Vance AFB

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

2016-2020

Coordination
(Vance Air Force Base)

The signatory below indicates Vance Air Force Base coordination/approval for the 5-year (FY2016-2020) Vance Air Force Base Integrated Natural Resources Management Plan.

Expired certificate

X

DARRELL F. JUDY, Colonel, USAF
Commander, 71st Flying Training Wing
Signed by: JUDY.DARRELL.F.1155224068

Coordination
(United States Fish & Wildlife Service)

The signatory below indicates United States Fish and Wildlife Service coordination for the 5-year (FY20 16-2020) Vance Air Force Base Integrated Natural Resources Management Plan.

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Having reviewed the Vance Air Force Base Integrated Natural Resources Management Plan, I hereby agree with those aspects of the Plan that are within the jurisdictional authority of my agency concerning conservation, protection, and management of fish and wildlife resources.

DR. BENJAMIN N. TUGGLE, PhD
Director, U.S. Fish and Wildlife Service

MAY - 1 2017
Date

Coordination
(Oklahoma Department of Wildlife Conservation)

The signatory below indicates Oklahoma Department of Wildlife Conservation coordination for the 5-year (FY2016-2020) Vance Air Force Base Integrated Natural Resources Management Plan.

Having reviewed the Vance Air Force Base Integrated Natural Resources Management Plan, I hereby agree with those aspects of the Plan that are within the jurisdictional authority of my agency concerning conservation, protection, and management of fish and wildlife resources.

J, D. Strong /
Director, Oklahoma Department of Wildlife Conservation

11.8.2016
Date

Annual Review/Approval:

The signatories below indicate this plan has received its annual internal review and update in coordination with the Oklahoma Department of Wildlife Conservation and U.S. Fish and Wildlife Service (Region 2).

2017

	24 July 2017
Natural Resources Manager	Date
	8 Aug 17
Civil Engineer, 71st Installation Support Squadron	Date

2018

	11 June 2018
Natural Resources Manager	Date
	21 Jun 2018
Civil Engineer, 71st Installation Support Squadron	Date

2019

Natural Resources Manager	Date
Civil Engineer, 71st Installation Support Squadron	Date

2020

Natural Resources Manager	Date
Civil Engineer, 71st Installation Support Squadron	Date

DEPARTMENT OF THE AIR FORCE

71ST FLYING TRAINING WING
VANCE AIR FORCE BASE OKLAHOMA

MEMORANDUM FOR DISTRIBUTION

FROM: 71 FTW/CC
246 Brown Parkway, STE 224
VANCE AFB OK 73705-5015

SUBJECT: Vance Air Force Base (AFB) Integrated Natural Resources Management Plan (INRMP).

1. This is the Vance AFB INRMP. This plan supersedes the Vance AFB INRMP dated 26 December 2013. This plan identifies the procedures for Air Force Instruction (AFI) 32-7064. Previous editions should be disposed of in accordance with (IAW) current directives.

2. This plan supports local Air Force policies on managing natural resources and for implementation when directed by the commander of Vance AFB.

3. Elements of this plan were coordinated with Installation Support Team -Tinker and AFCEC/CZOW.

4. The Office of Primary responsibility (OPR) for this plan is the 71 ISS/CE at DSN 448-6248.

Expired certificate

X

DARRELL F. JUDY, Colonel, USAF
Commander, 71st Flying Training Wing
Signed by: JUDY.DARRELL.F.1155224068

Attachment:
Vance AFB Integrated Natural Resources Management Plan (INRMP)

VANCE AFB INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
RECORDS OF CHANGES/REVIEWS

RECORD OF CHANGES

Change Number	Change	Date Posted	Reviewer
1	Administrative	6/2/2017	Mark Buthman
2	Administrative	4/27/2018	Mark Buthman
3	Added Tree Project Appendix 3 List of Projects	6/11/2018	Mark Buthman
4	Added Tree Project Appendix 8 Critical Habitat Issues	6/11/2018	Mark Buthman

RECORD OF REVIEWS

Reviewed By:	Date	Remarks
Shannon Elledge	10 JUL 2017	Annual Review: Minor update to the "Approved Planting List" and minor formatting corrections
Shannon Elledge	11 JUN 2018	Annual Review: Added Tree project

EXECUTIVE SUMMARY

1. INTRODUCTION: This plan sets forth a single, unified management philosophy, strategy, and framework for the protection, conservation, use, and management of natural resources at Vance AFB and Kegelman Auxiliary Air Field (AAF). It is intended to fulfill the requirements of Air Force Instruction (AFI) 32-7064.

2. PURPOSE: The purpose of this plan is to implement Department of Defense (DoD) and Air Force (AF) policies on managing natural resources and to comply with the Sikes Act Amendment as a cooperative effort with the United States Fish and Wildlife Service (USFWS), and the Oklahoma Department of Wildlife Conservation (ODWC).

3. OVERVIEW: The INRMP intends to manage resources in a manner that fully supports the base mission. The AF must consider all of its goals and resources when planning projects and mission changes.

4. PLAN MAINTENANCE: The plan is reviewed annually per AFI 32-7064 and updated as changes occur by the Environmental Branch.

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1. Overview

1.1. Purpose – The natural resources of Vance AFB and Kegelman AAF are used for living, working, and playing. For these activities to take place efficiently at Vance, multiple-use coordination of facilities and management plans is required. The purpose of the INRMP is to serve as a road map for resource management based on an interdisciplinary approach to ecosystem management without negatively impacting the training mission.

1.2. Scope – The INRMP was prepared in compliance with the Sikes Act Amendments, as implemented in DoD and AF policy and as a cooperative effort with the USFWS, ODWC, and the Oklahoma Tourism and Recreation Department. It sets forth a single unified management philosophy for the protection, conservation, use, and management of resources at Vance AFB and Kegelman AAF. The INRMP was developed in an interdisciplinary manner, through coordination with individuals from various disciplines, such as pest control, wildlife biologists, the base community planner, landscape planning, arborists, and grounds maintenance. All management strategies are monitored and adjusted as needed.

1.2.1. The INRMP is a living document that integrates all aspects of resources management with each other and the rest of the installation's mission. The INRMP intends to manage resources in a manner that fully supports the base mission. Key aspects of this plan have been incorporated into the base General Plan to aid in coordinating and planning the future needs of this installation. The Air Force must consider all of its goals and resources when planning projects and mission changes.

1.3. Goals – The following are the overarching goals for the natural resource program. Objectives for specific resource areas are addressed in the respective sections.

1.3.1. To protect and enhance environmental quality

1.3.2. To protect and enhance habitat used by federal and state listed threatened and endangered species (T&Es), if any are found to reside on Vance AFB property.

1.3.3. To manage, conserve, develop, and maintain all natural resources in the best national interest, sustaining military operations and in accordance with the principles of multiple use/sustained yield.

1.3.4. To design management activities to benefit the total environment without excluding the use of one resource over another, except in the case of T&Es.

1.3.5. To provide the greatest net public benefit for the greatest period of time based upon analysis of prevailing ecological factors, supply and demand of various natural resources, and their uses to conduct all management activities to minimize the Bird Aircraft Strike Hazard (BASH) potential.

1.3.6. To utilize and care for resources in a combination best serving the present and future needs of the United States and its people.

1.4. Responsibilities – Office of Primary Responsibility – The 71 ISS/CE serves as the OPR for this plan. This plan is reviewed annually by the installation Natural Resources Manager (NRM) and updated as needed. 71 ISS/CE approves all annual reviews that do not include a significant change in the scope of the plan. The annual review ensures that the plan:

1.4.1. Implements the overall installation goals for resources management

1.4.2. Is compatible with other installation management plans

1.4.3. Is current and appropriate for the coming year

1.4.4. Coordination – The installation NRM coordinates review of this plan annually with 71 ISS/CE, and installation stakeholders. Any significant changes to the INRMP resources requires a Tri-Partite external review. At a minimum, every 5 years, a Tri-Partite external review is required.

1.4.5. Proponents of Action – Proponents of actions that would affect installation resources coordinate with the installation NRM throughout the planning process and project implementation.

1.4.6. Routine Review – The installation NRM routinely reviews work requests and job orders that affect natural resources and ensures they are compatible with this plan.

1.4.7. Installation stakeholders – 71 ISS/CE is the OPR, the Natural Resources Manager (NRM) evaluates impacts to natural resources and maintains the INRMP, the Environmental, Safety, and 71 FTW/JA determines legal sufficiency of the plan. The Vance AFB Rod and Gun Club monitors hunting activities. The INRMP is coordinated with Pest Management personnel.

1.4.8. External Stakeholders – The Oklahoma Department of Wildlife Conservation (ODWC) and the United States Fish and Wildlife Service (USFWS) are Sikes Act partners.

1.5. Authority – Authority for this plan is provided by Department of Defense Directive (DoDD) 4700.4, Natural Resources Management Program, AF Policy Directive 32-70, Environmental Quality, Sikes Act, 16 U.S.C. 670a(a)(2), and AFI 32-7064, Integrated Natural Resources Management.

1.6. Stewardship and Compliance – This plan is implemented according to the following DoD policies, as found in DoDD 4700.4, Natural Resources Management Program. All installation personnel, both civilian and military, act responsibly in the public interest in managing the land and resources that are an integral part of the installation. There is a conscious and active

concern for the inherent value of resources in installation decisions and actions. Resources under control of the installation are managed to support the military mission while practicing the principles of multiple use and sustained yield. The conservation of natural resources and the military mission need not and are not mutually exclusive.

1.7. Review and Revision Process – The INRMP is reviewed annually with updates as needed and revised every five years and includes coordination and review of the INRMP with the external stakeholders. Updated sections of the INRMP are identified for ease of review. The NRM reviews the plan annually and coordinates the review with 71 ISS/CE and internal stakeholders. The 5-year revision and review process is streamlined via an attached summary so that federal and state agency reviews can focus on updated information. The installation NRM routinely reviews work requests and job orders that affect natural resources and ensure they are compatible with this plan. The annual review and five-year revision are components of the installation EMS.

1.7.1. Environmental Management System – Annual reviews and 5-year revisions are conducted in accordance with AFI 32-7064 and the Vance AFB Environmental Management System.

1.7.2. The installation NRM coordinates review of this plan annually with 71 ISS/CE for approval and 5 year revisions with Tripartite federal and state agencies, MSG/CC, and installation stakeholders. A significant increase in the scope of the plan requires revision of the INRMP and external coordination of the plan, while normal annual review requires approval by the 71 ISS/CE.

1.8. Management Strategy – Vance AFB's natural resource management strategy consists of ecosystem management in a manner that preserves biodiversity of plant and animal species without degrading the capability of the training mission. Ecosystem management includes control of noxious weeds and invasive species to promote sustainability of desirable species. It also includes maintaining wildlife populations at levels appropriate for the available food supply without attracting species and numbers that pose a threat to aircraft operations. Hunting is used as a tool to control wildlife populations. Targeted pesticide use and tree removal are used to control noxious weeds and invasive species.

1.9. Other Plan Integration – Key aspects of this plan have been incorporated into the base General Plan to aid in coordinating and planning the future needs of this installation. The Air Force must consider all of its goals and resources when planning projects and mission changes. The INRMP was developed in conjunction with the Pest Management Plan ensuring its goals support those of the INRMP and pest management is addressed as part of vegetation management at Vance AFB and Kegelman AAF.

2 Current Conditions and Use

2.1. Installation Information

2.1.1. General Description – Vance AFB is located in north central Oklahoma on 2,132 acres of gentle rolling plain. It is three miles southwest of the City of Enid. Vance AFB also operates Kegelman AAF near the rural community of Jet, Oklahoma on 1,066 acres. Both Vance AFB and Kegelman AAF are surrounded by farmland. The area immediately adjacent to their boundaries is sparsely developed. There are no cultural resources at Vance AFB or Kegelman AAF. There are no jurisdictional wetlands on Vance AFB or Kegelman AAF as determined by the United States Army Corps of Engineers (USACE).

