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**International Conservation of Migratory Birds Through Research Collaborations  
– A Success Story**

Pantex Plant

United States Department of Energy-National Nuclear Security Administration

**James D. Ray**

Wildlife Biologist/Environmental Science Senior Specialist

*James.Ray@cns.doe.gov*



## International Conservation of Migratory Birds Through Research Collaborations – A Success Story

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- *[James.Ray@cns.doe.gov](mailto:James.Ray@cns.doe.gov)*

# Success Story



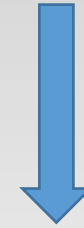
*Threatened: State of Texas*



*Proposed Threatened: Federal*



*Species of Conservation Concern: Federal*





# ***USDOE-NNSA Pantex Plant***



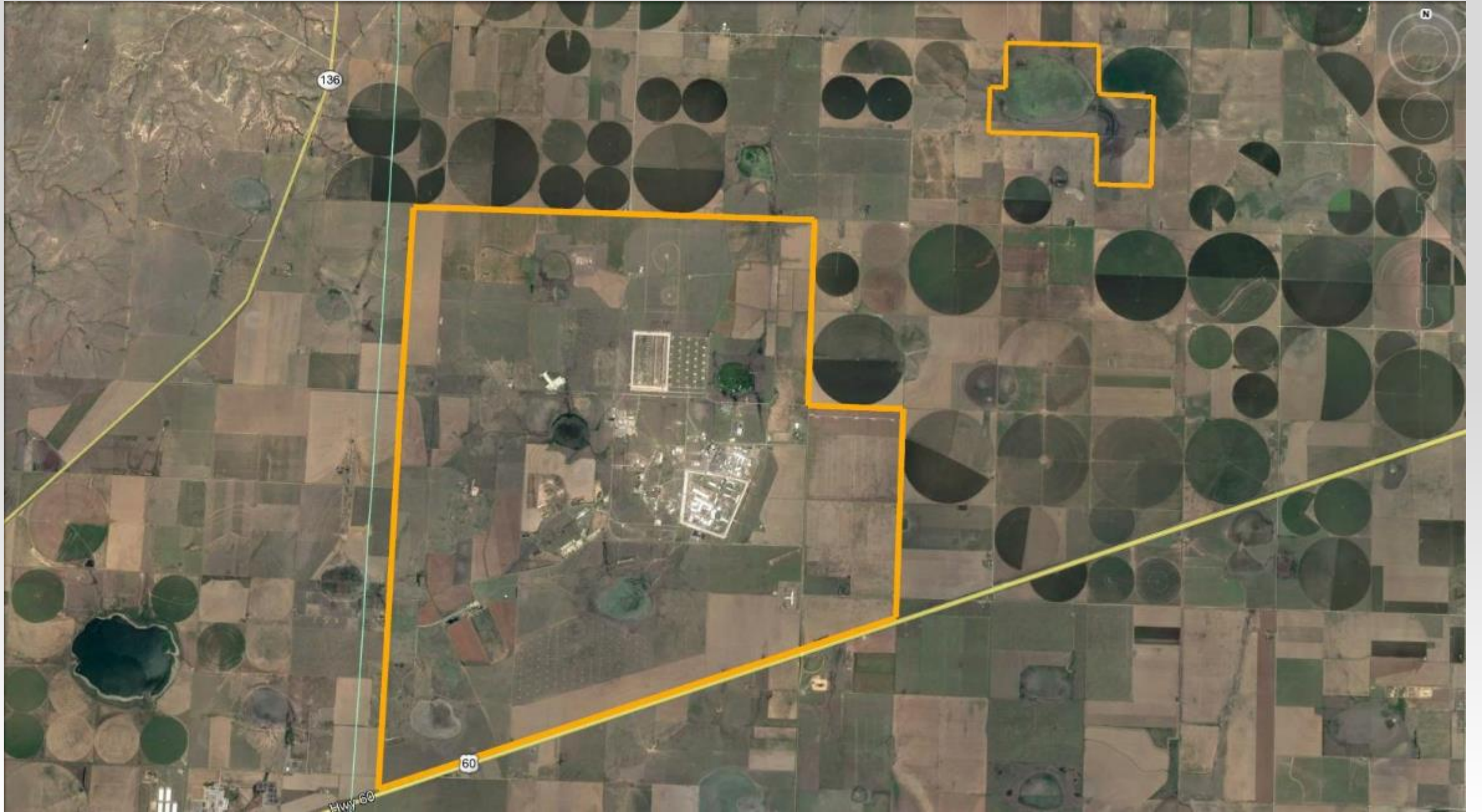
***PanTEX***

# ***USDOE-NNSA Pantex Plant***

- **Primary facility for the disassembly and maintenance of the nation's nuclear weapon arsenal.**









# ***Wildlife***



**44 Species of Mammals**



**203 Species of Birds**



# ***Wildlife***



**27 Species of Reptiles and Amphibians**



**> 900 Species of Macroinvertebrates**



# *Credible, State-of-the-Art Land and Wildlife Practices*



- Several plans dealing with farming, ranching, and wildlife management are incorporated into the Texas State *Soil and Water Conservation Plan* which is monitored and certified yearly by the State Soil and Water Conservation Board.

*Research*



# *Research*

- **Research**
  - Multi-year
- **Collaborations**
- **Outreach**



# *Research*

- **Research**
  - Multi-year
- **Collaborations**
- **Outreach**



**Opportunity**





# *Research*

- **Data gaps**
  - **Inventory – terrestrial macroinvertebrates**
  - **Inventory – reptiles and amphibians**
- **Threatened and Endangered Species/Proposed listing**
  - **State Threatened Texas horned lizard**
  - **Proposed listing of the black-tailed prairie dog**
  - **Biodiversity associated with colonies of black-tailed prairie dogs**



# Research

## ■ Data gaps

- Inventory – terrestrial macrovertebrates
- Inventory – reptiles and amphibians

## ■ Threatened and Endangered Species/Proposed listing

- State Threatened Texas horned lizard
- Proposed listing of the black-tailed prairie dog
- Biodiversity associated with colonies of black-tailed prairie dogs

Set the stage for:

- multi-year research projects at the Pantex Plant
- research that expands beyond the boundary of the Pantex Plant agency and company appreciating the value of the “output” (outreach) from the research
- eventual goal of leading the agency in accomplishments for the U. S. Department of Energy (management level)





# *Research*

- **Data gaps**
    - Inventory – terrestrial macroinvertebrates
    - Inventory – reptiles and amphibians
    - Effects of wind energy on bats and birds
  - **Threatened and Endangered Species/Proposed listing**
    - State Threatened Texas horned lizard
    - Proposed listing of the black-tailed prairie dog
- **Safety**
    - Ecology of prairie rattlesnakes
    - Ecology of bobcats

