

Red Wolf Recovery Program



Photo credit: Ryan Nordsven/USFWS

4th Quarter Report

July - September 2012

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The Red Wolf Recovery Program

The red wolf (*Canis rufus*) is one of the most endangered canids in the world. Once occurring throughout the eastern and south-central United States, red wolves were decimated by predator-control programs and the loss and alteration of habitats. By the 1970s, these activities had reduced the red wolf population to a small area along the Gulf coast of Texas and Louisiana. To protect the species from extinction, the U.S. Fish and Wildlife Service initiated efforts to locate and capture as many red wolves as possible for the purposes of establishing a program to breed the species in captivity and one day reintroduce the species into a portion of its former range. More than 400 canids were captured in coastal areas of Texas and Louisiana, but only 17 were identified as pure red wolves. Fourteen of these wolves would become the founding members of the captive-breeding program and the ancestors of all red wolves existing today.

The first litter of red wolves born in captivity occurred in 1977. Within a few years red wolves were successfully reproducing in captivity, allowing the U.S. Fish and Wildlife Service to consider reintroducing the species in the wild. In 1987, four male-female pairs of red wolves were released in Alligator River National Wildlife Refuge (ARNWR) in northeastern North Carolina and designated as an experimental population. Since then, the experimental population has grown and the recovery area expanded to include four national wildlife refuges, a Department of Defense bombing range, state-owned lands, and private lands, encompassing about 1.7 million acres.

Adaptive Management

The recovery and restoration of red wolves requires the careful management of eastern coyotes (*C. latrans* var.) and occasionally wolf-coyote hybrids in the red wolf recovery area. The non-native coyotes spread across North Carolina to the red wolf recovery area in the early to mid-1990s. It soon was recognized that interbreeding between red wolves and eastern coyotes would produce hybrid offspring resulting in coyote gene introgression into the wild red wolf population, and that this introgression would threaten the restoration of red wolves. An adaptive management plan was developed to reduce interbreeding and introgression while simultaneously building the red wolf population. The adaptive management plan effectively uses techniques to capture and sterilize hormonally intact coyotes via vasectomy or tubal ligation, then releases the sterile canid at its place of capture to act as a territorial “placeholder” until the animal is replaced by wild red wolves. Sterile coyotes are not capable of breeding with other coyotes, effectively limiting the growth of the coyote population, nor are they capable of interbreeding with wild red wolves, limiting hybridization events. In addition, the sterile canid will exclude other coyotes from its territory. Ultimately, the placeholder canids are replaced by the larger red wolves either naturally by displacing the coyote or via management actions (e.g., removal of the coyote followed by insertion of wild or translocated wolves). Coyotes that are captured on private property are euthanized at the landowner’s request.

Currently, adaptive management efforts are making progress in reducing the threat of coyotes to the red wolf population in northeastern North Carolina. Other threats, such as habitat fragmentation, disease, and anthropogenic mortality, also are of concern in the restoration of red wolves. Efforts to reduce these threats are presently being explored.

Program Objectives

The current recovery plan (U.S. Fish and Wildlife Service, 1990) specifies the following objectives:

- 1) Establish and maintain at least three red wolf populations via restoration projects within the historic range of the red wolf. Each population should be numerically large enough to have the potential for allowing natural evolutionary processes to work within the species. This must be paralleled by the cooperation and assistance of at least 30 captive-breeding facilities in the United States.
- 2) Preserve 80% to 90% of red wolf genetic diversity for 150 years.
- 3) Remove threats of extinction by achieving a wild population of approximately 220 wolves and a captive population of approximately 330 wolves.

- 4) Maintain the red wolf into perpetuity through embryo banking and cryogenic preservation of sperm.

The Red Wolf Population

We estimate between 100 and 120 red wolves in the Red Wolf Recovery Area, but for the purposes of this report all population figures are comprised only of known canids (i.e., those that are regularly monitored through either a functioning radio-collar or surgically implanted abdominal radio transmitter). Additional wolves are likely present, but have not been captured/radio-collared or their continued presence otherwise confirmed.

Beginning with the first quarter of the fiscal year 2012 (FY12) we have changed the way we report population and pack numbers. This change more accurately represents the managed population of canids that are part of our efforts to restore red wolves. The managed population includes wolf packs (i.e., packs consisting entirely of wolves) and mixed packs (i.e., packs of a wolf and coyote pair). A pack is defined as at least two known canids cooperatively inhabiting an established territory.

Population and Territory Status

A total of 71 known red wolves occupied the Red Wolf Recovery Area (i.e., 1.7 million acres in five counties in northeastern North Carolina) at the end of the fourth quarter of our fiscal year 2012 (FY 12). The population includes 15 wolf packs (comprised of 47 wolves and 13 breeding pairs), and eight mixed packs (comprised of eight wolves and eight coyotes). An additional 16 wolves are not known to be associated with a pack. A total of 45 sterile coyotes were monitored in the Red Wolf Recovery Area at the end of this quarter.

