.4mph, Average: 3.2mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise Low	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

PROPERTY NAME/ID: WCS	DATE:4-24-2019
START TIME: 0756	END TIME: 0802
GPS LOCATION: 32.45281831, -103.0560104	Listening Station: 5
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 52.3° F, Wind Speed Max: 3.9mph, Average: 2.2mph	
HABITAT DESCRIPTION: Grassland, Noise Traffic low	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

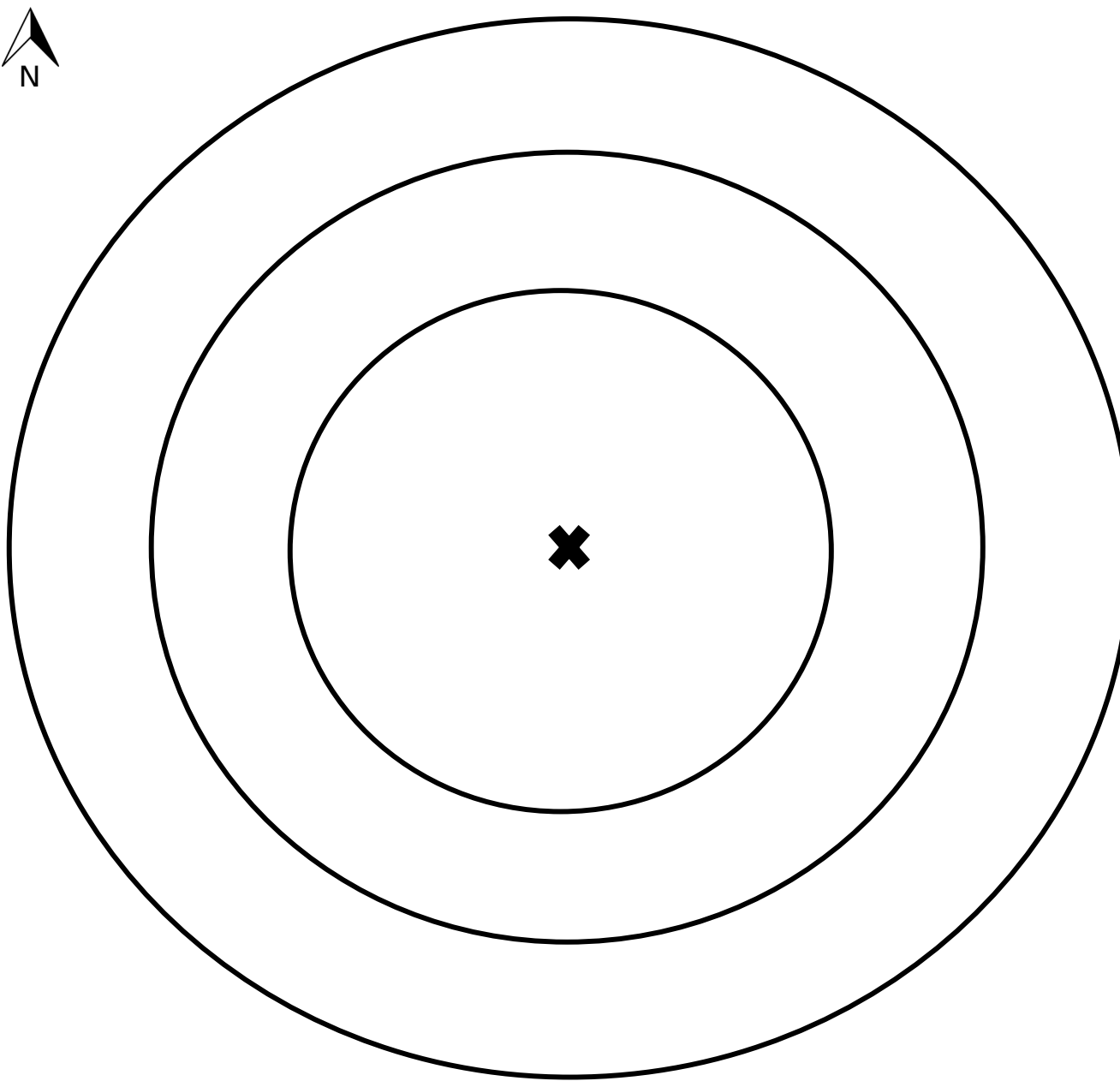
PROPERTY NAME/ID: WCS	DATE:4-24-2019
START TIME: 0807	END TIME: 0812
GPS LOCATION: 32.45281831, -103.0560104	Listening Station: 5
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 50.0° F, Wind Speed Max: 4mph, Average: 2.4mph	
HABITAT DESCRIPTION: Grassland, Noise Traffic low	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