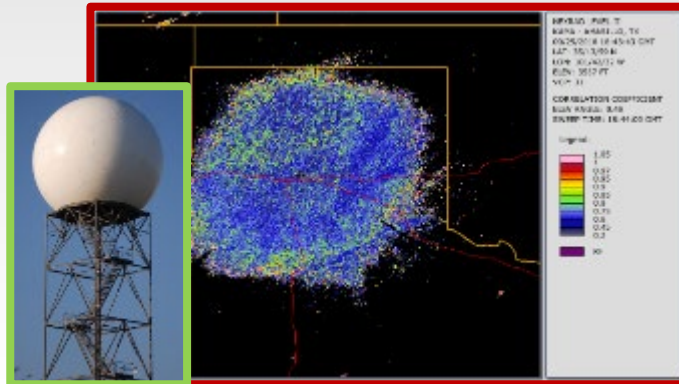


# *Research – Two National Initiatives*

- **Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds**



- **Federal Pollinator Health Task Force and Strategy**





# *Research – Two National Initiatives*

- **Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds and Federal Pollinator Health Task Force and Strategy**
  - **These two initiatives gave us the opportunity to:**
    - Justify habitat protection and enhancement
    - Justify research, partnerships and outreach
    - Justify research focus that is not necessarily on the Pantex property
    - Contribute to agency accomplishments on a national level
    - Develop a goal of leadership in these areas across the complex

These were opportunities.

No mandate.

No dedicated funding associated with these initiatives.

# *Migratory Bird Research*



# *Migratory Bird Research*

- Research
  - Multi-year
- Collaborations
- Outreach

## Presidential Documents

Title 3—

Executive Order 13186 of January 10, 2001

The President

Responsibilities of Federal Agencies To Protect Migratory Birds

plants that may be important to migratory bird resources;

(11) promote research and information exchange related to the conservation of migratory bird resources, including coordinating inventories and monitoring and the collection and assessment of information on environmental contaminants and other physical or biological stressors having potential relevance to migratory bird conservation. Where such information is collected in the course of agency actions or supported through Federal financial assistance, reasonable efforts shall be made to share such information with the Service, the Biological Resources Division of the U.S. Geological Survey, and other appropriate repositories of such data (e.g., the Cornell Laboratory of Ornithology);

(12) provide training and information to appropriate employees on methods and means of avoiding or minimizing the take of migratory birds and conserving and restoring migratory bird habitat;

(13) promote migratory bird conservation in international activities and with other countries and international partners, in consultation with the Department of State and appropriate Federal and non-Federal authorities;

(14) recognize and promote economic and recreational values of birds, as appropriate;

(15) develop partnerships with non-Federal entities to further bird conservation.

# *Migratory Bird Research*

## ■ Research

- Multi-year

## ■ Collaborations

## ■ Outreach

## ■ Pantex staff

- Annual mapping of prairie dog colonies since 1997
- Purple martin outreach and banding program (< 12,000 banded)
- Occurrence of milkweed species and use by breeding monarch butterflies

## ■ University contracts

- Inventory – terrestrial macroinvertebrates
- Inventory – reptiles and amphibians\*
- Biodiversity associated with black-tailed prairie dog colonies
- Ecology of western burrowing owls
- Ecology of Texas horned lizards\*
- Ecology of prairie rattlesnakes\*
- Ecology of bobcats\*
- Effects of wind energy on bats and birds
- Effects of wind energy on Swainson's hawks throughout its annual travels (wind energy focus)
- Evaluation of NEXRAD radar as a tool for monitoring flagship pollinators

\* Heavy field involvement by Pantex staff

■ Had bird research components



# *Migratory Bird Research*

- **Research**

- Multi-year

- **Collaborations**

- **Outreach**

- **Opportunistic collaborations with Universities**

- Ecology and conservation needs of the eastern purple martin during the non-breeding season\*
- Productivity of eastern purple martins in provisioned bird housing (technical guidance)
- Can eastern purple martins be lured back into its natural habitats (technical guidance)

\* Heavy field involvement by Pantex staff.

# *Migratory Bird Research*

- **Research**
  - **Multi-year**
- **Collaborations**
- **Outreach**

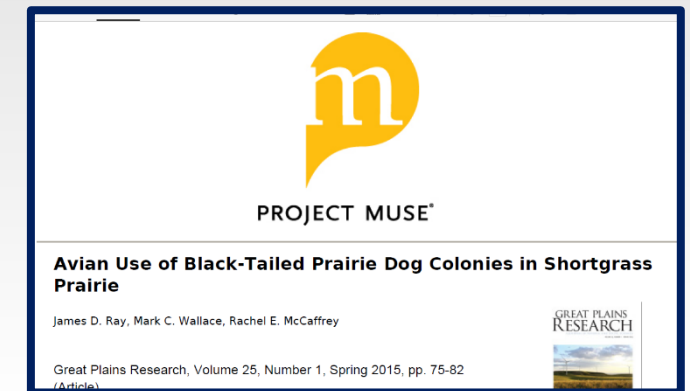
- **Government**
  - USDOE-NNSA, NNSA Production Office
  - USGS Texas Cooperative Fish and Wildlife Research Unit at Texas Tech University
- **Corporate**
  - Consolidated Nuclear Security, LLC (Pantex)
- **University**
  - Texas Tech University
  - West Texas A&M University
  - Canada's University of Manitoba and York University
- **Non-government organizations**
  - Texas Ornithological Society
- **Public**
  - Many home and property owners, and volunteers
- **By extension: The Purple Martin Conservation Association, Disney World Wide Fund, Texas Parks and Wildlife Department**



# *Migratory Bird Research*

## *Avian Use of Black-Tailed Prairie Dog Colonies*

- **Avian use of black-tailed prairie dog colonies vs non-colonized shortgrass prairie**
  - Bird surveys (plots)
  - Work was performed during the proposed listing process involving black-trailed prairie dogs

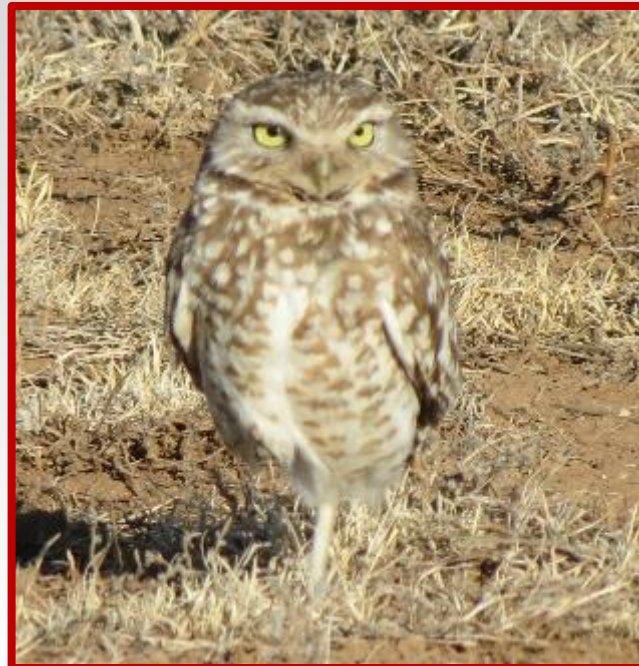


# Migratory Bird Research

## ■ Burrowing owls

- Habitat selection and production, regional scope
- Effects of wind energy, continent scope

Ecology of Western  
Burrowing Owls



*J. Raptor Res.* 42(2):87-98  
© 2008 The Raptor Research Foundation, Inc.

