

# Partnership Serves as a Winning Solution to Rattlesnake Conservation

## Navy Joins Forces to Collect Critical Ecological Data

**AFTER MORE THAN** eighteen years of partnership, the U.S. Navy, Old Dominion University (ODU), and the Virginia Department of Game and Inland Fisheries (VDGIF) continue to use a very successful formula for collecting data on a state-listed rattlesnake species in southeastern Virginia—a partnership that proves to be a winning combination for all parties involved including the snakes.

The southern or Coastal Plain population of the timber rattlesnake is commonly referred to as the canebrake rattlesnake. It is a large, terrestrial, venomous snake inhabiting the southeastern United States from southeastern Virginia to eastern Texas. The VDGIF recognizes the Coastal Plain population of the timber rattlesnake (canebrake rattlesnake) as a distinct population segment based on ecological, morphological and behavioral differences and was listed as endangered in Virginia in 1992. The species is

also listed as state-endangered or threatened in the states of Connecticut, Indiana, Maryland, New Hampshire, New Jersey, Ohio, Vermont, Illinois, New York, Minnesota, and Texas.

The timber rattlesnake has a long history with the Navy. It is believed to be the snake depicted on the “Don’t Tread on Me” flag—the first flag of the colonial Navy. The timber rattlesnake was recently adopted as the mascot of the Naval Support Activity Hampton Roads—Northwest Annex and is featured on the base coin.

In 1995, declining numbers made this rattlesnake species the subject of a long-term ecological study

conducted by the Navy, ODU and VDGIF. The project is one of the longest running studies ever performed on the species (which can live up to 25 years in the wild) and provides critical information on the ecology and life history of this diminishing species. Naval Support Activity Hampton Roads—Northwest Annex located in Chesapeake, Virginia was the ideal study site for the survey project. Located in both the city of Chesapeake, Virginia and in Currituck County, North Carolina, the Northwest Annex covers approximately 2,500 acres of upland and wetland forests, emergent habitats, and agricultural fields. These are ideal habitats for the timber rattlesnakes.



Timber rattlesnake portrayed on the Northwest Annex coin.

*Michael Wright*



First flag of the Colonial Navy.

## The Navy was interested in learning about the habitats on the installation that the rattlesnake occupied and how the mission of the installation could impact its survival.

The research team uses radio telemetry as the primary method to study the snakes. Radio telemetry allows the team to repeatedly locate the same snake in its natural environment with minimal disturbance. On average, the snakes are tracked once a week, but sometime as frequently as five days a week.

Originally, radio transmitters were surgically implanted into the snakes at ODU. The snakes were then returned to the Navy base where they were initially captured. However, in 2009, the primary researcher at ODU, Dr. Alan Savitzky, accepted a new position at Utah State University leaving no place to conduct transmitter implantations. The Navy came to the rescue and turned a room in the game check station at the Northwest Annex into a laboratory where radio transmitters could be surgically implanted into the snakes and where the snakes could recover after surgery.

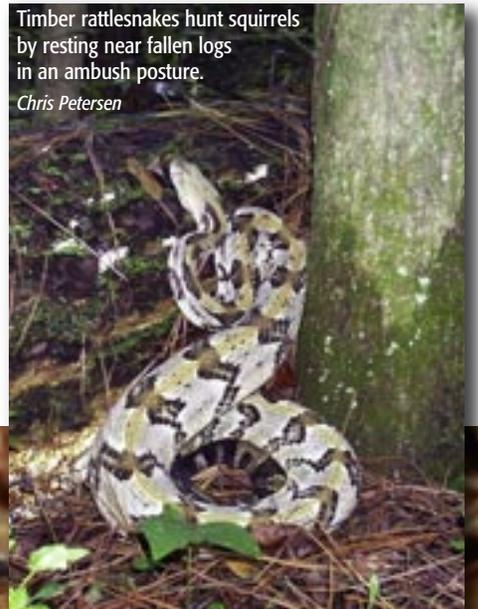
Thus far, the study is responsible for the active radio telemetry monitoring of 55 timber rattlesnakes at the Navy installation and the collection of almost 15,000 snake observations. The investigation is revealing many of the life history attributes, movement patterns, and behavioral characteristics of the snakes leading to the discovery that the rattlesnake selects deciduous forests over pine forests; that, on average, males move twice as much as females; and that the snakes prefer to hibernate in rotting tree stumps. The study also uncovered that the snakes are ambush

predators and their primary prey item is the gray squirrel (*Sciurus carolinensis*). The most surprising results so far reveal the extensive yearly movements of the snakes which can be more than twelve miles and encompass an area of more than 700 acres.