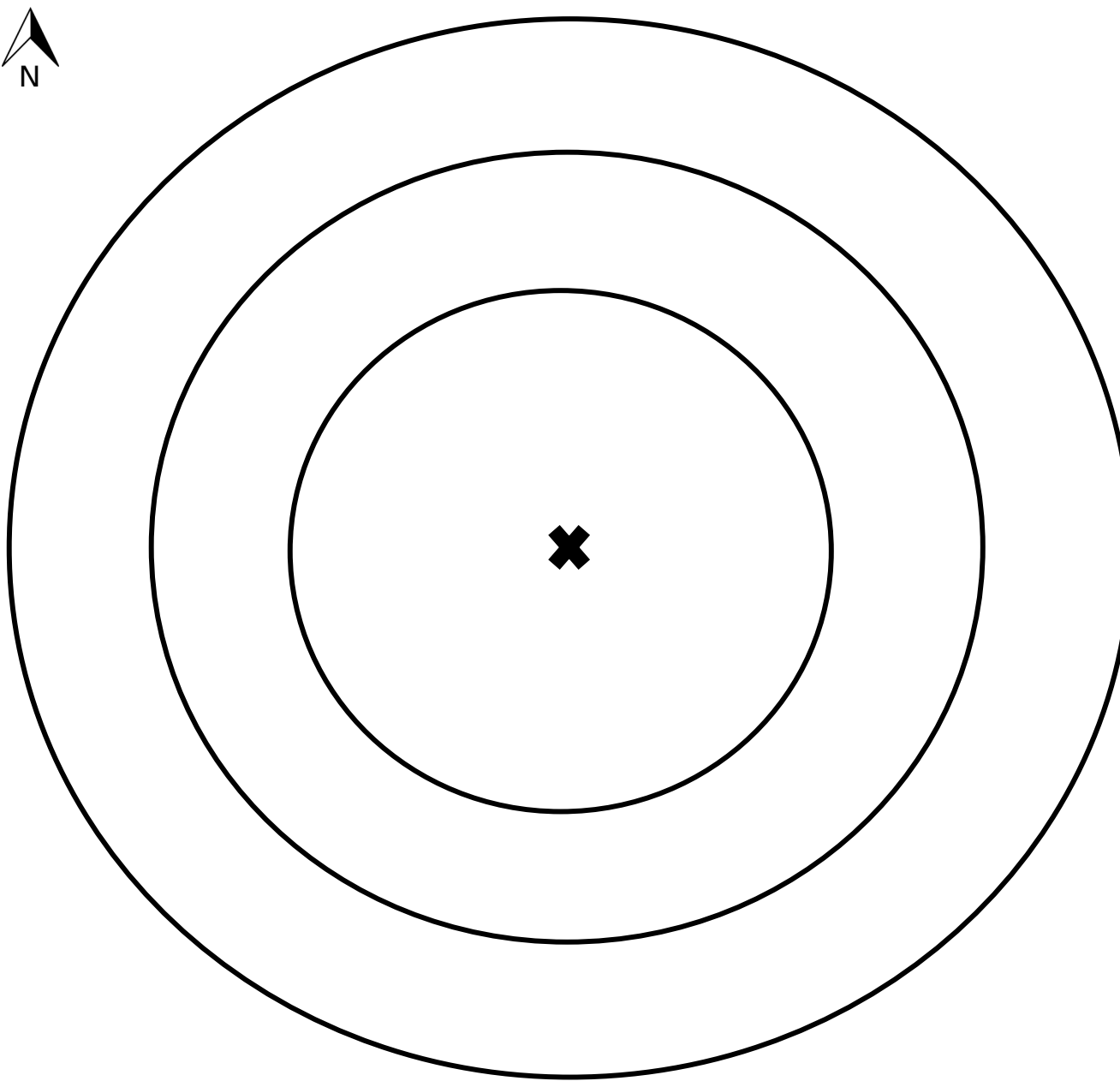
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START TIME: 0818	END TIME: 0822
GPS LOCATION: 32.47649487, -103.031017	Listening Station: 8
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 51.4° F, Wind Speed Max: 3.8mph, Average: 1.9mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise, construction, pumpjack -moderate	