2.1.2. Regional Land Uses – Abbreviated History and Pre-Military Land Use – Vance AFB was founded in 1941 when city leaders of Enid, Oklahoma, offered a wheat field site for a training field five miles south of town. After a construction period, the school began training cadets to become aircraft pilots and commissioned officers in the Army Air Corps. Cadets trained in the BT-13 and BT-15. The Air Force became a separate service after World War II. Later, in 1949, the base was renamed in honor of Enid native Lieutenant Colonel Leon Robert Vance, Jr., a Medal of Honor recipient who was killed during the war. In 1956, the T-33 single engine jet trainer ushered in the jet age at Vance AFB followed by T-37s in 1960 and T-38s in 1963. In 1995, Vance AFB received T-1As, the military counterpart of the civilian Beechjet 400A. This new aircraft is used to train tanker and transport pilots and the acquisition was the first step in a total restructuring of pilot training called Specialized Undergraduate Pilot Training (SUPT). In 2005, Vance AFB began receiving T-6As to replace the T-37s as the primary flight training aircraft.

2.1.3. Kegelman AAF was purchased by the Army Air Corps in 1943 for pilot training and became part of Vance AFB after WWII. Air Force members hunted part of Kegelman AAF on a limited basis in the early 1970s. A total of 50 hunters signed up for a day of hunting during the 1973-74 hunting season. In 1972, a license was issued to the Oklahoma National Guard to use the area east of the main runway for training. A cooperative fish and wildlife plan for the area was signed in 1970. This plan expired in 1975 and the Vance AFB Commander closed the area to hunting in June 1975. In 1979, the Vance AFB Rod and Gun Club requested permission to hunt the area.

2.1.4. Military Mission – The mission of the 71st Flying Training Wing is to conduct SUPT and other small subsidiary training programs as directed by Air Force Headquarters. The SUPT program consists of academic instruction, instrument flight simulator training, and aircraft flying. Upon graduation, the student earns the silver wings of an Air Force pilot.

2.1.5. Operations and Activities – The natural environment at Vance AFB can be affected by United States Department of Agriculture (USDA) depredation activities. The Vance AFB Flight Safety office holds a USDA contract which is staffed by a certified depredator who facilitates the removal of birds and other animals who increase the air-strike hazard on the

airfield. At Kegelman AAF, the Vance AFB Rod and Gun Club facilitates the reduction in numbers of deer that take cover in the wildlife management area (Depicted in Appendix 16), thereby reducing the hazard of deer crossing the runway.

2.1.6. Constraints Map – The map in Appendix 14, Kegelman AAF Wildlife Management Area shows a blue boundary area known as the "Controlled Area", an area that is restricted access due to mission concerns. It is mostly a "Semi-improved" area and encircles the active runway at Kegelman AAF. There are no natural resource issues or constraints on Kegelman AAF.

2.1.7. Opportunities Map – Vance AFB does not have listed species or T&Es, but does have a small hunting area at the Kegelman AAF as depicted in the map at Appendix 14, *Kegelman AAF Wildlife Management Area.* In accordance with the Base General Plan, encroachment has not been an issue at Vance AFB.

2.2 General Physical Environment and Ecosystems

2.2.1. Climate – From the website http://www.usa.com/enid-ok-weather.htm, the average annual temperature at Enid is 59.4 degrees Fahrenheit. The average annual precipitation is 33.12 inches with annual average snowfall of 9.73 inches. Humidity averages 77.59 percent. The average wind speed is 17.97 miles per hour. Weather extreme events for the time period 1950-2010 within 50 miles of Enid are 129 tornadoes, 249 floods, 2,865 hail events, and 1,804 thunderstorm wind events.

2.2.2. Geography – According to Bailey's Eco-Regions 1983, Oklahoma falls within the Dry Domain, Great Plains Steppe, and Shrub Province. This Eco-Region has a semi-arid to semi-tropical climate, flora consisting of Sand sage-bluestem prairie to bluestem-grama prairie to Oak savanna from West to East, respectively.

2.2.3. Topography – Oklahoma slopes southeastward from an elevation of 1,518 meters at Black Mesa in the panhandle, to 99 meters on the Red River in the southeastern corner. Topography is generally flat to rolling, exceptions being the Wichita Mountains in the southwest, the Arbuckle Mountains in the south central section, and the Ouachita, Boston, and Ozark Mountains along the eastern border. Vance AFB lies within the southwest boundary of the Interior Lowlands province and is characterized by a flat to very gently, rolling topography.

2.2.4. Vegetation State Setting – In Oklahoma, the Pinion-Juniper represents an eastern extension of Rocky Mountain flora and is found only in the Black Mesa region of the panhandle. The short grass plains occur in areas of relatively low rainfall and are composed of blue grama, buffalo grass, and other xeric species. Along the major rivers of the northern half of the state, there are numerous sandy areas and stabilized dunes, which support sand sage, oaks, and various shrubs. The western edge of the state is characterized by a sandy region, which is covered with sand sage and islands of oak shinnery. Most of the central part of the state is either covered with blackjack-post oak forest, or was once tall grass prairie. Since the prairie soils are very rich and suitable for farming, virtually all the prairie has been converted to either grazing or crops. The oak forests cover areas of abandoned farmland or represent areas topographically unsuited for farming.

2.2.5. Farming – The Ozark region is mostly deciduous forest dominated by a variety of oaks and hickories. The southeast corner of the state is dominated by shortleaf pine or a number of deciduous tree species. Bottomland forests are characterized by such species as willow, cottonwood, elm, ash, hackberry, and sycamore. In general, the grasses and trees become taller and larger from west to east and there are a greater number of species in the eastern part of the state. Although the state is dominated by tall grass and blackjack post oak forest, there are representative vegetation types of the Rocky Mountains, high plains prairies, tall-grass prairies, Ozark hardwoods, and coastal plain forests.

2.2.6. Vance AFB and Kegelman AAF – Vance AFB and Kegelman AAF are covered with grassy areas that are maintained by periodic mowing during the growing season, April through October. The airfield areas at both bases are planted in Bermuda grass and other native grasses. There are no abrupt features. Land areas are gently rolling, well drained, and of medium to high susceptibility to wind and water erosion. The Eastern portion of Kegelman AAF has been classified as Woodlands consisting of cottonwoods, black walnut, catalpa, and numerous native elm and mulberry.

2.2.7. Geology and Soils – The beds underlying the base consist of continental deposits of the Permian Age (Red Beds). The top geologic formation beneath the soil mantle here is the Cedar Hills Unit of the Permian System. In general, the Permian rocks form long, parallel belts of outcrops that extend without interruption from southwestern Nebraska across Kansas into south central Oklahoma, and dip westward at a low angle (about 20 to 30 feet per mile). This structure has been termed the Prairie Plains homocline. The Permian beds underlying the base consist of non-marine deposits of the Hennessey shale formation. Hennessey shale consists of inter-beds of clay sands, weakly cemented sandstone, and shale, all red to reddish brown in color. Overburden soils are red to reddish brown in color with occasional open fractures and an occasional clay seam. The underlying base is a red shale or sandstone known as siltstone, which is basically a soft rock. The sandstone is of Permian origin and is found at depths ranging from 10 feet to 20 feet. The underlying sandstone is reddish brown in color with occasional open fractures and an occasional clay seam.

2.2.8. Soils – Generally, the soils at Vance AFB and Kegelman AAF are a fine sandy loam of medium fertility, gently rolling, and well drained. The gently rolling terrain is also of medium to high susceptibility to wind and water erosion. Base soils are principally residual (weathered-in-place) derivatives of the parent formation as modified by decayed vegetation, leaching, and sometimes (locally) by wind and/or erosion or deposition. The soils here, other than the topsoil, are characteristic of those derived from shales and are moderately to fairly active. As such, they can be expected to exhibit considerable volume change with periodic changes in moisture content. Below a certain level the soils grade less plastic (less active) with depth until they become characteristic of the parent siltstone beneath. The description and classification of the major types of soil found on Vance AFB and Kegelman AAF are described below.

2.2.9. Vance AFB Soil Types. – Bethany Series – This series consists of deep, medium-textured, nearly level soils of the uplands. The surface layer is a dark brown or dark grayish brown friable silt loam of granular structure. It is slightly acidic and moderately permeable. The subsoil is a brown or dark brown, mildly alkaline clayey of blocky structure with a pH of 7.2 and ranges from 24 to 36 inches in thickness. Bethany soils are well drained.

Both external and internal drainage are medium. The inherent fertility of these soils is high, and their capacity to hold moisture is medium to high.

2.2.9.1. Pond Creek Series – Soils in this series are dark brown, very fertile, and well drained having moderately to slowly permeable subsoil. The surface layer is a dark brown, granular silt loam 12 to 16 inches thick. This layer is of weak granular structure to a depth normally plowed. Immediately below this, the structure is moderately to strongly granular; this layer is slightly acidic in most places and neutral in a few areas.

2.2.9.2. Tabler Series – Soils in the Tabler series are in nearly level areas or slight depressions on the uplands. They are deep and medium textured, and for the most part, moderately well drained. The surface layer is gray silt loam about eight inches thick; of moderate or weak fine, granular structure; medium to slightly acidic; permeable; and easily penetrated by plant roots. Immediately beneath the surface layer are transitional zones of gray, heavy silt loam about two to four inches thick. The subsoil begins abruptly at a depth of 12 inches, is gray and clayey, and about 36 inches thick. It is also very hard and compact when dry, and its impermeability makes plant-root penetration more difficult. Gray mottling, streaks or specks, or complete gray coatings on the beds are indications of poor internal drainage. The amount and degree of mottling vary from one location to another. Beneath the subsoil is a substratum that is similar to the subsoil, but structure less, less mottled, and moderately alkaline to calcareous. This layer is at a depth of about 48 inches and contains small pebble like concretions of lime. Soils closely related to the Tabler soils are the Kirkland and the Bethany. The Tabler has a grayer surface layer than either of these. The surface layer of the Tabler soils is slightly deeper than that of the Kirkland, but it is four to six inches thinner than that of the Bethany. Tabler soils are not as well drained as either the Kirkland or Bethany soils.

2.2.9.3. Grant Series – Grant soils are deep, medium textured, and nearly level to moderately steep. They are generally rich in phosphorus, potash, and have formed calcareous, silty, or loamy earths. The surface layer is 16 inches thick and has upper and lower parts. Both are reddish brown, moderately permeable, neutral, friable silt loam. The lower part has somewhat stronger structure than the upper and contains slightly more clay, even though it is still a silt loam. Worm casts are moderately numerous in the lower part. The subsoil is neutral to mildly alkaline and about 31 inches thick. A few weak clay films coat vertical faces of the beds. The upper 14 inches is a reddish brown, porous, silt loam, or light clay loam. The lower part is yellowish-red heavy silt loam that grades to a red substratum of weakly plastic, weakly consolidated silt loam. The substratum contains a few, small, calcium carbonate concretions, beginning at about 55 inches. Grant soils are well drained. Their capacity to take in and hold moisture and their fertility are high. Pond Creek and Nash soils occur in association with Grant soils. Grant series are not so fine textured in the subsoil as the Pond Creek series and most of the Grant is more sloping. Grant soils are deeper and have more distinct layers than the Nash.

2.2.10. Kegelman AAF Soil Types – Albion Sandy Loam – 0-5% slopes. This soil is well to excessively drained and eroded, and ranges from loam to fine sand with sandy loam predominant. Subsurface layers are stratified with loam to fine sand. Terraces, residue use, and fertilizers are helpful in controlling erosion on this soil.

These soils have a good capacity for storing moisture and allow good growth of roots.

2.2.10.1. Brewer-Drummond Complex – This soil has loamy surface and dense clayey subsoil with salt affecting less than 35% of the soil surface. It is generally found in slightly depressed areas and has poor drainage. Available plant residue should be kept near the surface. The sub-irrigated, moderately saline range site has soils with less than 35% of the soil surface affected by salt. Some of the area is determinately wet at some seasons, but the sub-irrigated condition is usually beneficial for range plants.

2.2.10.2. Goltry Fine Sand – 0-3% slopes. This unit consists of deep and moderately deep soils occurring in a pattern that makes it impractical to map each soil separately. These soils are loamy with weakly expressed sub soils over partially weathered, fine-grained sandstone. Terraces, fertilizers, and residue use are helpful in controlling wind and water erosion. There are medium textured soils with 10 to 20 inches of depth to sandstone or shale in this range site.

2.2.10.3. Pratt Loamy Fine Sand – 0-3% slopes. This soil is loose, friable, and easily tilled. The wind erosion hazard is moderate to severe. The soils blow and drift in unprotected fields during high winds. The water intake is moderate to moderately rapid, but the total water storing capacity is low. This range site occupies undulating and hummocky, sandy areas on the uplands.

