

FY 2011 Secretary of Defense ENVIRONMENTAL AWARDS

319 CES/CEAN, Grand Forks Air Force Base / Natural Resources Conservation – Small Installation

INTRODUCTION

The 319th Air Base Wing at Grand Forks Air Force Base

- Provides base operating and direct operational support to wing personnel, three tenant units and nine Geographically Separated Units (GSU's)
- Trains, deploys, and redeploys over 1,300 Airmen in support of Air Expeditionary Force and combatant commander requirements
- Provides facilities and equipment support for the department of Homeland Security, Customs and Border Protection, and the 69th Reconnaissance Group
- Provides logistics, medical, civil engineer, contracting, communications, security and force support functions as well as facilities/equipment valued at \$2.2B and executes a budget of \$48M.

Grand Forks AFB occupies approximately 5,773 acres of land in Grand Forks County, North Dakota to include GSU's and easements. The component acreage under the natural resources program includes 1,309 improved, 1,243 semi-improved and 3,221 unimproved acres. Specifically Grand Forks AFB is host to 417 wetland acres, 32 riparian hardwood forest acres, 145 shelterbelt acres, 664 agricultural outleasing acres, 1,045 approved hunting ground acres, one-half mile of river and 2,100 acres of grassland. A total of 365 plant species have been identified as occurring on the installation with four of them identified as species of concern. In particular two orchids, the yellow and white lady slippers exhibit healthy populations on 27 acres. A total of 229 bird species have been identified on installation, 64 of those are identified as species of concern with a subset of 15 bird species considered high priority for natural resources management. Most of the 15 high priority species identified are grassland birds. The 60 acre base Prairie View Nature Preserve is a significant botanical feature of the natural resources program and includes a restored native prairie, arboretum, butterfly garden, nature trails, six interpretive trail signs and bluebird nesting structures.

BACKGROUND

The most recent Integrated Natural Resources Management Plan (INRMP) was approved and updated on 2 Nov 2011. The 319th Civil Engineer Squadron, Asset Management Flight, Environmental Element is responsible for development and implementation of the natural resources management program for the Wing Commander. The Environmental Element has an appointed staff of five with one member designated to manage the natural and cultural resources program. The Grand Forks AFB Environmental Management System (EMS) includes provisions to protect and conserve natural resources. The INRMP supports all facets of the EMS program. Protection of natural resources is listed in multiple INRMP goals such as protection of biodiversity in grasslands, species of concern and wetlands. Protection of natural resources is implemented through the INRMP via avoidance and minimization in project review, the Environmental Impact Analysis Process (EIAP) and compliance through permitting mission requirements when needed. Community awareness is a critical element of the natural resources program as demonstrated by the participation in several educational outreach events to include Arbor Day, Earth Day, Month of the Young Child, National Public Lands Day and America Recycles day. The Prairie View Nature Preserve serves as a living classroom and enriches community awareness of the environment through hands-on experience. Within the EMS framework natural resources helps sustain the military mission by managing habitats to provide ground training resources and to support airfield requirements. EMS provides the framework for restoration and conservation projects, and the INRMP provides and implements a robust program that specifically restores native prairie lands.

The natural resources program personnel serve on several committees or boards that influence conservation management. The overarching Environmental, Safety and Occupational Health Council ultimately approves the INRMP with associated goals, objectives and implements project management. In addition, annual engagement with North Dakota State Fish and Game Department and the US Fish and Wildlife Service promote a common understanding of installation INRMP project initiatives. The natural resources program is also represented on the Cross-Functional Team, Unit Environmental Coordinator program, Airfield Operations Board, Facilities Board, Architectural Compatibility Review Board, Bird Hazard Working Group and the Tree City USA Board. The natural resources program continually works to reduce impacts to resources, protect species of concern and associated habitats and support mission sustainment on each of these boards.

