

**FLORIDA ARMY NATIONAL GUARD
SECRETARY OF THE ARMY ENVIRONMENTAL AWARDS FY14
NATURAL RESOURCES CONSERVATION—LARGE INSTALLATION**

Introduction & Background

Camp Blanding Joint Training Center (CBJTC) is a 73,000-acre military training installation located in northeast Florida with a primary mission to support military training. Owned and managed by the State of Florida Department of Military Affairs, on behalf of the Florida Army National Guard (FLARNG), CBJTC specializes in training for light infantry exercises and serves as a logistical support base during federal and state emergencies, such as hurricanes and wildfires. Of the post's total acreage, about 3,000 acres comprise the Cantonment Area, 15,267 acres comprise the artillery Impact Area, and about 10,686 acres are leased for sand mining and mineral recovery by the DuPont Corporation. The remaining 42,000 acres are used for military training, forestry operations, wildlife management operations, and public recreation opportunities. In addition to being one of the most important training sites in the region, CBJTC has long been recognized for its incredibly successful Natural Resources Conservation (NRC) program. CBJTC's native plant and animal species make it a unique place. Some of the installation's plants and animals are threatened or endangered and depend upon the protection provided by the NRC program for the survival of the species' populations on CBJTC, while others are valuable as measurements of overall ecosystem health. A total of 19 federal and/or state listed threatened and endangered (T&E) plant species and 20 federal and/or state listed T&E animal species have been identified at CBJTC. CBJTC is also the home of a groundbreaking coalition studying the control and elimination of disease-causing insects, bringing together the FLARNG with the World Health Organization (WHO), United States Navy Entomology Center of Excellence (NECE), the US Department of Agriculture (USDA), the US Army Air Reserve, the Florida Air National Guard (FLANG), and the University of Florida (UF) to conduct a multi-year entomological project with life-saving potential for millions of soldiers and civilians around the world.



The installation NRC program has accomplished several key milestones over the past two years. Conservation efforts of the endangered red cockaded woodpecker (RCW) have created a stable population in excess of the targets set for CBJTC. The NRC manager also successfully negotiated for relocation of state-listed gopher tortoises to suitable habitat on Army Compatible Use Buffer (ACUB) lands, thereby reducing conflict between conservation and training goals. The new arrangement also eliminates the need for special relocation permitting, saving CBJTC \$10,000 to \$15,000 each year in tortoise management costs. The NRC program is coordinating now with the US Fish and Wildlife Service (USFWS) to establish a Candidate Conservation Agreement with Assurances (CCAA), which will further streamline management for threatened and endangered (T&E) species now and in the future based on the benefits of CBJTC's comprehensive landscape approach to conservation. In the process of repairing culverts and roads following major storm events, the NRC program completed a watershed study that is now guiding infrastructure repair and upgrade priorities. The installation Integrated Pest Management Program (IPMP) also continues to have great success in its 12 ongoing research initiatives; last year CBJTC was designated as a WHO/NECE collaborative center for excellence partner as the only site in the world conducting public health research into insecticide dispersal systems and application techniques.



The NRC program staff consists of a program manager, two biologists, a forester, and an environmental specialist; this core staff is further augmented by the IPMP manager, compliance staff, GIS specialists, administrative staff, and a 9-person wildland fire team with a supervisor, firefighters, and road crew. The Integrated Training Area Management (ITAM) department is also closely aligned with the NRC program; both are also collocated with range control to ensure maximum ease of coordination. The Environmental section is also integrated within the Department of Public Works (DPW) and the Engineering section for the installation. All these directorates meet in regular monthly staff meetings in addition to informal project meetings, and the NRC manager also takes part in monthly briefings with DPW and the installation Command.



