



FY 2015 Secretary of Defense

# Environmental Awards

Natural Resources, Large Installation, Shaw Air Force Base

## Introduction

Located in South Carolina, Shaw Air Force Base (AFB) is home to the 20th Fighter Wing, the largest combat F-16 Wing in the Air Force. Shaw's mission is to provide combat-ready airpower and Airmen to meet any challenge, anytime, anywhere. It supports the Headquarters 9th Air Force, U.S. Air Forces Central, Third Army, U.S. Army Central, numerous smaller tenant units, and more than 7,100 military personnel, 8,300 dependents and 700 civilians. Shaw covers 3,429 acres of land in Sumter, South Carolina with 1,000 acres of active runways and 44 acres of regulated wetlands in addition to 4 ponds near the golf course on base. Shaw AFB also manages the 24 acre Wateree Recreational Area (WRA) in Kershaw County. The beautiful shores of Lake Wateree enhance the quality of life of installation personnel by providing exceptional recreational opportunities such as camping, picnicking and water sports.

Shaw AFB also oversees and manages the remarkably diverse 12,521 acres of the Poinsett Electronic Combat Range. Just 20 minutes

from Shaw, the Range is used by military members from all branches to fly sorties and practice targeting with the munitions they carry, as well as ground training including tactical air control party, explosive ordnance disposal, and survive, evade, resist, and escape training. The most striking feature of the Poinsett Range is the Carolina Bays. These unique, elliptical, geomorphic areas make up 78% of the 5,444 acres of the Range's wetlands. The remaining 7,077 acres of the Range is forested uplands which is largely comprised of the Longleaf pine (50%), a native and preferred pine species, the Slash pine (30%), Loblolly pine (15%), and various other pines and hardwoods (5%). Range forests are intensively managed to protect the endangered Red-cockaded Woodpecker (RCW) and to facilitate seasonal deer and turkey hunting.

Shaw AFB is the 2014 recipient of the Air Force's highly competitive General Thomas D. White Environmental Award for Natural Resources Conservation Program Excellence, Installation Category. Shaw AFB also attained

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Tree City USA recertification for the 15th consecutive year, a benchmark effort for achieving standards set by the South Carolina Forestry Commission Tree Management Program.

## Background

Execution of the Natural Resource (NR) Conservation Program is accomplished in accordance with the Shaw AFB Integrated Natural Resources Management Plan (INRMP) by the 4 Biologists, Forester, and Fire Technician assigned to Shaw AFB. These individuals are supported by the Air Force Wildland Fire Center (AFWFC), Air Force Civil Engineer Center (AFCEC), US Fish and Wildlife Service (USFWS), and personnel from Colorado State University (CSU).

The Shaw AFB INRMP is a cooperative agreement between the installation, the USFWS, and the South Carolina Department of Natural Resources (SCDNR). Incorporating adaptive ecosystem management principles, the INRMP integrates the installation's natural resources management responsibilities with its military operations to facilitate

mission accomplishment, maintain regulatory compliance, and foster environmental stewardship. The INRMP was last reviewed and approved by all parties for operation on December 23, 2013.

In addition to providing landscape-level management of the installation's natural resources, NR Staff are active participants in the Environmental Management System (EMS) Cross Functional Team, Bird Aircraft Strike Hazard (BASH) Working Group, BASH Team, Air Operation Board, Air Range Committee, Environmental Review Board, South Carolina RCW Cooperators, and Tree City USA Committee.

## Summary of Accomplishments

Despite the challenges of declining budgets and manpower cuts, Shaw AFB continues to successfully execute its mission support and environmental stewardship responsibilities.

### Natural Resources Management

- Eliminated contractor-provided services for INRMP updates. Completing updates in-house



### Abundant Ecosystem Biodiversity

An abundance of ecosystem biodiversity is realized on Poinsett Electronic Combat Range. This diversity is made possible by a robust prescribed burn program promoting an herbaceous layer of vegetation beneficial to Red-cockaded Woodpeckers and all wildlife. An aggressive invasive species control program ensures this diversity of native plant species is protected for future generations.

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saved over \$50K and garnered unanimous approval of work plans through 2018.

- Secured \$220K for on-site fire support at Poinsett Range to provide rapid response to wildland fires, increase opportunities for prescribed burns, and minimize fire related disruptions to flying missions.