### EFFECTS OF HUMAN LAND USE ON WESTERN BURROWING OWL FORAGING AND ACTIVITY BUDGETS

ERICA D. CHIPMAN  
*Department of Biological Sciences, Texas Tech University, Lubbock, TX 79409 U.S.A.*

NANCY E. MCINTYRE<sup>1</sup>

*J. Raptor Res.* 50(2):185-195  
© 2016 The Raptor Research Foundation, Inc.

### FACTORS INFLUENCING BURROWING OWL ABUNDANCE IN PRAIRIE DOG COLONIES ON THE SOUTHERN HIGH PLAINS OF TEXAS

JAMES D. RAY<sup>1</sup>  
*Consolidated Nuclear Security, LLC, Pantex Plant, Building 09-0130, Amarillo, TX 79120 U.S.A.*

NANCY E. MCINTYRE

*Techniques and Technology Article*

### Effects of Radiotransmitter Necklaces on Behaviors of Adult Male Western Burrowing Owls

ERICA D. CHIPMAN, *Department of Biological Sciences, Texas Tech University, Lubbock, TX 79409-3131, USA*  
NANCY E. MCINTYRE,<sup>2</sup> *Department of Biological Sciences and Natural Science Research Laboratory, Texas Tech University, Lubbock, TX 79409-3132, USA*  
JAMES D. RAY, *SHOCT Pantex LLC, Pantex Plant, Building T-002, Amarillo, TX 79120, USA*

# ***Migratory Bird Research***

## *Effects of Wind Energy Development on Birds*

- **Effects of wind energy**
  - Mortality and carcass disappearance rates
  - Effects on bird presence at various distances from wind turbines





# *Migratory Bird Research*

Swainson's Hawks –  
Wind Energy

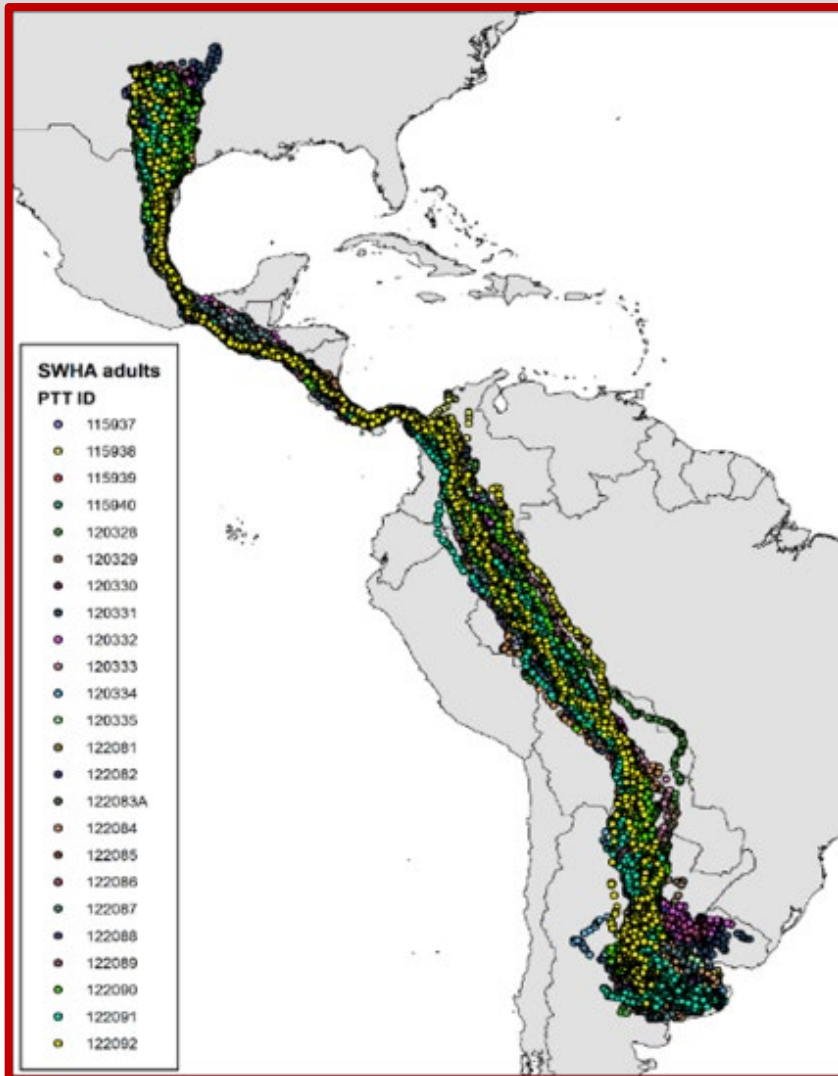


## ■ Swainson's hawks

- Effects of wind energy, hemispheric scope
- Habitat selection throughout its annual travels, hemispheric scope



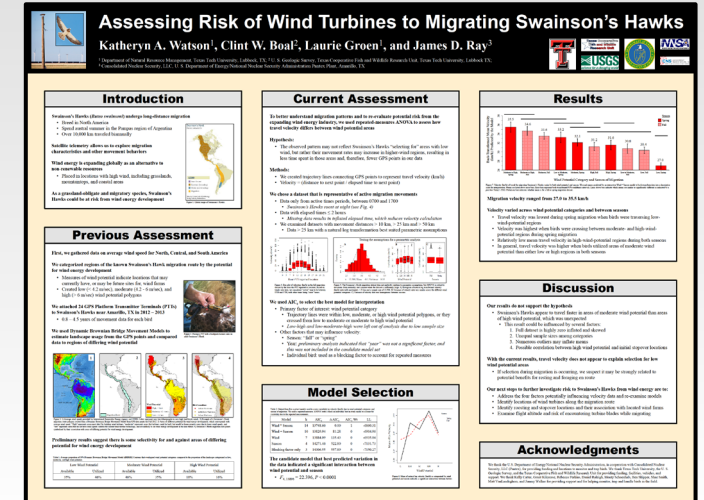
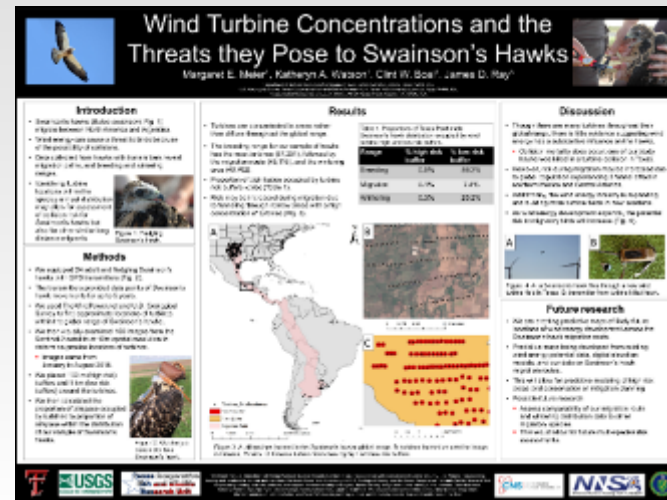
# Migratory Bird Research