2.2.10.4. Aline-Tivoci Complex – 3-8% Slopes. This soil is very susceptible to wind erosion, especially on the highest parts of the landscape. It is loose, friable, and easily tilled. Intake of water is moderate to moderately rapid, but the total water storage capacity is low. This range site occupies undulating and hummocky, sandy areas on the uplands.

2.2.10.5. Aline Fine Sand – 0-8% slopes. This soil occupies undulating and hummocky, sandy areas on the uplands. Typically, it has low to moderate available water capacity. Permeability is rapid.

2.2.10.6. Quinlan-Woodward Complex – 3-30% Slopes this range site has a wind erosion hazard on steep slopes. Trampling of the loose, sandy soil causes considerable damage.

2.3. General Biotic Environment

2.3.1. Threatened and endangered Species and Species of Concern – There are no T&E species of concern residing on Vance AFB or Kegelman AAF according to a biological survey. No critical habitat for T&E species exists at Vance AFB or Kegelman AAF. While no resident T&E species occur at Kegelman AAF or Vance AFB due in large part to proximity to the Great Salt Plains Wildlife Refuge, potential exists for a transient T&E species to occur. An occurrence would be infrequent and unlikely due to the habitat types at Kegelman AAF and the more preferable habitat at the Great Salt Plains Refuge.

2.3.2. Wetlands and Deep Water Habitats – There are no Wetlands on Vance AFB or Kegelman AAF. A jurisdictional determination for Kegelman AAF was accomplished by the U.S. Army Corps of Engineers on October 9, 2015. The determination is available at Appendix 15, Wetlands Determination. The only water resource at Kegelman AAF is the seasonal pond along the east perimeter road. This pond is fed by a low flowing spring when the water table is high and usually only holds water during the wet seasons of spring and winter and is routinely used by wildlife traversing Kegelman AAF.

2.3.3. Fauna – There are no water resources capable of supporting a fish population on Vance AFB and Kegelman AAF. White-tailed deer, opossums, squirrels, skunks, armadillos, a variety of birds, and coyotes are known to frequent the Wildlife Management Area at Kegelman AAF. Because if its proximity to The Great Salt Plains Wildlife Refuge, Kegelman AAF is often host to migrating waterfowl such as ducks, herons, and geese. Waterfowl represent the greatest hazard to Vance AFB aircraft due to their size and the fact that they often migrate in large numbers. There is not sufficient habitat at Kegelman AAF to support large populations of migrating waterfowl and they typically fly over Kegelman AAF rather than stop to feed or roost.

2.3.4. Flora – The common plants occurring at Kegelman AAF are characterized as Bermuda and native grasses with interspersed woodlands of Sycamore, Oak, Willow, Sand Plum, Maple, and Red Cedar. In recent years, Vance AFB has executed annual contracts to reduce the population of Eastern Red Cedars at Kegelman AAF. This is an ongoing effort that is programmed for funding annually.

3. Environmental Management Strategy and Mission Sustainability

3.1. Supporting Sustainability of the Military Mission and the Natural Environment - In order to maintain a "Multiple Use and Sustained Yield" approach to natural resources, the limited natural resources area at Kegelman AAF is made available to Vance AFB hunters annually, which supports the reduction of White-tailed Deer using the area for cover and the aircraft strike hazard. Modification to the habitat at Kegelman AAF which could result in attracting waterfowl, migrants, or other bird species is strictly prohibited since it could endanger the flying mission.

3.1.1. Integrate Military Mission and Sustainable Land Use – The flying mission at Kegelman AAF is supported through an active Rod and Gun Club and depredation of deer using the Wildlife Management Area for cover. Annually, the Oklahoma Department of Wildlife issues deer depredation tags to the Vance AFB NRM for issue to the Rod and Gun Club. This process contributes to the success of Oklahoma deer population control and reduces the number of deer using the natural resource area because it does not count against the number of deer the State allows hunters to take state-wide.

3.1.2. Define Impact to the Military Mission – By allowing the Rod and Gun Club to take the extra antlerless deer from Kegelman AAF, the effect is fewer deer crossing the runway. Safety of the Vance AFB flying mission is positively impacted.

3.1.3. The Vance AFB INRMP distinguishes the areas of the base that are restricted access and delineates the natural resources area from other categories of land use.

3.2. Natural Resources Consultation Requirements – The Vance AFB INRMP is annually provided to the ODWC, the USFWS, and the Oklahoma Department of Tourism and Recreation, and internal stakeholders for review. The plan is reviewed and updated by internal stakeholders. 71 MSG/CC approves the INRMP by signature on all revised INRMPs. 71 ISS/CE certifies the annual review of the INRMP as valid and current. The Oklahoma State University Extension Office is available to consult for soil sampling and pest management issues regarding woodlands and urban forestry issues. Vance AFB is designated a Tree City USA by the National Urban Forestry Council and attends the Tree City conference, annually.

3.3. NEPA Compliance – The plan has been made available to the public for review at both the base library and City of Enid library. A NEPA analysis is completed on all major federal actions proposed in this INRMP before they are implemented. When the plan undergoes a revision, it is made available for public review as well.

3.4. Beneficial Partnerships and Collaborative Resource Planning – To effectively manage natural resources at Vance AFB, Vance AFB held meetings with both the ODWC and USFWS to review management of the installation's natural resources in an effort to be inclusive and ensure compliance with the Sikes Act.

3.5. Public Access and Outreach – Public access to the natural resources of Vance AFB and Kegelman AAF is available for recreation and hunting. Per the Sikes Act access to the Natural Resources Area is subject to safety requirements and mission security. The Sikes Act requirement for public access is cited in the Vance Rod and Gun Club Hunting Guide. The hunting area at Kegelman AAF is very small at 290 acres, and allowing an unknown number of people to walk through the hunting area is a substantial safety risk.

3.5.1. Public Access and Outdoor Recreation – Vance AFB allows the Rod and Gun Club to manage the Wildlife Management Area for the purpose of having a safe and effective hunting program.

3.5.2. Public Outreach – Annually, Vance AFB observes Earth Day/Arbor Day celebrations. Local schools, base officials/leadership, local Department of Forestry officials, and honored guests typically participate in these base-wide events.

3.6. Encroachment Partnering – The local Community of Enid and Vance AFB officials routinely coordinate the needs and concerns of the installation and community. Vance AFB leadership routinely attends the local Metropolitan Area Planning Commission meeting to discuss the needs of the local community. Thanks in large part to this relationship, Vance AFB has had very little or no encroachment. This benefit to the installation cannot be measured, but it provides for goodwill between the local community and the installation. Among the tangible benefits of the good community relationship is the excellent employment opportunities available to the local community at Vance AFB.

3.7. State Comprehensive Wildlife Plans (SCWP) – Not applicable

4. Program Elements

4.1. Threatened and Endangered Species Management and Species Benefit, Critical Habitat, and Species of Concern Management – N/A

4.2. Wetlands and Deep Water Habitats Management – There are no significant water habitats at either Vance AFB or Kegelman AAF. The USACE Wetlands Determination is available at Appendix 15.

4.3. Law Enforcement of Natural Resources Laws and Regulations – This area is Exclusive Jurisdiction.

4.3.1. Oklahoma Statutes Title 29, Game and Fish – This act shall be known and may be cited as the Oklahoma Wildlife Conservation Code.

4.3.1.1. Oklahoma Administrative Code. Title 800. Department of Wildlife Conservation governing fish and wildlife. **800:1-1-1. Purpose:** The rules of this Chapter have been promulgated pursuant to the provisions of the Administrative Procedures Act, 75 O.S., Sections 250.1 et seq., the Open Records Act, 51 O.S. 24A.1 et seq., the Open Meeting Act, 25 O.S. 301 et. seq., and the authorities of the Commission and Department. They describe the function, organization, powers, duties, operations and procedures of the Oklahoma Department of Wildlife Conservation and the Oklahoma Wildlife Conservation Commission with respect to its administration, rulemaking, individual proceedings and other activities and are intended to supplement and interpret pertinent provisions of state and federal statutes and the Oklahoma Constitution.

4.3.1.2. These laws and regulations apply to all hunters. Any hunters found to be in violation of INRMP, and/or state hunting regulations are reported to the local Game Warden, installation Security Forces, and base leadership. Commanders ensure reasonable access to the base is available to state wildlife game enforcement as needed.

4.4. Fish and Wildlife Management

4.4.1. Overview – This section outlines policies and procedures for the conservation and management of all wildlife resources at Vance AFB and Kegelman AAF under the principles of multiple use and sustainable yield. The desire of Vance AFB to allow hunting on Kegelman AAF necessitates proper wildlife management.

4.4.2. Objectives – To protect, conserve, and manage wildlife as vital elements of an optimum natural resource program with habitat management as the basis of the program.

4.4.2.1. To utilize and care for natural resources in the combination best serving the present and future needs of the United States and its people.

4.4.2.2. To ensure the protection of T&E species if they should reside on Vance AFB or Kegelman AAF at any future time.

4.4.2.3. To provide environmental enhancement while keeping wildlife damage to a minimum and reducing the BASH.

4.4.2.4. To provide a limited quantity of recreational hunting available on weekends and holidays (non-flying days) during legal hunting season in accordance with restrictions outlined in this plan, the Vance AFB Rod and Gun Club Hunting Guide, and the hunting regulations of the state of Oklahoma.

4.4.3. Projects. Habitat Improvements – The NRM reviews enhancement recommendations made by the ODWC and present results to the ESOHC. The decisions made are documented in the ESOHC minutes.

4.4.3.1. Wildlife stocking and control – Stocking of wildlife species such as quail or turkey is not normally conducted. Habitat must be in a condition that would support the continued existence of these species. The habitat is currently limited in available food sources, and restocked species would most likely leave the area in search of more food. Control of undesirable bird types, such as those that pose a threat to aircraft operations, is conducted in accordance with the Vance Air Force Base BASH Plan 91-2.

4.4.3.2. Hunting is made available annually and only within the Wildlife Management Area in accordance with this plan. Land area and wildlife populations are both inadequate to support additional hunting by the general public. All hunters must purchase a hunting permit from the Vance AFB Rod and Gun Club, possess the required state hunting licenses, certifications, and comply with Vance AFB Rod and Gun Club rules. No recreational activities conducted IAW this plan are allowed within the boundaries of controlled areas as defined by the Installation Defense Plan nor the landfill cap area of the fenced off northwest corner of Kegelman AAF. Any hunters found to be in violation of the INRMP, and/or state hunting regulations are reported to the local Game Warden, installation Security Forces, and installation leadership. Commanders ensure reasonable access to the base is available to state wildlife game enforcement as needed.

4.4.3.2.1. All hunters must possess a current Oklahoma hunting license and the appropriate tag. Entry is controlled by 71 SFS/BDOC.

4.4.3.2.2. For Official Training Exercises, the project officer must coordinate the exercise schedule with the NRM, Environmental Branch to coordinate a key issue from 71 SFS/BDOC. For all others wishing to gain access to the Wildlife Management Area at Kegelman AAF, prior coordination with the NRM must be made Monday through Friday between the hours of 0800-1645 in order to receive a key issue from 71 SFS/BDOC. All hunting activities are in strict accordance with applicable ODWC rules and this plan.

4.4.3.2.3. Depredation Permits – The NRM annually requests depredation permits from ODWC in order to remove additional antler-less deer from Kegelman AAF, reducing deer strike potential.

4.5. Forestry Management – Neither Kegelman AAF nor Vance AFB have commercial forest resources.

4.6. Vegetative Management

4.6.1. Planting Grass – The following subsections describe planting and maintenance of grass.

4.6.1.1. Ground Preparation – On new areas, vegetation that may interfere with planting are mowed, grubbed, and raked. The collected material is removed from the site. The area is cleared of all foreign objects that may hinder planting or maintenance operations. The soil is tilled to a depth of at least 4-5 inches by plowing, disking, harrowing, or other approved methods until soil condition is acceptable for planting.

4.6.1.2. Fertilizer Application – Soil fertility tests are conducted by a soil lab to determine fertilizer and/or lime requirements.

4.6.1.3. Seed Planting – Seeds are sowed by using approved mechanical power driven drills or seeders, mechanical hand drills, and/or broadcasting.

4.6.1.4. Sodding – Areas disturbed by construction and/or utility excavation are normally restored by using sod instead of seed.

4.6.1.5. Sprigging – Sprigging may be a preferred alternative (over seeding or sodding) when establishing significantly large areas of turf. A narrow window of planting opportunity exists (30 April-31 May) when supplementary irrigation is unavailable.