### **Natural Resources Compliance**

- Developed outstanding partnerships and working relationships with USFWS and SCDNR that positively impacted all aspects of the NR Conservation Program.
- Devised an innovative tracking system to capture and monitor the status of INRMP goals and activities, providing EMS documentation for this aspect. On-going monitoring enabled program staff to quickly identify and mitigate potential problems such as participation in the North American amphibian disease survey that documented absence of the disease on Poinsett Range. Amphibians are considered to be indicator species for environmental health. They have delicate skin that readily absorbs toxins from their environment, have few defenses, and can fall prey to non-native predators. They rely on both aquatic and terrestrial habitats at various times during their life cycle. If amphibian populations are in decline, it is likely that the quality of the habitat in which they live is suffering.
- Improved internal processes to include more stakeholder input to more effectively provide National Environmental Policy Act (NEPA) documentation of natural resource undertakings.
- Fostered relationships with regulators at USFWS and US Army Corp. of Engineers (USACE) that resulted in positive consultations with no notices of violation or enforcement actions issued.
- Salvaged non-merchantable pines damaged in a severe ice storm by including in biomass sales. Proceeds were used to improve wildlife

habitat and achieve INRMP objectives.

- Worked with AFCEC Installation and Regional Support Teams to justify and receive \$1.5M Conservation, Forestry, and Fish and Wildlife Program budget to support Shaw AFB military operations while building and sustaining invaluable natural resources.

### **Mission Enhancement**

- Teamed closely with installation organizations and staff to successfully ensure uninterrupted access to mission essential land and air space while also protecting and preserving the unique and diverse natural resources inherent to Shaw AFB and Poinsett Range.



#### **Prescribed Fire**

Prescribed fire is the most effective and efficient tool of natural resource managers. Prescribed fire supports mission objectives by reducing the risk and intensity of wildfires through reduction of vegetative fuels. The “Controlled Burns” also remove undesirable vegetation, promoting fire tolerant native species such as Longleaf pines.



### **RCW Nestlings**

Red-cockaded Woodpeckers, an endangered species, thrive on Poinsett Range due to the habitat enhancement provided through prescribe fires and timber harvests. RCW recovery efforts include installing artificial cavities and banding nestlings. The increase in the RCW population and improved habitat conditions will allow Shaw AFB greater flexibility for changes should mission requirements dictate.

- Utilized prescribed fires to reduce excess vegetation and forest fuels on the ground at Poinsett Range. This helped keep the range open since it eliminated the flammable material in areas where munitions may stray and have the potential to start a fire.
- Reduced aircraft bird strikes by 50%.
- Increased safety to flight crews and aircraft, and decreased downtime to flying missions.
- Used state-of-the-art digital orthogonal and oblique imagery at Poinsett Range to support the mission by providing high-accuracy, high-density aerial photography enabling planners to measure tree and building height in Geographic Information System (GIS).

### **Forest Management**

- Marketed sub-merchantable timber fuel chips to biomass market to save more than \$50K per year. Cleared unwanted vegetation, supported RCW recovery efforts, reduced

forest fuel loads and potential wildfires, and made an annual profit of \$1.5K from sales revenue. Revenue was used to plant native longleaf pines.

- Devised using a modified timber harvesting method to the State Historic Preservation Office and given green-light to harvest timber on a National Registry-eligible archaeological site. Documented minimal ground disturbance and zero damage to historical artifacts by innovatively burying small, metal objects at different depths throughout the site and tracking through harvesting operations.
- Earned \$129K from 1,567 acre timber harvested at the Poinsett Range, and improved training areas, increased timber production, and enhanced wildlife habitats.
- Safely burned 1,568 acres at the Poinsett Range through the Prescribed Burn Program in 2013. This was a landmark effort that substantially exceeded acres burned per year for the last 15 years.

- Controlled non-desirable plant growth by completing prescribed burns of RCW habitats during the growing season versus other times of the year.
- Selected by the Air Force Wildland Fire Center as the operational headquarters for the Carolinas Wildland Fire Support Team. The team successfully burned 977 acres in 2014 to provide increased fire protection and safety and decreased mission curtailment.
- Communicated landscaping concerns to installation contractors working on base housing projects. The joint effort protected existing trees to the maximum extent feasible and allowed work to be accomplished with minimal contract modifications and no impact on project completion.

### **Fish and Wildlife**

- Installed 19 new, and replaced 56 abandoned RCW artificial cavities at Poinsett Range. Documented 103 fledglings in 2013-2014, and achieved a record 440% increase in active clusters of this federally endangered species since 2001. All contractors and visitors to Poinsett Range are instructed to avoid RCW clusters to the maximum extent possible especially during the spring nesting season.
- Continuously monitored Shaw AFB and the Poinsett Range for the presence of federal and state listed threatened and endangered species (e.g., Bald Eagle, Least Tern) to successfully identify 44 rare (but unlisted) vertebrate species and 9 rare (but unlisted) plant species. This information was provided to USFWS to support national conservation efforts.
- Conducted on-going surveys for reptiles, amphibians, raptors, small mammals, furbearers, feral hogs, Bobwhite Quail, turkey, whitetail deer, and neo-tropical birds. This information indicates a healthy ecosystem at Shaw AFB with an overall increase in biodiversity and was provided to SCDNR for inclusion in their state databases.
- Conducted an in-depth assessment of RCW

foraging habitat conditions at Poinsett Range to prioritize management needs and establish a realistic long-term recovery goal of 30 active clusters.

