

# ENVIRONMENTAL AWARDS

*Eglin Air Force Base, Florida / Natural Resources Conservation – Large Installation*

## INTRODUCTION

Eglin Air Force Base (AFB) stands out as a jewel along Florida's Emerald Coast. Eglin AFB is the largest Air Force installation in the free world, encompassing 464,000 acres of land and 130,000 square miles of water ranges. The installation also represents the largest forested military reservation in the United States. This extensive area supports essential Department of Defense missions while simultaneously attaining national notoriety as a showcase of diverse ecosystems that provide sanctuary to 106 rare and endangered plant and animal species. The Air Armament Center (AAC), Eglin's host unit, is responsible for the development, acquisition, testing, deployment, and sustainment of all air-delivered conventional weapons. AAC and tenant unit activities account for some 90,000 people visiting, working, and using the installation on a regular basis. This includes 16,000 active duty and reserve military personnel, 15,300 civilian employees within the AAC and its 46 associate units, 29,000 dependents, and 28,000 retirees. Eglin's land base consists of approximately 14,000 improved acres, 46,000 semi-improved acres, and 404,000 acres of unimproved lands managed under the principles of the Integrated Natural Resources Management Plan (INRMP).



The Air Armament Center (AAC), Eglin's host unit, is responsible for the development, acquisition, testing, deployment and sustainment of all air-delivered conventional weapons. Encompassing 464,000 acres of land and 130,000 square miles of water ranges, Eglin is a showcase of diverse ecosystems that provide sanctuary to 106 rare and endangered plant and animal species.

The remarkable assemblage of biodiversity at Eglin AFB includes 34 distinct natural community types ranging from barrier islands to old-growth longleaf pine forests. Most of the habitat types found on Eglin AFB are fire-dependant ecosystems that require periodic fires to maintain

biodiversity. The world-renowned prescribed burning program at Eglin AFB not only sustains these exceptional habitats, but also provides for mission sustainability by reducing flammable fuels to the extent that fires caused by munitions testing are less severe and easier to control. Additionally, more than 270,000 acres are open to the public for recreational use, including 55 acres of lakes, 186 miles of streams, 40 miles of Choctawhatchee Bay shoreline, and 20 miles of Gulf of Mexico shoreline. In 2009/2010, Eglin AFB issued more than 33,000 recreational, hunting, and fishing permits.

## FY2010 ACCOMPLISHMENTS

- Recognized by the United States Fish and Wildlife Service (USFWS) as the first property under single ownership to achieve assigned recovery goal for the endangered red-cockaded woodpecker (RCW). Active RCW nesting clusters increased from 390 to 429 in 2010, and breeding pairs increased from 347 to 392 in two seasons.
- USFWS christened Eglin AFB a "National Recovery Champion" for achieving key milestones in the Okaloosa Darter Recovery Plan; boosting the threatened fish population to more than 900,000 from a low of approximately 1,500.
- Completed 21 wildlife habitat restoration projects in 2010, improving more than 18,000 acres for 85 federal and state listed threatened and endangered species.
- Host to the Prescribed Fire Combustion-Atmospheric Dynamics Research Experiments (Rx CADRE), the only collaborative prescribed burn effort in the United States where wild land fire professionals can bring new technologies and practices to a controlled environment and share the results immediately.
- Acknowledged by the State of Florida as the official "beach cleanup test site." Due to Eglin's ability to control access to their beaches, the base was used to test and evaluate equipment and methodology to clean the oil from the shorelines after a major spill event.

## **BACKGROUND**

The 96th Civil Engineer Group, Natural Resources Management section at Eglin AFB, also known as the Jackson Guard (JG), is comprised of three internationally recognized sections: Wildlife Management, Fire Management, and Forest Management. Each section is entrusted with conserving the ecological treasures found on the Department of Defense's (DoD) largest forested installation.

