
Fiscal Year 2005 Secretary of Defense
US Army Environmental Awards Nomination
FORT CUSTER TRAINING CENTER
MICHIGAN ARMY NATIONAL GUARD
NATURAL RESOURCES CONSERVATION
SUSTAINING
THE ENVIRONMENT
FOR A SECURE FUTURE

## INTRODUCTION

Located in southwest Michigan, Fort Custer Training Center is an Army National Guard (ARNG) installation that visibly supports the ARNG federal mission: "To maintain properly trained and equipped units, available for prompt mobilization for war, national emergency or as otherwise needed." Fort Custer consistently adapts its facilities to meet current military needs, while its civilian personnel manage a premier natural resources conservation program.

Fort Custer is managed and operated by 100 full-time employees; 25 are civilian personnel and 75 are active ARNG. Approximately 300,000 people use Fort Custer's training facilities every year; half are active military forces, and the other half are comprised of local police departments, the Michigan State Police, the Federal Bureau of Investigation, the Central Intelligence Agency and Reserve Officer Training Corps students.

Fort Custer's 7,540 acres are managed under its Integrated Natural Resources Management Plan (INRMP). The acreage is divided into a 100-acre cantonment area; 2,400 acres of semi-improved areas, including ranges and surface danger zones; and 5,000 acres of unimproved training areas.

*Whitman Lake Fen. A high quality natural area at Fort Custer featuring emergent wetland, fen and bog habitats. Photo by Daniel Zay, DLZ Michigan, Inc.*

Fort Custer boasts a unique array of natural features. The installation's natural areas include 5,000 acres of hardwood forest; 1,200 acres of wetlands and alkaline fens; 1,200 acres of open prairie lands; and 100 acres of surface water, comprised of three small lakes and six creeks whose headwaters are located on the installation. These diverse landscapes provide habitats that support an array of flora and fauna, including 26 state and two federally threatened or endangered species.

## BACKGROUND

Formally established in 2001, Fort Custer's INRMP is an active, working document that is meticulously reviewed every year and updated to reflect changing military training needs and to ensure efficient natural resources management. Fort Custer has fully implemented its INRMP and has completed all planning-level surveys to protect the installation's vital natural resources. Numerous partnerships and cooperative agreements support the INRMP; in particular, a Letter of Concurrence with the US Fish and Wildlife Service and the Michigan Department of Natural Resources has approved of Fort Custer's management of fish and wildlife since 2001. Fort Custer is additionally supported by contracts with local agencies, non-profits and universities.

> **"In southwestern Michigan, it is extremely important to protect the resources we have and to identify threats to the long-term environmental health of the region. The efforts of Fort Custer's environmental staff allow us to develop management plans that provide the best opportunity to conflicting needs of local flora and fauna."**
>
> ***- Ray Adams, Director of Research Kalamazoo Nature Center***

Fort Custer Training Center's environmental team consists of four full-time staff members: the Installation Environmental Manager, two Natural Resources Specialists and one Technician. Led by the Installation Environmental Manager, the Natural Resources Specialists focus on the management of fauna and flora and coordinate projects using global positioning system (GPS) and geographic information system (GIS) technology, while the Technician manages both installation plantings and the operation of heavy equipment. Weekly staff meetings with the post Commander and major

directorates allow close coordination of natural resources management initiatives with current military training schedules.

With funding assistance from partners, the Environmental Program regularly completes in-house projects to meet INRMP objectives, saving the ARNG thousands of dollars per year. Using outside contractors for GPS/GIS projects would normally cost between $50,000 and $100,000 per year; completing projects in-house cost Fort Custer only $10,000 in FY 2005. When 200 acres of hardwood forest were cleared between FY 2004 and FY 2005 to create a training range for new weapons, the open area was reestablished as prairie lands – a benefit to the installation's natural resources. The cost to establish these prairie lands with help from outside contractors would have been $60,000 annually, for three years, but in-house coordination cost only $8,000.

