

Introduction

Hurlburt Field is home to the 16th Special Operations Wing (16 SOW), part of the Air Force Special Operations Command (AFSOC). AFSOC's mission is to be "America's specialized air power, delivering special operations combat power anytime, anywhere." The Wing organizes, trains, and equips the Air Force Special Operations Forces for global deployment. Special operations activities accomplished by AFSOC include unconventional warfare, counterproliferation, direct action, psychological operations, special reconnaissance, antiterrorism, foreign internal defense, civil affairs, and information operations. The 16 SOW motto is "Any Time, Any Place."

Approximately 7,322 active duty, 10,860 family members, and 853 civilians live or work at Hurlburt Field. Hurlburt Field's 6,634 acres, managed under the Installation Natural Resources Management Plan (INRMP), are divided as shown in Exhibit 1.

Exhibit 1. Installation Acreage

Component	Acreage
Improved	674
Semi-improved	834
Unimproved	5,069
Water bodies	57
Total Acreage	6,634

Hurlburt Field is bounded by Santa Rosa Sound to the south and the vast East Bay River Swamp to the north. Fifty-two percent, or 3,431 acres, of the base is jurisdictional wetlands. A 1,000-acre natural area on the western side of the installation is comprised of longleaf pine flatwoods with over two dozen small seasonally flooded wetlands, known as cypress dome swamps, interspersed throughout in a mosaic pattern. This

incredibly rich and biologically diverse area is home to many rare and sensitive species, including pitcher plants and the federally threatened flatwoods salamander.

Background

In 2002, the INRMP was updated and totally integrated and coordinated with both the U.S. Fish and Wildlife Service (USFWS) and the Florida

Fish and Wildlife Conservation Commission (FWC). It was praised by USFWS as one of the best ever seen! Hurlburt Field's natural resources management team is approaching 100 percent implementation of the INRMP through flawless planning and execution. The team worked closely with the Natural Resources Conservation Service (NRCS) to complete seven monitoring reports of three sites on Hurlburt Field where ecological restoration is being conducted, in direct support of the INRMP. The INRMP is reviewed annually by Hurlburt Field, USFWS, and FWC to ensure its effectiveness.

Cooperative Agreements

Cooperative agreements supporting the INRMP are included in Exhibit 2.

Exhibit 2. Cooperative Agreements

Cooperative Agreement	Date Prepared/ Revised
INRMP	2002
Land Use Controls MOA between EPA, FDEP, and Hurlburt Field	1999
Compliance Partnering Charter between FDEP, Hurlburt Field, Eglin AFB, and Tyndall AFB	1998/2003
Restoration Advisory Board Charter between Hurlburt Field, Eglin AFB, EPA, and FDEP	1998
Wetland Preservation MOA between Hurlburt Field and FDEP	2000
Wastewater Reuse MOA between Hurlburt Field and the City of Fort Walton Beach	2003
Hurlburt Field Range Working Group agreement between Environmental, Security Forces, EOD, Special Operations School, and Rod and Gun Club	2003

- AFB Air Force Base
- EOD Explosive Ordnance Disposal
- EPA U.S. Environmental Protection Agency
- FDEP Florida Department of Environmental Protection
- MOA Memorandum of Agreement

Committee/Board Involvement

On July 29, 2005, Hurlburt Field conducted the first Environment Safety and Occupational Health (ESOH) Council meeting. This Council incorporates Safety, Bio-Environmental, and Environmental into a comprehensive unit that replaces the previous Environmental Protection Committee (EPC), per Air Force Directives. The new Council streamlines the process for properly managing environmental issues, safety, and occupational health



into one biannual meeting with base leadership serving as Council leadership. The Council is chaired by the 16 SOW/CC (Wing Commander), and is responsible for reviewing the Base ESOH Management System (formerly referred to as the Environmental Management System, or EMS).

Hurlburt Field's Tree Board makes decisions relative to urban tree management on the Base. This Board also plans and implements the annual Arbor Day celebration. The natural resources manager is a member of the Bird Airstrike Hazard (BASH) working group, chaired by the 16 SOW/CV (Wing Vice Commander), and the Range Working Group that makes decisions relative to the four ranges on base: EOD, Dynamic of International Terrorism (DIT), Combat Arms Training and Maintenance (CATM), and Rod and Gun Club.