4.6.1.6. Semi-Improved Ground. Grass Species – Blue grama (Bouteloua gracilis); Sideoats grama (Bouteloua curtipendula); Sand dropseed (Sporobolus cryptandrus); Sand bluestem (Andropogon hallii); Buffalo grass (Buchloe dactyloides); and Bermuda grass (Cynodon dactylon). Planting any crop that might attract birds likely to be involved in bird strikes is prohibited.

4.6.1.7. Planting Seasons – The preferred planting season is 15 April to 31 May; 15 March to 31 May is acceptable.

4.6.1.8. Ground Preparation – Vegetation that interferes with planting is mowed, grubbed, and raked. The collected material is removed from the site. The area is cleared of all foreign objects, which hinder planting or maintenance operations. The soil is tilled to a depth of at least four to five inches by plowing, disking, harrowing, or other approved method until soil condition is acceptable for planting.

4.6.1.9. Seed Planting – Seeds are sowed by using approved mechanical power driven drills or seeders, mechanical hand drills, and/or broadcasting.

4.6.2. Urban Tree Management (Improved Grounds Only) – Quality of Trees and Shrubs – All plant material is nursery stock, grown under conditions similar to those at the planting location. All plants are reasonably symmetrical in growth, durability, and free of pests and diseases. All plants conform to requirements set forth in this plan's plant lists. All evergreen trees are balled and wrapped with burlap at a size that ensures successful transplanting. Shrubs and plants are planted immediately upon delivery to site or properly bedded-in.

During planting, the nursery stock is not exposed to the sun, drying winds, or freezing weather.

4.6.2.1. Plant Pits – Tree pits are a minimum of two to three times larger than the diameter of the root ball and no deeper than the vertical dimension of the root ball. Shrub pits are a minimum of six inches larger than the root ball diameter or the maximum root spread and no deeper than the vertical dimension of the root ball or maximum depth of roots.

4.6.2.2. Planting – All trees and shrubs are planted in accordance with plans coordinated through the Community Planner. Always pick up the tree or plant by the container or root ball, not by the trunk. Remove all wire or twine on root balls wrapped in wire baskets or twine. If root balls are wrapped in burlap, remove as much of the burlap as possible without disturbing the root ball. Examine the plants closely for injury to roots or branches. If any roots are crushed, cut them at a point just in front of the break. On the top, prune only broken branches making sure to leave the branch collar intact. All plants are set at such a level that after settlement they bear the original relationship to the ground surface as indicated by the visible soil line at the base of the trunk. Plants are placed on a minimum of six inches of compacted topsoil that has been thoroughly hand-tamped prior to placing plants. Plants are to be placed in the plant pit and the topsoil is tamped to fill all voids under the base and around the ball to a height of one-half to two-thirds the depth of the ball. The finished grade of topsoil prior to watering is fixed at an elevation 10% of the fill depth higher than the desired finished grade to compensate for shrinkage and settling. This topsoil is thoroughly settled by watering. To facilitate watering, a shallow saucer approximately three inches deep is formed around the outside edge of each plant pit by placing a ridge of topsoil around the outer edge of each filled-in pit. The plant saucers are mulched with a layer of mulch material covering the entire saucer area around each plant to a depth of two to three inches. Artificial mulch pads can be used. Preferred and acceptable planting dates are shown in Table 4-1below.

TABLE 4-1 PLANTING SEASON

Type of plant	Preferred	Acceptable
Balled and burlapped plants	15 February - 15 April	15 December - 30 April
Container grown plants	15 February - 15 April	15 December - 30 April

4.6.2.3. Staking – All trees 1 to 1.5 inches in diameter are secured with two-inch by two-inch by eight-foot stakes sunk into the ground to a depth of three feet and are tied top and bottom to the stake with a figure eight hitch consisting of a woven belt fabric or a padded wire. All trees 1.5 to 2.5 inches in diameter are secured three ways with 2.5-inch by eight-foot stakes placed three feet from base of tree and tied with a woven belt fabric or a padded wire four feet above ground level. Stakes used for this purpose should be metal rather than wood to prevent rot. Remove stakes as soon as the tree has firmly rooted itself in the soil. As a rule, stakes should not be left in place for more than a year.

4.6.2.4. Maintenance – Maintenance begins immediately after each plant is planted, and continues as required until 60 days after last planting. Plants are kept in a healthy growing condition by watering, pruning, spraying, weeding, cultivating, tightening of guy wires,

and any other necessary procedures. Prune to keep only one central leader on the tree. Remove broken and crossing or rubbed branches. Also, remove water sprout branches that develop. Plant saucers and planting beds are kept free of weeds, grass, and other undesired vegetation growth. Plants are inspected weekly during the maintenance period. Weekly watering normally is required during dry weather. Approximately one year after planting, fertilizer is applied and thoroughly mixed in the top two inches of soil in each plant saucer.

4.6.2.5. Mature Tree Care and Inspection – A healthy tree increases in value as it ages. Some species, such as oak and walnut, can live as long as 200 to 300 years. Curing a problem once it develops is much more difficult, time consuming, and costly than preventing problems. Therefore, it is worthwhile to give trees regular maintenance to ensure they are able to offer enjoyment and value for generations. An effective tree management program should include four major practices: inspection, mulching, fertilizing, and pruning.

4.6.2.6. Tree Inspection – Tree inspection is an evaluative tool to call attention to any change in the tree's health before the problem becomes too serious. By providing regular inspections of trees (at least once a year), the severity of future disease, insect, and environmental problems can be prevented or reduced. Inspections should include these tree-vigor indicators: new leaves or buds, leaf size, twig growth, and crown dieback. Trees should be inspected during late spring or early summer. Any abnormalities found during this inspection should be noted and watched closely.

4.6.2.7. A reduction in the extension of shoots (new growing parts, such as buds or new leaves) or in the size of leaves is a fairly reliable cue that the tree's health has recently changed. To evaluate this, compare the growth of shoots over the past three years. Determine if there is a reduction in the tree's typical growth pattern. Further signs of poor tree health are stem decay and crown dieback (gradual death of the upper part of the tree). These symptoms often indicate problems that began several years before. Loose bark or deformed growths, such as stem conks, are common signs of stem decay. Any abnormalities found during this inspection should be noted and watched closely. If uncertain about what should be done, report findings to the local Oklahoma State University Extension Office or a tree care agent for advice on treatment.

4.6.2.8. Mulching can cut down on stress by providing trees with a stable root environment that is cooler and contains more moisture than the surrounding soil. Mulch can also prevent mechanical damage by keeping machines such as lawn mowers away from the tree's base. Mulch reduces competition from surrounding weeds and turf.

4.6.2.9. To be most effective, mulch should be placed two to four inches deep and extend as far as possible from the base of the tree (at least two feet for young trees). When possible, mulch should extend two to three times the branch spread of the tree. An adequate mulch layer is two to four inches of loosely packed organic material such as shredded leaves, pine straw, peat moss, or composted wood chips. Synthetic mulch pads can be used. Plastic should not be used because it interferes with the exchange of gases between soil and air and inhibits root growth. The thickness of the mulch layer is important. Mulches that are five or six inches thick may inhibit gas exchange.

4.6.2.10. Fertilizing a newly planted tree is not recommended the first year. Begin fertilizing trees during the second year. Fertilizer is best applied in the fall or early spring, although it is not harmful to apply fertilizer at any time during the year. In addition to providing minor nutrients, fertilizers increase the amount of three major nutrients in the soil: nitrogen, phosphorous, and potassium. Nitrogen, possibly the most critical of these nutrients, is the element most responsible for maintaining the green color in leaves and for normal twig growth. Since nitrogen is rapidly depleted from the soil, it must be replenished regularly to ensure plant health.

4.6.2.11. Fertilizer requirements are usually quoted in terms of actual nitrogen, phosphorus, or potassium. Fertilizer includes soil amendments as follows: 9 parts fertilizer, 3 parts sulphur, and 1 part iron sulphate. In 100 pounds of 16-6-12 there are 16 pounds of nitrogen (N), six pounds of phosphorus (P), and 12 pounds of potassium (K). Sixteen divided into 100 gives 6.25; therefore, 6.25 pounds of 16-6-12 would give one actual pound of nitrogen. If the recommendation called for no more than three pounds actual nitrogen per 1000 square feet per season, we would apply a total of 18.75 pounds of 16-6-12 or 25 pounds of 12-24-12. If using nitrogen, nine pounds of ammonium nitrate (33-0-0) or 6.67 pounds of urea (45-0-0) would give three pounds of actual nitrogen. It is best to apply the fertilizer in two or three applications, with the last one being just after the first killing frost in the fall. If only one application is scheduled, it should be scheduled in the fall.

4.6.2.12. Nitrogen is readily absorbed by surface application since it is carried by water. Phosphorus and potassium are much more slowly absorbed. Place fertilizer in holes four to six inches deep. A bulb planter is a handy tool for digging the holes. Place the holes two feet apart to within three feet of the trunk and out to the drip-line of the tree. By using two-foot spacing, there are approximately 250 holes per 1,000 square feet. For fertilizing trees, the methods described above are preferable to the use of various fertilizer spikes, tablets, and hose end root applicators. Fertilizer should not be injected into tree trunks when this can be avoided. Injection holes often become infected with wood rot. Because shrubs have a more limited root system, spread the described amount of fertilizer under the shrub and scratch it into the soil about 0.5 inches deep. Do not place fertilizers next to plant stems and do not cultivate.

4.6.2.13. Broadleaf evergreens like azalea and magnolia grow best in well-drained acid soils. To maintain an acid soil, use acid type fertilizers, avoiding materials like lime, wood ashes, fresh manure, and bone meal. Organic fertilizers may also be used around broadleaf evergreens. Nutrients in these materials are released slowly and do not cause excessive growth. Apply organic fertilizers such as cottonseed or soybean meal at five to six pounds per 100 square feet of planted area. Broadleaf evergreens are often benefited by applications of compost. Vines such as English Ivy should be fertilized in the fall after frost. This nourishes the plants without excessive spring growth.

4.6.2.14. Pruning should always be performed sparingly; over pruning is extremely harmful, because without enough leaves a tree cannot gather and process enough sunlight to survive. Training pruning or trimming should be done regularly to control a tree's shape. Maintenance pruning is used to keep branches from harming surrounding structures or people. Pruning directs the growth pattern of a tree. Branches typically grow in the direction that the buds are

pointing and the outermost bud on a branch has the most influence on the direction of future growth. Control the orientation of a branch by carefully selecting the pruning cuts location. Cut so that the outermost bud on the branch is pointing in the direction that you want the branch to grow. In some cases, pruning is absolutely necessary because damaged limbs pose a threat to other healthy parts of the tree or surrounding structures. Crossing or rubbing branches and weak small-angled crotches should be eliminated.

4.6.2.15. For most trees, the best time to prune is winter to early spring. At this time of year trees close their wounds more quickly. Exceptions to this are trees that have problems with disease in the spring. Oaks and honey locusts, for example, are susceptible to disease if pruned during rainy spring weather. Exceptions should also be made for spring flowering trees and shrubs until after flowering to prevent removal of flower buds.

4.6.2.16. The National Arborist Association *Pruning Standards for Shade Trees*, provides explicit and expert guidance, and should be referred to as needed. Once a cut has been made, always finish it. Prune limbs and branches so that you preserve the branch's collar. This often appears as a ridge of rough bark on the trunk that formed in the "Y" of a growing branch. The final pruning cut should also be angled so that it begins in the crotch and extends down and outward at an opposite angle as the branch collar. This does not result in a cut flush with the trunk; rather, the base of the cut extends out from the trunk. The purpose of cut (1) is to ensure that when cut (2) is completed, the bark does not "tear" down the remaining branch. Cut (3) finishes the job. A healthy tree seals on its own so wound dressings, which may actually interfere with this process, are not necessary. To aid in the recovery of cuts, water and fertilize your trees well. When tree removal is determined necessary by the Civil Engineer, the tree shall be cut down to ground level and the stump ground.

4.6.2.17. Future Tree City USA Projects – Vance AFB's planting plan is dynamic. Each year it is evaluated in light of current base needs. The annual review is conducted in late spring or early summer.

4.6.2.18. Warranty on Contract Planting – Trees and shrubs that die during the maintenance period, or are in an unhealthy, unsightly, or badly impaired condition, are replaced by the contractor.

4.6.2.19. Plant List – Table 4-2 lists plants authorized for planting at Vance AFB. There is no authorized planting for Kegelman AAF. The third column indicates minimum acceptable size. Please note: B&B = balled and burlap wrapped plants and C = container grown plants.