The partnership among the research team began in 1995 when the Navy invited ODU and VDGIF to study the rattlesnake population on the Northwest Annex.

Timber rattlesnakes hunt squirrels by resting near fallen logs in an ambush posture.

Chris Petersen



Over seventy timber rattlesnakes have been found on the Northwest Annex since the start of the study.

Lindsay Eiser

## DoD PARC Program Promotes Species & Habitat Management and Conservation

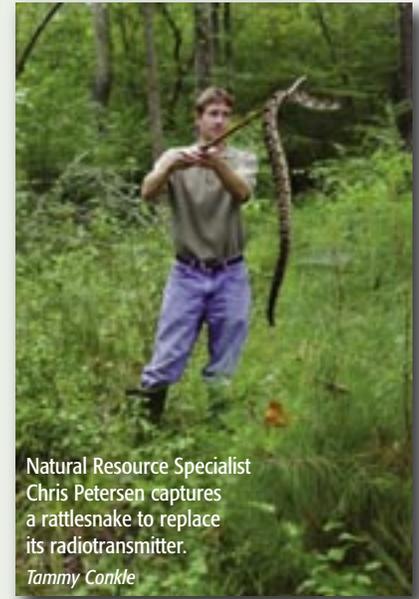
**MEMBERS OF A** Department of Defense (DoD) program are working hard to balance the Department's national security mission with the preservation of amphibian and reptile species and their habitats on nearly 29 million acres of military land.

Now led by Robert Lovich and Chris Petersen of the Naval Facilities Engineering Command, the Department of Defense Partners in Amphibian and Reptile Conservation (DoD PARC) program was originally formed in 2009 to provide leadership, guidance, and support for the conservation and management of amphibians and reptiles on military lands. An open-membership organization, the DoD PARC program is dedicated to sustaining the nation's mission readiness while managing, conserving, and studying amphibians and reptiles and their habitats, especially with respect to military operations and land management practices.

In support of military readiness, the DoD PARC program strives to sustain amphibian and reptile populations and their habitats through proactive management, conservation, stewardship, outreach, and partnerships. To achieve this mission, the program has established the following goals:

- Support the military mission by managing amphibians and reptiles.
- Reduce population declines of common and at-risk species, thus avoiding or minimizing the need to manage Endangered Species Act-listed species and designate critical habitats that could impact military missions.
- Provide strategies, tools, and information for amphibian and reptile protection, conservation, and consideration to be incorporated into existing natural resources and land management programs.
- Provide sound, science-based management and conservation guidelines, priorities, and objectives for reptiles and amphibians residing on DoD installations.
- Promote communication and coordination among national and local experts to achieve DoD mission and stewardship goals.
- Provide outreach tools to the military community, the general public, natural resources managers, and non-governmental organization partners to promote collaborative efforts and increase understanding of mission and conservation compatibility.

For more insights into the DoD PARC program, read our article entitled "DoD PARC Program Sustains Mission Readiness While Protecting Amphibians & Reptiles: Program Promotes Species & Habitat Management and Conservation" in the spring 2013 issue of *Currents*. To subscribe to the magazine or browse the *Currents* archives, visit the Department of the Navy's Energy, Environment and Climate Change web site at <http://greenfleet.dodlive.mil/currents-magazine>.



Natural Resource Specialist Chris Petersen captures a rattlesnake to replace its radiotransmitter.  
Tammy Conkle



The Navy was interested in learning about the habitats on the installation that the rattlesnake occupied and how the mission of the installation could impact its survival. At that time and largely because of habitat loss, the snake was state-listed as an endangered species in Virginia. Very little

was known about the ecology of the snake and the VDGIF needed data to help prevent any further decline of the species in the state.