CBJTC's Integrated Natural Resources Management Plan (INRMP) underwent its 5-year update this year and has been finalized and approved by USFWS and the state Fish and Wildlife Conservation Commission (FWCC). The NRC program works cooperatively with regulatory agencies as partners, leveraging expertise and resources to achieve mutual goals. The NRC



manager sits on the state Gopher Tortoise Advisory Group, which includes ten regulators and interest groups and develops management guidelines and permitting requirements. Through this collaboration, CBJTC is now able to relocate tortoises within the installation and its ACUB



without permits. The USFWS approached CBJTC to establish a CCAA based on its excellence in managing species like the tortoise and RCW. The NRC program's approach, which manages by habitat communities rather than individual species, has been extremely successful in creating overall ecological sustainability. The FWCC is also becoming a partner in this effort, and a Memorandum of Understanding (MOU) is in development to create a state document that mirrors the CCAA.



Partnerships like these save the installation money as well; eliminating the permitting requirement for tortoise relocation saves between \$10,000 and \$15,000 each year, for instance, and a CCAA will eliminate future management costs in the event that species become listed. The NRC program also partners with the University of Florida (UF) to conduct research projects and fieldwork; through this collaboration, CBJTC is one of the only lightning test sites in the nation, gathering data on lightning attraction and protection. Often, the students' research interests will align with the NRC program's needs, providing CBJTC with cutting edge research at very little or no cost. A comprehensive team to manage projects in-house, particularly with prescribed fire and wildlife management, has also eliminated the need for costly external contracts. In-house prescribed fire activities typically save CBJTC \$450,000 to \$600,000 each year.



Prescribed Fire and Native Species: The NRC program conducted burns on 13,000 acres in FY13 and 17,000 acres in FY14. Fire is essential to promoting native longleaf pine restoration, the preferred habitat for RCWs, encouraging grasses and forbs favored by gopher tortoises, and controlling the spread of oak and invasive plants. A 3-year burn rotation has been established to best promote native species regeneration. FWCC provides assistance on burns, but the work is primarily completed by the installation fire team; this year, 5 burns were completed aurally with FWCC equipment at no cost to the FLARNG. The NRC program also teaches and hosts Firefighter Training events with US Forest Service, Florida Forest Service (FFS), Department of Environmental Protection, USFWS, and other local agencies and municipalities. The Engine Academy class is presented 3 or 4 times annually as part of this program, which provides students with hands-on training over a 6-day course. Each class trains 36 participants using between 17 and 20 fire engines to ensure complete familiarity. Prescribed fire in combination with minimal herbicide treatment has allowed the NRC program to contain the spread of invasive plants like Japanese climbing fern, Cogon grass, Chinese tallow, and torpedo grass.



CBJTC's forests require frequent fire to ensure the healthy ecosystem that many listed species in the southern US need to thrive. In this picture the trees painted with white stripes house the nesting cavities of the endangered red-cockaded woodpecker, a fire dependent species. The NRC program applies fire to these areas to clear-out overgrown brush for both training access and habitat improvement.



Forest Management: CBJTC is heavily forested, and longleaf pine restoration has been a target for the forestry program; every new tree planted on post is a longleaf variety, and slash pine plantations continue to be eliminated. In the past year, as CBJTC converted its helicopter fleet from attack helicopters to Chinooks, landing zones needed to be enlarged, providing the NRC program with an ideal opportunity to close down smaller landing sites and convert them back to longleaf stands. Under an agreement with FFS, the state agency collected longleaf seeds at CBJTC and shared the harvest with the NRC program. In all, about one million seeds were provided to CBJTC, and the NRC program established an on-site nursery that is used to support ITAM restorations. The FFS also provides FLARNG with around 25,000 seedlings each year. Restoration is done in conjunction with harvesting of existing timber stands. Typically the NRC program thins stands on around 1000 acres each year and harvests timber in around 250 acres each year; the harvest areas are then reestablished as longleaf pine forest. Harvest of sand or slash pine generates between \$400,000 and \$500,000 each year that is deposited to a state fund to support CBJTC and other forestry programs.

Water Resources: Following two major storm events over the past two years, the NRC program has been repairing culverts and roads at around 40 installation sites. The repair has been an opportunity to reshape existing water control features and rebuild for current conditions and needs. In some cases, culverts were over 50 years old and undersized for current patterns or obsolete in their design. Reshaping and rebuilding has prevented the deposit of silt into water resources; the NRC program has also cleared ditches on post of silt to prevent runoff. The silt material is then reused in landscaping, fill, and re-stabilization repairs. The NRC program has also enacted flood mitigation projects that protect infrastructure, homes, and businesses on post and in its ACUB; flood waters are captured and pumped into wetlands for aquifer recharge.





