

**FY2003 SECRETARY OF DEFENSE ENVIRONMENTAL AWARDS  
NATURAL RESOURCES CONSERVATION—SMALL INSTALLATION**



**Building Leaders,  
Advancing Integrity,  
Service Before Self, and  
Excellence In All We Do**



**Columbus AFB, Mississippi**



## INTRODUCTION

Located on a bluff overlooking the Tennessee-Tombigbee Waterway in rural Lowndes County of northeast Mississippi, Columbus Air Force Base (AFB) is home to the 14th Flying Training Wing (FTW), a vital component of the Air Education and Training Command (AETC). A third of all Air Force (AF) pilots receive initial pilot training at Columbus AFB using the T-37 “Tweet,” the T-38 “Talon” and the T-1 “Jayhawk” aircraft and cockpit simulators.

The rural location offers nearly 11,500 square miles of unrestricted air space, which facilitates training scenarios. The 14 FTW’s 220 aircraft fly approximately 90,000 hours annually, using three runways on Columbus AFB and one runway at the Shuqualak Auxiliary Airfield (AA). Shuqualak AA is approximately 35 miles south of Columbus AFB in east-central Mississippi’s rural Noxubee and Kemper Counties.

The 14 FTW’s mission, “To defend the United States of America by training the world’s best pilots and warriors,” is supported by 1,407 active duty and 1,288 civilian personnel. An additional 2,080 military dependants and 4,730 retired military personnel use base resources for housing, recreation, shopping and health care.

Protecting, conserving and managing the base’s natural resources is an essential part of Columbus AFB’s mission. The base supports a two-acre lake, 180 acres of wetlands and 1,200 acres of commercial forest. The pine and oak forest provides quality hunting, fishing, nature trails and bird and wildlife watching. Hot and humid summers and mild winters provide a moderate climate that fosters a variety of plant and animal species.

Columbus’ natural resource personnel are responsible for the base’s 4,930 acres of which 1,624 are classified as improved, 1,707 are semi-improved and 1,418

are unimproved. In addition, Columbus also has the responsibility for natural resources at Shuqualak AA. Although no AF personnel or aircraft are based at the airfield, the natural resources there are significant. Of the 1,080 acres at Shuqualak AA, 167 are improved, 227 are semi-improved and 530 of the remaining 686 unimproved acres are covered by a loblolly pine forest.

## BACKGROUND

Columbus AFB personnel are proud of the base, the local community and the State of Mississippi. This pride is very apparent in both the overall management of the base and in the high morale of Columbus personnel and dependents. The natural resource management program within the 14th Civil Engineering Squadron, Environmental Flight plays a critical role as the steward for natural and cultural resources on Columbus AFB. Although situated in a rural environment, Columbus AFB and Shuqualak AA are primarily urban installations where substantial human activity interacts with natural resources. Outstanding environmental planning, management and initiatives are integrated into all levels of decision making to guarantee base resources are protected for public and national interests, while maintaining 100% mission capability.

Columbus AFB completed its current Integrated Natural Resource



**▲ “As the nations’ fifth busiest airfield, it is essential that Columbus AFB perform its vital mission of training the best Air Force pilots in the world while minimizing effects on the environment. I commend the men and women of the 14th Flying Training Wing for their efforts in meeting the challenges of their wartime mission and protecting the environment for generations to come.”**

**—Congressman Roger Wicker**

<b>Natural Resources Program Cooperative Agreements and Partnerships</b>
<b>Mississippi Forestry Commission (FY98)</b>
<b>U.S. Fish and Wildlife Service (FY99)</b>
<b>U.S. Department of Agriculture, Forest Service (USDA-FS) (FY00)</b>
<b>Natural Resources Conservation Services (NRCS) (FY02)</b>
<b>U.S. Department of Agriculture, Wildlife Services (USDA-WS) (FY03)</b>
<b>Mississippi State University (FY04)</b>

Management Plan (INRMP) in FY01 and meticulously updates the plan each year. The INRMP provides goals for the natural resource manager that guide natural resource uses; protects sensitive species, habitats and wetlands; improves water quality; manages game and non-game species, pests, forests, outdoor recreation and cultural resources; and integrates Geographic Information System (GIS) capabilities into natural resource programs at Columbus AFB and Shuqualak AA.