## Swainson's hawks select for open country while migrating through the rainforests of Central and South America

Katheryn A. Watson<sup>1</sup>  
Clint W. Boal<sup>2</sup>  
James D. Ray<sup>3</sup>

<sup>1</sup>Department of Biology, University of Maryland, College Park, Maryland, USA  
<sup>2</sup>Department of Biology, University of Maryland, College Park, Maryland, USA  
<sup>3</sup>Department of Biology, University of Maryland, College Park, Maryland, USA



# ***Migratory Bird Research***

## ***Ecology of Purple Martins***

### ■ **Purple Martins**

- Outreach program has resulted in the banding of > 12,000 nestlings
- Habitat selection within stopover and wintering areas (nonbreeding season)





# ***Migratory Bird Research***

An opportunity.



# ***Migratory Bird Research***



# Migratory Bird Research



Journal of Avian Biology 48: 001–007, 2017

doi: 10.1111/jab.01091

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Subject Editor: Thomas Alerstam, Editor-in-Chief: Jan-Åke Nilsson. Accepted 20 July 2016

## Determining fine-scale migratory connectivity and habitat selection for a migratory songbird by using new GPS technology

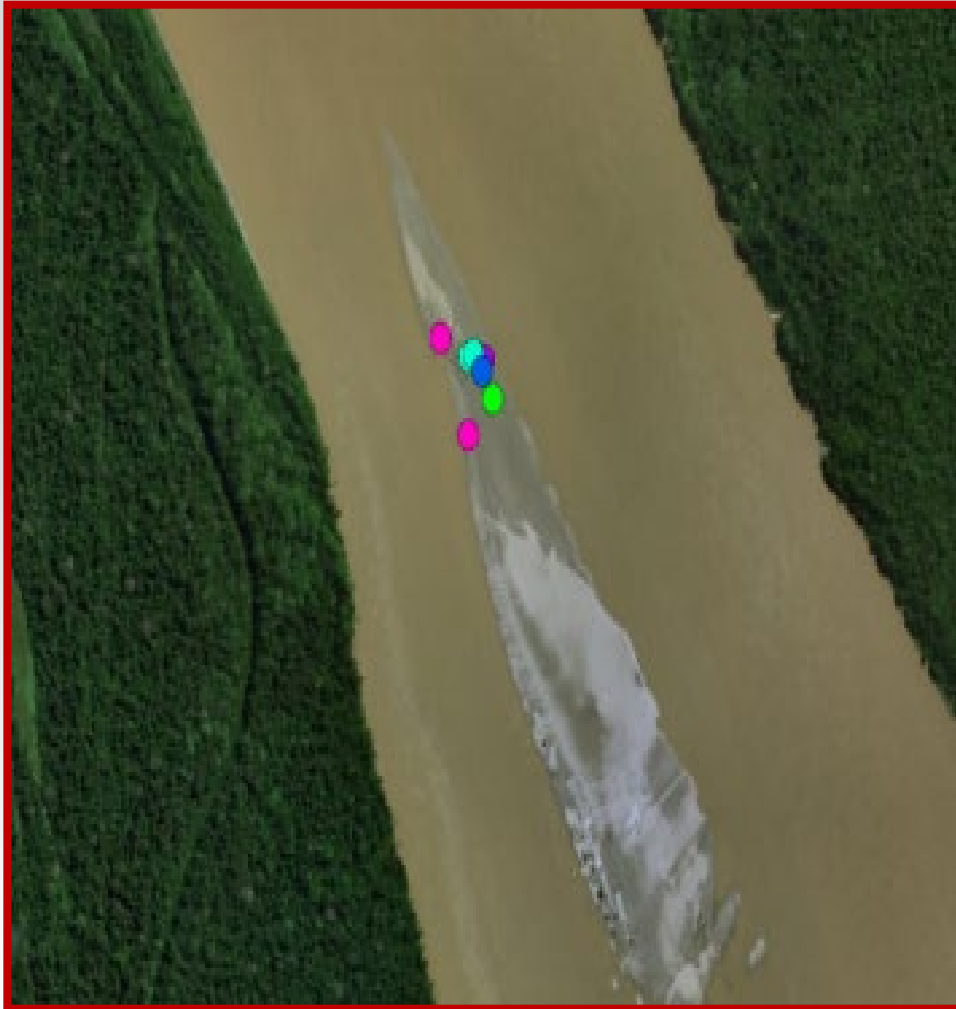
K. C. Fraser, A. Shave, A. Savage, A. Ritchie, K. Bell, J. Siegrist, J. D. Ray, K. Applegate and M. Pearman

K. C. Fraser ([kevin.fraser@umanitoba.ca](mailto:kevin.fraser@umanitoba.ca)), A. Shave, A. Ritchie and K. Bell, Dept of Biological Sciences, Univ. of Manitoba, Winnipeg, MB, Canada. – A. Savage, Disney's Animal Programs, Lake Buena Vista, FL, USA. – J. Siegrist, Purple Martin Conservation Association, Erie, PA, USA. – J. D. Ray, Consolidated Nuclear Security, LLC, Pantex Plant, Amarillo, TX, USA. – K. Applegate, Mille Lacs Band of Ojibwe, Mille Lacs, MN, USA. – M. Pearman, Ellis Bird Farm, Lacombe, AB, Canada.

