

FY 2003 SECRETARY OF DEFENSE ENVIRONMENTAL AWARDS PROGRAM

**NATURAL RESOURCES CONSERVATION—  
SMALL INSTALLATION**

**NEWPORT CHEMICAL DEPOT**



# FY 2003 SECRETARY OF DEFENSE ENVIRONMENTAL AWARD NATURAL RESOURCES CONSERVATION: SMALL INSTALLATION

## INTRODUCTION

Newport Chemical Depot's (NECD) mission is as follows:

- Ensuring continued safe and secure storage of nerve agent VX.
- Enacting measures for the implementation of the Chemical Treaty Compliance Program.
- Supporting the construction and operation of the Chemical Stockpile Disposal Program for nerve agent VX.
- Administering the Chemical Stockpile Emergency Preparedness Program.
- Maintaining required plant facilities.
- Training soldiers.
- Maintaining environmental compliance with State and Federal laws.

Established in 1941, NECD is a government-owned, contractor- operated facility under the administration of the **U.S. Army Chemical Materials Agency** and the **U.S. Army Installation Management Agency – Northwest Region**. LTC Joseph F. Marquart serves as Depot Commander and Contracting Officer's Representative (COR), assisted by a Civil Service staff. **Mason & Hanger Corporation** (a **Day & Zimmermann** company) has been the operating contractor for the Depot since 1986. Tenants include the **Tennessee Valley Authority** (Non-Stockpile Project for the Disposal of Chemical Agent Manufacturing Facilities), **Program Manager for Alternative Technologies and Approaches** (PMATA) consisting of Parsons Infrastructure and a Government Team (Newport Chemical Agent Disposal Facility (NECDF) Support Project), and the **U.S. Coast Guard** (LORAN-C Station). In addition, NECD has coordinated with several National Guard Reserve Units that have rotated through NECD as the **Chemical Site Defense Force** required since 2001.

NECD is located in west central Indiana, 70 miles west of Indianapolis. The land base is divided into the following uses:

<u>Land Use</u>	<u>Acres</u>
Improved Grounds.....	72.75
Semi-Improved Grounds.....	785.50
Misc. Wildlife Areas.....	762.01
Agricultural Leases; crop/hay.....	2,871.20
Agricultural Leases; grazing.....	62.00
Forests.....	2,075.60
Prairie Restoration.....	255.40
<u>Wetlands.....</u>	<u>213.20</u>
 Total.....	 7,097.66

The unimproved grounds are managed for multiple-uses which include agriculture, wildlife habitat, wetlands, timber, hunting and other outdoor recreation activities.

NECD is in a unique area of west central Indiana, in terms of local natural features. NECD is located between two natural regions once common to the west central Indiana climate – the Grand Prairie and the Central Till Plain. The Grand Prairie is characterized by its dark and fertile soils and the Central Till Plain is known for its nearly flat to gently rolling landscape.

The Depot lies along the borders of the Entrenched Valley section, which is a part of the Central Till Plain and the Grand Prairie. The Wabash River dominates the area where these regions meet; however, the boundary is not well defined, but rather a mosaic of bluestem prairie and oak-hickory forest. This edge effect has increased the diversity of flora and fauna at NECD. Unfortunately, since the invention of the steel plow, no undisturbed remnants of the original 1,900 acres of NECD's pre-settlement Grand Prairie remains.

Less than one-half of 1% of Indiana's original prairie remains. In recognition of the Grand Prairie's importance to Indiana's history – and more specifically, the ecology of NECD – we are successfully restoring a portion of NECD to pre-settlement prairie conditions through a series of prairie restoration projects begun in 1994. Continued support to our prairie restoration projects will result in the restoration of one of the largest tracts of tall-grass prairie in Indiana.

NECD has completed surveys of 2,619 acres in which 262 archaeological sites have been identified. These sites consisted mainly of hunting and gathering areas. No known Native American villages or burial grounds are located at NECD. Sixteen of the archaeological sites have been identified as potentially eligible for the National Register of Historic Places.

## **BACKGROUND**

NECD's Integrated Natural Resources Management Plan (INRMP) was implemented in 1991 and revised in 2001. Cooperators that support the INRMP include: U.S. Fish & Wildlife Service, Vermillion County Soil & Water Conservation District, U.S. Army Corps of Engineers and the Indiana Department of Natural Resources.

