

LAND AND WILDLIFE (NATURAL RESOURCES)

MANAGEMENT AT PANTEX PLANT

Land and wildlife management at Pantex falls within the responsibility of the Environmental Stewardship Department (ESD). State and federal drivers, as well as Department of Energy/National Nuclear Security Administration (DOE/NNSA) and Executive Orders drive land and wildlife management. Land and wildlife management at Pantex exceeds minimum requirements, and ESD strives to implement regionally acceptable best management practices.

Natural Resources Planning at Pantex includes:

- Land Applied Chemical Use Plan
- Integrated Plan for Playa Management at Pantex Plant and Wildlife Management
- Cropland and Rangeland Conservation Plan Water Quality Management Plan
- Management Plan for Black-Tailed Prairie Dogs and Western Burrowing Owls
- Management Plan for Nuisance Animals
- Prescription burn plans, grazing systems, prairie restoration
- Migratory Bird/Texas Horned Lizard Issues
- Wind Turbine Issues
- Authorization for Trap and Release of Nuisance Fur-bearing animals
- Scientific Permit Application and Reporting
- Natural resource surveillance and monitoring

National Environmental Policy Act (NEPA)

NEPA is an “umbrella” law, which requires federal agencies to give consideration to all potential environmental impacts of proposed actions as part of agency planning and decision making, prior to award of contracts. Among other concerns, special status wildlife and plant species, wetlands and floodplains, and soil disturbance and stabilization, are considered during project reviews required by NEPA (of 1969). Applicable regulation requirements are followed, and mitigating measures are proposed.

LAND MANAGEMENT AND RESEARCH

Land management at Pantex complies with State of Texas requirements, and utilizes best management practices associated with pesticide laws, non-point source pollution prevention, and natural resource conservation.

Texas Tech/DOE/M&O Contractor Service Agreement

Land at Pantex not used for mission work is managed under an agreement among DOE/NNSA Production Office (NPO), Texas Tech University, and the Pantex Maintenance & Operating (M&O) Contractor. This agreement covers dry land farming and livestock grazing. Implementation of this Service Agreement adheres to Pantex Land Management Plans.

Water Quality Management Plan

The Water Quality Management Plan was developed in 2002 by Pantex, the McClellan Creek Soil and Water Conservation District, the regional office of the Texas State Soil and Water Conservation Board in Hale Center, TX (in conjunction with the Panhandle office of the Natural Resources Conservation Service), and Texas Tech Research Farm. The Texas State Soil and Water Conservation Board recertified this Water Quality Management Plan in 2010, and the current implementation of the conservation practices meet State of Texas requirements for water quality, as defined in Senate Bill 503 rules. The Plan undergoes an annual review.

Texas Land Application Permit

The Pantex Texas Land Application Permit is currently being implemented. This permit allows Pantex to beneficially reuse our treated wastewater through subsurface irrigation of crops. A subsurface drip irrigation system was installed on 300 acres in 2004 and an additional 100 acres was added in 2012. A crop rotation plan has been established and is reviewed annually.

WILDLIFE MANAGEMENT AND RESEARCH

Bobcat Research

Pantex maintains an active Wildlife Biology program, tracking and conserving various animal species on the plant site. Pantex has had a contractual agreement with West Texas A&M University (WTAMU) since 2008 to assess biological and nuisance aspects of the Pantex population of bobcats through marking and satellite telemetry. Satellite tracking allows for determining the homeranges of these highly territorial animals, and thus determining how many cats are on site. It is also helpful in locating den sites, where kittens can be “rescued” should mortality happen to the attending female. DNA testing of blood samples will answer questions about parentage.

In addition to the above, WTAMU advises, analyzes data, and shares in co-authorship of publications.

Migratory Birds

The Pantex Plant initiated, and continues to build, a migratory bird program at the Pantex Plant. The components of this program represent a significant pattern and effort for defining a migratory bird program and elevating it to a level beyond agency mandates. Program accomplishments represent a leadership mentality in the realm of migratory bird conservation. The work demonstrates the Pantex Plant's initiative and credibility pertaining to the conservation of migratory birds and habitat.

Pantex has proposed, secured funding and bids, and researched projects dealing with timely issues involving migratory bird species. An early project with Texas Tech University focused on western burrowing owls (*Athene cunicularia hypugaea*) and their behavior, nest site use and productivity, and response to radio transmitter collars. The same contract also looked at use of prairie dog colonies by migratory birds versus their use of other habitat types. A multifaceted project in progress is evaluating the effects of wind energy development on migratory birds (see separate topic). Additional initiatives include the installation of approximately 500 protective devices for raptors along 20 miles of lines with no reported electrocutions since their installation; restoration of prairie with plant species specific to soil type; incorporation of research findings into management plans, specifically the pretreatment surveys for wintering and nesting owls prior to control of prairie dog towns prescribed in the Management Plan for Prairie Dogs and Western Burrowing Owls; and banding of approximately 9,000 nestling purple martins to further the information base on these birds on the western periphery of their range.