TABLE 4-2 Authorized Plant List

Botanical Name	Common Name	Indigenous / Naturalized	Evergreen / Deciduous	Mature height (feet)	Mature width (feet)	Min. planting size	Irrigation requirements	Barrier	Screen	Accent	Streetscape	AT/FP
Trees												
Acer saccharum	Sugar Maple 'Caddo'	I	D	80'	60'	2" Ca	M	Y	N	Y	Y	Y
Acer truncatum	Shantung Maple	N	D	25'	20'	1" Ca	M	Y	N	Y	Y	Y
Bumelia lanuginose	Chittimwood	I	D	40'	25'	2" Ca	L	Y	N	N	Y	Y
Carya illinoinensis	Pecan	I	D	150'	100'	2" Ca	H	Y	N	N	N	Y
Cedrus atlantica "Glauca"	Blue Atlas Cedar	N	E	60'	40'	6' H	M	N	Y	Y	N	N
Cedrus deodara	Deodar Cedar	N	E	60'	40'	6' H	M	N	Y	Y	N	N
Celtis occidentalis	Hackberry	I	D	90'	40'	2" Ca	L	Y	N	N	Y	Y
Cercis Canadensis "Oklahoma" or "Whitebud	Redbud	I	D	25'	20'	1" Ca	L	N	N	Y	Y	N
Cotinus obovatus	Smoketree	I	D	30'	12'	1" Ca	L	N	N	Y	N	N
Ginkgo biloba	Ginkgo (Female Selections Not Authorized)	N	D	100'	40'	2" Ca	M	Y	N	Y	Y	Y
Gymnocladus dioicus	Kentucky Coffeetree	I	D	80'	50'	2" Ca	M	Y	N	N	N	Y
Juglans nigra	Black Walnut	I	D	100'	50'	2" Ca	H	Y	N	N	N	Y
Juniperus chinensis "Keterleeri"	Keteleeri Juniper	N	E	20'	6'	6' H	L	N	Y	N	N	N

Botanical Name	**Common Name**	**Indigenous / Naturalized**	**Evergreen / Deciduous**	**Mature height (feet)**	**Mature width (feet)**	**Min. planting size**	**Irrigation requirements**	**Barrier**	**Screen**	**Accent**	**Streetscape**	**AT/FP**
Trees Continued												
Juniperus scopulorum "Gray Gleam"	Rocky Mountain Juniper	I	E	20'	7'	4' H	L	Y	Y	N	N	N
Koelreuteria paniculata	Panicled Goldenrain Tree	N	D	40'	40'	1.5" Ca	L	Y	N	Y	Y	Y
Liquidambar styraciflua 'Rotundiloba'	Sweetgum (Seedless)	N	D	60'	30'	1.5" Ca	L	Y	N	N	N	Y
Magnolia soulangeana	Saucer Magnolia	N	D	25'	30'	4' H	M	N	N	Y	N	N
Picea glauca "Densata"	Black Hills Spruce	N	E	40'	15'	4' H	M	Y	Y	N	N	N
Pinus densiflora	Japanese Red Pine	N	E	80'	25'	6' H	M	Y	Y	N	N	N
Pinus echinata	Shortleaf Pine	I	E	100'	70'	1.5" Ca	M	Y	N	N	N	N
Pinus edulis	Pinyon Pine	I	E	30'	20'	1.5" Ca	L	Y	Y	N	N	N
Pinus taeda	Loblolly Pine	I	E	100'	50'	2" Ca	H	Y	N	N	N	Y
Pistachio chinesis	Chinese Pistache	N	D	40'	30'	1.5" Ca	L	Y	N	Y	Y	Y
Platanus x acerifolia	London Planetree	N	D	100'	75'	2" Ca	H	Y	N	N	N	Y
Populus deltoids 'Populus nigra'	Cottonless Cottonwood	I	D	100'	60'	2" Ca	H	Y	N	N	Y	Y
Pyrus calleryana 'chanticleer'	Bradford Pear	N	D	35'	15'	1.5" Ca	L	Y	N	Y	Y	Y
Quercus acutissima	Sawtooth Oak	N	D	60'	40'	1.5" Ca	M	Y	N	N	N	Y
Quercus falcate	Southern Red Oak	I	D	80'	60'	2" Ca	M	Y	N	Y	Y	Y
Quercus macrocarpa	Bur Oak	I	D	80'	50'	2" Ca	M	Y	N	N	N	Y

Botanical Name	**Common Name**	**Indigenous / Naturalized**	**Evergreen / Deciduous**	**Mature height (feet)**	**Mature width (feet)**	**Min. planting size**	**Irrigation requirements**	**Barrier**	**Screen**	**Accent**	**Streetscape**	**AT/FP**
Trees Continued												
Quercus robur	English Oak	N	D	80’	70’	2” Ca	M	Y	Y	Y	N	N
Quercus rubra	Red Oak	I	D	120’	80’	2” Ca	M	Y	N	Y	Y	Y
Quercus shumardii	Shumard Oak	I	D	100’	60’	2” Ca	M	Y	N	Y	Y	Y
Quercus virginiana	Live Oak	N	E	80’	100’	2” Ca	M	Y	N	Y	N	Y
Syringa reticulata	Japanese Tree Lilac	N	D	30’	15’	1” Ca	M	N	N	Y	Y	N
Ulmus parvifolia	Lacebark Elm	N	D	60’	40’	2” Ca	M	Y	N	Y	Y	Y
Shrubs												
Abelia grandiflora	Glossy Abelia	N	E	6’	6’	12” Co	M	Y	Y	N	N	N
Aucuba japonica	Gold Dust Plant	N	E	10’	9’	12” Co	M	Y	Y	Y	N	N
Berberis mentorensis	Mentor Barberry	N	D	6’	6’	12” Co	L	Y	N	Y	N	N
Berberis thunbergii “atropurpurea”	Japanese Barberry	N	D	6’	6’	12” Co	L	Y	N	Y	N	N
Buxus sempervirens	English Boxwood	N	E	6’	6’	12” Co	M	Y	Y	Y	N	N
Callicarpa Americana	American Beautyberry	I	D	5’	6’	12” Co	L	N	N	N	N	N
Elaeagnus macrophylla “Ebbengi”	Elaeagnus	N	E	10’	10’	12” Co	M	Y	Y	Y	N	N
Euonymus alatus “Compactus”	Burning Bush, Winged Euonymus	N	D	11’	11’	12” Co	M	Y	N	Y	N	N
Ilex cornuta	Chinese Holly	N	E	12’	10’	12” Co	M	Y	Y	Y	N	N
Ilex cornuta “Burfordii”	Burford Holly	N	E	20’	16’	12” Co	M	Y	Y	Y	N	N

Botanical Name	**Common Name**	**Indigenous / Naturalized**	**Evergreen / Deciduous**	**Mature height (feet)**	**Mature width (feet)**	**Min. planting size**	**Irrigation requirements**	**Barrier**	**Screen**	**Accent**	**Streetscape**	**AT/FP**
Shrubs Continued												
Ilex decidua	Deciduous Holly	I	D	20’	15’	12” Co	M	N	N	Y	N	N
Ilex “Nellie R. Stevens”	Nellie Stevens Holly	N	E	25’	15’	12” Co	M	Y	Y	Y	N	N
Ilex vomitoria	Yaupon Holly	I	E	20’	12’	12” Co	M	N	N	Y	N	N
Ilex vomitoria “Nana”	Dwarf Yaupon Holly	I	E	5’	6’	12” Co	M	N	N	Y	N	N
Ilex vomitoria “Pendula”	Weeping Yaupon Holly	I	E	15’	8’	12” Co	L	N	N	Y	N	N
Jasminum nudiflorum	Winter Jasmine	N	D	4’	6’	12” Co	M	Y	N	Y	N	N
Lagerstroemia indica	Crepemyrtle	N	D	30’	25’	18” Co	M	N	N	Y	Y	N
Ligustrum vicaryi	Golden Privet	N	D	12’	10’	12” Co	L	N	N	N	N	N
Lonicera fragrantissima	Winter Honeysuckle	N	D	9’	8’	12” Co	L	Y	N	N	N	N
Nandina domestica	Nandina	N	E	8’	4’	12” Co	M	Y	Y	Y	N	N
Picea glauca “Conica”	Dwarf Alberta Spruce	N	E	12’	?	12” Co	M	N	N	Y	N	N
Photinia serrulata	Chinese Photinia	N	E	30’	20’	12” Co	M	Y	Y	N	N	N
Photinia serrulata “Fraseri”	Fraser Photinia	N	E	20’	15’	12” Co	M	Y	Y	Y	N	N
Pyracantha coccinea “Lalandi”	Scarlet Firethorn	N	E	10’	10’	12” Co	L	Y	Y	Y	N	N
Spiraea vanhouttei	Vanhoutte Spiraea	N	D	8’	10’	12” Co	M	Y	N	Y	N	N
Syringa persica	Persian Lilac	N	D	10’	8’	12” Co	M	Y	N	Y	N	N

Botanical Name	**Common Name**	**Indigenous / Naturalized**	**Evergreen / Deciduous**	**Mature height (feet)**	**Mature width (feet)**	**Min. planting size**	**Irrigation requirements**	**Barrier**	**Screen**	**Accent**	**Streetscape**	**AT/FP**
Shrubs Continued												
Taxus cuspidate "Intermedia"	Dwarf Japanese Yew	N	E	3'	5'	12" Co	M	N	N	Y	N	N
Yucca filamentosa	Adams Needle Yucca	N	E	6'	3'	12" Co	L	N	N	Y	N	N
Yucca gloriosa	Mound Lily Yucca	N	E	5'	4'	12" Co	L	N	N	Y	N	N
Ground Covers												
Adiantum pedatum	Maidenhair Fern	I	D	20"	3'	6" Co	M	N	N	N	N	N
Artemisia frigida	Sagebush	I	E	18"	18"	6" Co	L	N	N	Y	N	N
Astilbe biternata	False Goatsbeard	N	D	6'	4'	12" Co	M	N	N	N	N	N
Athyrium filix-femina	Lady Fern	I	D	3'	30"	6" Co	M	N	N	N	N	N
Athyrium niponicam	Japanese Painted Fern	N	D	18"	2'	6" Co	M	N	N	N	N	N
Clematis pitcheri	Purple Clematis	I	D	10'	NA	4" Co	M	N	N	Y	N	N
Clematis virginiana	Virgin's Bower	I	D	15'	NA	4" Co	M	N	N	Y	N	N
Delosperma cooperi	Hardy Ice Plant	N	E	6"	2'	4" Co	L	N	N	N	N	N
Gelsemium sempervirens	Carolina Jessamine	N	E	20'	6'	12" Co	M	N	N	Y	N	N
Hosta	Plaintain Lily	N	D	2'	2'	12" Co	M	N	N	N	N	N
Iberis sempervirens	Evergreen Candytuft	N	E	1'	18"	4" Co	M	N	N	N	N	N N
Liriope muscari	Lily Turf	N	E	18"	1'	6" Co	M	N	N	N	N	N
Lonicera sempervirens	Coral Honeysuckle	I	E	20'	6'	4" Co	M	N	N	Y	N	N

Botanical Name	**Common Name**	**Indigenous / Naturalized**	**Evergreen / Deciduous**	**Mature height (feet)**	**Mature width (feet)**	**Min. planting size**	**Irrigation requirements**	**Barrier**	**Screen**	**Accent**	**Streetscape**	**AT/FP**
Ground Covers Continued												
Lysimachia nummularia	Moneywort	N	D	6”	18”	4” Co	M	N	N	N	N	N
Parthenocissus quinquefolia	Virginia Creeper	I	D	40’	10’	4” Co	L	N	N	Y	N	N
Pennisetum alopercuroides	Fountain Grass	N	D	5’	5’	12” Co	M	N	N	Y	N	N
Pervskia atriplicifolia	Russian Sage	N	D	5’	4’	6” Co	L	N	N	N	N	N
Phlox subulata	Creeping Phlox	N	D	1’	2’	4” Co	H	N	N	Y	N	N
Polystichum acrostichoides	Christmas Fern	I	E	3’	2’	4” Co	M	N	N	N	N	N
Sedum	Stone Crop	I	D	Var	Var	6” Co	L	N	N	N	N	N
Verbena canescens	Verbena	N	D	18”	Var	6” Co	L	N	N	N	N	N
Vinca minor	Common Periwinkle	N	E	6”	18”	6” Co	L	N	N	Y	N	N
Grasses												
Andropogon hallii	Sand Bluestem	I	D	5’	Var	N/A	M	N	N	N	N	N
Bouteloua curtipendula	Sideoats Grama	I	D	3’	Var	N/A	M	N	N	N	N	N
Bouteloua gracilis	Blue Grama	I	D	14”	Var	N/A	M	N	N	N	N	N
Bouteloua dactyloides	Buffalo Grass	I	D	1’	Var	N/A	M	N	N	N	N	N
Cynodon dactylon	Bermuda Grass	N	D	6”	Var	N/A	L	N	N	N	N	N
Sporobolus cryptandrus	Sand Dropseed	I	D	3’	Var	N/A	L	N	N	N	N	N

4.6.3 Maintenance of Grounds Fertilization – Only improved grounds are fertilized using recommended formulations of slow release fertilizer.