While most INRMPs are reviewed every five years, JG realized this management approach was not conducive to Eglin's dynamic military test and evaluation missions. In response, the Jackson Guard developed a web-based INRMP that includes seven component plans that are continually updated with new data models and regulator input, creating a truly adaptive management tool. The INRMP employs "hot-links" to supporting documents and a Terms and Conditions Database that tracks Endangered Species Act compliance guidelines issued by the United States Fish and Wildlife Service and National Marine Fishery Service (NMFS). Jackson Guard personnel, military planners, and state and federal regulators use the interactive INRMP site to easily access specific natural resource management topics. The Terms and Condition Database allows mission planners a better grasp of environmental requirements per mission type, area, and/or individual species and habitat. Using this tool, planners can select alternative test sites that will mitigate impacts to the ecosystem and wildlife and sometimes negate the need to obtain time-consuming permits. Use of this database saves almost 2,000 hours of labor annually and reduces mission timelines by up to 135 days by introducing natural resource protection in the early stages of military operations planning. The web-based INRMP also includes a comment and review platform that allows stakeholders the opportunity to review management decisions and direction and provide instant feedback to facilitate a free flow discussion on how to best accomplish Eglin's military missions while protecting environmental goals and objectives. The Air Force Center for Engineering and the Environment is currently using the Eglin AFB INRMP as a model for developing an electronic INRMP template that will be implemented throughout the Air Force, making it the standard for years to come. Eglin's INRMP is jointly signed by Eglin, Florida Fish and Wildlife Conservation Commission (FFWCC), and the USFWS.

Jackson Guard is comprised of a staff of 30 full-time civil service employees and 19 Colorado State University and Virginia Tech University contractors. JG is active in many committees including Eglin's Range Configuration and Control Committee, Range Development Executive Steering Committee, the Environmental, Safety, and Occupational Health Council (ESOHC), and the Outdoor Recreation Committee. All are chaired by AAC commanders. Eglin AFB is a key partner in the Gulf Coastal Plains Ecosystem

Partnership (GCPEP), a collaboration of ten state and federal agencies and private organizations that work cooperatively to address regional natural resources issues. This partnership ensures connectivity to the surrounding natural habitats, preventing Eglin AFB from becoming a biological island and extending our ecological boundaries.

Eglin's Environmental Management System (EMS) includes 55 conservation aspects referring to the different endangered and invasive species JG manages. Because of potential new air emission requirements, prescribed burns are one of Eglin's significant aspects this year in the EMS program. The goal is to better calculate the air emissions created from prescribed burns.

*"Proper management of threatened and endangered species is a mission and biodiversity sustainer on Eglin AFB. Jackson Guard works side-by-side with conservation organizations and environmental agencies to achieve healthy habitats throughout the reservation. They also look outside their fence, knowing neighboring habitat management is just as important to their objectives. The Nature Conservancy is honored to work with Eglin's team. They are a class act, backed by science, skills and continuity."*

- Debbie Keller,  
The Nature Conservancy Military Liaison, Florida



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## **PROGRAM SUMMARY**

The natural resources professionals at JG can proudly boast of their skilled execution of one of the most robust natural resources conservation programs in the DoD. Through proactive environmental planning and analysis

of proposed actions, JG ensures that the military mission can be accomplished without significant adverse impacts to the environment. The INRMP ensures the protection of natural resources by integrating an aggressive prescribed fire program and an innovative forestry program to support wildlife management objectives. Many of the original ecosystem management concepts born at JG have become the model for other DoD installations and land management agencies throughout the United States. The unit's accomplishments in FY09-10 have conserved a thriving habitat for Eglin's native species, striking a unique balance between the tranquility of old growth longleaf pine forests, sugar-white sand beaches, and the development, testing, and deployment of lethal air power. JG staff skillfully orchestrate the responsible stewardship of natural resources by integrating a management approach that maintains ecosystem viability and conserves biodiversity, while providing compatible uses to meet the mission requirements of the Air Force and DoD.

Since revising the INRMP in 2009, Eglin has completed 84 of 120 five-year goals and objectives, a whopping 70%. Most notable accomplishments include the successful petitioning of the USFWS to down-list the Okaloosa Darter, and achieving recovery status for the RCW.