The Red Wolf Recovery Program documented nine red wolf litters (comprised of 40 pups) born in the Red Wolf Recovery Area during the 2012 whelping season. Additional pups and/or litters could be present, but have not been confirmed. Two pups born in captivity at Alligator River National Wildlife Refuge were fostered into a wild litter. Pups born during the 2012 whelping season are not included in the reported population numbers.

Wolf Pairings

There were no changes in breeding pairs or in mixed pairs during the quarter.

Wolf Captures and Radio Telemetry Marking

The Red Wolf Recovery Program did not initiate any trapping during the quarter.

Dispersals

One yearling female wolf dispersed from her natal pack territory during the quarter, and one young adult male returned to his natal pack territory after having previously dispersed.

Mortalities

A 2-year-old female red wolf from the Red Wolf Recovery Area is known to have died during the quarter. The cause of mortality is suspected illegal take. The death is being investigated by the U.S. Fish and Wildlife Service's Office of Law Enforcement.

Four sterile, radio-collared coyotes (2 males, 2 females) also were known to have died during the quarter. Three of the deaths (2 males, 1 female) were the result of management actions; the fourth death was likely the result of interspecies aggression by a breeding pair of wolves in an adjacent territory.

Disappearances

The Red Wolf Recovery Program lost radio contact with three male wolves and three coyotes (2 males, 1 female) during the quarter.

Pack Summaries

The Pack Summaries section has been indefinitely discontinued due to recent events and current circumstances involving the apparent illegal take of red wolves within the Red Wolf Recovery Area.

Collaborations

Research

The Red Wolf Recovery Program provided financial and in-kind support for collaborative research with scientists at other institutions, including universities, interagency divisions, and non-government research organizations. These investigations required project staff to assist outside researchers and graduate students in their efforts to better understand red wolf ecology, ecosystem function, and conservation efforts.

Project Title: Inbreeding avoidance in red wolves.

Graduate Student: Kristin Brzeski (PhD student)

Committee Chair/Principal Investigator: Sabrina Taylor, PhD, Louisiana State University

Project Title: Identifying management procedures to reduce red wolf-coyote interactions in eastern North Carolina.

Graduate Student: Joseph Hinton (PhD student)

Committee Chair/Principal Investigator: Michael Chamberlain, PhD, University of Georgia

Project Title: Use of stable isotope analysis to elucidate predation patterns of sympatric canids.

Graduate Student: Anne-Marie Hodge (MS student)

Committee Chair/Principal Investigator: Brian Arbogast, PhD, University of North Carolina at Wilmington

Project Title: Evaluating potential effects of widening US Highway 64 on red wolves, Washington, Tyrrell, and Dare Counties, North Carolina.

Graduate Student: Christine Proctor (PhD student)

Committee Chair/Principal Investigator: Michael R. Vaughan, PhD, Virginia Polytechnic Institute and State University (Virginia Tech)

Project Title: Sperm morphology and motility of the red wolf (*Canis rufus*).

Graduate Student: n/a

Committee Chair/Principal Investigators: Albrecht Schulte-Hostedde, PhD, Laurentian University, and Gabriela Mastromonaco, PhD, Toronto Zoo

Publications

The following publications have gone to print in this quarter. A complete list of publications related to red wolves can be found at http://www.fws.gov/redwolf/images/20121030_Bibliography.pdf.

Chambers, S.M., S.R. Fain, B. Fazio, and M. Amaral. 2012. An account of the taxonomy of North American wolves from morphological and genetic analyses. North American Fauna. [Available as Early Online Edition at <http://www.fwspubs.org/doi/pdf/10.3996/nafa.77.0001>].

Waddell, W., and D. Rabon, Jr. 2012. Extirpated in the wild: recovering the red wolf. WAZA Magazine 13:22-24. [Available online at http://www.waza.org/files/webcontent/1.public_site/5.conservation/conservation_breeding_programme/extinct_in_the_wild/WAZA%20Magazine%2013.pdf]

Presentations

No presentations by collaborators were reported during this quarter.

Staff and Volunteers

The Red Wolf Recovery Program employs eight full-time staff, including the program coordinator, assistant coordinator, field coordinator, three wildlife biologists, a biological technician, and an administrative assistant. The Red Wolf Recovery Program also benefits from an unpaid intern (Caretaker).

