KENTUCKY ARMY NATIONAL GUARD
ENVIRONMENTAL SECURITY AWARDS FY12
NATURAL RESOURCES CONSERVATION—LARGE INSTALLATION

ABSTRACT

The Kentucky Army National Guard's (KYARNG) Wendell H. Ford Regional Training Center (WHFRTC) is truly a place out of John Prine's song, "Paradise". From the turn of the century to 1997, the majority of the WHFRTC's acreage was managed by the Peabody Coal Company for coal mining operations. Now managed by the Kentucky Department of Military Affairs, the strip mine terrain, hydrology, and vegetation types introduced during reclamation of the area have posed significant Natural Resource conservation challenges. The KYARNG has worked diligently over the past several years to support a comprehensive Natural Resource Program which also supports the training mission needs of KYARNG. The installation is a critical training resource for the region, providing maneuver, weapons, convoy, urban assault, Medical Evacuation (MEDEVAC), as well as virtual simulation training. Long-term sustainment of these training capabilities depends on the training site land's sustainment. To that end, the KYARNG Natural Resource Program works cooperatively with federal, state, and local environmental agencies to improve habitat, restore mining-damaged areas, and reestablish native species in the most cost effective manner possible.

ACCOMPLISHMENTS

Program Management: The KYARNG Natural Resource Program achieved several milestones over the past two years with emphasis on the installation prescribed fire program. KYARNG saves tens of thousands in contracting costs each federal fiscal year (FFY) by conducting in-house prescribed fires with support of the WHFRTC certified wildfire trained team. Without disruption to troop training, the burn program supports the Natural Resource Program's goal to control the non-native and invasive species introduced by the previous owner. Prescribed fire reduces herbicide application requirement for vegetation control. Invasive species control coincides with the installation's native grass restoration program; dividends are reaped as the first natural pheasant reproduction in the state was recorded.

- The Natural Resource program management is a joint effort between the WHFRTC Training Site command, KYARNG Environmental Office, and the Construction & Facilities Management Office (CFMO). This management structure ensures communication is maintained between the KYARNG Headquarters and the training site. The Environmental Quality Control Committee (EQCC), chaired by the KYARNG Chief of Staff, is updated quarterly on all Natural Resource efforts.
- In addition to EQCC coordination, the installation's Natural Resource Program supports Range Control, Master Planning, and the Integrated Training Area Management (ITAM) program. These stakeholders are important components to the installations Integrated Natural Resources Management Plan (INRMP), last updated in 2010. WHFRTC's Wildland Fire Management Plan and Integrated Pest Management Plan have been incorporated into the INRMP.

- KYARNG's adherence to the INRMP has developed positive relationships with regulatory agencies at all levels. The Kentucky Nature Preserves and Kentucky Fire Council have conducted burns on WHFRTC to provide training for their personnel. The Natural Resource Program frequently works with these groups to develop habitat improvement, surveys, and other land management efforts at no cost.
- The installation works with the Army Corps of Engineers (USACE) on Natural Resource Program's management goals. In the past, three to four USACE entities have regulated the KYARNG resulting in confusion and wasteful redundancy. KYARNG Environmental office, alongside with WHFRTC, worked with USACE to designate a single point of contact for all Natural Resources issues on KYARNG property.
- KYARNG works with area universities to support both fieldwork and education opportunities. Under a Memorandum of Agreement with Western Kentucky University, undergrads and graduate helped develop aquatic restoration projects and implemented creel restoration fieldwork. This partnership provides students with hands-on experience while earning course credit, and saves thousands by eliminating contract costs.
- The Natural Resource Program continually strives to conduct more operations in-house. Currently, USACE is completing a comprehensive study to identify state/federally listed flora & fauna threatened and endangered species. The Natural Resource Program is shadowing this process to further sustainability goals for the future.

Technical Merit: WHFRTC features a mixture of forest and open savannah areas. However, up to a depth of 100 feet of the surface soils were disturbed or removed by the previous owner. This historic disturbance has given the KYARNG a blank slate. Without existing issues related to threatened or endangered flora or fauna, the installation is free to build an environment that balances training operations with both wildlife and habitat improvement.

Prescribed Fire: WHFRTC has over 3,000-acres that are managed with prescribed fire usage; this allows control of invasive species and restores native grasses and trees. The prescribed fire core team members are supported by either a State Fire Rescue Team or military fire fighting units. WHFRTC hosted an international training event, with attendees from across the United States and as far away as Spain. The training focus was dedicated to prescribed fire techniques and control.

- Mine reclamation laws require coal companies to replant mined land but they do not mandate the types of vegetation used. This lack of regulation results in property planted with non-native and invasive plants. Prescribed fires help eradicate and control these species while promoting native species growth.
- Native grasses benefit from both fire management and military impacts. There are certain prairie species which thrive from ground disturbances. Without burns and ground trampling, the grasses are unable to establish strong root systems, which is essential to soil stabilization.

Wildlife and Habitat Management: Prescribed fire and vegetation management have tremendous benefits to wildlife populations, diversity, and habitat quality on Wendell H. Ford Regional Training Center.