The environmental flight chief oversees four environmental pillars including conservation of natural and cultural resources; pollution prevention; restoration; and compliance. In FY03, Columbus AFB recruited a wildlife biologist from the U.S. Department of Agriculture (USDA) to help reduce bird aircraft strikes and other wildlife hazards. The natural resource manager often partners with and receives valuable assistance from the USDA's wildlife biologist. Together they conducted wildlife and habitat inventories and helped reduce wildlife hazards. The USDA wildlife biologist provides technical assistance and is also a game warden. Cooperative agreements with the National Resources Conservation Service (NRCS), Mississippi State University and a Memorandum of Understanding with the US Fish and Wildlife Service allow Columbus AFB to augment its single natural resource management position without increasing manpower authority or contracting costs.

Several agreements were initiated for forestry, wetland protection and soils (see related table) to meet IRNMP goals.

The Air Force Forester described the Columbus INRMP as "setting the standard for all AETC installations." As a result, AETC increased the budget for projects from \$128K in FY03 to \$283K in FY04.

Columbus AFB implemented an Environmental Management System (EMS) in 2003 -- two years ahead of the Environmental Protection Agency's December 2005 deadline. The EMS facilitates program implementation to ensure the base achieves its environmental goals. Columbus AFB was the first base in AETC to implement an EMS and also developed a web-based EMS manual. Quarterly metrics developed to track progress in achieving the goals are reported at installation Environmental Protection Committee (EPC) meetings. Chaired by the wing commander, these meetings involve top leadership from the base and keep environmental protection, preservation and restoration at the forefront of the minds of the entire base population.

The environmental flight uses diverse methods to include stakeholders in

**"Columbus AFB has leveraged their manpower and expertise for land stewardship programs by forming collaborative relationships with universities and other natural resource management agencies in the region. These agreements have improved both the efficiency and effectiveness of land management at Columbus AFB...as intended by Congress in the Sikes Act."**

**—ESOH CAMP Finding NRM-006**



▲ T-37, T-38, and T-1 aircraft fly over Columbus AFB.



all base environmental programs. The natural resource program manager frequently meets with USDA Forest Service personnel to assess current and projected forest projects. The manager also works closely with the NRCS on issues ranging from wetlands management to improving white-tailed deer habitat. In addition, the Restoration Program Manager (RPM) hosts the annual Technical Review Committee meeting with local community leaders, state regulators and headquarters personnel, to discuss the base's environmental cleanup program and to solicit their input. The RPM also conducts annual surveys within the local community to determine and subsequently address environmental concerns surfaced by community members.

## PROGRAM SUMMARY

Hard work results in an award-winning program. Columbus AFB's Environmental Flight was the recipient of the General Thomas D. White Environment Award for Natural Resources Conservation (Small Base) for FY 2003. This prestigious award was the result of team member dedication, clear environmental focus provided by wing leadership and the incredible results of hard work. Columbus AFB natural resources program team members believe their mission consists of two equally vital components-- supporting the flight training mission while protecting the base's natural resources.

Columbus AFB was also named as the 2001 AETC Environmental Flight of the Year and the Mississippi Recycling Coalition Federal Recycler of the Year for 2003.

Columbus' natural resource program's successes are a direct result of open communication and coordination with other flights to obtain accurate baseline information, expedite projects and identify opportunities to conserve natural

resources. This vital communication element ensures both natural resources and mission requirements are addressed.

Between FY01 and FY03, a variety of initiatives were completed to advance the natural resources program, including:

- completing the INRMP in FY01 and initiation of team efforts with the Air Force Center for Environmental Excellence (AFCEE) to develop projects required by the plan;
- partnering with the Air Force Forester to write and implement a proactive, base-specific Natural Resource Management Work Plan for Columbus AFB that guides management activities, inventories, resource planning, focuses on educational awareness and interagency coordination, partnership needs and event participation for FY02 through FY06;
- conducted 702 work order and 30 project reviews during FY03, resulting in completion of 19 AF Form 813 environmental reviews, identification of 26 areas of asbestos contamination, 8 areas of lead paint contamination and 74 other environmental considerations;
- worked with AFCEE to contract an Airfield Aerodrome Tree Survey to mark trees for removal whose height penetrates the glide-slope requirements of aircraft operations;
- spearheaded activities to support hiring a permanent, on-site USDA wildlife services biologist;
- worked with AETC to conduct a Cold War Resources Inventory that identified base structures for recommendation for listing in the National Registry of Historic Places;
- conducted the first prescribed forest burn on base to improve forest health;