Active ranges provide quality habitat for the listed gopher tortoise due to the maintained open spaces and frequent low-intensity fires that often start from weapon training. A gopher tortoise dug this burrow on a popular range and lived there for several years before the NRC program relocated him due to a range development project that would have impacted his burrow.



populations on post, documenting breeding pairs and clusters, banding hatchlings, and tracking survival of fledglings. This data helps to determine how many birds can be translocated while ensuring a stable population. CBJTC, in consultation with USFWS, had established a goal of 25 active RCW clusters (a family group of two to five birds) that would be compatible with the mission and sustainable population. As this goal was met, CBJTC has been able to increase its participation in the translocation program. At present, the installation has 29 or 30 active clusters; at a density of 30 or more clusters, FLARNG soldiers will no longer have to undertake any particular mitigations or protective actions for additional birds.



Florida Black Bears: Several years ago, the NRC program collared bears on post with GPS trackers to monitor the animals' movements through the area. The study supported the establishment of the ACUB as well as broader goals in the state to connect CBJTC with two adjacent national forests to create a large, uninterrupted greenspace. Such a space would provide a corridor if bears were in fact moving through. In coordination with FWCC, the NRC program is now augmenting that effort with a bear population census. Fenced areas have been constructed throughout the post, baited with food. As the bears pass through the enclosure to get the food, their hair is snagged by fence wire; FWCC then conducts DNA testing on the hair and has been able to identify and track individuals in the resident bear population.

Wildlife Studies: With assistance from UF graduate student researchers, the NRC program is completing a herpetological study of wetlands wildlife, particularly salamanders, snakes, lizards, and frogs. Last year, the program completed an inventory study of Shermans fox squirrels, which have been declining throughout the state but remain populous on CBJTC. The NRC program is

Fish and Wildlife: CBJTC has long had a robust wildlife conservation program.

Gopher Tortoise: With the permission to relocate gopher tortoises on CBJTC and ACUB property, the NRC program has dramatically streamlined the management for this state-listed species and made coordination of training with wildlife cycles much simpler. The NRC program has established habitat to serve as recipient sites for tortoises that are found in training impact areas; often tortoises must be confined to their new habitat area for several month to become acclimated and prevent them from returning to an unsafe site. Ideally, tortoises can now be relocated to recipient sites on the 1600-acre dedicated habitat parcel within the ACUB, which is managed by the NRC program, and be entirely safe from contact with training. This solution eliminates military impacts to the species as well as training restrictions imposed by their presence.

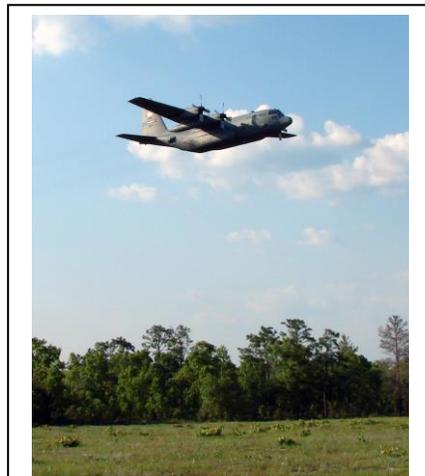
Red-cockaded Woodpeckers: Endangered RCWs have continued to thrive at CBJTC, in part due to significant expansion of longleaf pine habitat. In cooperation with Fort Stewart, Fort Bragg, Fort Benning, and Eglund Air Force Base, CBJTC continues to translocate its RCW breeding pairs to state and national forests and other preserves, helping to re-establish the birds across their historic range. Six birds were translocated in FY13, and another six will be translocated this year. The installation biologists closely monitor RCW

evaluating whether the state-listed squirrels are benefiting from the installation's burn cycles and management techniques.