PROGRAM SUMMARY

Grand Forks AFB's most outstanding environmental feature is the 2000 acres of native prairie land. During FY10/11, native prairie restoration was completed on 200 acres to support INRMP project goals and objectives. Grassland birds are on the high priority list for INRMP management of species of concern and are positively affected by efforts to restore/enhance prairie, a greatly diminished wildlife habitat. Reassignment of semi-improved and improved grounds to unimproved or prairie areas reduce grounds maintenance costs, provide habitat, expand opportunities for agricultural outleasing and meet Bird/Wildlife Aircraft Strike Hazard (BASH) needs to control airfield vegetation thereby meeting INRMP targets. Invasive/noxious weeds on installation grasslands are managed by implementing prairie restoration projects, using fire and herbicide control, and reseeding damaged areas to native species. Other INRMP objectives include managing the white-tail deer population via a deer archery program. In addition to offering a recreational opportunity, the program also supports the mission by reducing the number of BASH incidents. Natural resources programmatic review of construction and repair projects, community planning efforts, the EIAP, EMS and review boards are all means by which wetlands and species of concern are protected. Urban forestry management practices support INRMP objectives to increase tree canopy biodiversity, provide shelterbelt management, protect against biological threats, monitor condition, and use technology to map, plan, and maintain conservation resources. Educational outreach is ongoing through the INRMP program capitalizing on Earth Day, Arbor Day, and similar events.



The Prairie Wildflower Restoration project was an initiative to add to the beauty of Grand Forks AFB. Not only was this work done within the boundaries of the installation, but it was done outside of the fence line. A benefit of the project was that it reduced the maintenance costs for the base since the required amount of mowing was reduced.

ACCOMPLISHMENTS

PRAIRIE RESTORATION AND GROUNDS MAINTENANCE

During FY10/11, native prairie restoration efforts were completed on 200 acres across the installation with \$120K funds allocated by planning, programming and budgeting in the INRMP increasing total restored areas to 442 acres. By using native prairie grasses, grounds maintenance contract costs associated with mowing unimproved and/or semi-improved grounds were avoided resulting in a cost savings of \$25K annually. A "no mow" policy on grasslands until after July 15th was approved in the INRMP and recommended by the USFWS and NDGFD to protect migratory and grassland nesting birds.

Native prairie restoration efforts focused on prescribed burning, chemical treatment and inter-seeding in applicable areas. The use of over 50 plant species enhanced grassland biodiversity on the installation and helped to improve habitat for several grassland wildlife species. Areas infested with noxious and invasive weeds were targeted for restoration efforts to provide weed control. Restoration methods were improved to eliminate heavy disking and overturning the soil to promote a more sustainable and environmentally friendly technique and reduce opportunities for noxious/invasive plants to colonize. A prescribed-burn was conducted on 40 acres during the achievement period and 55 acres were interseeded.

Part of the expanded hay lease includes 179 acres of restored native prairie, which is marketed as "wild hay", and provides excellent habitat for wildlife. Maintenance is provided by a hay lease and is revenue building. Land use regulations, developed by the natural resources staff, were added as an exhibit to the hay lease to protect natural resources from erosion, provide best management practices and it also mandates invasive and noxious species control.



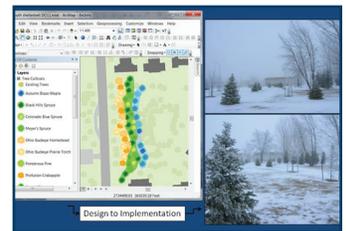
Conducting a prescribed burn at Prairie View Nature Preserve to remove built up detritus, reduce noxious weeds, remove cool-season exotic plants and favor warm-season native prairie species seeded during restoration.

The natural resources program revitalized agricultural outleasing to 664 total acres, including an expanded hay lease. Part of the expanded hay lease includes 179 acres of restored native prairie, which is marketed as “wild hay”, and provides excellent habitat for wildlife. Maintenance is provided by the hay lease and is revenue building. Land use regulations to protect natural resources from erosion, provide for the use of best management practices and require control of invasive and noxious species were developed by the natural resources staff and added as an exhibit to the hay lease.

Natural resources staff networked with base operational managers to expand the INRMP grassland restoration program into their professional reach of responsibilities. New wildflower and prairie meadows totaling 15 acres were installed at the golf course, static display, and family camping area, which enhanced community aesthetics and offered excellent pollinator habitat for butterflies and bees.