## **ACCOMPLISHMENTS**

*“The professionals at Eglin Air Force Base know how to balance conservation with their mission and community partnerships such that all are winners. Their outstanding coordination efforts bring all stakeholders together early in the planning process, assuring that all concerns are addressed.”*

- Janet Mizzi, Regional Chief, Species and Habitat Assessment, U.S. Fish and Wildlife Service

### **Prescribed Fire**

Jackson Guard's aggressive prescribed fire program supports hundreds of plant and animal species that are adapted to the unique conditions that exist in a healthy longleaf pine forest. Additionally, prescribed fires have reduced wildfire occurrence on Eglin AFB by 40 percent, and helped achieve a record population increase of the endangered RCW. Jackson Guard successfully balances the management of a 362,000-acre fire-dependent ecosystem with sensitive military test and evaluation missions. To accomplish this difficult task, JG operates one of the largest, most complex fire management programs in the country. According to the U.S. Forest Service (USFS), JG's team of wildland firefighters led the nation with 112,600 prescribed fire acres in fiscal year 2009, resulting in a combined 217,000 acres burned over the last two fiscal years. JG was able to reach these numbers by streamlining the prescribed fire planning process. The JG fire section's planning team uses a software program to schedule prescribed burns that shows all planned

military missions over Eglin's ranges, thereby eliminating mission conflict by identifying areas of the range not in use. Once a site is selected, a smoke plume model is generated based on forecasted weather patterns. Plans for controlled burns are then submitted to the 46th Test Wing Range Operation Control Center for coordination. This process increases JG's ability to burn without mission conflict and increases the total acreage burned. The resulting prescribed burns not only enhances the fire-dependant longleaf pine forest ecosystem, but also reduces fuel buildups that can potentially cause catastrophic, uncontrolled wildfires ignited from mission related activities.



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Because of the “fire friendly” conditions and large forest tracks, Eglin is home to the Prescribed Fire Combustion-Atmospheric Dynamics Research Experiments (Rx CADRE). The Rx CADRE is the only collaborative prescribed burn effort in the United States where wildland fire professionals can bring new technologies and practices to a controlled environment and share the results immediately. This experiment attracts more than 25 different agencies and universities from across the US and Canada to share their expertise and information among wild land fire professionals. The goals are to produce and share more accurate predictive models for prescribed burning as well as wild fires while ensuring all data is peer-reviewed for accuracy.

### **Red Cockaded Woodpecker Recovery**

Through innovative management techniques such as drilling artificial cavities and translocating juvenile woodpeckers, JG created a thriving RCW habitat that saw active clusters increase from 390 to 429, and breeding pairs increase from 347 to 392 in two seasons. This robust growth resulted in Eglin having the first RCW population in the nation on a property under single ownership to achieve recovery status by the USFWS. In fact, Eglin exceeded recovery targets by a whopping 12 percent, and is five years ahead of schedule

to reach the overall population goal of 450 breeding groups. Implementing an aggressive prescribed fire plan, along with drilling over 200 cavities and the removal of invasive sand pines, were keys to achieving this blockbuster feat. The recovery status grants mission planners more flexibility due to an expedited USFWS consultation process and reduced processing time by 30 percent. Faster processing time equals faster support to the warfighter down-range! In addition, JG is now contributing 20 RCWs annually to other land managers of smaller RCW populations from Mississippi to the Carolinas. JG successfully consulted with the USFWS to decrease required monitoring as well as species-specific management, and therefore allowing limited resources to be reassigned to other protected species such as the flatwoods salamander.

### Okaloosa Darter Recovery

Christened a “National Recovery Champion” by the USFWS, JG achieved key milestones in the Okaloosa Darter Recovery Plan that boosted darter population to more than 900,000 from a low of approximately 1,500. JG accomplished this feat by implementing an outstanding erosion control program that rehabilitated 497 acres of highly eroded borrow pits, unpaved stream crossings, and over 2,000 miles of clay roads leading to military test areas. JG and the 796th Civil Engineer Squadron implemented Best Management Practices and changed their road paving techniques resulting in the massive reduction from approximately 60,000 tons of soil lost into darter streams to under 1,000 tons lost annually – the primary reason for the Darter’s recovery. Due to these extensive habitat improvements and other erosion control projects, this delicate fish, found almost exclusively on Eglin is in the final stages of being reclassified from the endangered to threatened status by the US Department of the Interior, a first on DoD lands for a vertebrate species.



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### Forest Management

The Eglin AFB Forest Management Program is a recognized leader in the recovery of longleaf ecosystems. Using a holistic management approach, the Forestry section completed 21 restoration projects, improving more than 18,000 acres of habitat for 85 federal and state listed endangered species – a major contributing factor to exceeding USFWS RCW recovery goals five years ahead of schedule. During the last two years, Eglin AFB produced and planted more than 1.5M longleaf seedlings from seed collected on the installation. The longleaf seedlings were randomly planted in areas where remnant longleaf remain after the sand pine was removed.