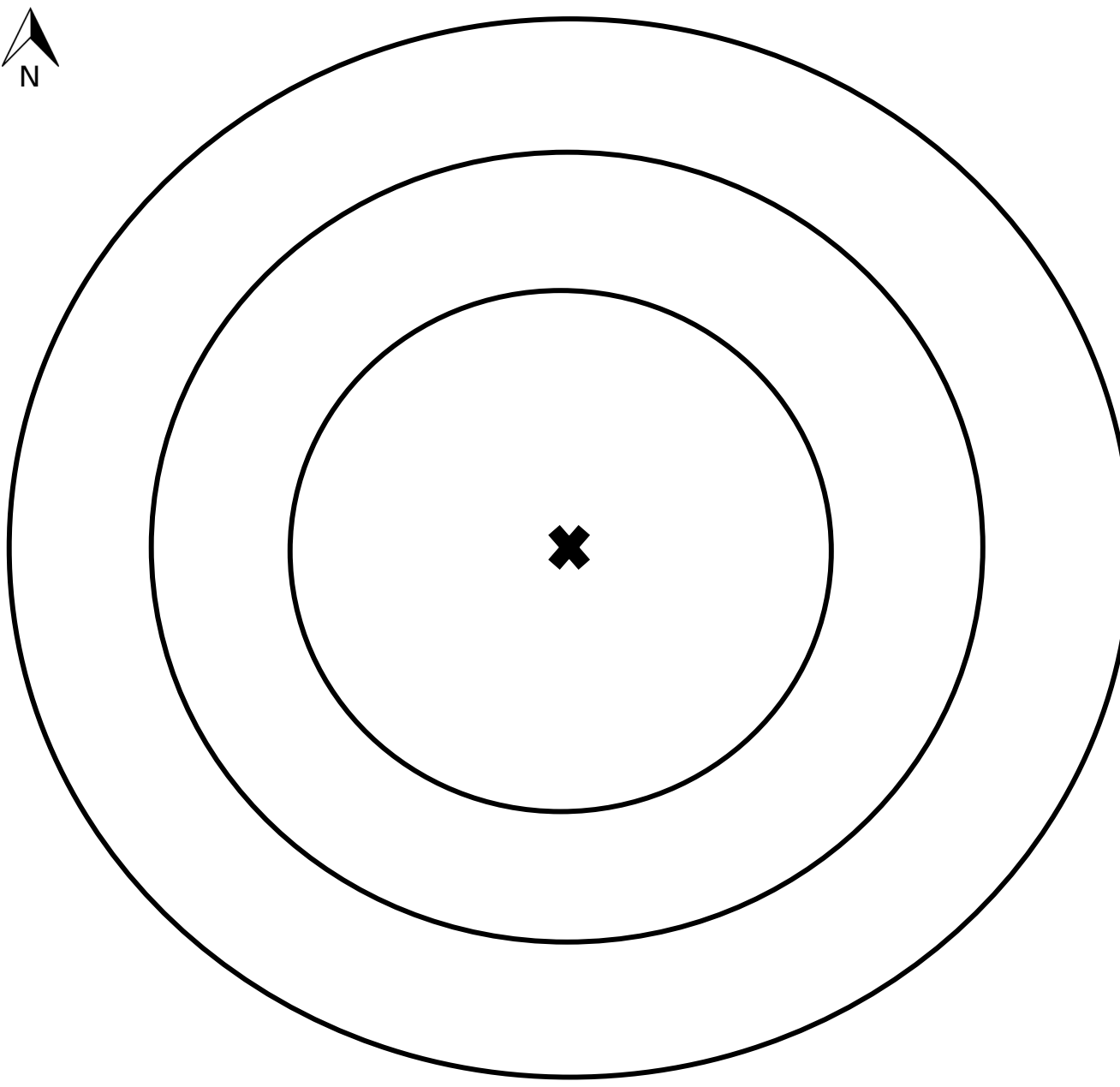


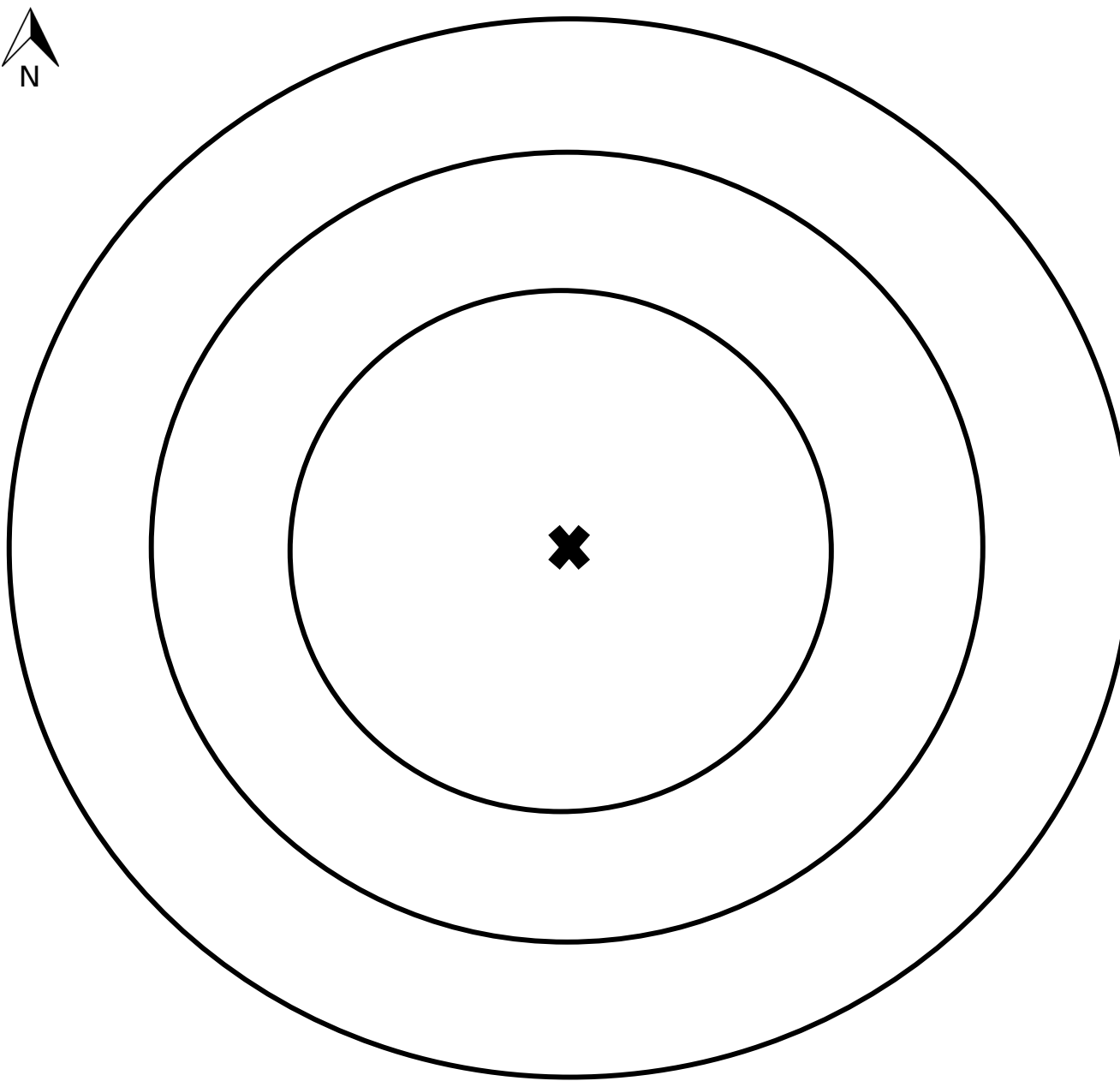
NUMBER OF ROOSTERS/COVEYS: N/A

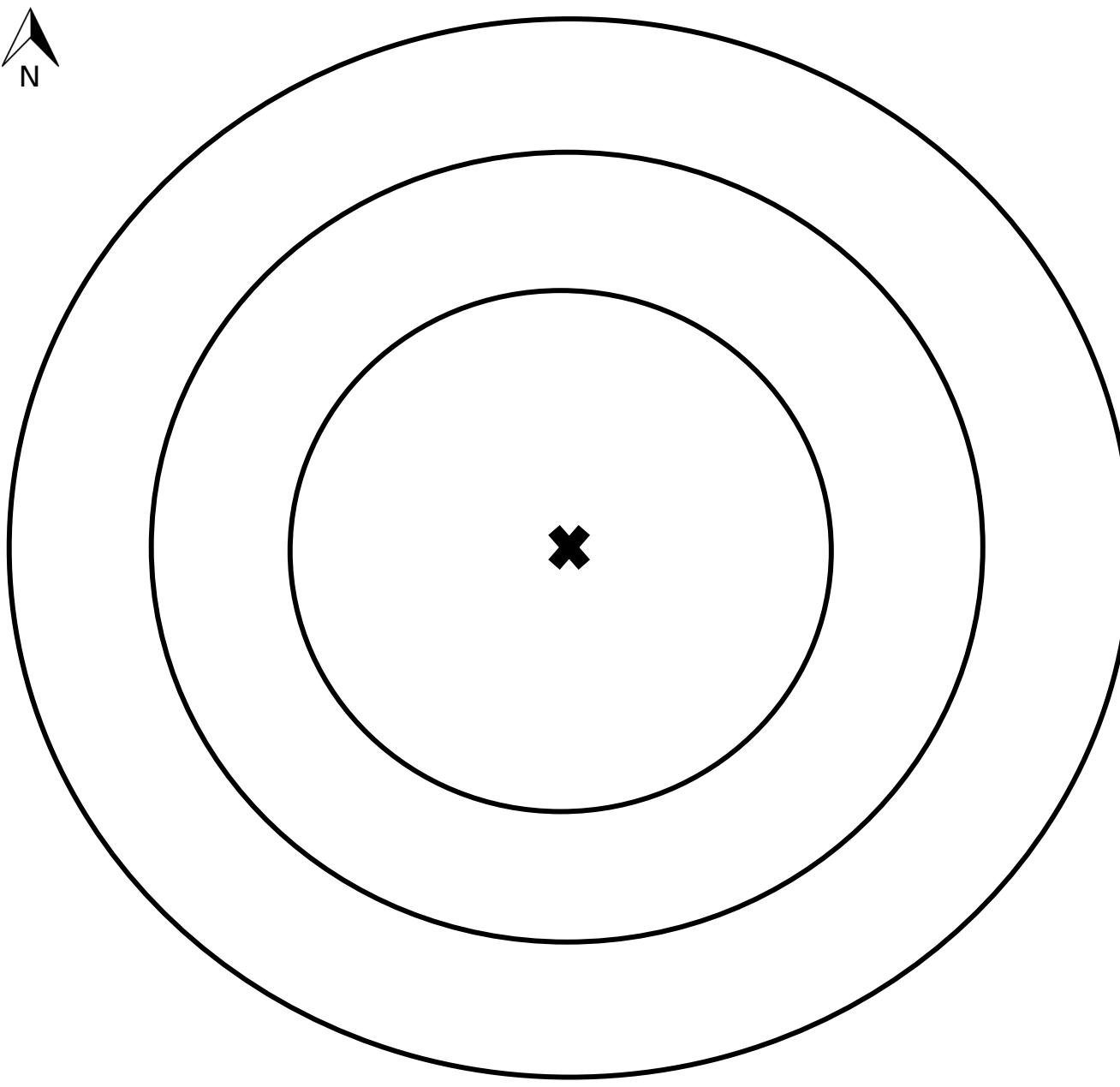
CALL TALLY: N/A

PROPERTY NAME/ID: WCS	DATE:4-25-2019
START TIME: 0641	END TIME: 0646
GPS LOCATION: 32.43322585, -103.1024278	Listening Station: 3
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 46.8° F, Wind Speed Max: 1.9mph, Average: 1.1mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise High	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