Migratory aerial insectivores are among the fastest declining avian groups, but our understanding of these trends has been limited by poor knowledge of migratory connectivity and the identification of critical habitat across the vast distances they travel annually. Using new, archival GPS loggers, we tracked individual purple martins *Progne subis* from breeding colonies across North America to determine precise (< 10 m) locations of migratory and overwintering roost locations in South America and to test hypotheses for fine-scale migratory connectivity and habitat use. We discovered weak migratory connectivity at the roost scale, and extensive, fine-scale mixing of birds in the Amazon from distant (> 2000 km) breeding sites, with some individuals sharing the same roosting trees. Despite vast tracts of contiguous forest in this region, birds occupied a much more limited habitat, with most (56%) roosts occurring on small habitat islands that were strongly associated with water. Only 17% of these roosts were in current protected areas. These data reflect a critical advance in our ability to remotely determine precise migratory connectivity and habitat selection across vast spatial scales, enhancing our



# Migratory Bird Research



## Precise direct tracking and remote sensing reveal the use of forest islands as roost sites by Purple Martins during migration

Aurélien M. V. Fournier,<sup>1,9,10,11</sup> Amanda Shave,<sup>2,11</sup> Jason Fischer,<sup>3</sup> Joe Siegrist,<sup>4</sup> James Ray,<sup>5</sup> Edward Cheskey,<sup>6</sup> Megan MacIntosh,<sup>6</sup> Alisha Ritchie,<sup>2</sup> Myrna Pearman,<sup>7</sup> Kelly Applegate,<sup>8</sup> and Kevin Fraser<sup>2</sup>



Journal of Avian Biology 48: 001–007, 2017

doi: 10.1111/jab.10291

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K. C. Fraser, A. Shave, A. Savage, A. Ritchie, K. Bell, J. Siegrist, J. D. Ray, K. Applegate and

J. Cradock

DOI: 10.1007/s10536-017-1435-x

ORIGINAL ARTICLE

## Migratory stopover timing is predicted by breeding latitude, not habitat quality, in a long-distance migratory songbird

A. Van Loon<sup>1</sup> · J. D. Ray<sup>2</sup> · A. Suvage<sup>3</sup> · J. Mejeur<sup>4</sup> · L. Moscar<sup>5</sup> · M. Pearson<sup>6</sup> · A. D.

VOL. 188, SUPPLEMENT THE AMERICAN NATURALIST SEPTEMBER 2018

SYMPOSIUM

Ecological Causes and Consequences of Intratropical Migration in Temperate-Breeding Migratory Birds\*

ABSTRACT  
habitat  
swallow  
which  
tested  
surrounding  
overwinter  
retrieval  
American  
available  
Purple  
identify  
location  
these  
use  
conservation  
in  
species

RESEARCH  
de las  
México  
uso de  
migración  
depreca  
fragmentación

# Migratory Bird Research

## ■ Purple Martins

- Technical guidance was provided to a graduate-level class in analyzing a 72,000- record citizen science dataset of nest records
  - Are they productive in managed bird housing?

### Concern:

- entrenched in a long-term decline in population
- only nesting in provisioned housing
- strong evidence that it is mainly people over 50 providing managed housing for this species




91% of 64 "landlords" were at least 50

# Migratory Bird Research



## Nest Survival Data Confirm Managed Housing Is an Important Component to the Conservation of the Eastern Purple Martin

DANIEL RALEIGH, *Department of Natural Resources Management, Texas Tech University, Lubbock, TX 79409, USA*

JAMES D. RAY , *Consolidated Nuclear Security, LLC, Pantex Plant, P.O. Box 30020, Amarillo, TX 79210, USA*

BLAKE A. GRISHAM,<sup>1</sup> *Department of Natural Resources Management, Texas Tech University, Lubbock, TX 79409, USA*

JOE SIEGRIST, *Purple Martin Conservation Association, 301 Peninsula Drive, Erie, PA 16505, USA*

DANIEL U. GREENE, *Weyerhaeuser Company, Southern Timberlands Technology, P.O. Box 2288, Columbus, MS 39704, USA*

**ABSTRACT** The purple martin (*Progne subis*) is entrenched in a consistent, long-term decline. This is especially true for the subspecies east of the Rocky Mountains (*P. s. subis*), which today nests almost exclusively in provisioned housing (birdhouses and hollow gourds) provided by citizen scientists. One benefit of provisioned housing is reduced nest-site competition with nonnative European starlings (*Sturnus vulgaris*) and house sparrows (*Passer domesticus*) when managed by citizen scientists. Increased competition for nest



*Outreach*

# Outreach

## ■ Media coverage and social media

- Research
  - Multi-year
- Collaborations
- Outreach

The screenshot displays the Pantex website's 'Wildlife' section. It features a sidebar with links to 'wildlife | Pantex Plant', 'Pantex Blog | Pantex Plant', and 'Images of Pantex Wildlife'. The main content area includes a video player showing a man in a cap and a woman in an orange shirt talking outdoors. Below the video, there are several text-based articles: 'A look at wildlife around the Pantex Plant', 'Wildlife Management | Pantex Plant', and 'Wild Pantex - Spotlight on Wildlife | Pantex Plant'. The right sidebar contains a 'Wild Pantex - Tracking Monarchs' article dated Wednesday, April 24, 2015, 7:51 am, written by James D. Ray. The article discusses monarch butterfly tracking and the use of radar technology for monitoring. At the bottom right, there is a photo of a group of people gathered around a table outdoors, possibly at a community event or fair.

27,000 Results Any time

wildlife | Pantex Plant  
[pantex.energy.gov/wildlife](#)

Article by Jim Ray, Pantex Wildlife Biologist/Forester. Cows and very young wildlife in need of assistance. This often is a time when Pantex Wildlife Biologists, or observers, are out conducting fieldwork, or observing, or just watching the Plant, working at various job sites, or just watching.

Pantex Blog | Pantex Plant  
[https://www.pantex.com/news/blog](#)

Wild Pantex - A Field and How it Relates to Native America  
New Pantex Outing Wild Pantex - A Tribute to the Earth

Images of Pantex Wildlife  
[Images of Pantex Wildlife](#)

See more images of Pantex Wildlife

A look at wildlife around the Pantex Plant  
[https://www.energy.gov/newsroom/a-look-at-wildlife-around-the-pantex-plant](#)

Dec 10, 2015 Home - A look at wildlife around the Pantex Plant Approximately 17 miles northeast of Amarillo, Texas, sits the United States Department of Energy/National Nuclear Security Administration's (USDOE/NNSA) Pantex Plant - the primary facility for maintaining and disassembling the nation's nuclear weapons arsenal and for interim storage of plutonium components.

Wildlife Management | Pantex Plant  
[https://www.pantex.com/newsroom/wildlife-management](#)

Wildlife management at Pantex falls within the responsibility of the Environmental Stewardship Department. Program elements include habitat protection and management, wildlife protection and management, nuisance animal management, participation in regional wildlife...

Wild Pantex - Spotlight on Wildlife | Pantex Plant  
[https://www.pantex.com/newsroom/wild-pantex-spotlight-wildlife](#)

Article by Jim Ray, Pantex Wildlife Biologist/Forester. This pickup made its way slowly down the dusty two-track pasture road. We were two miles into a 24-mile spotlight survey that we had begun once it had gotten good and dark.