The Pantex Plant's migratory bird program achieves considerable success in providing important and interesting communication to various groups on and off the Plant site through presentations, publications, driving tours, and interviews. Technical guidance is commonly provided to Pantex employees in response to questions pertaining to migratory birds. Presentations have been provided to outside organizations. In addition, the work of staff was featured in an episode on purple martins on *Outdoor Oklahoma Television*. The Purple Martin Outreach Program reaches up to 41 families/neighborhoods per year in northwest Texas and western Oklahoma.

Monitoring the Pantex Renewable Energy Project for Impacts on Migratory Birds

A multifaceted project in progress is evaluating the effects of wind energy development on migratory birds through a contract with West Texas A&M University. The project has resulted in a comprehensive literature review of the impacts of wind energy on wildlife, which has been shared with federal and state natural resource agencies, and the initiation of pre- and post-turbine monitoring of migratory birds. The latter project surveys plots for wintering and migrating raptors, as well as plots of a variety of habitat types during the breeding season for other migratory birds and their nests. It also includes radio- and satellite-tracking of Swainson's hawks (*Buteo swainsoni*). Three years of pre-monitoring have been accomplished for all but the Swainson's hawk work, which has just completed its second field season. Global Positioning System (G.P.S.) backpacks utilized on Swainson's hawks not only record the location of a hawk on an hourly basis, but also the altitude, wind speed, and they will indicate a mortality should

the hawk become still for a specified amount of time. In addition, the G.P.S. backpacks will allow tracking of the birds to South America and back, in the fall and spring.

Prairie Dog Management and Research

While black-tailed prairie dogs (*Cynomys ludovicianus*) are considered an important component of the fauna of Pantex, Pantex must control prairie dogs in designated areas; principally, areas of special operational concern that may be requested by other Pantex organizations. Although Texas Parks and Wildlife Department lists the black-tailed prairie dog as a species of concern, there is no formal protection provided for the species.

Prairie dogs are considered an important inhabitant of the Plant, providing food and habitat for a variety of wildlife at the Plant, the most important species being the western burrowing owl, another species of concern. Prairie dog work, outlined in the *Management Plan for Prairie Dogs at Pantex Plant*, includes ensuring that sound methods are used to maintain sustainable populations of prairie dogs and western burrowing owls as important components of the shortgrass prairie ecosystem at Pantex Plant. Underlying this objective are four important philosophies, which have provided useful direction since 1996, and continue to guide prairie dog management at Pantex:

- Coordination and compliance with Plant operations
- Maintenance of Plant security
- Health, safety, and sound ecosystem management
- Integration of natural and cultural resources management

The Plan identifies the following four primary prairie dog management goals:

- Population characterization, including for burrowing owls
- Population control and colony management
- Plant safety and security
- Environmental monitoring (radionuclide surveillance and prairie dog health)

Wildlife Monitoring

Protection and management strategies for wildlife are most efficient with well-documented wildlife use of Pantex property. Data from special surveys and incidental observations are recorded.

In the wildlife profession, advances in technology are greatly enhancing our ability to study, and thus better manage wildlife populations. Here at Pantex, we are no exception in regard to the advancement of latest technology being used to inventory or study wildlife. The following are examples of monitoring tools:

- Global Positioning System (G.P.S.) – This uses triangulation from satellites to pinpoint the location of a study plot, animal, or other location of interest. This data can be incorporated onto maps and used to demonstrate locations, movements, and homeranges. Pantex, Texas Tech University, and West Texas A&M University have used this technology in all wildlife studies that have occurred on the Plant since 1999.
- PIT tags/Microchips - These are Passive Intradominal Transponders, and are similar to the microchips that can be implanted into pets or livestock to provide a means of identification. When an animal is captured, it is scanned with a “reader” which reads an identifying set of numbers and/or letters unique to the animal. Pantex and West Texas A&M University have been marking snakes and Texas horned lizards with PIT tags for over a decade.
- Radio Telemetry – This uses a pulsating frequency from a transmitter that is detectable to the researcher through the use of a receiver. Each transmitter has a unique frequency. One type utilized involves the use of a hand-held GPS unit to record the location of the animal when found (used on horned lizards and snakes at Pantex). Another involves automated G.P.S. recording and transmitting (used on bobcats and Swainson’s hawks at Pantex). Pantex, Texas Tech University, and West Texas A&M University have used this technology in wildlife studies since 2002 (bullsnakes, burrowing owls, prairie rattlesnakes, Texas horned lizards, bobcats, and for pre-monitoring of Swainson’s hawks, as part of the Pantex Renewable Energy Project). G.P.S. backpacks utilized on Swainson’s hawks not only record the location of a hawk on an hourly basis, but also the altitude, wind speed, and they will indicate a mortality should the hawk become still for a specified amount of time. In addition, the G.P.S. backpacks will allow tracking of the birds to South America and back.
- Geolocators – These tracking devices are strapped to the backs of small birds (Purple Martins) and record locations based on measured intensity of visible light. When retrieved, geolocator data indicate migration pathways and wintering areas.
- Frog Loggers – These are placed near water bodies and turn on at night and record choruses of frogs and toads that gather for breeding purposes. These devices allow detection of normally secretive species, some of which only come out of the ground at night during thunderstorm events.
- Bat Towers – There is equipment mounted on five towers across Pantex that record the heights, numbers, and species of bats flying past the towers. Identification of species is made by the signature of their echolocation call. Wind turbines are known to be hard on bat species in

certain situations. Pantex and West Texas A&M University are utilizing the towers for monitoring associated with the Pantex Renewable Energy Project.