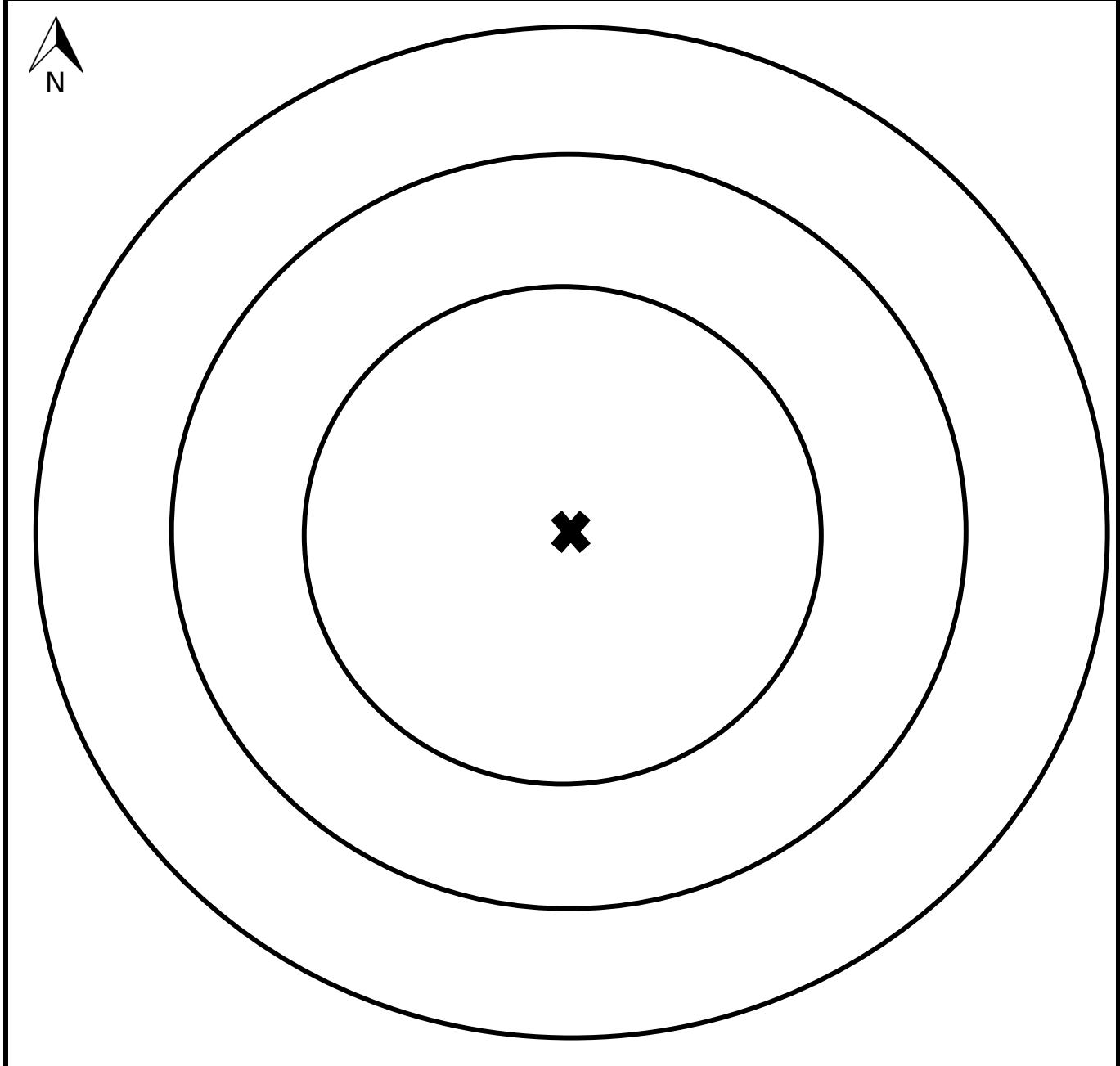
PROPERTY NAME/ID: WCS	DATE:4-25-2019
START TIME: 0650	END TIME: 0655
GPS LOCATION: 32.42819737, -103.0525019	Listening Station: 2
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 51.6° F, Wind Speed Max: 1.5mph, Average: 0.7mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise High	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

PROPERTY NAME/ID: WCS	DATE:4-25-2019
START TIME: 0657	END TIME: 0702
GPS LOCATION: 32.42790229, -103.0196225	Listening Station: 1
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 50.8° F, Wind Speed Max: 3.6mph, Average: 2.1mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise High	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

PROPERTY NAME/ID: WCS	DATE:4-25-2019
START TIME: 0720	END TIME: 0725
GPS LOCATION: 32.44915362, -103.0123435	Listening Station: 9
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 51° F, Wind Speed Max: 3.1mph, Average: 1.8mph	
HABITAT DESCRIPTION: Grassland, Traffic Noise Low	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