## PROGRAM SUMMARY

Fort Custer's environmental staff successfully attained all INRMP objectives during FY 2004 and FY 2005, resulting in considerable cost savings for the ARNG. Figure 1 highlights the significant efforts.

**Figure 1. Significant INRMP Achievements**

| INRMP Categories | INRMP Implementation |
|---|---|
| Sensitive Species | Fort Custer annually assesses the effects of training activities on the population of sensitive species such as the prairie vole. |
| Fish & Wildlife | Fort Custer annually conducts a two-week deer hunt to reduce the herd size and takes an annual census of neotropical bird breeding in timber cut areas and across the entire installation. |
| Forest Resources | Fort Custer manages annual timber harvest and vegetation management activities and in FY 2005, completed a survey of metal contamination of timber resources in sawtimber stands. |
| Pest Management | Fort Custer performs annual purple loosestrife control via biological agents and garlic mustard control through herbicides. |
| Fire Management | Fort Custer monitors multiple prescribed burns per year for habitat enhancement of prairie lands and forests, and to improve training lands' capabilities. |
| Soil, Water and Air Management | Fort Custer closed 52 wellheads in FY 2004 to reduce water contamination problems on the installation and conducts ongoing operations to control major erosions on roads and trails. |
| Integrated Training Area Management | Fort Custer biannually inspects high use training areas and potential problem areas for significant environmental impacts. |

## ACCOMPLISHMENTS

### Overall Conservation Management

Fort Custer's Environmental Program has implemented and maintained unique natural resources conservation projects during the achievement period and continues to advance in every area of the installation. The increased use of GIS technology has enabled Fort Custer to be more efficient in meeting INRMP goals and coordinating multiple management programs while still meeting the ARNG mission. GIS files are annually updated with information gathered from the Range and Training Land Program, which is designed to help restore areas damaged from training activities. GIS is also used to monitor flora and fauna as well as to mark progress, ensuring no adverse effects to the environment as a result of ARNG activities.

### Land Use Management

The environmental staff at Fort Custer knows that well-maintained lands are essential to natural resources management and military training. During the achievement period, Fort Custer has been extremely successful at controlling erosion on post. Under the INRMP, the staff monitors training land erosion control and performs ongoing operations to manage major erosion on roads, trails and training sites. In addition, road-creek crossings are constantly stabilized and the installation's perimeter trail for tracked vehicles is consistently repaired. Due to such efforts, approximately 100 tons of soil erosion are reduced each year. Working with the Natural Resources Conservation Service, the staff is in the process of developing short grasses for ranges and ammo bunkers, which will help to further eliminate erosion and reduce expensive lawn management.

*An environmental staff member conducts a prescribed burn in a high quality fen at Fort Custer.*

Fort Custer Training Center makes regular improvements to installation grounds, while consistently maintaining overall ecological integrity. During the achievement period, a perimeter tank trail and a 200-acre maneuver training area for track vehicles was installed; staff also constructed a new tank range with local materials, saving the installation about $750,000. During FY 2004, 52 wellheads were closed to reduce water contamination problems, and firing range berms were sifted for lead to reduce the impact on local surface water.

Fort Custer Training Center is home to five globally rare or threatened natural community types. The environmental staff will continue to implement an aggressive management plan to restore and enhance all of these areas. By using prescribed fire (over 1,000 acres were burned in 2005), habitats are preserved for species such as the federally endangered Karner blue butterfly and state-endangered prairie vole. Areas containing species of concern, such as stiff goldenrod and prairie orchids, are managed by the High Quality Natural Community Management Program, instituted by the environmental staff. Currently, these areas comprise approximately 578 acres.