URBAN FORESTRY AND BENEFICIAL LANDSCAPING

Over the last year a number of INRMP urban forestry projects enhanced beneficial landscaping at the installation. These projects provide community aesthetics, increase wildlife habitat and biodiversity, and support civil works operations. In addition, they fulfilled natural resource objectives in the AF Honor Award - winning ‘Green Plan’ received for planning studies and design guides. Northern plains shelterbelts were substantially improved by adding 1930 native and cold hardy trees and shrubs using a plant palette of 94 cultivars. More than 1000 invasive seedlings, shrubs and trees were removed from shelterbelts. Design was completed in-house by the natural resource manager using Geographic Information System (GIS) technology to ensure proper spatial and botanical placement and integration into the base general plan. Advanced GIS design considerations in shelterbelt construction produce less snow on roads, require less manpower for snowplowing, save fuel expenditures and block winds thereby saving heating costs to homes and buildings and in so doing supporting Air Force sustainability objectives. The installed tree-scapes help visually screen undesirable settings and draw community boundaries while providing wind and snow control, improving water quality and habitat. The natural resources program worked closely with the North Dakota Forest service to identify appropriate tree species for planting, conduct windshield surveys to monitor for pest and disease, and place gypsy moth and borer traps to protect urban forestry health. The planned tree planting efforts outlined in the INRMP and the Green Plan considered the principles and guidelines of ecosystem management and won the 17th consecutive Tree City USA award for the installation.



Shelterbelt planting map design was completed in-house by natural resources staff using GIS technology to locate the most suitable areas for tree planting. Pictures show area after trees were installed screening the road during winter conditions.

SPECIES OF CONCERN

The INRMP planned, programmed, budgeted and executed \$75K to considerably improve identification, mapping, monitoring and protection of species of concern (SOC) to include 64 birds, 4 plants, 2 amphibians and 2 mammals. Four years of standardized bird-survey monitoring data were first analyzed in 2011 and 15 high priority grassland bird SOC were identified along with significant habitat areas based on occurrence data. Populations of yellow and white lady slippers, a plant SOC, were mapped at vigorous individual numbers across 27 acres improving planning documents.

The project field effort developed a baseline Floristic Quality Index to support long-term monitoring needs of plant SOC at 12 transects on the installation. The quality of habitat was categorized at each survey site. The resulting index provides an adaptive method to track changes in biodiversity, measure habitat improvement successes or failures and to chart progress of native prairie restoration efforts. Avoidance via project design has been accomplished with the new digital airport surveillance radar tower demolition and design project. Yellow lady slippers (orchids) were in the vicinity of the old tower, and plans to avoid existing plant



Vegetation transects being established to implement a long-term monitoring tool for tracking changes in biodiversity, to measure habitat improvement successes or failures and to chart progress of native prairie restoration efforts.

populations were made during the demolition process. Protection of natural resources is a building block to the base EMS and paramount in the INRMP listed goals and objectives.

Identification and actual mapping of habitat were updated into the GeoBase system facilitating program update, transfer and integration with engineering design, community planning, real property and EIAP boosting protection and avoidance/mitigation measures with integrated real-time planning maps during siting-analysis and project design. Tailored management actions for each SOC were developed based on a literature review including federal, state and regional plans to ensure stakeholder guidance, given threats, habitat requirements, available installation habitat and mission sustainment needs.

DEER BOW HUNTING PROGRAM

The INRMP guided the natural resources program to partner with the state North Dakota Game and Fish Department (NDGFD) for optimal white-tailed deer population management on the installation. The deer archery base instruction, 32-4004 dated September 2010 was updated and expanded authorized hunting acreage from 222 to 1045 acres. Working with state biologists, it was determined the installation would benefit from a doe-first harvest policy. This population ecology technique of deer removal in a fairly enclosed environment is proven to be effective at controlling white-tail deer populations. The natural resources program has served and provided opportunity to 50 hunters during the last two years. Hunter safety knowledge and base safety have been elevated by instituting a new base-only hunter's safety and archery shooting proficiency exam administered by Wing Safety.