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The JG Forestry section supported BRAC directed construction for the 7 SFG and JSF compounds by implementing an innovative plan by using a timber removal/fuel wood contractor to remove the vegetation from construction sites. This inventive idea resulted in both new units meeting their mission needs with no delays. The Forestry section expedited the site clearing, kept the project ahead of schedule, and reduced landfill-tipping fees for the 57,000 tons of vegetation and saved the Air Force over \$5M.

Eglin AFB foresters oversee the largest land rehabilitation program in the DoD. During the award period, JG completed over 62 erosion site rehabilitation contracts valued at more than \$1.6M to protect critical wetland habitat and aquatic ecosystems containing threatened and endangered species such as the Okaloosa Darter. JG also collaborated with the 46th Test Wing to manage hardwoods encroaching onto test ranges. By using herbicides, JG reduced the mowing requirements on test ranges from every year to just once every 5 years, eliminating \$210,000 from the annual mowing budget. With the in-house integration of foresters, wildland fire fighters and biologists, JG developed a ‘sand pine eradication team’ that works together in the field weekly

removing invasive sand pine and improved 5,000 acres of RCW habitat.

The JG Forestry section also developed a meaningful partnership with the National Wild Turkey Federation, resulting in their contribution of \$175,000 for additional restoration activities and equipment. This contribution resulted in the protection of 4,000 acres of RCW habitat, which also improves turkey habitat.

### **BP Deepwater Horizon Oil Response**

An explosion on April 20, 2010 aboard the Deepwater Horizon led to the largest accidental oil spill in history. Nearly 5M barrels of oil gushed from British Petroleum's (BP) well according to estimates by government scientists. By June, early in the sea turtle nesting season, tar balls and oil began to reach the shores of Mississippi, Alabama and Eglin's beaches in Florida. It also began impacting Eglin's test and training missions over the Gulf and on the shorelines. With more than 20 miles of shorelines on the Gulf of Mexico and over 50 miles of adjacent Choctawhatchee Bay shorelines, Eglin was facing the greatest impact of any DoD facility on the Gulf of Mexico.



Jackson Guard biologists rescued more than 2,200 sea turtle eggs and transported them to Cape Canaveral on Florida's Atlantic Coast for hatching and release during the BP Deepwater Horizons oil spill disaster.

Eglin AFB first provided support to Okaloosa County by providing them the base's 'Waterways Spill Response Plan' and helping them "reverse engineer" it to prevent oil from affecting the 350 miles of Choctawhatchee Bay shorelines. JG biologists sprang into action and successfully rescued more than 2,200 sea turtle eggs from lethal exposure to the oil washing up on the beaches, as well as exposure to oil for any potential hatchlings in the Gulf, and transported them to Cape Canaveral on Florida's Atlantic Coast for hatching and release. JG also rescued numerous oiled birds that washed up on its beaches. Due to Eglin's ability to control access to their beaches, the base also served as the official

"cleanup test bed" for the entire state of Florida in an effort to understand what equipment and what methods worked best to clean the oil from the shorelines. JG took the lead and trained hundreds of responding BP Shoreline Clean-up Assessment Team members on where and how they could operate without affecting the four threatened and endangered species that occupy Eglin's coastline. In Florida, all eyes were on Eglin.

*"If we left the hatchlings to fend for themselves, they would face a certain death."*

- Robin Trindell, sea turtle coordinator for the Florida Fish and Wildlife Conservation Commission.

### **Reticulated Flatwoods Salamander Management**

Eglin AFB is home to the largest remaining population of the federally endangered reticulated flatwoods salamander, with 17,000 acres of potential salamander habitat and 20 known breeding ponds. JG masterfully averted Critical Habitat designation from USFWS through the living INRMP concept by updating the INRMP to include new salamander habitat management and salamander population data. Due to fire suppression and several drought years, the Flatwoods salamander has undergone apparent declines in the last 15 years to the point that it may only exist on Eglin and a few surrounding properties. In order to improve habitat conditions, JG has increased fire return intervals from five to two years.