- Trail Cams – There are a few trail cams used in the outer perimeter of the site or at off-site locations that allow for photographic evidence. Lure baits are often used in front of the cameras, or the cameras are set up over looking trails, watering places, or baited traps (bobcat traps). These are used in general monitoring of wildlife, monitoring of bobcats, and in association with pre-monitoring for the Pantex Renewable Energy Project.

Nuisance Animal Management

Nuisance animal situations are common at the Pantex Plant, and are addressed through the *Management Plan for Nuisance Animals at Pantex Plant*. Common occurrences include:

- the presence of a bobcat (*Lynx rufus*) on a guard tower;
- striped skunks (*Mephitis mephitis*) and other mammals in and under buildings; in culverts, ramps, and trash cans; and around doorways and sidewalks;
- snakes in offices, ramps, bays, cells, gates, and other work sites;
- raccoons (*Procyon lotor*) in offices and outside trash containers;
- black-tailed prairie dogs (*Cynomys ludovicianus*) in or near operational areas;
- barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), European starlings (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*) nests over entrances to buildings or on guard towers;
- western kingbirds (*Tyrannus verticalis*) displaying nest defense aggression on guard towers or over sidewalks and parking lots;
- feral pigeons (*Columba livia*) on perches and/or nests at building entrances, walkways, air intakes and other building features;
- various bats and birds trapped in building interiors;
- mammals and birds setting off alarms in the Perimeter Intrusion Detection and Surveillance (PIDAS) beds;
- rats, rabbits and hares destroying wiring, tubing, or newly planted vegetation;
- wounded or sick animals around buildings or other work areas;
- yellow-faced pocket gophers (*Cratogeomys castanops*) in areas with underground drip irrigation tapes;
- domestic dogs (*Canis familiaris*), feral cats (*Felis catus*), and feral hogs (*Sus scrofa*) running loose; and
- honey bee (*Apis mellifera*) colonies or swarms near work areas.

All nuisance animal responses are dealt with following applicable regulations and DOE/NNSA Executive Orders.

Regional Wildlife Groups and Initiatives

Wildlife initiatives allow for an exchange of information between Pantex and the outside wildlife community. They allow an opportunity for various entities and the public to see efforts of Pantex, as well as incorporation of best management practices at Pantex. Initiatives include coordination and cooperation among:

- U.S. Fish and Wildlife Service
- Texas Parks and Wildlife Department
- U. S. Geological Survey (USGS) Texas Cooperative Fish and Wildlife Research Unit
- Texas Tech University (Departments of Biological Sciences and Natural Resources Management)
- West Texas A&M University (Life, Earth and Environmental Sciences)
- Playa Lakes Joint Venture
- Texas Black-tailed Prairie Dog Working Group
- Texas Black-tailed Prairie Dog Conservation Group (burrowing owls)
- Purple Martin Conservation Association
- Panhandle Bird Club
- North American Waterfowl Management Plan Technical Group
- Texas Chapter of The Wildlife Society
- Panhandle Chapter of Texas Master Naturalists
- West Texas A&M Wildlife Club
- Western Burrowing Owl Working Group
- Xcel Energy (a public utility in Texas)

Texas Horned Lizard Study/Herpetological Survey

West Texas A&M University has been under a contract since 2003 to evaluate the abundance, habitat use, and seasonal activity patterns of Texas Horned Lizards at Pantex Plant, as well as conduct a general herpetological survey at the site. Information has been acquired to help understand the distribution, and habitat protection needs for this State Threatened species, which is a year-round resident species. The work at Pantex was the first really intensive work on the Texas horned lizard in the Texas Panhandle. The study involved systematic surveys for the lizards, and then marking them with microchips which facilitates later identification. Many of the horned lizards were equipped with backpacks that housed radio-transmitters, and these were tracked to determine movements, homerange size, and habitat use. Another technique of tracking involved a fluorescent powder applied to a piece of rabbit fur that is glued on to the horned lizard's belly, and the ensuing "trail" lights up with

a blacklight allowing researchers to trace every step. The focus of current work is determining the degree of genetic homozygosity of Texas horned lizards within isolated grassland patches, through DNA analyses.

In addition, information was lacking at the Plant for herpetological (reptiles and amphibians) distribution and abundance across the various habitat types on the Plant. Extensive research has been devoted to rattlesnakes – abundance, habitat use, and activity patterns. Radio-marked rattlesnakes suggest that the species is very abundant, particularly in prairie dog colonies, and that prairie rattlesnakes utilizing prairie dog towns have smaller home range sizes than those outside prairie dog colonies. This suggests that prairie dog colonies provide high quality habitat for prairie rattlesnakes.