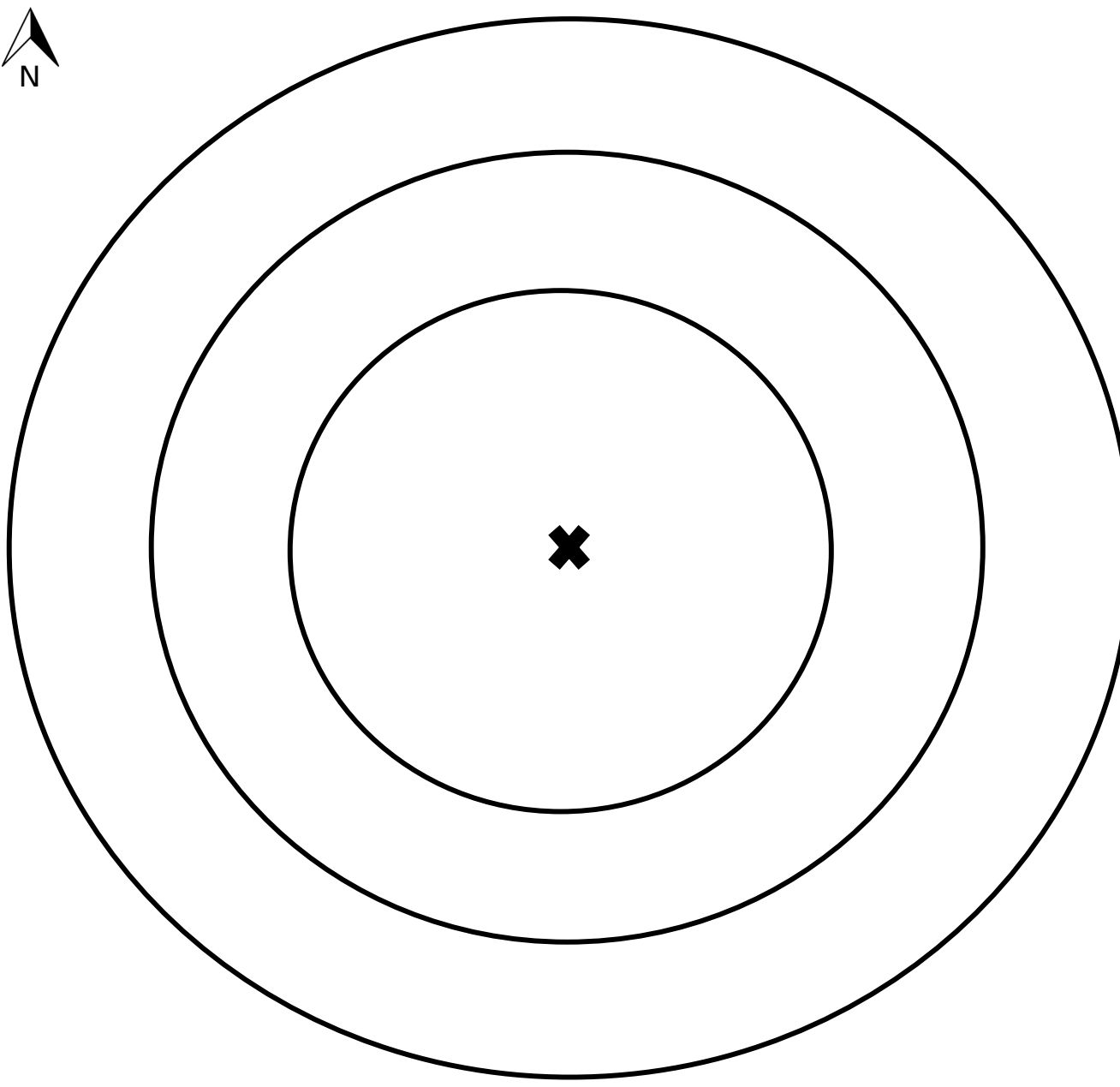
PROPERTY NAME/ID: WCS	DATE:4-25-2019
START TIME: 0743	END TIME: 0748
GPS LOCATION: 32.45281831, -103.0560104	Listening Station: 5
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 53.6° F, Wind Speed Max: 2.1mph, Average: 1.2mph	
HABITAT DESCRIPTION: Grassland, Noise, construction and traffic- low	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

PROPERTY NAME/ID: WCS	DATE:4-25-2019
START TIME: 0800	END TIME: 0805
GPS LOCATION: 32.46703654, -103.0309761	Listening Station: 7
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 56° F, Wind Speed Max: 3.6mph, Average: 2.2mph	
HABITAT DESCRIPTION: Grassland, Noise- moderate: construction/traffic	



NUMBER OF ROOSTERS/COVEYS: N/A

CALL TALLY: N/A

PROPERTY NAME/ID: WCS	DATE:4-25-2019
START TIME: 0811	END TIME: 0816
GPS LOCATION: 32.489425, -103.0647047	Listening Station: 8
OBSERVATION PERIOD: Spring 2019	
WEATHER CONDITIONS: 54.6° F, Wind Speed Max: 3.2mph, Average: 1.9mph	
HABITAT DESCRIPTION: Grassland, Noise moderate- traffic/pumpjack	
	
NUMBER OF ROOSTERS/COVEYS: N/A	
CALL TALLY: N/A	

Attachment D - Andrews County Rare, Threatened, and Endangered Species of Texas list

Last Update: 4/15/2019

ANDREWS COUNTY

AMPHIBIANS

Woodhouse's toad

Anaxyrus woodhousii

Extremely catholic up to 5000 feet, does very well (except for traffic) in association with man.