**Forest Management**

Fort Custer has successfully implemented a comprehensive forest management plan, which is based on the installation's INRMP. In 2000, Fort Custer began a forest fragmentation study that would later influence INRMP plans for timber harvests and habitat management for neotropical breeding birds. The fragmentation study used Landsat Imagery and other remote sensing products to assess the continuity of Fort Custer's closed-canopy mature forest conditions.

Fort Custer annually monitors a timber harvest of approximately 150,000 board feet. The timber is sold, yielding significant revenues that are, in part, given to local school districts, counties and environmental partners. Over the past three years, approximately $500,000 was raised through the forest harvest and sale program. Fort Custer Training Center employs forest management practices to enhance riparian buffers and uses salvaged timber to improve the installation's perimeter roads. Fort Custer's Environmental Program finds innovative ways to save funds on a yearly basis; for example, the program saves $20,000 by conducting in-house tree transplantations and managing a native seed harvest.

> **"A well-run base from both military and environmental standpoints, Fort Custer is an absolutely essential military training area and natural area for neotropical migrating birds."**
>
> ***- Jim Coury, Regional Coordinator***
> ***Resource Conservation & Development Council***
> ***US Department of Agriculture***

**Fish and Wildlife Management**

The environmental staff effectively monitors the installation's wildlife populations, including 11 state threatened or endangered species (trumpeter swan, prairie vole, Blanchard's cricket frog, Blanding's turtle, cerulean warbler, hooded warbler, Cooper's hawk, Eastern box turtle, pugnose shiner, Sprague's pygarctia and watercress snail); and two federally threatened or endangered species (bald eagle and Indiana bat). Various monitoring techniques are used to track these species; for example, the Eastern box turtle is tracked using GPS/GIS and embedded telemetry chips, and mistnetting with acoustic profiling is used to track the Indiana bat. Whitetail deer, although not threatened or endangered, are tracked using radio telemetry due to the large population size and subsequent effect on the installation's natural communities.

*Cerulean warbler netted at Fort Custer. Photo by Brian Nelson, Kalamazoo Nature Center.*

Partnerships with the US Forest Service, US Department of Agriculture, Natural Resources Conservation Service, county conservation districts

and local universities aid in Fort Custer's successful wildlife management program. The installation is particularly known for successfully managing a large population of neotropical migratory birds. The environmental staff conducts a yearly nest predation study of cerulean warbler, hooded warbler, acadian flycatcher and woodthrush. Additionally, annual bird counts have identified approximately 50 other neotropical migrants, as well as 20 short distance migrants and 30 resident species. Fort Custer is currently monitoring long-term avian population changes on the installation; in partnership with researchers from Kalamazoo Nature Center, Fort Custer hopes to identify factors affecting the productivity of birds nesting on installation lands. By utilizing these stakeholder resources, the Environmental Program saves the installation $50,000 every year.

**Invasive Species Control and Pest Management**

Pest management at Fort Custer is intimately linked to the installation's INRMP. The Environmental Program regularly conducts herbicide treatments and prescribed burns to effectively manage the installation's invasive species, and is currently experimenting with various integrated pest management techniques to control species such as purple loosestrife.

Fort Custer's most impressive act of invasive species control and pest management during the achievement period was the leveraging of partner funding to participate in a regional invasive species hyper spectral remote sensing flyover during FY 2005. The technology used in the flyover allowed the environmental staff to accurately discriminate between purple loosestrife and other vegetative species. Relying on partnerships and in-house expertise, Fort Custer staff managed to spend only $3,000 for a project that would have cost $90,000 had they done it on their own through the use of contractors.

**Other Natural Resources**

Several recreational activities on the installation such as bird-watching and hunting are available to the general public. Bird-watchers take full advantage of Fort Custer's neotropical bird populations, participating in annual bird counts such as the nationally known Christmas Bird Count and other events.