Invasive Species Control and Pest Management: The IPMP is a ground-breaking program, bringing together a wide range of partners (including NECE, WHO, and CDC) to conduct entomological research that is not being undertaken anywhere else in the world. The outcomes of these projects not only protect soldiers in warfighting capacities, but also present solutions to the worldwide problems of insect-borne diseases like encephalitis, dengue, Lyme disease, West Nile virus, malaria, and more.

CBJTC has 12 projects currently ongoing testing the efficacy of insect treatment methods—application, equipment, chemical composition, treatment timing, etc.—to prevent, reduce, and suppress disease-carrying and nuisance insects like sand flies, filth flies, mosquitoes, and ticks. Over the past two years, the IPMP has launched several tests of insecticide application using C130 aircraft and helicopters. The MOUT South village at CBJTC provides an important opportunity to perform these aerial tests in a highly controlled and repeatable environment to collect unprecedented data for development of this technique.

Aerial control of dengue vectors could be a substantial leap forward in reducing disease risk for US deployed military personnel and provide new tools for improvement of global public health. This method of application is being compared with standard truck-mounted dispersion equipment. With the USDA, the program continues to test treatment efficacy on HESCO barriers used by soldiers in-theater. New methods like Attractive Toxic Sugar Baiting (ATSB) are being researched for efficacy in targeting specific insect species' behaviors without adversely impacting all insects in the area. Several insecticides have been incorporated into sugar baits, and novel insecticides such as molecular insecticides (RNAi) could be incorporated into the ATSB program. A new initiative with the CDC is using tick traps to research the transmission and prevention of Heartland virus, which is transmitted by Lone Star ticks.



910th Airlift Wing, Youngstown, Ohio C-130 aircraft conducting aerial spraying mission at Weinberg Drop Zone, CBJTC. Project will help Navy Entomology Center for Excellence and US Department of Agriculture CMAVES develop pesticide selection, methods of dispersion, and equipment selection and accuracy in combating mosquito borne diseases worldwide.



CBJTC's NRC program is exemplary in its direct contributions to the FLARNG training and readiness mission. Wildlife management is often a challenge to military training, but the NRC program's conservation efforts with regard to gopher tortoises and RCWs have not only benefitted the animals, but also expanded training capacity. The new, non-permitted process for relocating tortoises protects these animals from training impacts while also saving money in management costs and opening up previously restricted training areas. This improvement, of course, is also tied to the ACUB, a project that protects the installation from encroachment while also preserving pristine natural habitats that support the ecological diversity and health of CBJTC. Over the past two years, the ACUB has afforded the NRC program with mitigation opportunities as well. In partnership with the local water management district, two wetlands parcels were recently incorporated into the ACUB, giving the installation an immediate \$2.5 million in wetlands credits that could be used to offset construction and maintenance activities on CBJTC. The installation has wetlands credits adequate for plans extending for the next 20 to 30 years, safeguarding the long-term viability of the CBJTC mission. The acquired wetlands,



moreover, are managed by the FFS at no cost to the FLARNG. The NRC program has negotiated several regional offsite mitigation areas (ROMA) as well, accumulating nearly 100 of these credits for future mitigation needs. The ACUB now totals nearly 19,000 acres; 1600 acres were acquired in FY13 and dedicated to gopher tortoise habitat creation, and an additional 320 acres were purchased this year.



Another aspect of the mission, one that extends far beyond the borders of CBJTC, is being served by the IPMP and its research. The IPMP is the first program of its kind at any training installation in the United States, and its main goal is to support the military mission overseas for the FLARNG and all U.S. service members. The call to action of the Deployed Warfighter Protection Program and Armed Forces Pest Management Board is a driving force behind the insect research efforts at CBJTC. To this end, the installation's programs are actively finding ways to drastically reduce populations of dangerous insects so that these techniques and protocols can become standard practice for deployed service members. Rather than emphasizing individual protections, the solutions being developed at CBJTC are more holistic, minimizing or eliminating human-insect contact altogether. This is crucial to readiness, as most war fighters who are removed from duty have become sick or injured in some non-combat way; diseases caused by pest insects are one of the major causes for removal. The installation's research on sand flies is of particular importance to deployed service members, as these insects can transmit leishmaniasis, a potentially devastating infection.