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G5

State Rank: SU

BIRDS

American peregrine falcon

Falco peregrinus anatum

Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Federal Status:

State Status: T

SGCN: Yes

Endemic: N

Global Rank: G4T4

State Rank: S2B

bald eagle

Haliaeetus leucocephalus

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:

State Status: T

SGCN: Yes

Endemic: N

Global Rank: G5

State Rank: S3B,S3N

Franklin's gull

Leucophaeus pipixcan

Habitat description is not available at this time.

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G4G5

State Rank: S2N

lesser prairie-chicken

Tympanuchus pallidicinctus

Arid grasslands, generally interspersed with shrubs such as sand sagebrush, sand plum, skunkbush sumac, and shinnery oak shrubs, but dominated by sand dropseed, sideoats grama, sand bluestem, and little bluestem grasses; nests in a scrape lined with grasses

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G3

State Rank: S2

mountain plover

Charadrius montanus

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G3

State Rank: S2

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ANDREWS COUNTY

BIRDS

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status: State Status: SGCN: Yes
Endemic: N Global Rank: G4T4 State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: Yes
Endemic: N Global Rank: G5 State Rank: S4B

FISH

blue sucker *Cycleptus elongatus*

Usually inhabits channels and flowing pools with a moderate current, with bottoms of exposed bedrock sometimes in combination with hard clay, sand, and gravel; generally intolerant of highly turbid conditions. Larger portions of major rivers in Texas; adults winter in deep pools and move upstream in spring to spawn on riffles

Federal Status: State Status: T SGCN: Yes
Endemic: N Global Rank: G3G4 State Rank: S3

headwater catfish *Ictalurus lupus*

Originally throughout streams of the Edwards Plateau and the Rio Grande basin, currently limited to Rio Grande drainage, including Pecos River basin; springs, and sandy and rocky riffles, runs, and pools of clear creeks and small rivers

Federal Status: State Status: SGCN: Yes
Endemic: N Global Rank: G3 State Rank: S2

smalleye shiner *Notropis buccula*

Endemic to upper Brazos River system and its tributaries (Clear Fork and Bosque); apparently introduced into adjacent Colorado River drainage; medium to large prairie streams with sandy substrate and turbid to clear warm water; presumably eats small aquatic invertebrates

Federal Status: LE State Status: SGCN: Yes
Endemic: Y Global Rank: G2 State Rank: S2

INSECTS

No accepted common name *Polyphylla monahansensis*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Yes
Endemic: Global Rank: GNR State Rank: SNR

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ANDREWS COUNTY

INSECTS

No accepted common name *Polyphylla pottsorum*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Yes
Endemic:	Global Rank: GNR	State Rank: SNR

MAMMALS

American badger *Taxidea taxus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G5	State Rank: S5

Big Free-tailed Bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Yes
Endemic:	Global Rank: G5	State Rank: S3

black-tailed prairie dog *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G4	State Rank: S3

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G3G4	State Rank: S4

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G3G4	State Rank: S4

kit fox *Vulpes macrotis*

Open desert grassland; avoids rugged, rocky terrain and wooded areas.

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G4	State Rank: S1S2

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ANDREWS COUNTY

MAMMALS

long-tailed weasel

Mustela frenata

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G5

State Rank: S5

Mexican free-tailed bat

Tadarida brasiliensis

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G5

State Rank: S5

mountain lion

Puma concolor

Rugged mountains & riparian zones.

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G5

State Rank: S2S3

pronghorn

Antilocapra americana

Prefers hilly & plateau areas of open grassland, desert-grassland, & desert-scrub, where it frequents south-facing slopes & other sheltered areas.

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G5

State Rank: S5

thirteen-lined ground squirrel

Ictidomys tridecemlineatus

Habitat description is not available at this time.

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G5

State Rank: S5

western hog-nosed skunk

Conepatus leuconotus

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. *telmalestes*

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G4

State Rank: S4

western spotted skunk

Spilogale gracilis

Habitat description is not available at this time.

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G5

State Rank: S5

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ANDREWS COUNTY

REPTILES

dunes sagebrush lizard

Sceloporus arenicolus

Confined to active sand dunes near Monahans; dwarf shin-oak sandhills with sagebrush and yucca; opportunistic insectivore; sit and wait predator; burrows in sand or plant litter to escape enemies

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G2G3	State Rank: S1

massasauga

Sistrurus tergeminus

Quite common in gently rolling prairie occasionally broken by creek valley or rocky hillside.

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G3G4	State Rank: S3S4

Texas horned lizard

Phrynosoma cornutum

Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area. Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September.

Federal Status:	State Status: T	SGCN: Yes
Endemic: N	Global Rank: G4G5	State Rank: S3

western box turtle

Terrapene ornata

Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G5	State Rank: S3

western hognose snake

Heterodon nasicus

Habitat consists of areas with sandy or gravelly soils, including prairies, sandhills, wide valleys, river floodplains, bajadas, semiagricultural areas (but not intensively cultivated land), and margins of irrigation ditches (Degenhardt et al. 1996, Hammerson 1999, Werler and Dixon 2000, Stebbins 2003). Also thornscrub woodlands and chaparral thickets. Seems to prefer sandy and loamy soils, not necessarily flat. Periods of inactivity are spent burrowed in the soil or in existing burrows. Eggs are laid in nests a few inches below the ground surface (Platt 1969).

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G5	State Rank: S4

western rattlesnake

Crotalus viridis

Grassland, both desert and prairie; shrub desert rocky hillsides; edges of arid and semi-arid river breaks.