The COR's Chief Engineer oversees natural resource issues with both the U.S. Army Chemical Materials Agency and the U.S. Army Installation Management Agency – Northwest Region. The Natural Resources Management Program is implemented through Mason & Hanger Corporations Natural Resources Administrator. A Natural Resources Conservation and Beautification Subcommittee meets quarterly to address natural resources issues.

## PROGRAM SUMMARY

The overall goal for the NECD Natural Resources Management Program is to maintain ecosystem viability and to ensure the sustainability of military lands. The following objectives have been established to achieve this goal:

- Implement a natural resources management program that reflects the principles of ecosystem management.
- Use adaptive management techniques based on increased knowledge and data gained from monitoring programs and scientific literature.
- Seek to maintain or increase biodiversity of native species.
- Ensure protection of Federally listed threatened and endangered species and species of special concern and undertake management measures that support conservation and recovery of these species. Implement similar measures for state-listed species to the fullest extent possible, consistent with the military mission.
- Prevent the degradation of water quality.
- Protect aquatic and riparian habitat and identify and restore degraded habitats when practical.
- Manage forest resources in a sustainable fashion that maintains both the military mission and ecological functions and values.
- Protect forest resources from unacceptable losses to damage agents and degradation resulting from insects and disease, invasive species, and wildfire.
- Manage soil resources in a sustainable manner and protect soils from erosion and destabilization through preventative and restoration efforts.
- Protect and preserve cultural resources in accordance with all Federal laws.
- Protect unique plant species identified as rare statewide or locally, but without legal protection status, to the extent practical without restricting key mission operations.
- Protect sensitive and ecologically significant habitats.
- Manage wildlife and fisheries resources within the principles and guidelines of ecosystem management to maintain productive habitats and viable populations of native species.
- Provide outdoor recreational opportunities to the extent that they do not conflict with the military mission or compromise environmental values.
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- Make a positive contribution to local conservation efforts and the community by participating in educational opportunities and providing information on issues affecting NECD and the region.

The degree of attainment of these objectives will be described in the remainder of this nomination.



The most outstanding program features over the past three years are as follows:

- An Agricultural Out-leasing Program that generated more than \$1.4 million in cash rent total. The cash rent per acre, for NECD agricultural tracts, always significantly exceeds the average cash rent for top quality private farmland in Indiana. This is due to the fact that the prairie soils slowly developed the richest legacy of black soil known to man. Ironically, the very richness of these prairie soils was their greatest liability, as the richest prairies became the most bountiful of croplands. Best management practices that we implement include: restrictions on plowing (for soil conservation benefits), requiring crop rotation to reduce pesticide usage, and planting conservation buffers for Indiana Bat conservation.
- A Forest Management Program that planted 60.3 acres of marginal farm land to native hardwoods. We incorporated cover crop planting into our reforestation areas in order to conserve soil and provide wildlife habitat while the trees mature.
- A Deer Hunting Program that provided recreation of nearly 400 days and a harvest of 74 deer, despite that no hunting was allowed in FY 02 due to the security concerns after the September 11 terrorist attacks.

- A Native Tallgrass Prairie Restoration Program that planted 128.8 acres (increasing the total Prairie Restoration to 255 acres) of native grasses and forbs in an area identified as pre-settlement prairie. By planting a mix of more than 40 native prairie plant species (that were originally plowed under before Army ownership), NECD has significantly enhanced its biodiversity.



Restored Tallgrass Prairie



A successful Archery Hunt

- An Outdoor Recreation Program that provided thousands of hours of wildlife watching, shed antler and mushroom hunting, nut and berry picking, and bicycling, walking and jogging opportunities for employees.

## ACCOMPLISHMENTS

### Overall Conservation Management

NECD practices multiple-use integration of forestry, outdoor recreation, fish and wildlife, agricultural out-leasing, cultural resources, pest control, aesthetics and endangered species management. All of the aforementioned concerns usually interact with one another in some way. Therefore, a holistic approach is required on all natural resources projects to maximize the effects of ecosystem management. For instance when trees are planted multiple benefits of erosion control, timber production, wildlife habitat improvement, and aesthetics are seen. Whereas, when native prairie species are planted multiple benefits of erosion control, wildlife habitat improvement and aesthetics are also observed.