- 540 military members and private citizens participated in 50 deer and turkey hunts held on the Poinsett Range in 2014. Each hunting event was disabled-accessible and free of any reported safety incidents. The \$9K netted throughout the hunting season is being reinvested so future generations can continue to be afforded with similar outdoor recreation opportunities.
- Partnered with SCDNR, the Manchester State Forest (MSF), and 20 volunteer Huntmasters, collectively logging more than 1,000 volunteer hours to plan, prepare, and implement two youth-focused deer hunts. Lauded by the SCDNR and MSF as the “best in South Carolina,” these events provided the 54 young hunters and their parents with an



### **Herpetofauna Pitfall Trap**

Shaw’s ecosystem monitoring program evaluates the health of all plants and animals on Shaw AFB, Poinsett Range and Wateree Recreational Area. Reptiles and amphibians or “herps” are captured and identified using pit fall traps as they travel about at night. Herps are an indicator species for ecosystem health that would first be affected by adverse conditions thereby allowing NR managers to address concerns early on before further harm is realized.



### **Youth Deer Hunts**

Shaw AFB offers outdoor recreational opportunities such as deer and turkey hunting on Poinsett Range. NR staff partnered with SCDNR to host youth deer hunts instilling a deeper appreciation for natural resources in the next generation. These hunts enhance the quality of life for our military members and the community including those that may be disabled.

### **Invasive Species Control and Pest Management**

- Feral hogs were found on Poinsett Range in 2013. These wild pigs hunt for food by upturning large areas of soil that can devastate natural vegetation communities and the entire ecosystem overtime. Shaw minimized the imminent threat to its forests and wildlife by leveraging its working relationship with USDA Wildlife Services to quickly devise and execute an action control plan that included trapping and depredation efforts. To date, the feral hog population has been reduced by 95%.
- Worked with installation Ground Maintenance crews to mechanically clear vegetation around golf course ponds to substantially reduce nesting habitats for waterfowl that contribute to BASH risk and reduce the need for environment damaging herbicide applications.
- Partnered with Clemson University to determine the presence of cogongrass, an invasive, fire adapted species, on Poinsett

Range. In addition to concluding that cogongrass was not growing on the Range, the tireless efforts to locate, identify and control this invasive species resulted in an expanded sanitation, inspection and control program to prevent the introduction and spread of invasive species on the Range.

### **Conservation Education**

- Orchestrated a combined Earth Day and Arbor Day celebration featuring environmental exhibits and educational materials to highlight conservation efforts and outdoor recreational opportunities. Provided Base Commanders with guided tours of the Poinsett Range.
- Hosted a seminar in an undisturbed Carolina Bay at Poinsett Range – a first time event. The seminar was conducted by Mr. Rudy Manke, a renowned South Carolina naturalist and University of South Carolina professor. The seminar included a guided tour of the rare Carolina Bay wetland ecosystem.
- Proactively organized and facilitated discussions between the Judge Advocate

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and Security Forces at Shaw AFB and state officials to promote awareness of natural resource roles and responsibilities, discuss issues of legal jurisdiction, and coordinate and document response protocols.

- The Natural Resources Program Manager, a certified SCDNR Hunt Safety Instructor, provided gun safety training to more than 100 hunters under the age of 21.

### **Community Relations**

- The Shaw AFB Endangered Species biologist organized and participated in the Annual Pinewood Christmas Bird Count. Sponsored by the National Audubon Society, this annual event relies on volunteers from Shaw AFB and the local community to provide population data for use in conservation biology and other scientific endeavors.

- A Master Bird Bander, the Shaw AFB Endangered Species biologist Biologist participated in a Purple Martin migration study conducted by York University. In partnership with the Purple Martin Conservation Association, she outfitted 77 purple martins with geolocator tracking devices to collect invaluable data on migratory flight patterns. She was also instrumental in locating 500,000 Purple Martins that had abandoned their long-term roost on Lake Murray in Columbia in 2014 to a new roost location on Monticello Reservoir.

- Strengthened the working with relationship with the SCDNR by volunteering to assist with a banding study of Baltimore Orioles that winter in South Carolina.



### **Purple Martin**

NR staff participate in numerous conservation projects through partnerships with outside agencies. One project involves capturing, banding and outfitting Purple Martins with geolocator tracking devices to determine the timing and duration of their migrations to and from South America. The data collected so far have revealed Purple Martins migrate at much faster rates than expected, often flying over 300 miles in a single day.