4.6.3.1 Irrigation – Only improved grounds are irrigated. Normal rainfall should be supplemented to provide irrigated turf areas are one inch of water per week during the growing season. When no rainfall occurs, one inch of water should be applied in a 24-hour period once per week.

4.6.3.2. Mowing Grass – Grass is maintained per the Air Force Common Output Level Standards.

4.6.3.2.1. Improved Grounds – Improved grounds include land occupied by buildings and other permanent structures as well as lawns and landscape plantings on which personnel annually plan and perform intensive maintenance activities. Improved grounds are mowed by base maintenance personnel depending on height.

4.6.3.2.2. Semi-Improved Grounds – Semi-improved grounds are where periodic maintenance is performed primarily for operational reasons such as erosion and dust control, bird control, and visual clear zones. Semi-improved grounds are mowed by base maintenance personnel depending on height.

4.6.3.2.3. Unimproved Grounds – Unimproved grounds are areas not classified as 'improved' or 'semi-improved'. Unimproved grounds are not typically mowed except for areas addressed by BASH. Off Limits Areas are areas designated by the commander as being off limits to recreational hunting, fishing, trapping and dispersed outdoor recreation by any person at any time. These are areas where mission security and safety concerns do not allow such use. At Kegelman AAF, Off Limits Areas include any controlled areas inside the airfield perimeter fence and the fenced-off draw in the northwest corner of the airfield. The Wildlife Management Area is the only area authorized for outdoor recreation activities such as hunting, hiking, and camping.

4.6.3.3. Tree Pruning. Base Proper – Tree pruning is the responsibility of the Grounds and Electrical Section of the Civil Engineer Department. Pruning is done according to the requirements of a particular species. A shrub or tree is not to be pruned unless it becomes large enough to be a shade-tree. Shrubs and trees are allowed to assume their natural shape. They are not cropped or pruned to a uniform level in a round, flat-topped, or other unnatural form. Shade trees are pruned gradually from the base by pruning away not more than two feet per year up the main trunk until a desirable height is reached. Deciduous shade trees are pruned to a single trunk during periods of early growth. If this has been neglected, pruning should preserve the wide crotches and eliminate others tending to split when subjected to heavy winds or loads of snow and ice. Removing dead, broken, or diseased wood is all that is required on most established trees and shrubs. Pruning to eliminate interference with electrical and communication lines is conducted during dormant periods by the electrical shop under the supervision of the Grounds Supervisor. Removal and replacement of dead trees is also a function of the Grounds Section.

4.6.4. Weed Control. Improved Land – Weeds are controlled by the Entomology Shop of the Civil Engineering Department.

4.6.4.1. Semi-Improved Land – Weed control is accomplished by the Entomology Shop of the Civil Engineering Department.

4.6.4.2. Unimproved Land – Weed control is not used except as required by Oklahoma Noxious Weed Law.

4.6.4.3. Oklahoma Noxious Weed Law: Noxious weeds are controlled in all improved, semi-improved, and unimproved grounds. Approved chemicals applied at the directed label rates are used for control.

4.6.5. Insect Control.

4.6.5.1. Improved Land – Entomology Shop personnel and/or service contract do spraying as needed for insect and fungus disease control.

4.6.5.2. Unimproved Land – Spraying for insect control in these areas is limited to those times when the areas become abnormally infested with insects and damage to native vegetation occurs due to unbalanced conditions.

4.6.5.3. Drainage – Drainage swales, ditches, and shoulders along paved areas are inspected quarterly to identify work requirements, to repair any damage, and to insure proper airfield drainage. Additional inspections are performed throughout the year after periods of heavy rainfall to insure that corrective action was successful. Maintenance is done as needed to correct any deficiencies.

4.6.5.4. Fire Protection – The Kegelman AAF perimeter road and center inside access road running east to west are maintained as vegetated fire protective features at a height of 7 to 14 inches and at a width of 20 feet to contain the expected fire and to minimize soil erosion. The Vance AFB airfield perimeter road, runways, taxiways, and access roads act as fire protective features.

4.7. Migratory Bird Management – Migratory birds do not typically reside at Kegelman AAF, but are transient in nature. One migratory bird, the Mississippi Kite, does nest at Vance AFB and in the surrounding region. Because it is an aggressive bird when nesting, warning signs are posted around trees with nests until the young fledge and the bird moves on usually in August of each year. The Kites who nest at Vance AFB are migrants from South America and continue migration as soon as their young are fledged. No additional measures are necessary to manage them and no violation of the Migratory Bird Treaty Act occurs.

4.8. Invasive Species Management – Eastern Red Cedar tree removal – At Kegelman AAF Eastern Red Cedar trees are removed if they pose a fire hazard and/or inhibit rescue vehicle movement on the approximately 290 acres of land available for wildlife management east of the runway. Work includes removal of the entire tree at or below ground level.

4.9. Pest Management – Pest management is discussed in Sections 1.9 and 3 as it applies to how pest management is incorporated into this plan and as part of vegetation management. The INRMP is annually coordinated with pest management personnel at Vance AFB.

4.10. Land Management – Land management and vegetation management are covered in Section 3 of this plan.

4.11. Agricultural Outleasing – Not applicable

4.12. Geographical Information Systems (GIS) Management, Data Integration, Access, and Reporting – Geospatial data layers are used to articulate map data for this plan. Grounds categories, wildlife management area, project boundaries, and limited access areas are depicted in appendices using GIS data.

4.13. Outdoor Recreation – Hunting is covered in Section 4.4 of this plan.

4.13.1. Overview – The Outdoor Recreation Plan is used to increase the quality of life for base personnel and to define recreational values and resource uses. Outdoor recreation, as defined by AFI 32-7064, includes "recreation activities that relate directly to and occur in natural outdoor environments." It does not involve those activities usually associated with urban developments such as playgrounds, golf courses, athletic fields and courts, and swimming pools. The plan concentrates on activities that can be developed using available base resources. Popular activities such as trap shooting and picnicking can be developed or exist on Vance AFB. Other activities desired by the Vance AFB community are investigated to determine if these activities can be developed at Vance AFB proper or Kegelman AAF.

4.13.2. Objectives

4.13.2.1. To provide maximum outdoor recreation benefits to base personnel within the constraints of the installation's mission.

4.13.1.2. To determine the capability of available resources.

4.13.2.3. To protect and preserve available resources for future generations through a program of multiple use and sustained yield.

4.13.2.4. To determine the benefits to be provided and the degree of public access for these benefits.

4.13.2.5. To plan for the expansion of outdoor recreational programs within a designated planning period.

4.13.2.6. Current Use – The current use of Vance AFB's outdoor recreation facilities is as follows: picnicking, camping, and hunting. Picnicking and hunting are the most common activities.

4.13.3. Development and Management of Recreational Resources – Development of recreational resources on Vance AFB is limited because of the size and location of available land and the lack of significant water resources on base. Several small sites exist on base that can be used for intensive recreation activities. These sites must be maintained; however, they have limited potential for improvement. All other proposed outdoor recreational activities were investigated to determine whether they could be conducted at Kegelman AAF. Kegelman AAF offers a significant potential for dispersed recreational development.

4.13.3.1. Researched Projects – Projects that have been researched for recreational development on Vance AFB proper and Kegelman AAF are available in Appendix 2.

4.13.3.2. Management – The types of outdoor recreation areas that are available to the Vance AFB community are managed to safeguard public health, safety, and environmental quality.

4.13.3.3. Public Use and Access – Recreational Facilities: Outdoors recreational facilities on base proper are offered to active-duty and retired military personnel, active and retired federal employees, and guests. Requests can be made to the Natural Resources Manager for access to Vance AFB natural resources and are weighed against the available resources and type of use requested. The use of Vance AFB's recreational facilities by the general public is impractical for several reasons:

4.13.3.3.1. Demand for facilities bythe base community.

4.13.3.3.2. Limited size of existing recreational areas.

4.13.3.3.3. Manageability of activities, and security.

4.14. Bird Aircraft Strike Hazard – BASH is covered by the Vance AFB BASH Plan 91-2.

4.15. Wildland Fire Management – See the Vance AFB Wildland Fire Management Plan.

4.16. Training – The *DoD Commander's Guide to Biodiversity* provides basic natural resources management guidance for installation or wing commanders. The Executive Summary of the INRMP makes the installation and wing commanders, installation civil engineers, and other senior officers aware of installation natural resources and inform them of how the natural resources management program supports mission objectives. Natural resources managers at installations that are required to have an INRMP must take the course, *DoD Natural Resources Compliance*, developed by the DoD Interservice Environmental Education Review Board (ISEERB) and offered for all DoD Components by the Naval School, Civil Engineer Corps Officers School (CECOS). See the CECOS website **https://www.cecos.navy.mil** for schedules and registration information. Other DoD environmental management courses can be found at the Army Logistics Management College (**http://www.almc.army.mil/catalog/coursedescriptions.html**) and Air Force Institute of Technology (**http://cess.afit.af.mil**).

4.17. Coastal and Marine Management – N/A at Vance AFB and Kegelman AAF.

4.18. Other Leases – Not applicable

5. IMPLEMENTATION.

5.1. Summary – Projects that may impact natural resources are evaluated for environmental impact to reduce or eliminate natural resource degradation. Natural resource areas are evaluated at least annually to determine status of invasive species, noxious weeds, and sustainability of wildlife cover and food supply.

5.2. Achieving No Net Loss – Management of Vance AFB's natural resources do not impede the military mission. If a terrestrial T&E were to reside at Vance AFB or Kegelman AAF, the potential for hindering the flying mission would be minimal. A protected or T&E bird species would potentially affect the flying mission negatively by implementation of federally mandated management to protect the population. The hunting program at Kegelman AAF positively impacts the military mission via the reduction in deer population during the rut, reducing the number of deer that cross the runway.

5.3. Use of Cooperative Agreements – Vance AFB does not have any Cooperative Agreements.

5.4. Funding – Use DoD Form 1311 Cash Collection voucher to 57x5095 account. Funds in this account are used for conservation, personnel services and related costs.

APPENDICES

APPENDIX 1

LIST OF ACRONYMS

AAF	Auxiliary Airfield
ACES	Automated Civil Engineering System
AF	Air Force
AFB	Air Force Base
AFI	Air Force Instruction
BASH	Bird Aircraft Strike Hazard
DoD	Department of Defense
DoDD	Department of Defense Directive
ESOHC	Environmental Safety and Occupational Health Council
IAW	in accordance with
INRMP	Integrated Natural Resources Management Plan
MSG/CC	Mission Support Group Commander
NRM	Natural Resources Manager
NRCS	Natural Resources Conservation Service
ODWC	Oklahoma Department of Wildlife Conservation
OPR	Office of Primary Responsibility
pH	the symbol for the logarithm of the reciprocal of hydrogen ion concentration in gram-atoms per liter, used to express the acidity or alkalinity of a solution on a scale of 0 to 14, where less than 7 represents acidity, 7 neutrality, and more than 7 alkalinity.
SUPT	Specialized Undergraduate Pilot Training
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USC	United States Code
USFWS	United States Fish and Wildlife Service

APPENDIX 2

PROJECT DETAILS

1. Researched Projects: All management actions must first consider the potential effects on the flying mission. The following projects are designed to be conducive to the principles of multiple use and sustained yield, but may not be implemented.

1.1. Install strip planting at Kegelman AAF by discing up to five strips, 500-600 feet long and two to three disc widths wide around sand plum thickets to stimulate growth of sunflowers and ragweed that eventually provides a supplemental food source for quail. Also, up to six 0.25-acre plots of winter wheat or rye should be planted as a winter food source for deer. The annual estimated cost is $250.00.