The state endangered Henslow's Sparrow found a grazing tract to be suitable habitat. This prompted NECD to change the date for allowing cattle to graze in order to allow the Henslow's Sparrow to be able to fledge a brood. In addition, a former industrial pond has proved to be a good home for the State endangered Virginia Rail.

Other areas of the Depot provide suitable habitat for transient State endangered species, such as Osprey, American Bald Eagle, Sandhill Crane, Upland Sandpiper and breeding habitat for the State Endangered Sedge Wren. Three other State bird species of special concern can also be found here.

Outdoor recreation enthusiasts can participate in a variety of activities in conjunction with various other programs. We have integrated deer, small game, and turkey hunting, mushroom hunting, berry and nut picking, shed antler hunting, wildlife watching, walking, jogging, and bicycling into our Natural Resources Management Program. The mix of wetlands, forests, cultivated fields and grasslands provide a tremendous amount of biodiversity for the nature buff.

NECD recognizes that some activities are not compatible. These activities require additional coordination with a variety of agencies and organizations. When timber is harvested and other ground disturbing activities are proposed, the Indiana Department of Historic Preservation and Archaeology is consulted to ensure compliance with the National Historic Preservation Act. NECD also coordinates agricultural drainage projects with the Natural Resources Conservation Service and Farm Services Agency to ensure compliance with the Clean Water Act and the Food Security Act, respectively.

NECD consults with the U.S. Fish and Wildlife Service concerning Federally endangered and threatened species to ensure compliance with the Endangered Species Act. In addition, the Indiana Department of Natural Resources is consulted concerning the State's endangered species, our annual deer harvest, and other concerns as needed. Finally, all of NECD's projects are completed in accordance with the National Environmental Policy Act.

NECD budgets agricultural reimbursable funds to complete natural resources projects in accordance with the Military Construction Authorization Act. Some of these funds are used for tree planting and prairie restoration to improve wildlife habitats. In order to continue baseline studies of the fauna at NECD several projects have been in progress during the last three years, including:

- *Ectoparasites of Small Mammals from the Newport Chemical Depot, Vermillion County, Indiana*, (published in the Northeastern Naturalist) documented 32 new ectoparasitic host records for Indiana, of which 16 were new records for respective hosts throughout their entire range. This study complimented *Mammals of the Newport Chemical Depot, Vermillion County, Indiana* (previously published in the Proceedings of the Indiana Academy of Science) which documented 33 species of mammals, including the Federally endangered Indiana Bat and the State species of special concern, the Western Harvest Mouse, that inhabit NECD.
- *Monitoring of Avian Productivity and Survivorship (MAPS) at the Newport Chemical Depot, Vermillion County, Indiana* field work and reports were completed for the 2001 breeding season. This continued the MAPS station work started in 1997, 1999 and 2000.

- The *Wetland Inventory for Newport Chemical Depot, Vermillion County, Indiana* (U.S. Fish and Wildlife Service) documented 213 acres of wetlands.
- The *Rapid Biological Assessment of Aquatic Macroinvertebrate Communities in Little Raccoon Creek, Newport Chemical Depot, Newport, Indiana* was completed in 2001.
- *Wintering Bald Eagles Along the Wabash River in West Central Indiana* (Indiana Division of Fish and Wildlife and Indiana University – Purdue University Fort Wayne) was completed in 2001.
- *A Second Season of MAPS at the Mary Gray Bird Sanctuary* (Chipper woods Bird Observatory) compared observations with NECD MAPS station for research purposes.
- In addition, NECD has cooperated with Eastern Illinois University (Seasonal Activity and Movements of Northern Long-eared Bats), West Virginia University (Evaluation of Management Options for Wild Harvested American Ginseng Populations Based on Demographic Consequences), Indiana University (A Case Study of the Winter Diet of Long-eared Owl in Western Indiana) and the Indiana Audubon Society (annual Christmas Bird Counts) to expand NECD's natural resources baseline data.

**In order to comply with the Endangered Species Act of 1973, several projects were completed as follows:**

- *A Summer Mist Net Survey for the Federally Endangered Indiana Bat (*Myotis sodalis*) at the Newport Chemical Depot, Newport, Indiana* documented the continued use of NECD for Indiana bat summer maternity colonies.
- The *Newport Chemical Depot Pre-Approved Pesticide List* was revised as required.
- In addition, annual reports concerning Indiana bat conservation efforts at NECD have been prepared for the USFWS and the Department of the Army.