The NDGFD has the equipment and trained biologists to perform aerial counts, and partnering with them expanded the reach of existing natural resources staff. As such, the program completed annual aerial deer counts to assist in determining population trends since February 2010. The success of the program is demonstrated by the fact that the deer population, estimated at 63 during 2010, was estimated to number 41 in 2001, and that no deer have been identified inside the airfield fence during 2010/2011. Combined efforts to prevent deer from entering the airfield by shutting gates and maintaining fences and implementing an expanded hunting program have reduced flight safety risk regarding aircraft deer collisions thereby supporting the mission.

WETLANDS PROTECTION

Base wetlands are protected and monitored in accordance with all federal, state and local laws and Air Force Instructions (AFIs). A project was planned, programmed, budgeted and executed in FY10 to update the installation inventory assessment and planning maps to advance wetland protection. Wetlands were classified using the Cowardin method and mapped in the GeoBase system. This system facilitates program updates, and supports transfer and integration of avoidance/mitigation measures with engineering design, community planning, real property and EIAP processes. Consideration of such data during siting-analysis and project design has proven to be an effective means of protecting wetland areas at Grand Forks. Total base wetland acreage increased from 308 acres to 417 acres based on field survey efforts.

Avoidance through project design has been accomplished at several sites including the digital airport surveillance radar tower and two new ground source heat pump projects. Adverse impacts to wetlands were avoided by physically moving and altering the footprint of the construction project out of wetlands areas. Upfront design and project review efforts enabled cost avoidance of potential mitigation requirements to the base and prevented any construction or mission delays due to potential wetland permitting requirements. Wetland specifications were drafted for inclusion into base contracts to provide contractor guidance in use of Best Management Practices and mitigation tips at construction sites. The document helps educate base customers and transfer topic knowledge to operational implementation supporting conservation efforts and INRMP objectives.

Maintaining compliance for projects that affect wetlands is fundamental to the base INRMP process. Four section 404 permit applications were processed to the United States Army Corp of Engineer office. Two of the requests were granted nationwide permits and two were exempted items in jurisdictional ditches for maintenance. In all cases, projects and maintenance efforts proceeded without delay and additionally protected adjacent wetlands, minimized impacts and implemented best management practices to reduce erosion and protect water quality.

PROMOTING CONSERVATION EDUCATION AND OUTREACH

Part of the EMS base policy is to encourage environmental culture and the INRMP has a goal stating Grand Forks AFB will promote natural resource education and awareness. Hosting and participating in public events fosters that environment to the entire installation and community. Earth Day, Arbor Day and other public events are used to meet these goals. The natural resources program has participated in the base service's children's activity fair in 2010 and 2011. Efforts were made to teach pollinator importance in our ecosystem and kids made their own flying butterfly crafts. To increase environmental awareness during Earth Week events, over 250 recycled shopping bags filled with conservation tips for reducing energy, water and waste were distributed.

The first bird occurrence checklist, which provided information on watchable wildlife opportunities, was published using 17 years of observation data and was distributed to outdoor recreation and public events. The checklist includes 229 bird species with 105 identified as breeding-birds on the installation. The natural resources program worked with a local bird club to clean bluebird and purple martin nest structures located through housing and prairie view nature preserve, and also taught bird-conservation efforts to the cub scouts. Cooper's hawk nest sites were located and identified on the installation to assist a local banding program researching nest density and fidelity. Cooper's hawk banding data collected supports the North American Bird Banding Program studying the movement, survival and behavior of birds and is jointly administered by the United States Geological Survey and the Canadian Wildlife Service. Teaming with the local bird club, the natural resources program in Dec 2011 produced six consecutive annual winter bird count events resulting in the identification of 47 wintering species.

The natural resources program brought a unique tree-workshop to the youth center for Arbor Day and topics focused on learning tree types and functions. Library personnel were coordinated with to develop displays showcasing conservation tips during Earth Week to reach all base patrons and encourage environmental conservation activities at home. Several bird feeders were made with children at the library, youth center and community activities center to better reach base populations.



Cooper's hawk adults and young were banded in support of university research and long-term bird monitoring on the installation. Data collected also supports the North American Bird Banding Program.



On Arbor Day, Grand Forks AFB personnel work with local youth to provide natural resources education. Planting trees on the base helps work towards the goal of Tree City USA, and also builds on the relationship between the installation and the North Dakota Department of Forestry.