1.1.1. Feed plots were planted prior to 2000. The direct result of this action was an aircraft/deer strike mishap. The ODWC recommended that Vance AFB discontinue planting feed plots.

1.1.2. Install two trailer Camper Pads at the open area near the Kegelman AAF pond. The estimated one-time cost is $1,000.00. Kegelman AAF had 5 tent pads that were removed due to lack of use.

1.1.3. Reinstalling the camping pads has been determined not to be feasible because the Great Salt Plains State Park is within ¼ mile of Kegelman AAF and offers complete camping facilities.

1.1.4. Develop approximately 30 acres of natural wooded area at Kegelman AAF to include a Nature Trail. Identification markers should be constructed to identify trees, shrubs, wildlife, and possibly a bird and animal observation site. The Oklahoma Tourism and Recreation Department should be consulted to determine the extent of development needed to provide a nature study trail in this area. Consideration has also been given to involving a local Boy Scout Troop in a self-help project to develop trails, signs, exhibits, etc. The estimated cost is $3,000.00.

1.1.5. A Nature Trail was developed at the Vance AFB Park. It was determined not to be feasible. A nature trail at Kegelman AAF has been considered not feasible because a wildlife refuge with available trails is within 1 mile.

1.1.6. Eastern Red Cedar Removal: Vance AFB has an ongoing project to eradicate the Eastern Red Cedar in the Natural Resource Area at Kegelman AAF at a cost of approximately $20K/ year. The project was awarded to reduce this prolific, invasive species and supports one of the Oklahoma goals of reducing Red Cedars state-wide. The Red Cedar contributes to the fire hazard and can obstruct emergency vehicles in this area.

APPENDIX 3

LIST OF PROJECTS

Current projects programmed		
Project	**Cost/Term**	**Class**
Eastern Red Cedar Eradication	$20k Annually/FY16	Conservation
Kegelman AAF Clear Zone Tree Removal	$2.2m FY18	Conservation and Safety

APPENDIX 4

RESULTS OF PLANNING LEVEL SURVEYS

1. Cultural Resource Assessment of Vance AFB, Garfield County, OK and Kegelman AAF, Alfalfa County, OK: The cultural resources survey found no significant cultural/archeological resources at Vance AFB and Kegelman AAF.

2. Biological Survey: Biological Survey of Vance AFB, Oklahoma. Oklahoma Biological Survey, July 1996. The survey found that there are no threatened or endangered species residing at Vance AFB and Kegelman AAF. The complete results of this survey can be found in Section 4.1.

APPENDIX 5

RESEARCH REQUIREMENTS

Note – There are no ongoing or programmed projects requiring additional research and none have regional or country-wide significance.

APPENDIX 6

MIGRATORY BIRD MANAGEMENT

At Vance AFB and Kegelman AAF, the migrant Mississippi Kite is known to nest during its migration from South America. This bird is left alone to fledge its young before it continues its migration. Vance AFB Flight Safety has a permit related to scaring birds away from the airfields and a certified USDA operator conducts BASH activities within the permit. The Kite has not been a problem on the airfields, and the permit does not allow destruction or harassment of Kites. No other management of migratory birds is needed at Vance AFB and Kegelman AAF.

APPENDIX 7

BENEFITS FOR THREATENED AND ENDANGERED SPECIES

Not applicable for Vance AFB and Kegelman AAF.

APPENDIX 8

CRITICAL HABITAT ISSUES

1. There is no habitat designated as critical to T&Es or other protected species at Vance AFB of Kegelman AAF.

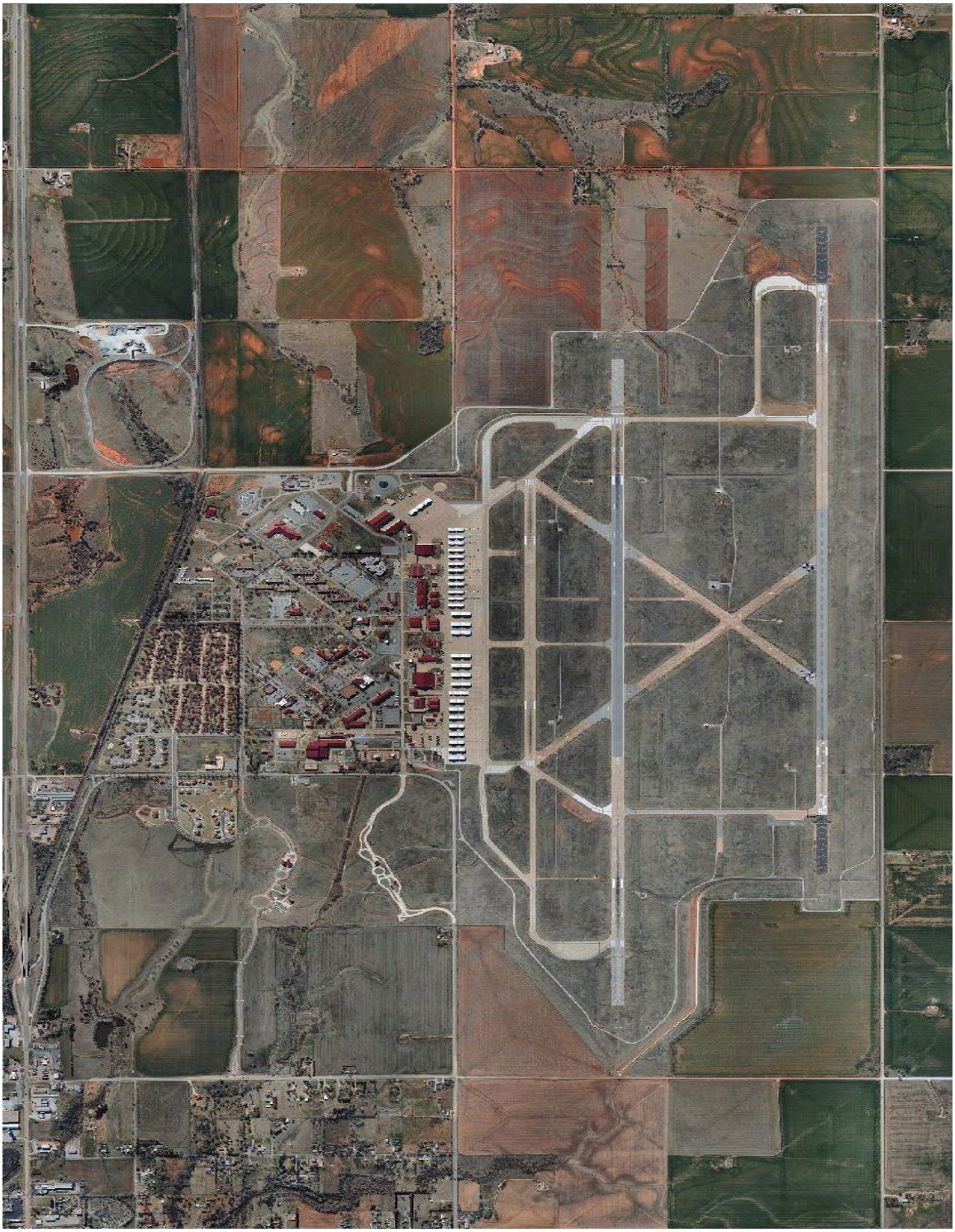
2. Impacts to the flying mission at Vance AFB and Kegelman AAF could become severe if a nearby bird species was listed or given protected status. The potential for a reduction in training time available, airspace, and even the types of aircraft allowed in the area of influence could be catastrophic to the Vance AFB mission of training pilots. Further, listing a nearby bird species could result in designation of training lands as "critical habitat" and take away needed lands from the training mission.

3. The listing of a terrestrial species would be more minimal in its impact to the mission. Interagency ground training is infrequent and has involved small National Guard or Army Reserve units conducting dismounted training such as patrolling in the Natural Resource Area and Vance AFB Security forces conducting exercises could be negatively impacted by listing a resident terrestrial species at Kegelman AAF.

4. Future tree removal projects in association with the airfield Clear Zone require monitoring for additional, potentially protected bird species such as the Mallard Duck and various raptors that occur within the region of influence but do not reside on the airfield. Habitat modifications will be monitored for development of hydrophilic plant species such as Cattails and others common to wetlands. The scope of this project includes terrain modifications that will provide effective drainage and prevent the accumulation of standing water. The Biological Survey for Kegelman AAF indicates there are no resident species of concern, neither threatened, endangered, nor protected. No new critical habitat is expected to develop as a result of this project. The scope and results of this project will be routinely inspected by the Natural Resources Manager and if resident species of concern are found in the project area, mitigation measures would then become necessary per the "Threatened or Endangered species Act".

APPENDIX 9

Vance AFB Property Map



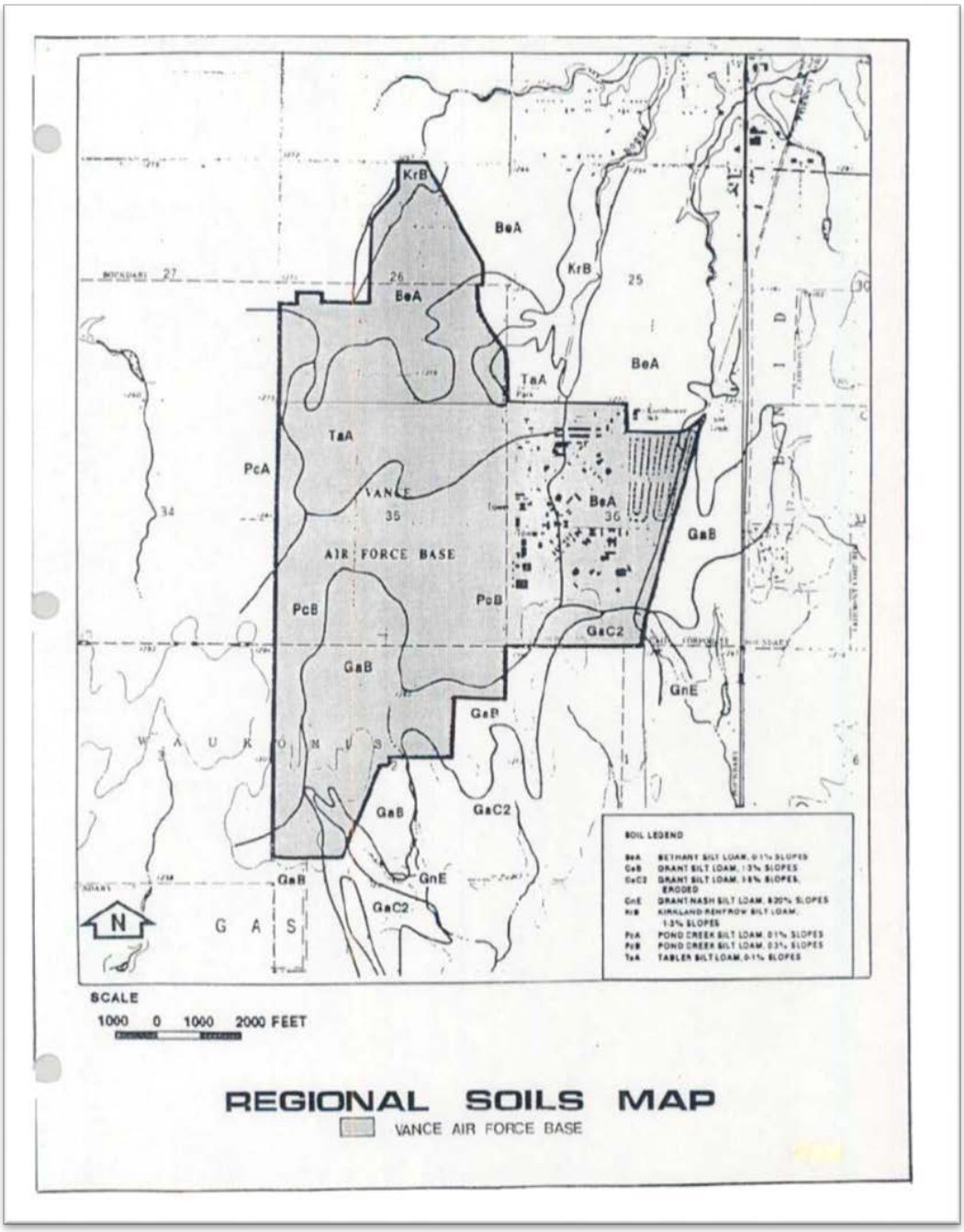
Appendix 10

Kegelman AAF Property Map

Appendix 11

Regional Soils Map

(No Soils Map for Kegelman AAF)