*The Fort Custer deer hunt includes hunting opportunities for disabled hunters. Photo by Jonathon Edgerly, Fort Custer.*

Annual hunts at Fort Custer are quite large, and their goal is to reduce the whitetail deer population. Over 1,200 hunters participate in the hunts. Hunting events are geared towards youth, disabled veterans and the public. Partners supporting annual hunts at Fort Custer include Whitetails Unlimited and Paralyzed Veterans of America.

**Conservation Education**

Fort Custer recognizes that education is a key component to successful natural resources management. During the achievement period, the installation hosted both regional and state Envirothon competitions, which test high school students in six environmental areas and include a public service project. Fort Custer has an active partnership with local schools to maintain a native seed inventory and has held Environmental Field Days for at-risk students attending the Michigan Youth Challenge Academy.

For the general public, staff members lead native plant identification tours, as well as general tours highlighting various natural resources conservation initiatives. Groups like the Michigan Prescribed Fire Council and the Wild Ones of Calhoun County have participated in regional cooperation/education activities on post that have highlighted conservation techniques. Fort Custer also partnered with the National Wildlife Turkey Federation starting in FY 2003 to sponsor young hunter safety classes, in preparation for the annual turkey hunt.

**Community Relations**

Stakeholder interaction, community outreach and partnerships drive natural resources conservation

at Fort Custer. Fort Custer partnered with more than 20 organizations during the achievement period. Fort Custer participated in National Public Lands Day during FY 2004 and FY 2005; and with Legacy Grant support for the third year in a row, worked on small conservation projects geared towards involving the general public. Using only volunteers and donations, the installation provided improvements in FY 2005 to a pavilion (adding an outhouse, a parking area, a stone grill and a storage shed) to provide space for Soldiers and the public to enjoy the natural resources of Fort Custer Training Center.

**Environmental Enhancement**

The successful management of natural resources has increased environmental quality at Fort Custer and the quality of life in surrounding communities. Fort Custer is remarkable because it has been able to preserve its unique, high-quality natural areas in a highly industrial and commercialized area, a feat that requires partner collaboration and excellent oversight by management. Fort Custer is considered to be the third largest, contiguous undeveloped area in southwest Michigan, and the Environmental Program strives to continually maintain that status.

*Mott Road Prairie at Fort Custer one day post brush control treatment. Photo by Michele Richards, Fort Custer.*

*Mott Road Prairie at Fort Custer five months post brush control project. Photo by Daniel Zay, DLZ Michigan, Inc.*

**Mission Enhancement**

The Environmental Program at Fort Custer ensures that natural resources conservation activities are dedicated to maintaining and enhancing training lands, so that military training continues unimpeded at this critical installation. Fort Custer continues its record of no Notices of Violation for the past 22 years, which keeps regulatory threats to training at a minimum. Management practices such as erosion control allow for vehicle movement training and Soldier preparation. Through constant collaboration between the Program staff, trainers and range personnel, Fort Custer Training Center is able to meet the ARNG mission.

## CONCLUSION

The Environmental Program at Fort Custer is a recognized ARNG leader in the area of natural resources conservation. The environmental staff successfully implements sound management practices under the installation's INRMP. Other installations can learn valuable lessons from natural resources conservation initiatives implemented at Fort Custer Training Center through information-sharing via quarterly training center newsletters, training programs frequently offered onsite, presentations at national conferences and regional organization participation. Fort Custer continually shares its successes – particularly with regard to prairie restoration, erosion control and invasive species control – so that other ARNG installations may benefit from lessons learned at Fort Custer. The Environmental Program at Fort Custer is an icon that balances the need to prepare Soldiers to fight in our nation's wars with the never-ending quest to conserve our natural resources.

> **"Fort Custer Training Center continually demonstrates how a military training base can serve as a 'laboratory' for exploring, testing and evaluating alternatives for environmental management."**
>
> ***-Dr. Katherine Gross, Director W. K. Kellogg Biological Station Michigan State University***

*On the cover: Second-year male cerulean warbler netted at Fort Custer. Photo by Brian Nelson, Kalamazoo Nature Center.*