Federal Status:	State Status:	SGCN: Yes
Endemic: N	Global Rank: G5	State Rank: S5

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ANDREWS COUNTY

PLANTS

Cory's ephedra

Ephedra coryi

Dune areas and dry grasslands in the southern Plains Country; Perennial; Flowering April-Sept; Fruiting May-Sept

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G3

State Rank: S3

dune umbrella-sedge

Cyperus onerosus

Moist to wet sand in swales and other depressions among active or partially stabilized sand dunes; flowering/fruitlet late summer-fall

Federal Status:

State Status:

SGCN: Yes

Endemic: Y

Global Rank: G2

State Rank: S2

dune unicorn-plant

Proboscidea sabulosa

Deep, dry to seasonally moist loose sands on sparsely vegetated, unstabilized dunes and in openings in shinneries; in New Mexico, one location found as a secondary successional species in fallow fields; does not germinate in years with inadequate summer rainfall, but may be locally abundant during unusually wet summers; flowering July-August, with fruits maturing in fall

Federal Status:

State Status:

SGCN: Yes

Endemic: N

Global Rank: G3

State Rank: S2

Hinckley's spreadwing

Eurytaenia hinckleyi

Loose sandy soils of the Monahans/Kermit Sandhills; Annual; Flowering/Fruiting May-July

Federal Status:

State Status:

SGCN: Yes

Endemic: Y

Global Rank: G3

State Rank: S3

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Attachment E – USFWS IPaC Report



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

Phone: (512) 490-0057 Fax: (512) 490-0974

<http://www.fws.gov/southwest/es/AustinTexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

In Reply Refer To:

June 19, 2019

Consultation Code: 02ETAU00-2019-SLI-1044

Event Code: 02ETAU00-2019-E-02619

Project Name: WCS

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that *may* occur within the county of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please note that new information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Also note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of federally listed as threatened

or endangered species and to determine whether projects may affect these species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

While a Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment, the Federal Agency must notify the Service in writing of any such designation. The Federal agency shall also independently review and evaluate the scope and content of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by a federally funded, permitted or authorized activity, the agency is required to consult with the Service pursuant to 50 CFR 402. The following definitions are provided to assist you in reaching a determination:

- *No effect* - the proposed action will not affect federally listed species or critical habitat. A “no effect” determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.
 - *May affect, but is not likely to adversely affect* - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effect. The Federal agency or the designated non-Federal representative should consult with the Service to seek written concurrence that adverse effects are not likely. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.
 - *Is likely to adversely affect* - adverse effects to listed species may occur as a direct or indirect result of the proposed action. For this determination, the effect of the action is neither discountable nor insignificant. If the overall effect of the proposed action is beneficial to the listed species but the action is also likely to cause some adverse effects to individuals of that species, then the proposed action “is likely to adversely affect” the listed species. The analysis should consider all interrelated and interdependent actions. An “is likely to adversely affect” determination requires the Federal action agency to initiate formal section 7 consultation with our office.
-

Regardless of the determination, the Service recommends that the Federal agency maintain a complete record of the evaluation, including steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

Migratory Birds

For projects that may affect migratory birds, the Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of these species. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Migratory birds may nest in trees, brushy areas, or other areas of suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests, or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to conducting work. If a nest is found, and if possible, the Service recommends a buffer of vegetation remain around the nest until the young have fledged or the nest is abandoned.

For additional information concerning the MBTA and recommendations to reduce impacts to migratory birds please contact the U.S. Fish and Wildlife Service Migratory Birds Office, 500 Gold Ave. SW, Albuquerque, NM 87102. A list of migratory birds may be viewed at <https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php>. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at: <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/communication-towers.php>. Additionally, wind energy projects should follow the wind energy guidelines

<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/wind-energy.php>) for minimizing impacts to migratory birds and bats.

Finally, please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/eagles.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

(512) 490-0057

Project Summary

Consultation Code: 02ETAU00-2019-SLI-1044

Event Code: 02ETAU00-2019-E-02619

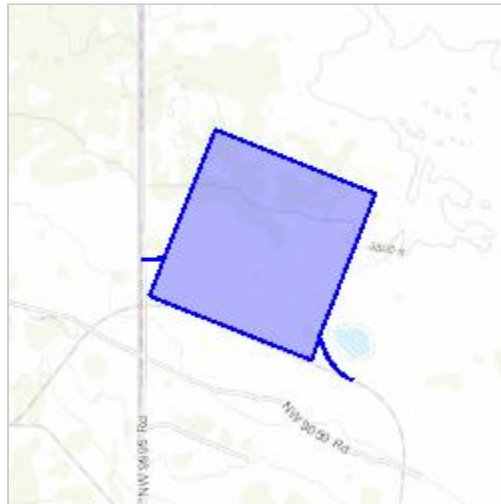
Project Name: WCS

Project Type: Landfill

Project Description: Potential disposal site

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/32.45280859712197N103.0564301707575W>



Counties: Andrews, TX

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.
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Birds

NAME	STATUS
<p>Least Tern <i>Sterna antillarum</i> Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/8505	Endangered
<p>Northern Aplomado Falcon <i>Falco femoralis septentrionalis</i> Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1923</p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
<p>Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.