The NRC program is committed to sharing its expertise with other agencies and military departments locally and nationally. The NRC program manager's participation on the Florida Gopher Tortoise Technical Advisory Group allows him to contribute to the management goals and guidelines for this species throughout the state. Similarly, the installation's membership in the military consortium translocating RCW breeding pairs has had a marked impact on that species' recovery and viability throughout its range. Partnership with USFWS has led to the development of a CCAA at the installation, and this agreement—particularly with its state-based endorsement—could be a model for other Guard installations to follow.



The IPMP is a special case for transferability, as it is designed to share its advances with military branches, medical institutions, and aid organizations on a global scale. Professional papers continue to be written and published about each of these research projects at both national and international levels. Last year, CBJTC was selected as a collaborative center by the WHO, which means the installation will be responsible for helping the WHO to independently test and evaluate equipment, materials, and techniques for WHO-approved use worldwide. The partnerships for disease vector research with the CDC, NECE, WRAIR, UF, and USDA have expanded the IPMP's theoretical and practical knowledge transferability, and the benefits of this project on a worldwide scale truly are inestimable.



Internally, the integration of NRC activities into facilities management, engineering, ITAM, and DPW help to ensure that the program's goals are kept at the forefront of operations. The INRMP creates a roadmap for the installation, and this planning in conjunction with extensive soldier training and awareness programs as well as a comprehensive GIS-enhanced database system ensure the program's continuity.



Outreach, education, and awareness are core components of the NRC program, both for FLARNG staff and soldiers and the broader community. The installation Environmental manager sits on the Clay Putnam MFL Implementation Working Group, a committee for expanding awareness of water issues and seeking solutions. In recent years, lakes adjacent to CBJTC have been drying up or dropped below Minimum Flows and Levels (MFL), necessitating a



reevaluation of water conservation practices in the region. Awareness of major conservation goals is also served by the installation's support of UF student and faculty researchers who actively contribute to the status of their fields. CBJTC's ecological quality and diversity make it an ideal setting for research; the NRC program will review students' research applications with the aim of supporting their studies with access, equipment use, or even grants in some cases. In return, the installation benefits from high-quality data and analysis based on state-of-the-art techniques and approaches.

Long before students reach graduate school, however, the NRC program can make an impact. Between 150 and 200 grade school students visit the installation each year for NRC presentations. During the bear collaring effort, the NRC staff coordinated with three local schools to bring teachers out for the trapping. Each teacher "adopted" the bear and created a class project that used the NRC program's tracking data to map and monitor their bears. Teachers are the force multiplier for creating more awareness and understanding of NRC issues. To that end, the NRC program participates in the annual Teacher Tour event in cooperation with FFS, in which teachers are invited to take part in a 3- or 4-day land management course culminating in a field trip. The course serves as a continuing education credit for the teachers while making them aware of the educational resources the FLARNG and CBJTC have to offer. Teachers tour CBJTC each June to learn about wildlife and habitat management, forestry, and other NRC activities happening on post.



The NRC program staff take part in EcoFest with other conservation groups each year in nearby Jacksonville, hosting booth and demonstrations on the installation's conservation programs. School and scouting groups are often hosted in the post wildlife museum for classroom exercises and presentations. CBJTC also supports a robust hunting and fishing program for the public and FLARNG soldiers and their families. FWCC manages the public hunting and fishing programs, and permits are issued based on wildlife populations and in coordination with the training schedule. Feral hogs can be hunted freely on post. Recreational fishing is offered at pristine Kingsley Lake along with two large lakes on the post.

The NRC staff also reaches out to high school and college students to inform them about and encourage them to pursue careers in environmental management, perhaps through the FLARNG. For the university students involved in the IPMP projects on the installation as assistants or interns for their faculty, the opportunity to take part in cutting-edge research is unparalleled for both their academic and future occupational careers. What is more, as the IPMP projects are routinely featured in journals and articles available online, the community outreach of CBJTC and the FLARNG has expanded to embrace the global community.