Organization and Staffing

One civilian position is authorized within 16 CES/CEV for a natural and cultural resources manager at Hurlburt Field. The Environmental Flight oversees the Hurlburt Field environmental programs, and the program managers work closely with each other for an integrated approach to environmental management. Exhibit 3 shows the Environmental Flight organizational chart.

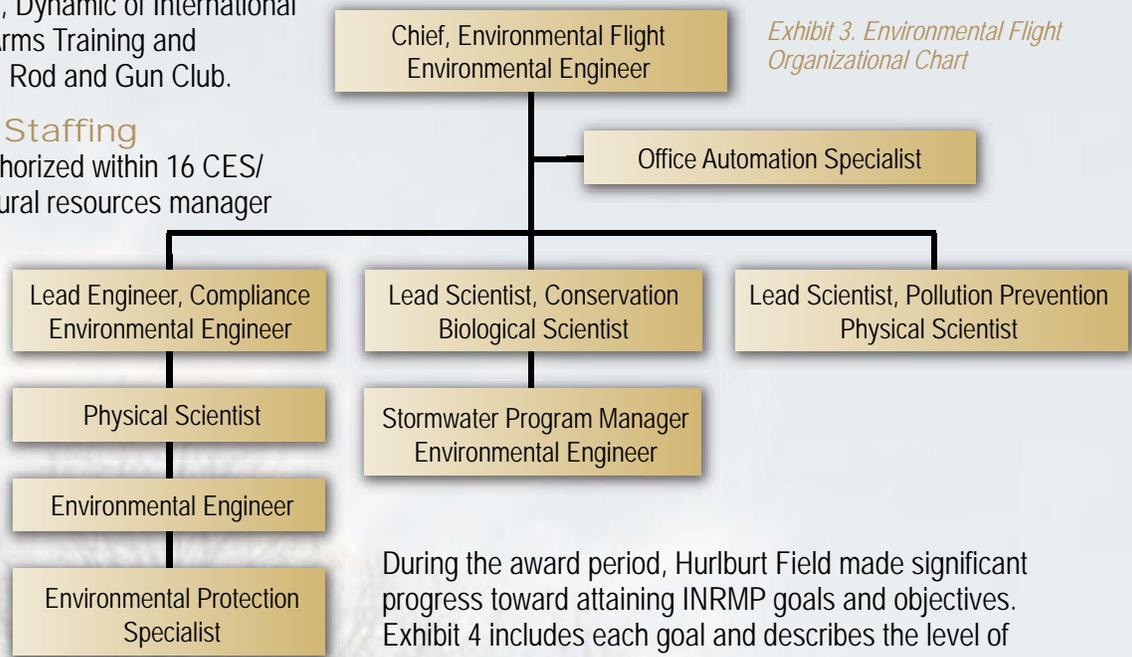


Exhibit 3. Environmental Flight Organizational Chart

Program Summary

There are many outstanding features of the Hurlburt Field natural resources management program over the past 2 years. Most notable are the improved BASH program, directly supporting the Base mission, and the aggressive tree protection/replacement program (3 to 1 replacement) that saved the Base's urban forest from being completely devastated following Hurricanes Ivan and Dennis, an example of excellent program management. These features are described in detail in the "Accomplishments" section.

During the award period, Hurlburt Field made significant progress toward attaining INRMP goals and objectives. Exhibit 4 includes each goal and describes the level of achievement attained.

Exhibit 4. INRMP Goals and Level of Achievement

INRMP Goals	Progress Toward Goals
Incorporate the concept of ecosystem management into the Hurlburt Field natural resources program.	<ul style="list-style-type: none"> Partnered with Eglin AFB in 2003 to accomplish an 800-acre prescribed burn in a pine flatwoods area interspersed with seasonally wet cypress dome swamps, home to numerous sensitive species that depend on regular recurring fire for their existence Permanent sampling and photo stations are used to allow natural resources personnel to monitor progress and trends annually
Implement provisions of the long-term wetland permit for Hurlburt Field.	<ul style="list-style-type: none"> Created 4.3 acres of valuable salt marsh habitat Began ecological restoration by removing invasive sand pine, planting over 8,000 longleaf pine seedlings, conducting prescribed burns, and implementing an aggressive exotic species removal program
Improve the quality of surface waters and the management of water resources throughout Hurlburt Field.	<ul style="list-style-type: none"> Implemented best management practices (BMPs) for all ground-disturbing projects greater than 1 acre Worked with Okaloosa County to secure a grant to construct a reuse water line that will use the Base's treated wastewater for irrigation in the City of Fort Walton Beach's industrial park Replaced 24 potable water irrigation wells with non-potable wells