▲ Columbus AFB is nicknamed "The BLAZE," which represents the base motto of Building Leaders, Advancing Integrity, Service Before Self, and Excellence In All We Do. By establishing agreements with various outside agencies and meeting all the goals and objectives of the INRMP over the past three fiscal years, the Natural Resource Program has truly "BLAZED the Trail" to bring improvements to the base and the entire surrounding community.

- implemented a nature trail renovation project; and
- teamed with NRCS to delineate wetlands using GIS technology for only \$10K that provided significant immediate and long-term savings.

The 2003 Environmental, Safety and Occupational Health Compliance Assessment Management Program (ESOHCOMP) audit conducted at Columbus AFB revealed 11 positive findings for the environmental flight and three positive findings for the natural resources program. Columbus was the only AETC base with no high-vulnerability findings.

Careful planning and development of cost-effective partnerships resulted in correction of deficiencies in budget resources and staffing. Planning and partnering ensured that 95% of the projects programmed for the last three fiscal years were completed. Not only were these projects completed, they produced positive results for both environmental protection and mission support that will stand the test of time.

## ACCOMPLISHMENTS

### Overall Conservation Management

Conservation management at Columbus AFB is accomplished through tremendous teamwork. Open communication and regular coordination with other flights is crucial to incorporating conservation goals into base activities. Quarterly EPC meetings allow collaboration with the wing and group commanders and other organizations. Every effort is made to optimize the balance between conservation goals and mission requirements ensuring positive working relationships with an emphasis on collaboration.

The conservation staff works closely with allwing organizations to review and identify solutions that enable conservation and

mission goals to complement, rather than compete with each other. For example, the wetlands inventory conducted by the NRCS not only helped prevent loss of valuable wetlands but also expedited the civil works project approval process. The natural resource program's partnership with the USDA wildlife biologist resulted in documenting wildlife surrounding the airfield to reduce immediate wildlife hazards, prevent Bird Aircraft Strike Hazards (BASHs) and provide long-term recommendations for inclusion in a Wildlife Hazard Management Plan. Coordination with the U.S. Army Corps of Engineers and the U.S. Forest Service established healthy forests that provide abundant habitat for a variety of species.

### Ecosystem Management

Dynamic partnerships with federal and state agencies provide regional ecological benefits. The Mississippi Department of Wildlife, Fisheries and Parks, Mississippi Department of Environmental Quality and the US Fish and Wildlife Service are included in approving ecosystem planning efforts. Achieving healthy forests through forest thinning, prescribed burning and tree planting greatly contributes to improving wildlife habitat, wildfire prevention and

**"[Columbus AFB's] commitment to forest resource management, and ongoing management endeavors such as thinning overcrowded pine stands, conducting controlled burns with multiple benefits to forest health and wildlife, and controlling invasive/exotic species should help bring Columbus to the desired condition in a relatively short period of time...I look forward to continuing our working relationship, as we move toward our goal of maintaining healthy and productive forested ecosystems."**

**—John W. Baswell,  
U.S. Forest Service,  
Tombigbee National  
Forest District Ranger**



▲ SAC Lake

pest suppression in the greater Columbus area. These activities have significant impact on controlling the southern pine beetle, that seriously undermined the timber industry throughout the south over the last several years. Erosion control and storm water measures implemented at Columbus AFB also greatly improve the quality of nearby streams leading into the Tennessee-Tombigbee Waterway.

**Land Use Management**

Erosion control and water quality are the primary land use responsibilities for natural resource program managers. There is no agricultural out-leasing because potential intrusions into the airfield would conflict with the base mission. Over the past three years, Columbus AFB cultivated its partnerships to cost-effectively complete necessary natural resources projects. A cooperative service agreement with NRCS to remedy soil erosion problems at Shuqualak AA saved the Air Force more than \$250K in construction costs. NRCS developed an erosion prevention plan and Columbus AFB performed the work in-house resulting in cost savings and adverse erosion effects.