## **Land Use Management**

### **Agricultural Land Use**

Drainage pipe was installed on 109 acres of leased agricultural land during the last three years. The corrugated polyethylene drainage systems control the water table, thereby reducing erosion and increasing crop production. This, in turn, increases the agricultural out-lease income that supports our Natural Resources Management Program. Conservation tillage is required on all agricultural out-leases and fall tillage is only allowed for corn stubble. In addition, 91 acres of conservation buffers were planted in grasses and clover.

These practices protect our agricultural lands from water and wind erosion and exceed the requirements of the Food Security Act restrictions for soil conservation. NECD coordinates the Agricultural Out-leasing Program with the Parke/Vermillion and Fountain County Natural Resources Conservation Service and the Farm Services Agency offices.

## **Agricultural Out-Leasing Program**

NECD's Agricultural Out-Leasing Program benefits wildlife by providing an ample food supply of corn and soybeans for deer, raccoons, mourning doves, pheasants, quail, turkey and many other fauna. In addition, our hay and grazing fields make excellent habitats for sedge wrens, dickcissels, grasshopper sparrows, turkeys and Henslow's sparrows.

## **Prairie Restoration**

NECD has planted 129 acres of native prairie during the last three years (increasing the total Prairie Restoration to 255 acres). When possible, NECD uses prescribed burning to enhance the native prairie species since they have adapted to fire over thousands of years. Prescribed burning also reduces herbicide use in prairie restoration areas because the exotic weed species usually cannot survive fire.



Prescribed Burning

## **Forest Management**

As previously mentioned, NECD reforested 60 acres of marginal farm land during the last three years. Native species planted included black walnut, red oak, shingle oak, black cherry, white ash, redbud, dogwood, pawpaw, sugar maple, black oak, tulip tree, white oak and shellbark hickory. These plantings serve multiple purposes including: timber production, erosion control, buffers for exceptionally natural areas, and the reduction of forest fragmentation for wildlife habitat – especially neotropical birds and Indiana bats. Site preparation includes planting cover crops for erosion control and quality wildlife habitat during the succession to forest. Timber harvests are not conducted on a set rotation age; instead, NECD uses uneven-aged silviculture for group selection, along with single-tree selection between groups, to maintain mixed-species, all-age stands. This increases the opportunity for biodiversity. Most recently 114,900 board foot of standing, mixed, hardwood sawtimber was sold for \$25,000.

## **Fish and Wildlife**

### ***Biodiversity of Fish and Wildlife***

The biodiversity of fish and wildlife at NECD is tremendous for west-central Indiana. Recent inventories have identified 155 bird, 32 fish, 30 herps and 33 mammal species. In addition, 422 species of vascular plants have been identified. The flora species have increased because of the ongoing planting of more than 40 native prairie species.

### ***Endangered and Threatened Species***

The Indiana bat (*Myotis sodalis*) is the only Federally listed endangered species that breeds at NECD. However, wintering Bald Eagles have occasionally been observed along the Wabash River and most recently near NECD's administration building area. NECD does not cut any trees along the banks of the Wabash, thereby preserving potential Bald Eagle habitat. The Indiana Division of Fish and Wildlife conducts an annual eagle census along the Wabash River. This census provides us with important information concerning eagle activity. Several State endangered birds have been observed at NECD. For security reasons and in order to protect Henslow's sparrow a grazing lease was cancelled. We also protect our five watch list species of flora by not allowing any plant picking or digging on NECD property.



### **Habitat Improvements**

Habitat improvements for game and non-game wildlife during the past three years include planting 60 acres of mixed hardwood seedlings with cover crops, 129 acres of native forbs and grasses, and 91 acres of conservation buffers. These plantings enhance the biodiversity of NECD. In addition, NECD maintains bluebird and purple martin houses and a Clemson Beaver Pond Leveler.

### **Hunting**

Employees were allowed to hunt deer (and the general public), turkey, squirrels, rabbits, pheasant, quail, and crows in FY 01. Prior to September 11, 2001, an annual Memorandum of Understanding with the Indiana Department of Natural Resources was agreed upon for general public deer hunting. Currently only employees are allowed to hunt due to increased security requirements.