Chris Petersen of the Naval Facilities Engineering Command Atlantic and a graduate of ODU has worked on the rattlesnake project since its beginning.

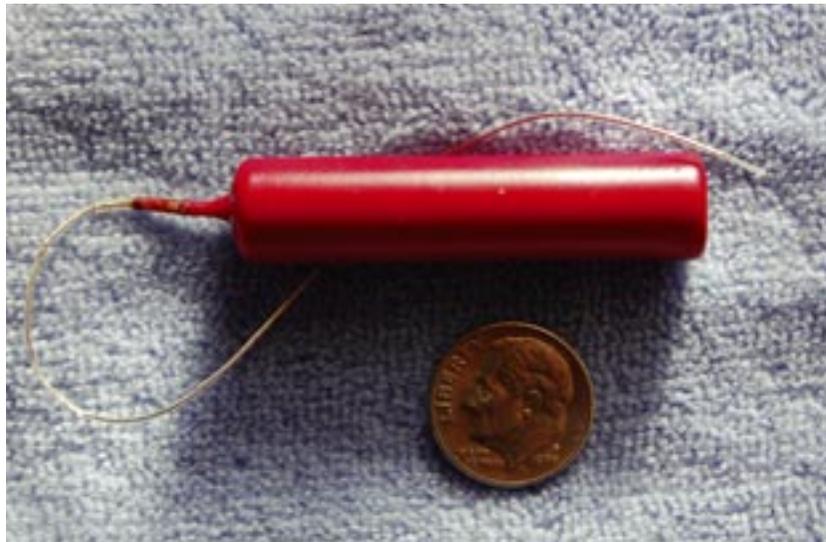
His first job as a biologist was to radio track the rattlesnakes at the Northwest Annex.

"The partnership was, and remains, a beneficial relationship for all parties involved," says J. D Kleopfer, a herpetologist for the VDGIF. Students from ODU have the opportunity to

study the snakes to fulfill undergraduate and graduate requirements and gain practical field experience working on the project. The VDGIF can collect significant amounts of much needed data on the habitat use and movement patterns of the snakes helping understand their ecology and preventing the further decline of the species in Virginia. The Navy gets site-specific data on this state-listed species directly supporting the mission at the Northwest Annex by helping to make predictions of the efforts of mission-related forest activities on the behavior of the snake, minimizing human-rattlesnake interactions, and educating base personnel on the ecological importance of the snake. Perhaps most importantly, nearly all of the data collected from the project are incorporated into Virginia's conservation plan for the rattlesnake which helps to prevent the species from declining any further in Virginia.

In an attempt to protect more land for the rattlesnake in southeastern Virginia and to build upon their partnership with the Navy, in 2007, the VDGIF purchased a 3,800-acre land parcel—the Cavalier Wildlife Management Area—to assist with the recovery of the snake. This property, adjacent to the Northwest Annex, benefits the snakes by providing even more protected habitat for the timber rattlesnake as well as other wildlife. The VDGIF purchase of the property also benefits the Navy by providing an encroachment buffer of natural habitat on the western side of the installation that is compatible with its military mission.

Partnerships have become a critical tool for the management and conservation of species on Department of



Radio transmitters are surgically implanted into the snakes at the Northwest Annex laboratory.

*Chris Petersen*



This anesthetized snake is ready to have a radiotransmitter surgically implanted into its body.

*Chris Petersen*

Defense lands. The timber rattlesnake project demonstrates the power of such a relationship and how groups can come together to work on a common goal, share costs, and leverage expertise. The Navy, ODU, and VDGIF formed a partnership more than eighteen years ago to work on a common goal—the collection of data on a declining species. Not only is each member of this partnership a winner—the rattlesnakes are also

coming out ahead in the deal. This relationship has provided critical data on the ecology of the timber rattlesnake greatly assisting in preventing any further decline of the species in Virginia and possibly many other states. [📍](#)

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