Exhibit 4. INRMP Goals and Level of Achievement (continued)

INRMP Goals	Progress Toward Goals
Improve non-game species habitat throughout Hurlburt Field.	<ul style="list-style-type: none"> • Encouraged use of native species in all plantings on Base • Worked with local Scouting community to install bluebird and bat boxes throughout Base
Improve habitat for rare and threatened/endangered species (T/E) within the installation.	<ul style="list-style-type: none"> • Accomplished 800-acre prescribed burn and began habitat restoration project • Worked with NRCS to close six roads, eliminating unauthorized off-roading in 500 acres of sensitive habitats • Incorporated T/E survey information into Hurlburt Field geographic information system (GIS)
Manage forest ecosystems for biodiversity.	<ul style="list-style-type: none"> • Identified and mapped 10 different habitat types within Hurlburt Field, and developed management regimes to reach goals based on healthy examples of each habitat type • Conducted management activities including prescribed burning, conversion of sand pine plantation to longleaf/wiregrass system, and control of exotic species
Enhance outdoor recreation opportunities.	<ul style="list-style-type: none"> • Continued to work with Scouts and volunteer organizations to enhance the Grace Brown Nature Trail, increasing the length, adding elevated boardwalks over wetland areas, and installing interpretive signs • Worked with Hurlburt Field Services to identify a suitable area for a large paint-ball course on Base (the course has been highly successful)
Develop land management practices compatible with an ecosystem approach to natural resources management.	<ul style="list-style-type: none"> • Established BMPs for erosion and non-point source pollution control during grounds maintenance activities • Continued to reduce invasive and exotic plants throughout the installation • Maintained airfield areas to minimize BASH problems • Continued to maintain Tree City USA designation for the Base through sound program management and urban forest preservation

Accomplishments

The most outstanding accomplishments that occurred during the achievement period are described in the following sections.

Overall Conservation Management

Hurlburt Field's natural resources management team is approaching 100 percent implementation of the INRMP through flawless program management, successfully integrating natural resources management and protection with the high operations tempo of AFSOC. During the achievement period, 464 projects, totaling \$307 million, were managed with no delays, ensuring complete and total environmental protection throughout the projects. An irrigation project was initiated, funded, and directed to conserve mission-critical potable water supply. This project saved 30 million gallons (MG) of water per year by replacing 24 potable water irrigation wells with non-potable water sources. A new base policy was implemented to require non-potable water sources for all new irrigation on base.

A redetermination of all wetlands on Base was completed, including jurisdictional delineation of over 3,200 acres of wetlands. Wetland lines were surveyed using sub-meter global positioning satellite (GPS) accuracy, providing the ability to locate the wetlands

almost instantly. The natural resources databases were incorporated in the Hurlburt Field GIS to allow quick access to wetland lines, tree information, endangered species locations, floodplain lines, and other natural resource management information. GIS has been an invaluable tool for planners, programmers, and engineers. The ability to quickly locate wetland lines on a base that is 52 percent wetland dramatically streamlines many processes.

Land Use Management

Specialized equipment was used to clear trees from 250 acres of protected wetlands inside the flightline clear zone, saving approximately \$350,000. All permit exemptions were obtained, no mitigation was required, and there were no negative wetland impacts from the clearing.

Hurlburt Field partnered with Okaloosa County on a wastewater reuse project, obtaining grant funding from the State of Florida infrastructure program. According to the Wastewater Reuse MOA between Hurlburt Field and the City of Fort Walton Beach, Okaloosa County will install the wastewater reuse facility and Hurlburt Field will provide the County with 200,000 gallons of reuse water per day. The Base clear water rinse facility and golf course irrigation will also be placed on this system, saving millions of gallons of water per year.

Forestry Management

Since Hurricane Opal hit the Gulf Coast in 1995, an aggressive tree protection/replacement program has been in place at Hurlburt Field. For every tree that is destroyed, three are planted to promote both conservation and aesthetics. When Hurricanes Ivan and Dennis ravaged the coast in September 2004 and June 2005, respectively, the Base lost thousands of trees. Because of the aggressive planting program, its urban forest was not completely devastated.