Outreach

Staff from the Red Wolf Recovery Program conduct presentations and attend events to inform and educate the public on the conservation needs of the red wolf and the restoration efforts of the Red Wolf Recovery Program. As part of our effort to assist educators, red wolf “discovery boxes” that include materials about the red wolf are distributed to educational facilities. The distribution of discovery boxes is managed by the Red Wolf Coalition. Requests for discovery boxes should be made to kwheeler@redwolves.com.

The Red Wolf Recovery Program also seeks to achieve a quality visitor and participant experience in the U.S. Fish and Wildlife Service’s priority recreational uses on National Wildlife Refuges. Our outreach efforts focus on four of the six program elements, including wildlife observation, wildlife photography, environmental education, and interpretation, and are conducted frequently in partnership with ARNWR and PLNWR educators and volunteers.

Presentations

Date	Location	Audience	Length	Attendance	Presenter
July 26-28	Asheboro, NC	Red Wolf SSP	1 hr	~30	D. Rabon

Howlings

Date	Location	Event	Length	Attendance	Presenter
July 4	ARNWR	Summer Howling	2 hrs	18	K. Brick P. Gomez
July 11	ARNWR	Summer Howling	2 hrs	51	K. Brick S. Gutman
July 18	ARNWR	Summer Howling	2 hrs	37	K. Brick A. Early
July 25	ARNWR	Summer Howling	--	Cancelled (Weather)	
August 1	ARNWR	Summer Howling	2 hrs	56	K. Brick C. Stone

August 8	ARNWR	Summer Howling	2 hrs	57	K. Brick P. Gomez
August 15	ARNWR	Summer Howling	--	Cancelled (Weather)	
August 22	ARNWR	Summer Howling	2 hrs	77	C. Heffley A. Knight
August 29	ARNWR	Summer Howling	2 hrs	24	C. Heffley A. Knight

Website / Social Media

The Red Wolf Recovery Program recently launched Facebook and Flickr internet pages. Our Facebook page connects our program with “friends” from around the world and informs them of the conservation efforts of the Red Wolf Recovery Program. The Facebook page can be found at www.facebook.com/redwolfrecoveryprogram. Our Flickr page provides a site for users to view and download high resolution pictures related to red wolves and the Red Wolf Recovery Program. Our Flickr page can be found at www.flickr.com/photos/trackthepack.

The Red Wolf Recovery Program also has a weblog that highlights the efforts of the Red Wolf Recovery Program staff in the conservation of the red wolf. The weblog combines text, images, videos, and links to other media related to its topic. The content includes educational, informational, and general journal entries written by program staff, and allows readers to leave comments in an interactive format. The weblog can be found at trackthepack.blogspot.com.

Media Inquires

The Red Wolf Recovery Program responded to numerous media inquiries during this quarter, including science writer DeLene Beeland (www.delene.us), who is writing a book about red wolves.

Partnerships

Species Survival Plan (SSP)

Species Survival Plan (SSP) captive facility coordination is based at Point Defiance Zoo & Aquarium (PDZA) in Tacoma, Washington. The SSP currently coordinates 41 captive red wolf sites at zoos and nature centers housing about 166 wolves. Nine red wolf litters (comprised of 41 pups) were born in SSP cooperating facilities during the 2012 whelping season. Two pups born in captivity at Alligator River National Wildlife Refuge were fostered into a wild litter. Pups born during the 2012 whelping season are not included in the reported captive population numbers. An adult female red wolf housed in the SSP program was reported to have died during the quarter. The following information is based on activities completed or conducted by the SSP Coordinator during the quarter reported. Additional information on the SSP can be found at redwolfssp.org.

The SSP Coordinator organized and attended the Red Wolf SSP master plan meeting at the North Carolina Zoological Park (Asheboro, NC) on July 26-27, 2012. Annual breeding and transfer recommendations for the upcoming breeding season were drafted and distributed. Following a 30-day review period by cooperating institutions, modifications to the document were incorporated then finalized and distributed. The SSP Coordinator extends his appreciation for all who were able to attend and participate in the master plan meeting, and a very special thanks to the staff (especially Chris Lasher) at the North Carolina Zoological Park for hosting the meeting.

The SSP Coordinator also participated in an education summit on July 28, 2012, following the Red Wolf SSP mater plan meeting at the North Carolina Zoological Park.

The SSP Coordinator responded to numerous requests for samples, data, and other information for projects related to red wolves, including fecal samples to Toronto Zoo for hormone analysis as part of a post-deslorelin study; sperm samples to Toronto Zoo (A. Schulte-Hostedde and G. Mastromonaco) for a morphology and motility study; and, frozen tissue samples to Louisiana State University (K. Brzeski) for an MHC study. The SSP Coordinator also reviewed and evaluated numerous preliminary studies related to red wolves, including linking *in situ* and *ex situ* data management for conservation; identifying potential release sites for red wolves in the context of sea level rise, urban development, and coyote population density; genetic testing for dispute resolution in wolves and hybrids; and, deployment of “crittercam” to evaluate red wolf behavior. The SSP Coordinator also provided a brief update on the Northwest Trek captive facility (Eatonville, WA) to the Clear Lake Homeowners Association; the Clear Lake community is located adjacent to the captive facility.