### **Wildlife Resource Improvements**



Indiana Bat With Transmitter

Eight obsolete industrial ponds, associated with the former TNT Production Facility, as significant wildlife resources. These ponds are identified in NECD's Environmental Restoration Program and will be saved for continued wildlife use. Approximately \$644,000 was saved by sampling these sites instead of unnecessary remediation of these 8 acres. We continue to keep an old warehouse (Building 121C) in order to conserve the only locally known maternity colony of Northern Long-eared bat (*Myotis septentrionalis*) to inhabit a building. NECD has allowed Indiana State University and Eastern Illinois University to conduct research on this colony of bats.

Newport Chemical Depot has implemented innovative technologies to environmentally remediate the 4-acre TNT Burning Ground. Explosive residues and various types of explosive-contaminated solid waste were burned at the TNT Burning Ground during the mid-1970s. During 2001 and 2002, NECD, SAIC, and the US Army Corps of Engineers working in conjunction with the Indiana Department of Environmental management treated 6989 cubic yards of explosive contaminated soils using windrow composting. The contaminated soil was mixed with agricultural amendments and treated in windrows. This technology does not generate any residual hazardous waste. An additional 310,000 gallons of explosives-contaminated groundwater was treated using a Granular Activated Carbon unit. The TNT Burning Ground is being considered as an area where native prairie grasses can be planted.



Composting TNT contaminated soil

### **Outdoor Recreation**

Due to the sensitive nature of nerve agent VX stored at NECD and the associated high level of security, access for outdoor recreation is restricted. Currently only employees may hunt mushrooms and shed antlers, pick berries and nuts, watch wildlife, bicycle, and walk/jog.

### ***Conservation Education***

Deer hunters attend annual safety/security orientation meetings at NECD. During these meetings hunters are informed what is expected in order to protect themselves and NECD's natural resources. In addition, programs concerning bat education have been conducted at Rosedale Elementary School. NECD has also participated in the annual 4-H Wetlands Day held at the Cinergy's Cayuga Generating Station. International Migratory Bird Day was celebrated with bird watching tours in FY 01. Girl Scouts enjoyed seeing birds close up and even an American bald eagle near the Wabash River. Various conservation-related groups have toured NECD prior to September 11, 2001. The Natural Resources Administrator also has participated with South Vermillion High School for job shadowing.

### ***Community Relations***

Prior to September 11, 2001, NECD hosted an annual 4-H sponsored benefit horse ride for St. Jude's Children's Research Hospital, Volksmarch, and Mini-Marathon. NECD has also worked with the Vermillion County Economic Development Council and actively participated in the Open Space/Recreation Task Force concerning the future re-use of NECD. The Natural Resources Administrator also participated in South Vermillion High School's proposal for a FY 01 Indiana Department of Education High Tech Library Grant.

### ***Environmental Enhancement***

The Natural Resources Management Program has improved the quality of life for the installation and surrounding community by allowing multiple uses of the natural resources, while being a good environmental steward. Local farmers are allowed to reap an income from land that they lease; employees are allowed to participate in hunting and other outdoor recreation activities that can not be found elsewhere on public land in Vermillion County; and the wildlife base at NECD serves as a quasi-stocking area because of controlled hunting.



Scouts at International Migratory Bird Day

### ***Mission Enhancement***

The Natural Resources Management Program enhances the NECD mission by featuring positive activities rather than controversial ones like nerve agent VX disposal. In addition, natural resource inventories provide valuable information for ecological assessments being conducted as part of environmental investigation/restoration activities.

### ***Natural Resources Compliance Program***

The Natural Resources Program is in compliance with the Endangered Species Act; the Clean Water Act; Sikes Act Improvement Act; Migratory Bird Treaty Act; Fish and Wildlife Coordination Act; Food Security Act; and the National Environmental Policy Act. No natural resource notices of violation have been received. NECD receives funding from the agricultural, forestry, and fish and wildlife reimbursable accounts.

## **Conclusion**

NECD personnel have accumulated a wealth of valuable natural resource information, implemented several initiatives, including community outreach that will help to shape the environmental future of the Newport Chemical Depot.