Following the hurricanes, a certified arborist was retained to either prune or remove over 5,000 trees. Base personnel planted 1,225 native trees (35-gallon container size) in the housing and Main Base areas to replace lost trees, and straightened and secured 750 small trees that had been blown over during the 130-mile-per-hour winds from Hurricane Ivan.

Timber from approximately 30 construction sites was sold to commercial foresters and the revenue generated was used to restore vital longleaf pine habitats. The Base's premier landmark tree, a 370-year-old longleaf pine, was protected by modifying a project design.

Hurlburt Field joined with Eglin AFB to complete an aerial ignition prescribed burn on 800 acres of endangered species habitat. The fire stimulated germination and flowering of many listed plant species including the white-top pitcher plant, and the habitat for the federally threatened flatwoods salamander was greatly improved. Prescribed burning provides a much greater ecological lift than mechanical or chemical land

management practices and it costs less. An aggressive prescribed burning program prevents dangerous fuel loading that can lead to a destructive wildfire. Because Hurlburt Field partners with Eglin AFB on prescribed burns, both installations receive a cost benefit. At Hurlburt Field, this savings is at least \$10,000 per prescribed burn.

Hurlburt Field received the Tree City USA Award for the eleventh consecutive year, presented by the Arbor Day Foundation and State Forestry Commission, and was also awarded the prestigious Tree City Growth Award for outstanding improvements to urban forestry (sixth time award was received in the last 9 years).

Fish and Wildlife

Habitat improvements were made through ecological restoration, which began by removing 100 acres of sand pine from an area that was historically a longleaf pine ecosystem. Prescribed burning is used to maintain the ecosystem, ensuring the viability of a whole suite of species. Over 8,000 longleaf seedlings were planted to supplement natural regeneration. The health of the ecosystem was immediately improved; for example, a gopher tortoise was sighted for the first time in 8 years.

A new 4.3-acre salt marsh was created along Santa Rosa Sound providing an ecologically diverse and important habitat for fish, crustaceans, and wading birds. The marsh created a valuable habitat, deterred shoreline erosion, and helped mitigate \$28 million in military construction (MILCON) projects. Because Hurlburt Field partnered with state and federal regulatory agencies to combine a marina dredging project with the salt marsh creation project, a \$300,000 savings in disposal costs of dredged material and cost of new fill for the salt marsh area was realized.

Base personnel respond to approximately 15 bear calls per year. While responding to one of these calls, a protected state-listed black bear was guided out of Base housing and across a busy highway (traffic was stopped to allow the bear to cross safely).

By request, Hurlburt Field hosted state wildlife biologists so they could document and describe the ideal habitat found on the Base for the newly listed flatwoods



salamander. The information they obtained was used to develop a training module for state biologists.

Other Natural Resources

The natural resources manager provided environmental oversight when a \$2 million community park was constructed. The park includes an interactive fountain, soccer field, skate park, playground, batting cages, and jogging trails. Slight adjustments made by the natural resources manager saved 44 trees in the park.

During the award period, four Eagle Scout projects were completed. The Scouts provided quality projects that enhance the outdoor experience. They repaired and replaced 15 interpretive signs, 3 benches, and 2 picnic tables along the 1.5-mile Grace Brown Nature Trail that were damaged by hurricanes. Contractors replaced 690 feet of destroyed boardwalk, and a local Boy Scout troop helped install 580 feet of split rail fence to stop off-roading in the stormwater pond, eliminating the damage to the pond bottom and bank erosion. The natural resources manager also worked with NRCS to close six roads to eliminate unauthorized off-roading in 500 acres of sensitive habitats.



The picnic area pavilion, restrooms, and recreation areas (volleyball court and horseshoes) were repaired following Hurricane Ivan, while using precautions not to disturb an archaeological site. Hurlburt Field coordinated this effort with the State Historic Preservation Office (SHPO) and received approval to use 4 inches of tree mulch over the entire pavilion job site as a protective covering to prevent equipment and vehicles from disturbing anything beneath the surface. The contractor also placed mulch walkways on the site and around the buildings using mulch from trees lost during Hurricanes Ivan and Dennis. The marina was repaired using ChoiceDek

(recycled content decking material), and a new boardwalk was provided as part of the Hurricane Ivan repairs.