- A wide range of species use the training site including, but not limited to: Eastern wild turkey, Gray and Fox squirrel, Whitetail deer, Swamp and Eastern cottontail rabbit, Bobwhite

quail, woodcock, raccoon, bobcat, coyote, red and gray fox, muskrat, beaver, and wood duck. Many "special interest" species also use the training site such as Short-Eared owls, Long-Eared owls, and the Bell's Vireo. Migratory waterfowl such as Canadian and Snow Geese, Mallards, Blue and Green Wing Teal, dove, Common Snipe, various shore birds, and a variety of songbirds are also present on the training site during the year. The Kentucky Ornithological Society is maintaining a species list on the area as they conduct their surveys, with over 90 recorded species.

- The installation is bordered by wetlands of Cypress Creek tributaries and contains some man-made wetlands in coal refuse areas. The wetlands, lakes, and ponds provide a diverse aquatic ecosystem. Common species of fish found are Largemouth bass, Red-ear sunfish, bluegill, Black and White crappie, and Channel catfish. A future stream restoration project is under consideration for aquatic community enhancement.
- WHFRTC is participating in the national count of Kentucky Warblers by conducting songbird counts.
- WHFRTC's Natural Resource team is reconstructing old wood pallets generated during mission training for fish habitat structures. This effort grew out of the installation's pallet recycling program and the need to find innovative uses for used pallets. The pallets are reconstructed into boxes that are sunk into lake habitats to give small fry a safe haven. WHFRTC's fish species need a solid substrate to spawn; pea gravel is also utilized as bank stabilization to support spawning sites. Fish are now able to lay their eggs in the gravel areas, and reproductive success rates have skyrocketed.

Fish Habitat Structure made from used pallets.

- WHFRTC, and the other training sites, implemented guidelines for hunting in which "does" must be harvested before "bucks" as deer herd management techniques to prevent starvation, vegetation damage, and disease outbreaks. The installations also promote the statewide KYDFWR "Hunters Feeding the Hungry" program using locally harvested deer.

Native Species Propagation: Native species propagation incorporates invasive and non-native plant eradication.

- The invasive species being controlled or eradicated include Phragmites, Musk thistle, Sericea lespedeza, Autumn olive, Eurasian milfoil and Johnson grass. As native grasses are restored, WHFRTC is seeing the return of "special interest" species to the area, including native wild sunflowers, southern wild rice, and bobwhite quail. Large populations of quail and pheasant are also being reestablished.

Soil Stabilization: Due to prior land usage, soil stabilization is one of the installation's important management issues. Coal mining operations on the property created erosion issues. Stabilization and re-vegetation methods to resolve these problems consist of liming, fertilizing, over-covering with topsoil, and reestablishment of native grasses. As a result of these treatments, the installation has controlled the flow of silt and sediment into streambeds. KYARNG is reviewing the feasibility of reclaiming sediment from streams for re-use in planting & soil stabilization projects on WHFRTC.

Forestry: Previous land owners planted non-native species to comply with mine reclamation requirements. KYARNG is developing concepts for non-native stand conversion into native timber species while enhancing engineering troop training mission sets.

- The Forestry Program plans to harvest up to 250 acres of Loblolly pine, while also re-establishing appropriate soil levels for replanting. The harvesting is being conducted in concert with troop labor training projects. Troop labor projects will be used for both Soldier training and Environmental education, among other training needs. The Natural Resource Program is reestablishing the American chestnut tree on WHFRTC. This species that was once prevalent across 60% of the eastern United States, but was decimated by blight by the 1950s. In partnership with the American Chestnut Foundation, the installation is bringing a blight-resistant variety of the tree back to WHFRTC in place of loblolly pine. The coming year's stream restoration projects will blend chestnuts, cypress, and other native wetland species to help restore the training site to its pre-mining state.

Orientation to Mission: The Natural Resource Program at WHFRTC blends the needs of training with the stewardship of the land. Training missions can be planned to simultaneously benefit the environment. The reestablishment of native grasses and maintenance of grassland through prescribed fire do not impede training and may actually benefit from troop activities. Creating healthy forest stands and fields of prairie grass translates into much more realistic training opportunities compared to barren or invasive-plant infested land. The installation is an ideal site for demonstrating the broader compatibility of military training with environmental restoration.

In Federal Fiscal Year 2013 (FFY13), the Natural Resource Program, assisted by the KYARNG Aviation Brigade, is surveying the large mammal population through the use of an aerial forward-looking infrared sensor (FLIR). The aviation groups will be able to log the hours they need for training exercises, while completing the surveying. This solution was also fiscally responsible; had the Natural Resource Program contracted an independent flight crew for the survey, the cost would have exceeded $150,000.