Partnering with other base operations also achieved land management goals. Natural resource personnel worked with the operations flight to create riparian buffer zones that expedited project planning. Erosion control devices implemented during construction at Shuqualak AA minimized impacts to water quality.

The base’s comprehensive Landscape Development Plan promotes the use of

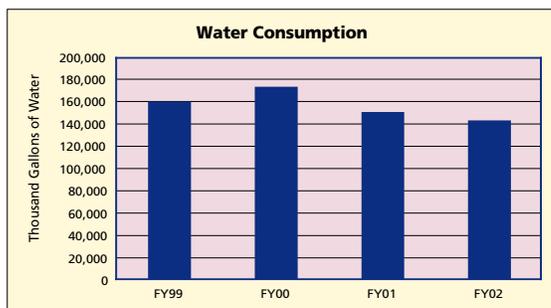
native plants species in landscaped areas and wetland enhancements. As a result, 10 red maples, 21 southern magnolias and 40 loblolly pines were planted in a base housing area entrance in FY03. These additions greatly improved the aesthetics of the entrance. Columbus AFB also promotes water use efficiency, water conservation and strives to reduce water utility costs. Flawless implementation of proven best management practices in facilities and landscaping to conserve water include distribution system audits, leak detection and repair, drought tolerant landscaping, water efficient boiler/steam systems and cooling tower management to minimize water loss. These practices resulted in a 21% decrease in water consumption between FY00 and FY02.

**Forest Management**

Approximately 25% of Columbus AFB and Shuqualak AA are forested with pines and hardwoods. An elaborate planned urban tree inventory cataloged about 6,300 trees that are maintained through diligent enforcement of the AETC Tree Policy. The policy, “If you cut a tree, you must replace a tree,” provides a solid foundation for ensuring forest areas are maintained. As a result of these efforts, Columbus AFB was 1 of only 4 Mississippi cities out of 37 cities nationwide that earned the prestigious Tree City USA Growth Award from the National Arbor Day Foundation for outstanding urban



▲ The first prescribed burn was conducted at Columbus AFB in 2001.



and commercial forestry activities.

Columbus AFB proactively recognized the devastating damage that could be caused by pine beetle infestation and provided effective thinning to selected base areas. Not only were remaining forested areas protected, thinning treatments enabled easier management of treatment for beetle infestations.

A Memorandum of Agreement with the USDA Forest Service and ongoing cooperative efforts with the U.S. Army Corps of Engineers are integral components of forest management success. In 2001, the base coordinated with these agencies to use prescribed burns in Columbus AFB's commercial forest. The first burn of 12 acres laid the foundation for healthier pine strands, provided diverse habitat for wildlife while controlling invasive plant species. The burn was so successful that additional controlled burns of approximately 100 acres are proposed for early 2004.

In addition to prescribed burn activities, coordinated efforts with the U.S. Forest Service involved the identification of invasive plant species, development of a plan to control these species by hand application of selective herbicides and the manual removal of undergrowth in a pine plantation at Columbus AFB.

As part of the commercial forestry program, Columbus AFB also had a massive 95-acre timber-thinning project that garnered \$56K in revenue to Air Force Forestry and provided \$22K to the local county for schools and roads.

### **Fish and Wildlife Management**

Revisions to Columbus AFB Instruction 32-7001, Wildlife Conservation Program, paved the way for implementation of the first-ever, self-sustaining wildlife program at the base. Revenues from all hunting and fishing permits are now used to manage wildlife resources and improve conditions for indigenous wildlife on the

base. This initiative ensures protection and adequate management of these resources.

A total of 45 bird, 20 mammal, 18 reptile, 7 amphibian and 6 fish species are known to exist on Columbus AFB

while 9 bird and 13 mammal species exist on Shuqualak AA. Primary habitats include forested areas, however, Strategic Air Command (SAC) Lake and wetlands provide riparian and aquatic habitats. Many avian species listed on the National Heritage Program, state species-of-concern list are habitants of Columbus AFB and Shuqualak AA. No suitable habitat exists on Columbus AFB for federally listed threatened and endangered species, however, protected species inhabit areas outside base boundaries. Threatened bald eagles nest along the Tombigbee River Basin and endangered freshwater mussels inhabit the Butahatchie River and the headwaters of Shuqualak Creek, both areas beyond the base and Shuqualak AA. To ensure base activities do not affect these species, projects are reviewed for potential impacts to mussel habitat. A base wide survey was conducted for bald eagle nesting habitat. Reviews or projects pay particular attention to potential nesting areas.