The Base natural resources manager attended weekly MILCON review meetings with CEC/U.S. Army Corps of Engineers (USACE), developed a permit tracking system used by attendees, and is currently tracking 53 environmental permits for MILCON projects, ensuring compliance with the permits.

The Base stormwater manager received Stormwater Inspector Training Certification to “train the trainer,” and trained approximately 200 military, civilian, and DoD contractors. A “Butterfly Board” was developed in collaboration with the North American Butterfly Association, and was included in the Grace Brown Nature Trail kiosk.

Nine large boats were removed from the Base after the storm surge from Hurricane Ivan left them 1,000 feet inland. A boat recovery company with a barge and cranes removed the boats from the coastal marshes. Oversight of the removal operations was provided by the natural resources manager to ensure that there was no permanent damage to the ecosystem.

Invasive Species Control and Pest Management

When Japanese climbing fern was found in pine straw being used for mulch, the natural resources manager contacted the Florida Department of Agriculture and assisted in identifying the supplier, eliminating the source, and stopping the spread of a highly invasive exotic across the region. Exhibit 5 shows the progress made on treating exotic plants at Hurlburt Field.

Exhibit 5. Exotics treated at Hurlburt Field

Exotic	Number Treated
Chinese tallow	8,577
Privet	485
Mimosa	38
Climbing fern	115
Cogon grass	10 acres

The Florida Exotic Pest Plant Council was contacted for the most current information on effective products and application for treatment of exotic plants.

Conservation Education and Community Relations

Hurlburt Field had its most successful Earth Day ever in 2005. The theme was “Take a Walk on the Wild Side,”

and participating groups included Hurlburt Field Services, Communications, Security Forces, Civil Engineering, and the Fire Department. Approximately 500 school children representing six schools, and 300 adults attended the environmental extravaganza.



Presentations were made by the Gulf Coast Wildlife Refuge staff on "Protecting Wild Animals," and a licensed rehabilitator made a presentation about "Wildlife Rehabilitation." There were guided nature walks, a petting zoo, food booths, free handouts, and various animal displays. Local media attended and there were newspaper stories and an evening television news spot.

The natural resources manager served as a judge, for the fourth year in a row, in the biology category for the middle school regional science fair, and conducted four eco-tours for approximately 360 local school children, discussing the diverse local ecosystems, flora, and fauna at the Base.

To promote base personnel awareness, six articles were contributed to *The Commando*, the Base newspaper, on conservation topics such as "Don't Feed the Alligators," and "Why We Prescribe Burn." During Hurlburt Field's Family Fun Fest, a conservation awareness booth was set up. More than 7,000 personnel and family members attended the event with the opportunity to educate themselves more about conservation. An environmental Web site was developed for Base personnel, making a lot of conservation information readily available to them.



"This field trip [to Hurlburt Field] is the best field trip of the year!"

*Ms. Denise Brown,
teacher*

*Holly Navarre
Elementary School*

Mission Enhancement

Hurlburt Field significantly improved the BASH program by incorporating multiple tools for reducing hazards including trained border collies, remote control planes, bird-strike data entry and trend tracking, pyrotechnics, trapping, and lethal control. Border collie harassment was so successful that deer numbers on the airfield were reduced by 95 percent in the first 2 months the program was implemented. Bird-strike-related costs were substantially reduced from \$450,000 in FY 2004 to \$39,000 in FY 2005, a 91 percent reduction!



Conclusion

At Hurlburt Field, exemplary natural resources stewardship is key to the success of the INRMP implementation. Excellent INRMP program management has successfully integrated natural resources management and protection with the super high tempo of special operations. Mission-oriented innovative techniques, such as the use of border collies to control wildlife on the runway, were very successful. Because the INRMP is a collaborative effort of the Environmental Flight programs, the foundation for its success has been established. Hurlburt Field partners with its regulatory and governmental stakeholders in making sound resource decisions, and provides many ways for the community to be involved in activities at the Base.

The Groundwater Foundation designated Hurlburt Field as 1 of only 3 DoD installations in the country to achieve Groundwater Guardian Communities status, based on water conservation efforts implemented at the Base.