Pantex Home About Mission News Suppliers

Home » News » Blog » Wild Pantex - Tracking Monarchs

Wild Pantex - Tracking Monarchs

Wednesday, April 24, 2015, 7:51 am

Article by James D. Ray, Pantex Wildlife Biologist/Environmental Science Senior Specialist

In the early 1980s, I had the opportunity to affix coded tags to wings of dozens of monarch butterflies and I captured during their southward migrations. My interest in these butterflies was renewed again a few years later when Pantex Agronomist Monty Schoenhals impressed upon me to have an eye on our local milkwoods for monarch caterpillars.

As a beekeeper and a wildlife biologist, I have tuned in to increasing information that our populations of pollinators are suffering alarming rates of decline. A Presidential Memorandum issued in 2014 led to the creation of a federal strategy to promote the health of pollinators, and this was quickly filtered down to the Department of Energy-National Nuclear Security Administration Pantex Plant and other facilities within the DOE/NNSA complex.

Ecology - an area of technology that has long fascinated me - is the study of biota in the biosphere using Nex Rad Weather Radar. The science is relatively new, but is developing rapidly, and is used for studies of insects, bats, and birds. During 2010, Pantex contracted with Dr. Jeffrey D. Baskett, a professor at the University of Oklahoma, to use the Nex Rad Weather Radar for research on monarch butterflies. I felt that since radar can detect tiny insects, it could be used as a monitoring tool for the monarch butterfly. I felt that since radar can detect tiny insects, it could be used for some much needed monitoring of the monarch butterfly.

Ecology that allow researchers to differentiate the shape of their flight, and even that they are compensating for ecology can estimate body size and population numbers in a scan. Preliminary results of our study look very good. A conference in Texas, and we have submitted a paper to a conference occurring in Reno, Nevada, this fall.

concerning to all of us because of the enormous numbers. It is the hope of Pantex, the University of Oklahoma, and the University of Nevada that we will result in a valuable monitoring tool that can be used to monitor monarch butterfly populations which is located on our

# *Outreach*

- **Research**
  - Multi-year
- **Collaborations**
- **Outreach**

- **Presentations to agency, company, lay, and scientific audiences**
  - Presentations made by both Pantex and collaborators





# Outreach

- Research

- Multi-year

- Collaborations

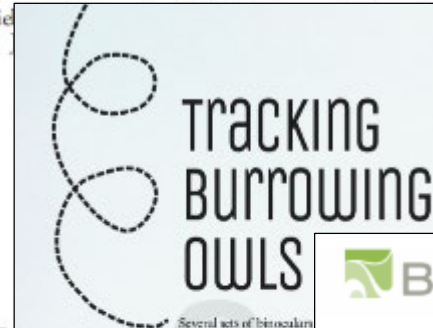
- Outreach

- Popular and Scientific Journal Articles

- Publications led by both Pantex and collaborators

Precise direct tracking and remote sensing reveal the use of forest islands as roost sites by Purple Martins during migration

Auried



JAMES D. RAY  
NANCY MCINTYRE  
MARK C. WALLACE AND  
MONTY G. SCHOENHALS\*

A burrowing owl  
perches over a sand  
dune. Although the  
species is migratory  
in its northern  
breeding range, some  
overwinter in arid

BioOne<sup>®</sup> RESEARCH  
EVOLVED

## Observations of Intraspecific Interactions of Bobcats (*Lynx rufus*) in the Southern High Plains of Texas

Author(s): James D. Ray, L

Source: The Southwestern

Published By: Southwestern

<https://doi.org/10.1894/003>

THE SOUTHWESTERN NATURALIST 55(1):50-56

SMALL MAMMALS ASSOCIATED WITH COLONIES OF BLACK-  
PRAIRIE DOGS (*CYNOMYS LUDOVICIANUS*) IN THE SOUTHERN HIG

ABSTR  
habitat use  
swallows, f  
which they  
tested the  
surrounded  
overwinter  
retrieved d  
America.

availability  
Purple Martins based on observational and radar data  
identified during spring and fall migration were no  
locations. The use of forest islands during both spring and fall migration suggest that  
these habitats to reduce predation risk during migration. Our results suggest that so

Several sets of binoculars  
bright yellow eyes of a bat  
over a mound of dirt that  
The owl likely viewed us a  
ies, but probably not as it  
hawk, or a great horned o  
ing too much about us, it  
its head and focused on a  
Strange, to the owl, was it  
was pure white, and, furth  
ity, the mouse was appare  
making any attempt to di  
covered neither

# *Outreach*

**Table 1. Numbers of presentations, popular articles, and peer-reviewed journal articles related to research conducted by Pantex and collaborators.**

	Migratory Birds	Other Wildlife	General Wildlife Research Program
<b>Presentations and Posters (Professional Audiences)</b>	12	8	3
<b>Major Published Articles</b>	15	11	2
<b>Popular Magazine Articles</b>	5	4	2
<b>Peer-Reviewed / Refereed Journal Articles</b>	10	7	-



# An Unusual Location for Student Research

HOW A NUCLEAR WEAPONS SITE FOSTERED A COLLABORATIVE WILDLIFE PROGRAM

By James D. Ray, Clint W. Boal and Richard T. Kazmaier

Approximately 17 miles northeast of Amarillo, Texas, sits the United States Department of Energy/National Nuclear Security Administration's (USDOE/NNSA) Pantex Plant — the primary facility for maintaining and disassembling the nation's nuclear weapons arsenal and for interim storage of plutonium components. In 1990, the plant site — which covers 28 square miles — had only one newly hired wildlife biologist who faced a number of high-profile, regional management and conservation issues. Now, 15 years later, many graduates from West Texas A&M University in Canyon and Texas Tech University in Lubbock have advanced into their profession carrying unique experience gained while conducting wildlife research on this highly unusual property thanks to the formation of a unique research program.

Today, this collaborative effort dictated by the needs of the Pantex site has evolved into a well-respected wildlife conservation and management program that allows local university students to study a wide variety of topics including species with special statuses or the impact of wind energy on birds and bats. In three recent years — 2012, 2013 and 2014 — their research studies helped the Pantex program be recognized as the USDOE/NNSA's winner of its single nomination for the Presidential Migratory Bird Federal Stewardship Award, an achievement that has given even greater credibility to the ongoing programs.

## Building a Collaborative Program

The Pantex facility, which sits atop the Texas Southern High Plains, employs more than 3,000 people, although most of the work is concentrated on about 3.8 square miles. Except for the developed area of the facility, the property blends into the surrounding landscape. Its representative habitats and controlled access make the site an especially desirable area for wildlife studies and in many ways a defacto nature reserve.





Learn to Identify Cormorants!