The USDA wildlife biologist, in conjunction with Columbus natural resource personnel, conducted deer and avian wildlife surveys. A survey of species of concern (including federally listed, state-listed and special status species) and their habitats will be conducted by Mississippi State University in 2004. The surveys will facilitate proper protection and habitat management for these species and also provide indicators of the biodiversity that exist on Columbus AFB. A state-of-the-



▲ The USDA Wildlife Biologist during a species survey.

**“Columbus AFB has been proactive in their tree management program instead of reactive. They are looking forward as to how the base will look not just now, but how it will look for future generations.”**

—Rick Olson,  
Mississippi  
Forestry  
Commission

art database is being developed to record species observations from these surveys and to calculate species per acre and total populations. The numbers obtained from the deer surveys will help manage deer herds to maintain viable populations for future hunting seasons on base.

Columbus AFB natural resource personnel enthusiastically worked with the NRCS to develop a plan for improvement of SAC Lake through management and increased stocking levels of native fish including bass, white perch and bream.

The conservation team spearheaded initiatives to prevent wildlife aircraft conflicts and aid the Bird Aircraft Strike Hazard (BASH) and hunting programs on the base. Through sensitive coordination with the NRCS and adjacent landowners, food plots were strategically placed to attract wildlife, particularly deer and turkey, away from the airfield thus minimizing their feeding on vegetation in the active airfield. These actions achieved phenomenal results with no deer strikes in two years. Wildlife food plots also increased harvest numbers for these species and produced trophy animals for the base populace.

### Other Natural Resource Management Activities

In addition to ecosystem, land, forest wildlife and pest management, Columbus AFB provides opportunities for hunting and fishing, hiking on nature trails and wildlife watching. Air Force and civilian personnel have the unique opportunity to hunt and fish on approximately 1,250 acres of Columbus AFB and 300 acres of Shuqualak AA. Hunting includes deer, wild turkey, ducks and small game while SAC Lake is stocked annually with native fish. Approximately 50 hunting and fishing permits are issued per year by the six on-site volunteer military and civil service employee game wardens. These dedicated volunteers designed the permit program. This incredibly successful

program experienced exceptional interest and growth with an increase in assistant game wardens from two to six to ensure compliance with hunting regulations,

to conduct hunter surveys and provide on-the-ground information to hunters. Enforcement services are provided by the State of Mississippi local game wardens.

Columbus AFB also provides a 60-acre recreation area, named the Timberlane Nature Trail Area, for use by base personnel. The area features three trails totaling five miles for walkers, bicyclists and horseback riders. A newly initiated nature trail renovation project provides numbered signs to guide base residents and visitors on a walking tour of the horticultural highlights.

### Pest Management

Columbus' natural resources program also strives to prevent disease, damage, and disturbance to the base's mission through an integrated pest management approach. Pest management practices include identifying wildlife hazards that could result in (BASH) incidents, removing wildlife that pose health and safety risks, controlling beaver and nutria, removing beaver dams that cause flooding, removing exotic wildlife species and controlling invasive plants and insects.

On-going partnerships with the NRCS and the on-staff USDA wildlife biologist help Columbus AFB efficiently and cost-effectively implement pest management projects. This superb NRCS partnership established control plans for beaver/nutria and coyotes that are currently being implemented by the USDA wildlife biologist. In overpopulated stream areas, beavers were trapped and dams were



▲ SAC Lake offers nature trails, fishing, and wildlife watching opportunities.

**“Columbus AFB was recognized as one of the finest in the Air Force. Your superior commitment to environmental stewardship helps the Air Force maintain its reputation as a leader in preserving the environment.”**

—Major General  
L. Dean Fox,  
Air Force  
Headquarters

extracted to reduce flooding and eliminate standing water that served as mosquito breeding grounds. Backwater from the beaver dams caused approximately \$10K in damaged bottomland hardwood forests. Elimination of these dams will prevent further damage.