In November 2012, Wendell H. Ford Regional Training Center (WHFRTC) was certified as a Renewable Energy Generator through the utilization of 622 kilowatts (kW) of Photovoltaic (PV, aka Solar) across both the training and cantonment areas, ensuring Soldiers have power available for all training events. There are many types of solar on WHFRTC including PV panels, solar poles, solar trackers (active and passive), passive solar, and PV charging stations (see photos below). The installation of these systems not only reduces the impact from power generation facilities, but has reduced WHFRTC's native habitat disturbance by eliminating nearly 3 miles of trenching systems to support power distribution. The renewable energy initiative has eliminated the need to disturb nearly 5.5 acres of land, thus preventing setbacks to native habitat restoration progress. WHFRTC's solar systems have prevented over 2.1M pounds of carbon dioxide annually which is equivalent to planting 5,000 trees per year. Currently, 26% of the power needed at the WHFRTC comes from solar panels.

Preparing for the future: Schneider Electric EVlink Charging Station and solar energy panels.

Considering this site started out as a 12 acre site with a couple of buildings and has grown to more than 11,000 acres including weapons ranges, training areas, 20 classrooms, and over 25 training facilities, this achievement is remarkable. The realized energy savings also promotes a proportionate financial increase in natural resource programs such as Fire & Emergency Services and other programs funded through Base Operations Support (BOS). Without everyone at WHFRTC being onboard during the buildup process, these accomplishments would not have been possible. The environmental department at WHFRTC has increased its force multipliers multifold to ensure they are contributing to the overall mission, Soldier readiness.

Community Interaction: The Natural Resource Program encompasses recreational access for hunting and fishing programs, partnerships with universities and environmental agencies, and opportunities for community education and awareness.

Recreation Access

- The WHFRTC hunting program provides hunting opportunities for all active and retired KYARNG soldiers, employees, and family members. Because hunting is not open to the general public, the installation received special permission from the state legislature to adjust seasons to accommodate training needs.
- An estimated 250 hunters take advantage of the deer program each year, which is essential to maintaining sustainable deer populations. Turkey hunting draws around 250 hunters each year and over 100 hunters for small game. With the diverse hunting opportunity, the installation's popularity has increased among from KYARNG soldiers and staff alike.
- The installation promotes the KYDFWR "Hunters Feeding the Hungry" program. WHFRTC hunters take harvested deer to selected butchers who will process the meat and then donate the meat to soup kitchens, shelters, and elderly homes that need good quality, lean meat. At around 100 pounds of meat per animal, this program has been a tremendous help to those who are struggling, mostly in the installation's community.
- Fishing is annually popular on post, with around 500 fisherman taking advantage of the property's 152 lakes. In-house lake contouring studies generate maps which detail lake oxygen levels and fertilization needs in order to improve fishing and creel populations.
- Fishing yields are recorded in the installation GIS program. The combination of bank restoration and fry structures have led to a distinct rise in fish populations. For each day of fishing, the installation captures data on weather conditions, lake conditions, and creel numbers. Fish populations are large enough to support catch rates of 300 to 500 fish a day at some of the larger lakes.

Stewardship Partnerships: University and State agency partnerships allow the Natural Resource Program to leverage expertise and resources, and increase universal fiscal efficiency. Some partnerships include:

Partner	***Activity***
Western Kentucky University	Dissolved oxygen study, herpetology inventory, aquatic study of water quality, fish populations, and habitat condition
Madisonville Community College	Lake topography research and water quality research
The American Chestnut Foundation	Reintroduction of the American chestnut
Kentucky Fire Council	Wildfire burn training, co-sponsorship of training events

WHFRTC, in partnership with Kentucky Fire Council, hosted a wildfire fire training event that brought participants from throughout the nation and as far away as Spain. As part of the training, the 54 attendees conducted prescribed fire exercises on the post.

Community Education and Awareness

- Wildlife programs have been incorporated into the public school curriculum in Kentucky.  WHFRTC provides opportunities to augment student education. Western Kentucky area students have visited WHFRTC for field trips and have taken part in several natural resource education opportunities. Students have begun visiting the training site on weekends to continue working on projects like bat or wood duck box installation.
- Local students have volunteered to support the Natural Resource Program team in conducting bank stabilization and creating gravel spawning areas for fish. This volunteer project will contribute directly to the increase in fish egg production's success rates.

All outreach activities have helped to establish public perception of WHFRTC and the KYARNG as environmental leaders and stewards in the state as well as raise awareness of the importance of environmental conservation in the local communities. Consistent outreach capability ensures the local populace is aware of the good things WHFRTC is doing and it parallels the Environmental Mission Statement for all DOD installations from its highest leaders down to new employees.

In conclusion, sustainability is literally being grown in the KYARNG, whether it's through the local college, or the Soldiers themselves. Each environmental project affects the force in a positive manner and serves as force multipliers as WHFRTC continues to grow, instead of being a hindrance. Informed and cooperative stakeholders are the key to the success of most all WHFRTC environmental initiatives, and that means maintaining the relationships that have been forged through time and awareness. Without everyone's cooperation, this site might still be 12 acres and a few buildings. The Wendell H. Ford Regional Training Center's environmental accomplishments are remarkable considering the shape it was in when first acquired. This success could not be realized without KYARNG stakeholder support, including Soldiers and civilian team partners.