The SSP Coordinator reported the transfer of a male red wolf from Chattanooga Arboretum and Nature Center (Chattanooga, TN) to Mill Mountain Zoo (Roanoke, VA).

Island Propagation Sites

The U.S. Fish and Wildlife Service utilizes island sites to propagate red wolves and contribute to the restoration of a wild red wolf population, primarily by inserting island-born wolves into the wild population as a means to augment the wild red wolf gene pool with “under-represented” genes from the captive population. Currently, the Red Wolf Recovery Program cooperates with St. Vincent National Wildlife Refuge in maintaining a breeding pair of red wolves on an island site.

Red Wolf Coalition

The Red Wolf Coalition (RWC), a not-for-profit education organization based in Columbia, NC, advocates for the long term survival of wild red wolf populations by teaching about red wolves and by engaging the public in red wolf conservation. The RWC’s web site (www.redwolves.com) provides information about the history, biology, and ecology of red wolves, as well as news about red wolf restoration. The RWC gives red wolf programs to school groups, professional organizations, university students, and other groups. The RWC also conducts workshops for teachers and non-formal educators, including people seeking certification in environmental education.

The RWC reported that construction of the red wolf viewing facility and perimeter fencing at PLNWR in Columbia, NC, has been completed. The culvert and other materials to construct an artificial den and the bleachers are scheduled to be completed in early October 2012. The RWC obtained the necessary funds for the red wolf viewing facility from the U.S. Department of Agriculture’s Rural Development and from a generous gift from the North Carolina Zoological Society. The red wolf viewing facility will include several enclosures to house red wolves, including a natural environment enclosure designed to showcase red wolves to the visiting public. The facility is scheduled to open in late October 2012.

The RWC and NC Museum of Life and Science (Durham, NC) co-sponsored the “Wolves and Wild Lands in the 21st Century” exhibit at the museum from April through early July 2012. The exhibit highlighted wolves and their struggle to survive, the cultural and economic pressures which continue to shape their existence, and the challenges that wolves and people face coexisting in the same place. This visually captivating exhibit featured six canid specimens - five wolves and a coyote. Information about the exhibit can be found at <http://www.bellmuseum.umn.edu/TravelingExhibits/Wolves/index.htm>.

The RWC Executive Director reported conducting several education programs during the quarter, including three programs to nearly 150 people at the International Wolf Center (Ely, MN) and a presentation to 30 employees and volunteers at the Carolina Tiger Rescue (Pittsboro, NC). The RWC Executive Director also coordinated scouts, scout leaders, and parents from Boy Scout Pack 86 to help

clean up debris at the captive viewing exhibit in Columbia, NC. The RWC and the Red Wolf Recovery Program are grateful for the hard work and enthusiasm shown by these amazing scouts, scout leaders, and parents.

The RWC also has three Red Wolf Discovery Boxes for all grade levels. These boxes are filled with a variety of hands-on items, activities and artifacts that help students explore the world of red wolves. The red wolf curriculum *Far Traveler* and a variety of books and other resources also are included. Contact Kim Wheeler at 252-796-5600 or kwheeler@redwolves.com for more information or to reserve your Red Wolf Discovery Box.

Announcements

The U. S. Fish and Wildlife Service is requesting assistance with an investigation involving the suspected illegal take of a radio-collared red wolf that was recently found dead in Tyrrell County, NC. The wolf was located on September 4, 2012, near Creswell, NC, in the western part of Tyrrell County. Anyone who has essential information that directly leads to an arrest, a criminal conviction, a civil penalty assessment, or forfeiture of property on the subject or subjects responsible for the suspected unlawful take of this red wolf may be eligible for a reward of up to \$8,000*. The red wolf is protected under The Endangered Species Act. The maximum criminal penalties for the unlawful taking of a red wolf are one year imprisonment and \$100,000 fine per individual. Anyone with information on the death of this red wolf or any others, past or future, is urged to contact Special Agent Sandra Allred at (919) 856-4786, Refuge Officer Frank Simms at (252) 216-7504, or North Carolina Wildlife Resources Commission Officer Robert Wayne at (252) 216-8225.

*[Please note: In addition to the \$2,500 reward offered by the U.S. Fish and Wildlife Service, the Red Wolf Coalition and the North Carolina Wildlife Federation have contributed an additional \$500 and \$5,000, respectively, to the reward amount.]