Vol. 38 No. 3, January/February 2016

# BIRD WATCHER'S DIGEST

**Far Afield:  
Hog Island,  
Maine**

**Tracking  
Burrowing Owls**

**Species Profile:  
BLUE JAY**

Display until February 29th  
\$4.99US/CAN



023

**Outstanding Popular Article**  
**Texas Chapter of The Wildlife Society**  
**2017**

JAMES D. RAY  
NANCY MCINTYRE  
MARK C. WALLACE AND  
MURTY G. SCHOTTHALE\*

*A burrowing owl  
pours over a sand  
dune, through the  
spines of a cactus,  
in its northern  
breeding range, some  
consider it a very  
rare.*

## Tracking Burrowing OWLS

Several sets of blue jays were found on the bright yellow eyes of a burrowing owl peering over a mound of dirt that marked his burrow. The owl likely viewed us as potential adversaries, but probably not as it would a mouse, a hawk, or a great horned owl. Instead of worrying too much about us, it occasionally turned its head and focused on a nearby mouse. Strangely, to the owl, was the fact that the mouse was pure white, and, further piquing its curiosity, the mouse was apparently not afraid our making any attempt to distance itself from the feathered predator.

Moonlight, the temperature overcast, the owl had "flipped into the air" and made a grab at its quarry. Much to the owl's surprise, its feet became entangled in an invisible web. Soon, we made our way to the captured owl, secured it, and carefully slipped its talons from the nooses of fishing line that constituted a caged mouse into an effective trap.

That was in spring 2003, and this capture

marked the beginning of several years of our research on the species. Over the next four years, we studied the ecology of the western burrowing owl, whose scientific name, *Adamsia owls*, is a tribute to the owl's "wise" one who dwells under the earth.

Oddly enough, our focus was on one of the most unlikely of places—the primary facility for maintenance and dismantling of the nation's nuclear weapons arsenal. The Pantex Plant, a facility within the U.S. Department of Energy/National Nuclear Security Administration complex, encompasses an area of more

than 18,000 acres. The operational area of the plant is surrounded by native shrubs, prairie, prairie dog colonies, playas, natural fields, and grasslands enrolled in the Conservation Reserve Program, a landscape representative of the southern High Plains, making it a desirable research site. Other study sites were located on the south to the southern High Plains, involving prairie dog colonies on the outskirts of Lubbock.

Western burrowing owls breed from southwestern Canada through the Great Plains into the Texas Panhandle. They are migratory and leave northern



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*Academic journal article • Journal of Ornithology • Bird Watcher's Digest*

breeding grounds to overwinter in the southwestern United States, along the Texas Gulf Coast, and down into Mexico. Consequently, Texans may see burrowing owls

the decline of prairie dog colonies and, thus, in burrowing owl populations.

The owls do not dig their own burrows; they rely on holes dug

larger set of unique attributes to increase readability when viewed through a spotting scope.

Our graduate students would eventually capture and band 177

birds—the researchers know when and where the bird was banded and when it was digital after that. At other times, the location of the animal is unknown. The owl's call, a whistle, is a series of

# ***Pantex/USDOE-NNSA Conservation Reach***





# ***Pantex/USDOE-NNSA Conservation Reach***





# ***Accomplishment for USDOE-NNSA***

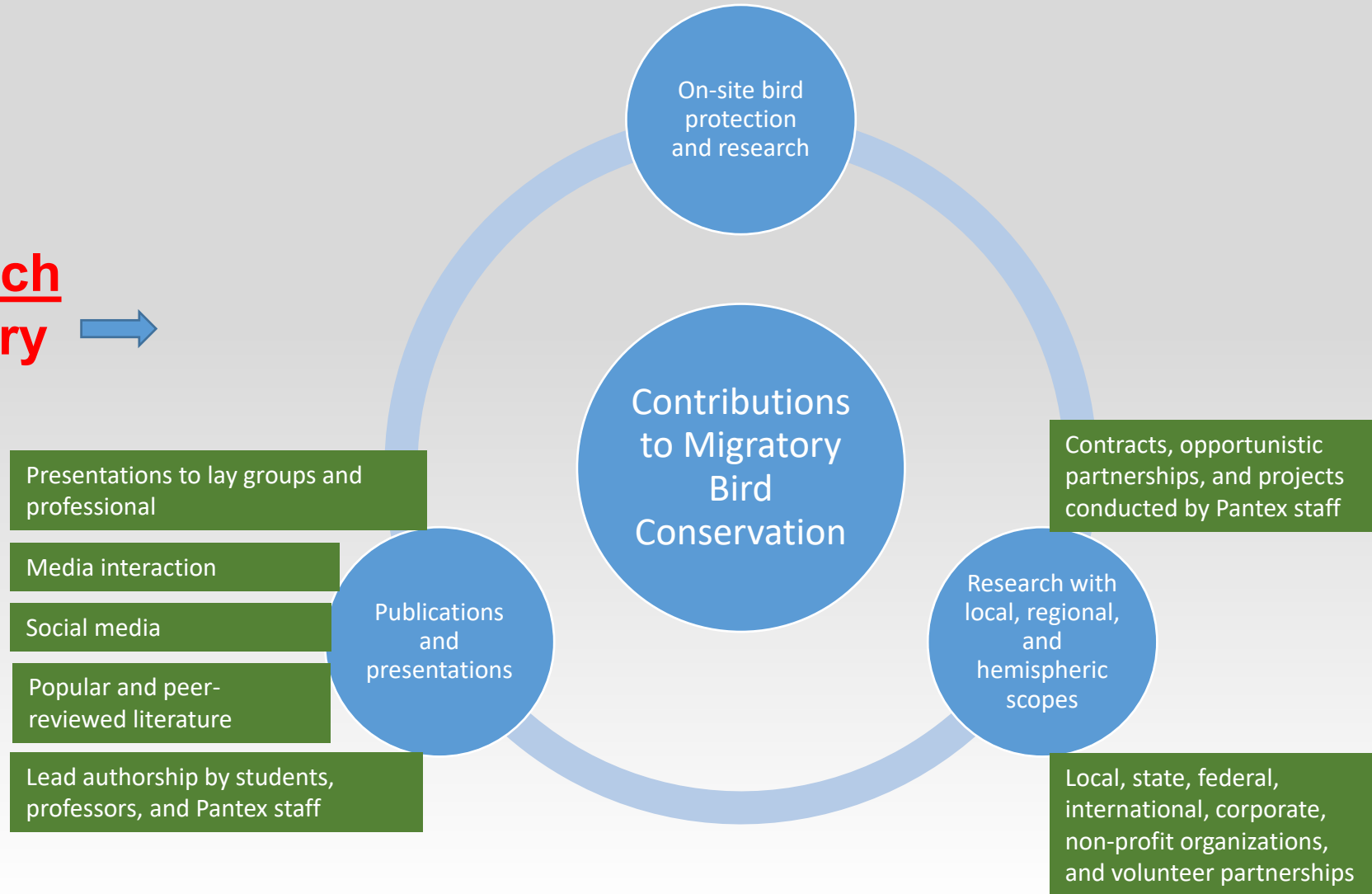
- **2019 Presidential Migratory Bird Federal Stewardship Award**