KrB
BeA
KrB
BeA
BeA
TaA
TaA
PcA
VANCE
AIR FORCE BASE
BeA
GaB
PcB
PcB
GaC2
GaB
GnE
GaB
GaB
GaC2
GaB
GnE
GaC2
N
G A S
SOIL LEGEND
BeA BETHANY SILT LOAM, 0-1% SLOPES
GaB GRANT SILT LOAM, 1-3% SLOPES
GaC2 GRANT SILT LOAM, 1-5% SLOPES, ERODED
GnE GRANT-NASH SILT LOAM, 8-20% SLOPES
KrB KIRKLAND-RENFROW SILT LOAM, 1-3% SLOPES
PcA POND CREEK SILT LOAM, 0-1% SLOPES
PcB POND CREEK SILT LOAM, 0-3% SLOPES
TaA TABLER SILT LOAM, 0-1% SLOPES
SCALE
1000 0 1000 2000 FEET
REGIONAL SOILS MAP
VANCE AIR FORCE BASE

Appendix 12

Vance AFB Grounds Categories


Grounds
Maintenance
Effective 1 August 2016
Improved Mowed to 2-4 in.
Semi-Improved Mowed to 4-10 in.
Unimproved Mowed 1/yr to 10-14 in.
Vance Air Force Base
400 200 0 400 800 1,200
Feet

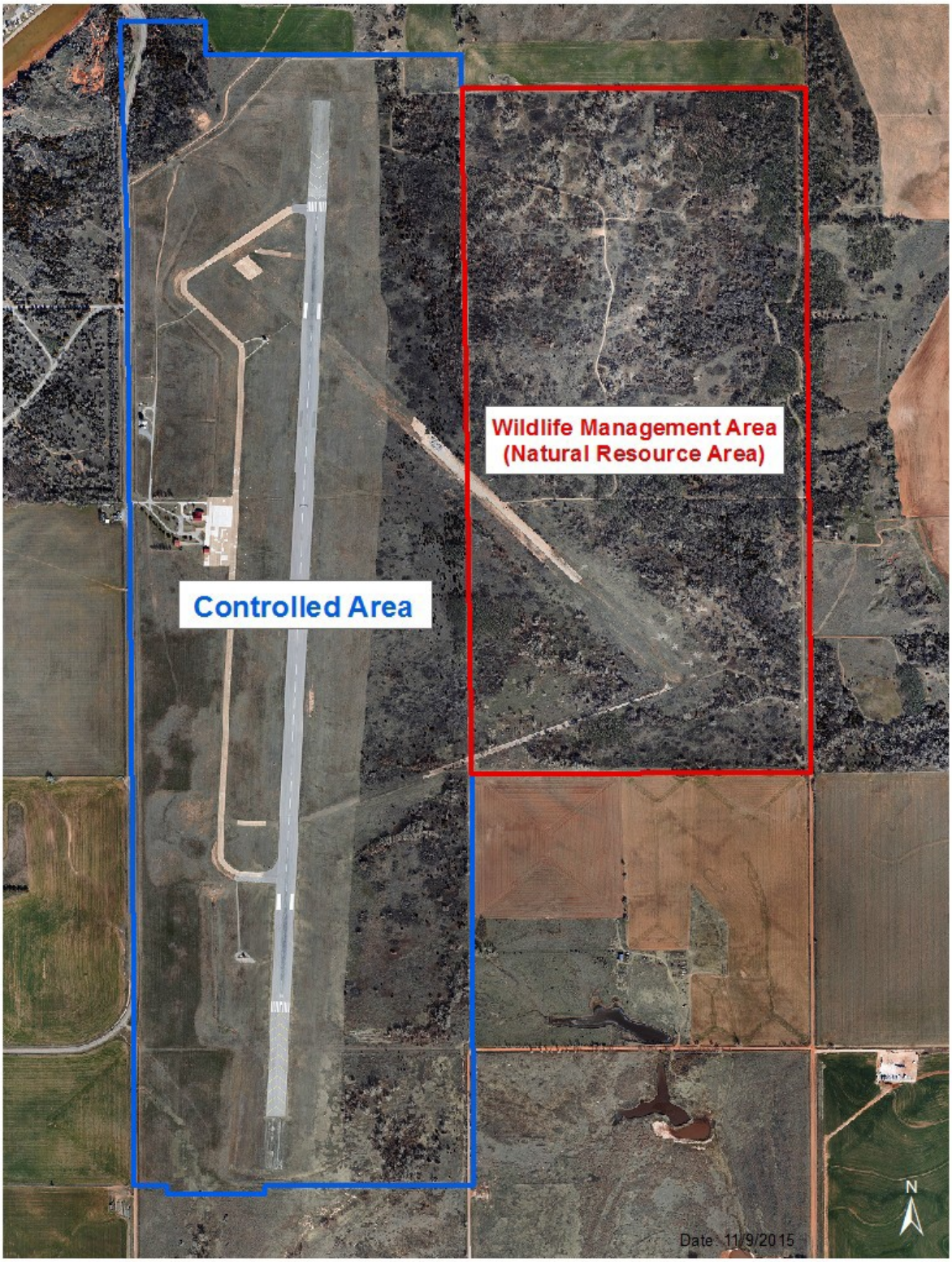
Appendix 13

Kegelman AAF Grounds Categories

Kegelman AAF Grounds Categories

Appendix 14

Kegelman AAF
Wildlife Management Area


Wildlife Management Area
(Natural Resource Area)
Controlled Area
N
Date 11/9/2015

Appendix 15

WETLANDS

DETERMINATION

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

October 9, 2015

Regulatory Office

Mr. Shannon Elledge
PAE/CEV
140 Channel Street, Suite 225
Vance AFB, OK 73705

Dear Mr. Elledge:

This is in reference to your email dated August 6, 2015, requesting a jurisdictional determination (JD) for the Kegelman Tree Removal Project. The proposed project is located at the Kegelman Auxiliary Field of Vance Air Force Base, in Sections 12, 13 and 24, Township 25 North, Range 9 West, Alfalfa County, Oklahoma. The area marked in red on the enclosed map denotes the limits of the property examined under this request. We have reviewed the submitted data relative to Section 404 of the Clean Water Act (CWA).

We have examined the property and concluded that the referenced property does not contain jurisdictional wetlands or other waters of the United States subject to Section 404 CWA. The basis for this determination is the proposed projects are located within uplands.

We believe this determination to be an accurate assessment of the presence of jurisdictional wetlands and other waters on the site which are subject to Section 404 CWA. This is a final determination of federal jurisdiction on the property pursuant to Section 404 CWA. This determination is valid for 5 years from the date of this letter unless new information warrants revision of the determination before the expiration date.

This delineation has been conducted to identify the limits of the Corps CWA jurisdiction for the particular sites identified in this request.

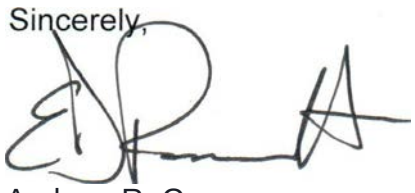
This final determination constitutes an approved JD subject to the optional Corps Administrative Appeal Process. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed is a copy of the Notification of Administrative Appeal Options and Process (NAP) and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the Southwestern Division Office at the following address:

Mr. Elliott Carman
Appeals Review Officer
U.S. Army Corps of Engineers
1100 Commerce Street, Suite 831
Dallas, TX 75242-1731
Tel: 469-487-7061
Fax: 469-487-7199

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by December 8, 2015. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

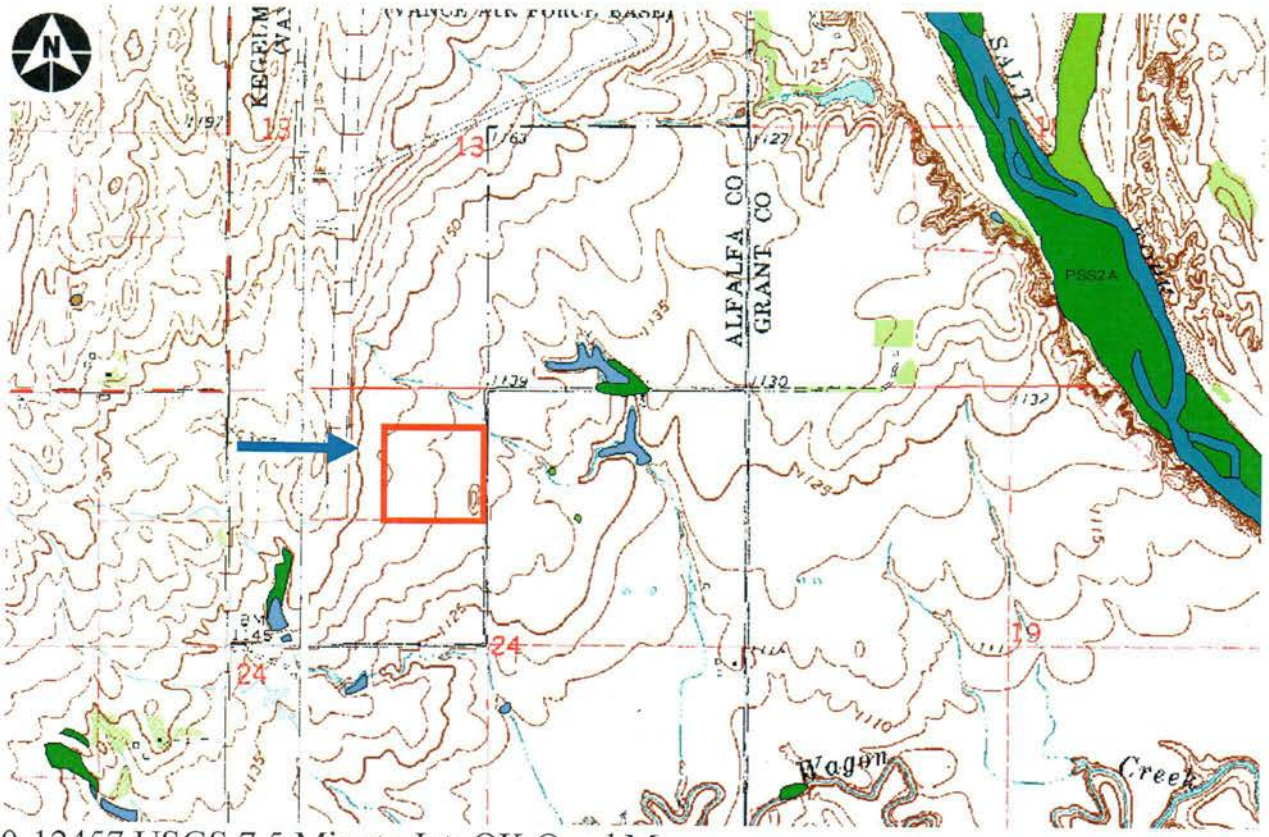
This case has been assigned Identification No. SWT-0-12457. Please refer to this number during future correspondence. If you have any questions, contact Mr. Marcus A. Ware at 918-669-7400.

Sincerely,



Andrew R. Commer
Chief, Regulatory Office

Enclosures



0-12457 USGS 7.5 Minute Jet, OK Quad Map

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Mr. Shannon Elledge, PAE/CEV,	File Number: SWT-0-12457	Date: 09 Oct 2015
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at
httn://www.usace.armv.mil/CEC W/PaQes/reQmaterials.asnx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the perm it in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions there in, you may request that the permit be modified accordingly. You must complete Section TT of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your object ions, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating you r objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein , you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved jurisdictional determination (JD) or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFO RMATI ON: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you ma y provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Mr. Marcus A. Ware 1645 South IO I [51] E. Ave Tulsa, OK 74128-4629 Telephone 918-669-7403	Mr. Elliott Carman Appeals Review Officer (CESWD-PD-0) U.S. Army Corps of Engineers 1100 Commerce Street, Suite 831 Dallas, TX 75242-1731 Telephone 469-487-7061

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or authorized agent.	Date:	Telephone number:

Appendix 16

DISTRIBUTION

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Other Agencies:

HQ AETC/A7CAN
US FISH & WILDLIFE
OK DEPT OF WILDLIFE CONSERVATION