Conservation personnel astutely instituted a program designed to reduce the base's coyote population that saved the Air Force future costs of more than \$25K a year for replacement of runway barrier nets.

Comprehensive fire ant control is planned for all facilities and base housing while hardwood herbicides are applied to improve the health of pines at Shuqualak AA.

Natural resources personnel continue to seek new methods to improve processes. Alternative pest control methods are evaluated and implemented whenever feasible. An innovative project involving mosquito habitat manipulation was more productive than using traditional insecticides at the base.

### Conservation Education

Realizing that a successful program revolves around education and cooperation from base and local populations, Columbus AFB maintains a wide variety of activities to promote environmental awareness. Personnel implemented a newcomer's orientation to ensure new employees become familiar with the protection and promotion of natural resources on base within a few days of their arrival.

Native trees along the nature trails are labeled to educate trail users on their value. Columbus AFB also conducts a safety course for hunters on base with 300 youth and adults participating over the past three years.

### Community Relations

Columbus AFB works closely with federal and state agencies, as well as

local community and academic institutions. Community partners include the Mississippi Forestry Commission, the NRCS, Mississippi University for Women, Lowndes County Public Schools and local Boy Scout troops. Arbor Day activities, hunter safety courses and nature trail education, offer valuable educational experiences that reward both the base and the local community.

Columbus AFB proudly hosts Arbor Day ceremonies and tree plantings. Over 300 students from the Lowndes County Public Schools and Mississippi University for Women participate in annual Arbor Day activities. Conservation personnel championed the planting of 100 green ash seedlings in 2002 with help from volunteers from the University and the Boy Scouts.

In honor of those who perished in the September 11, 2001 tragedy, natural resource personnel choreographed the actions of volunteers who planted more than 100 seedlings in cooperation with the U.S. Forest Service and the Mississippi Forestry Commission. The September 11th memorial planting was televised on both local and state news broadcasts.

The natural resources program manager annually teams with pollution prevention personnel each year to celebrate Earth Day. In 2003, over 300 local public school children participated in the base's Earth Day celebration that included 15 booths sponsored by federal, state and private agencies. Displays included papermaking, tree protection, recycling as a way to decrease dependence on trees and several other hands-on



▲ Columbus AFB has earned "Tree City USA Growth Award" from the National Arbor Day Foundation for ten consecutive years.

environmental exhibits.

**Environmental Enhancement**

The natural resource program made great strides toward enhancing the environment at Columbus AFB. Creating healthier forests, delineating wetlands, creating riparian buffers, implementing erosion control and promoting conservation education have positive impacts both on and off base. Better knowledge of the species occurring on base allows improved management, protection and biodiversity. While effective partnerships enabled these environmental improvements to be initiated, sound leadership and dedication will ensure they continue for decades to come.

**Mission Enhancement**

Natural resource accomplishments improved the safety of the flight training environment and enhanced base planning. The USDA wildlife biologist in concert with Columbus AFB held bird shoots around the flight line areas to decrease the potential of bird strikes.

Another effort to identify flood-prone areas on base and delineate 180 acres of wetlands enhanced base planning and expedited projects supporting the mission.

Costs, aside from safety risks, due to BASH incidents averaged \$229K each year for T-1 aircraft alone. Information from weekly bird and wildlife surveys used to create a base specific Wildlife Hazard Management Plan will cost-effectively

improve the safety of flight training.

Natural Resources Compliance Program Columbus AFB directs and manages complex programs ensuring compliance with all federal, state and local laws and regulations relating to natural resources management. EMS and ESOHCAMP assessments provide internal tools and measurements that assist in determining and developing staffing and training needs and ensure compliance procedures are implemented. Close partnerships with federal and state agencies have also guaranteed appropriate agencies are consulted early and frequently.

**CONCLUSION**

Columbus AFB is recognized as the Air Force’s leader in natural resource conservation. The bases knowledgeable staff members capitalize on available resources and partnerships, using sound management principles and implementing projects that achieve the ultimate goal of creating harmony between flying aircraft and natural resource conservation.



▲ T-37 Aircraft



▲ T-38 Aircraft



▲ T-1 Aircraft