**Pantex/USDOE- A Multi-Dimensional Approach to Contributing to Migratory Bird Conservation Across Hemispheres**



# ***Accomplishment for USDOE-NNSA***

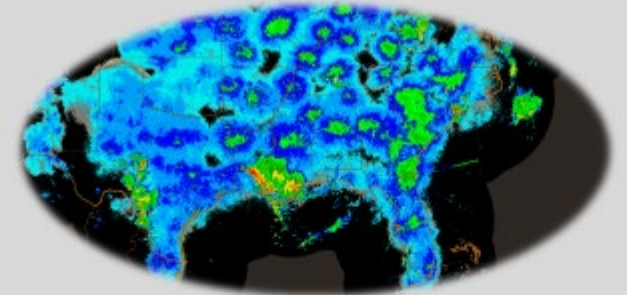
**Pantex/USDOE- A  
Multi-Dimensional Approach  
to Contributing to Migratory  
Bird Conservation Across  
Hemispheres**



# ***Accomplishment for USDOE-NNSA***

- **Presidential Memorandum - Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators (2014)**

**Migratory Bird Model** Applied to pollinator research 



## **Evaluation of NEXRAD Radar as a Tool for Monitoring Monarch Butterflies**

James D. Ray, Consolidated Nuclear Security, LLC, U. S. Department of Energy-National Nuclear Security Administration Pantex Plant, Amarillo, TX 79120, USA

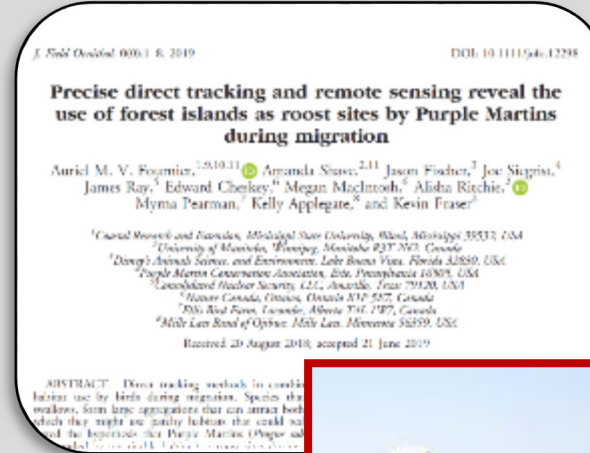
Phillip Stepanian, Plains Institute, University of Oklahoma, Norman, OK 73072, USA

Jeffrey Kelly, Plains Institute, University of Oklahoma, Norman, OK 73072, USA



# *Sustainability – Credibility is Key*

- Think no further than Rocky Flats
  - Perception is reality
- Positive wildlife press, awards, presentations, etc. helps all environmental programs
  - Citizens
  - Agencies
  - Media
  - Etc.



Rocky Flats (Colorado)

# Watkins issues Rocky Flats death blow

But key production building  
to be restarted, stay on standby

By GREGORY TODD

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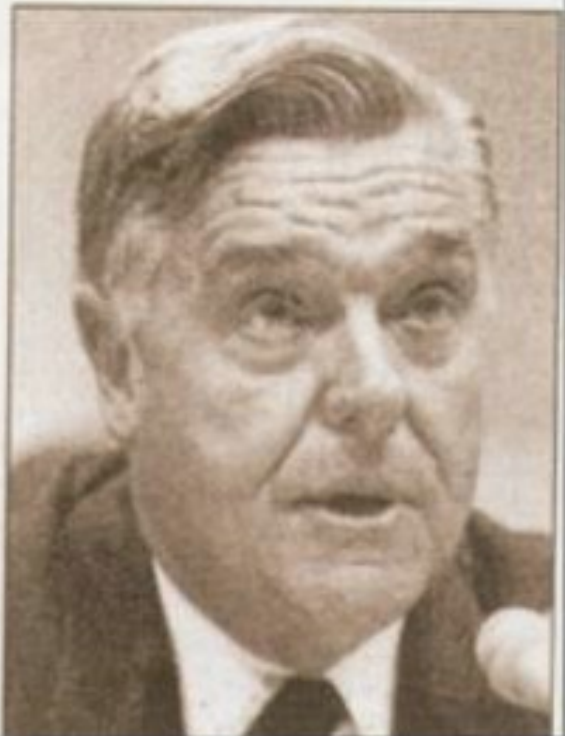
July 30, 1995  
Front Page  
By Gregory Todd

## WILL THE PLUTONIUM EVER GO AWAY?

Rocky Flats plutonium production building will be restarted, but it will be remain on

"Plutonium  
manufacturing at Rocky  
Flats is now  
terminated."

— U.S. Energy Secretary James Watkins



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Local headlines since the late 1970s reflect how local communities – who once fought over the location of a nuclear weapons facility – now pressured the government to remove it. Watkins' announcement made front-page news on January 30, 1992. By July 30, 1995, frustration with the length of time it was taking to dismantle it put Rocky Flats in the headlines once again.



Rocky Flats (Colorado)

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But key production building  
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By GREGORY TODD

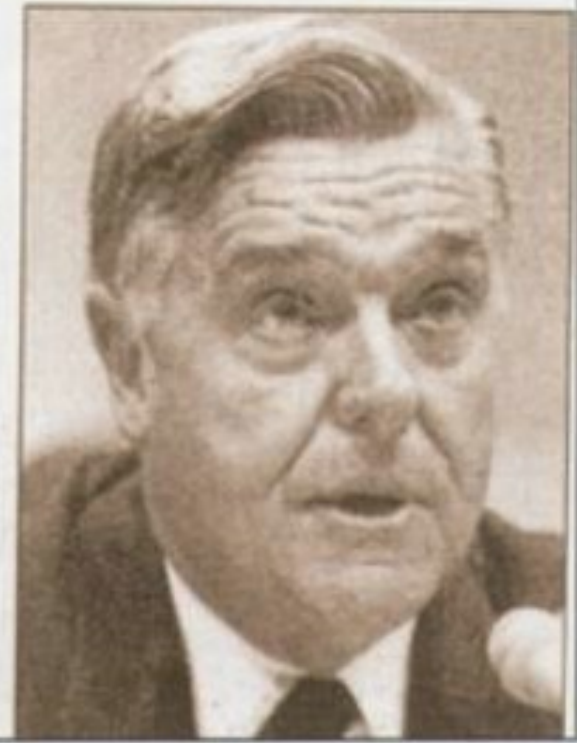
There is none

Sunday Camera

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1989 – Raid by FBI

1992 – Death Blow



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- **Dr. Bridget Stutchbury and students, York University (Canada)**
- **Dr. Kevin Fraser and students, University of Manitoba (Canada)**
- **Monty Schoenhals and Pantex Management, Consolidated Nuclear Security (Contractor of the Department of Energy)**
- **Many private landowners and volunteers**
- **Beverly Whitehead and Josh Silverman, U.S. Department of Energy**



The End

Photo by D. Clark





#### **DISCLAIMER**

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