To counter years of fire suppression, Eglin has also begun an innovative program to restore breeding ponds to high-quality habitat by mechanically removing hardwood midstory. Removal of midstory accomplishes two goals: 1) allowing sunlight to hit the ground and thus stimulating herbaceous ground cover growth; and 2) removing a large source of evapotranspiration and thus preventing ponds from drying early before larvae have the chance to metamorphose.

After a preliminary test of midstory removal in three ponds, salamander larvae were found in one of the ponds where they had not been documented since 1996. This success led to the treatment of 10 additional ponds. Data is being gathered not only on the presence of breeding individuals but also on vegetation response and water level changes. Eglin collaborated with the FFWCC to obtain a \$100,000 grant to implement this experimental treatment. This type of habitat manipulation had never been attempted and Eglin's innovative experimental treatment and subsequent research may discover the key to restoring highly degraded ephemeral wetlands for this species and other amphibians that rely on this type of habitat for reproduction.

## Gulf Sturgeon Management

The Navy Explosive Ordnance Disposal School, an Eglin tenant unit, requested incidental harassment authorization to perform under water detonations to fulfill training requirements, a potential impact to the protected Gulf sturgeon. JG collaborated with the U.S. Geological Survey and USFWS to conduct a pilot study that would determine Gulf sturgeon presence in the Gulf of Mexico waters near Eglin AFB.

The Eglin AFB pilot study was the first effort to document and confirm Gulf sturgeon activity within 1,000 meters of the shoreline during the winter months. Based on these findings, JG acquired a grant from the DoD Legacy Resource Management Program to continue and expand this study for another 2 years. Since 2009, 80 adult Gulf sturgeons have been tagged from surrounding rivers and are being monitored using state-of-the-art acoustic telemetry technology. JG's effort have reduced permitting timelines up to six months for large missions and even eliminated permitting requirements for those missions that do not fall within the Gulf Sturgeon spatial or temporal distribution, plus saved up to \$72,000 annually in helicopter and SCUBA diving pre-mission surveys to ensure protection of the resources. Being the only agency with experience in tracking Gulf sturgeon movements in the Gulf, Eglin's efforts and scientific advances from this study have been recognized by the USFWS and other Gulf sturgeon experts in the area.

At the request of the USFWS, Eglin's methodology and specific expertise has been expanded and is being used as a model for a Gulf-wide pre-assessment for the Natural Resource Damage Assessment investigation into determining potential impacts to Gulf sturgeon from the Deepwater Horizon Oil Spill in 2010. This initiative in promoting research to support conservation efforts for threatened and endangered species resulted in JG now being considered subject matter experts in monitoring Gulf sturgeon movements in the Gulf of Mexico.

## Community Involvement

JG actively promotes environmental awareness and stewardship through community involvement. They enable the local community to become actively involved in the installation's natural resources programs by providing year-round volunteer and educational opportunities not found in any classroom. This involvement raises public support and helps the community to understand the work and planning behind management decisions. The JG volunteer program is exemplary and recruits military and civilians across a range of ages and socioeconomic strata to participate in management and research activities. Last year, more than 575 volunteers devoted 14,425 hours to vegetation surveys, forest restoration projects, prescribed fire, and sea turtle monitoring.

The Guard also conducts multiple special opportunity hunts and fishing outings annually. The annual Mobility Impaired Hunt has been hailed as "the best hunting experience ever," by past participants and in FY10, Eglin hosted its first group of nine active duty combat wounded veterans from the "Wounded Warriors" organization. The event was attended by Mr. Cabot Benton, Founder and CEO of the Friends of American Heroes organization, who personally stated that, "this event had been the best hunt their organization had ever been a part of, both in terms of organization and hunting success."



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*"Management efforts toward self-sustaining landscapes have led to cost-efficient range restoration and maintenance, reduced regulatory restrictions and risk, served as an example for other DOD installations, and has a greater likelihood of meeting current and future defense needs of the American public. The USFWS is greatly appreciative of the various natural resource management efforts made over the years by the staff at Eglin Air Force Base; undoubtedly these efforts have significantly contributed to the natural quality of the Southeast, Florida Panhandle, and Gulf Coast region."*

- Donald W. Imm, PhD., Project Leader, Panama City Field Office, USFWS