Red Wolf Recovery Program

Photo credit: Amy Johnson

3rd Quarter Report

April - June 2011

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www.fws.gov/redwolf

trackthepack.blogspot.com

www.facebook.com/redwolfrecoveryprogram

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. However, interbreeding with the coyote (a species not native to North Carolina) has been recognized as a threat affecting the restoration of red wolves. 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, are of concern in the restoration of red wolves. Efforts to reduce the 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 110 and 130 red wolves in the Red Wolf Recovery Area, but for the purposes of this report all population figures are comprised only of known wolves (i.e., wolves 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.

Population and Territory Status

A total of 82 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 third quarter of our fiscal year 2011 (FY 11). The population includes 30 packs (totaling 64 wolves) with 11 breeding pairs. An additional 18 wolves are not known to be associated with a pack. [A pack is defined as a known wolf maintaining an established territory who is either currently associating with or is known to have associated with another wild canid inhabiting the same territory.]

The Red Wolf Recovery Program documented 11 litters (totaling 46 pups) born in the Red Wolf Recovery Area during the 2011 whelping season. Additional pups and/or litters could be present, but have not been confirmed. Two pups born in captivity at Miller Park Zoo (Bloomington, IL) were fostered into a wild litter. Pups born during the 2011 whelping season are not included in the reported population numbers.

Wolf Pairings

Two breeding pairs were lost during the quarter due to the deaths of the breeding male from one pack and the breeding female from another pack.

Wolf Captures and Radio Telemetry Marking

During this quarter, Red Wolf Recovery Program staff logged approximately 1,100 trap-nights. For that effort, 3 wolves were captured, none of which were first time captures. All wolves were fitted or re-fitted with radio-collars (VHF or GPS) and released. Captured wolves consisted of one adult (> 2 years of age) male and two adult females.

Dispersals

There were no known dispersals during the quarter.

Mortalities

Six known wolves (4 males, 2 females; 5 adults, 1 juvenile) from the Red Wolf Recovery Area are known to have died during the quarter. Three of the deaths were due to apparent vehicle collision and one wolf died from a fatal heartworm infection. The cause of death could not be determined for two wolves.

Disappearances

The Red Wolf Recovery Program lost radio contact with one wolf (a juvenile male) 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, Louisiana State University

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: Assessment of spatial and temporal activities of red wolves using GPS and VHF telemetry data.
Graduate Student: Melissa Karlin (PhD student)
Committee Chair/Principal Investigator: John Chadwick, PhD, University of North Carolina at Charlotte

Project Title: Dietary overlap between red wolves (*Canis rufus*) and coyotes (*Canis latrans*) in Eastern North Carolina.
Graduate Student: Justin McVey (MS student)
Committee Chair/Principal Investigator: Chris Moorman, PhD, North Carolina State University

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/biblio.html.

Bohling, J.H., and L.P. Waits. 2011. Assessing the prevalence of hybridization between sympatric *Canis* species surrounding the red wolf (*Canis rufus*) recovery area in North Carolina. Molecular Ecology 20(10):2142-2156.

Sparkman, A.M., J. Adams, A. Beyer, T.D. Steury, L. Waits, and D.L. Murray. 2011. Helper effects on pup lifetime fitness in the cooperatively breeding red wolf (*Canis rufus*). Proceeding of the Royal Society Biological Sciences 278(1710): 1381-1389.

Sparkman, A.M., L.P. Waits, and D.L. Murray. 2011. Social and demographic effects of anthropogenic mortality: a test of the compensatory mortality hypothesis in the red wolf. PLoS One 6(6). [Available at: http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0020868].

Dissertations and Theses

Bohling, J.H. 2011. Exploring the patterns and mechanisms of red wolf (*Canis rufus*) hybridization in North Carolina. PhD dissertation. University of Idaho (Advisor: Lisette Waits, PhD).

Dellinger, J.A. 2011. Foraging and spatial ecology of red wolves (*Canis rufus*) in northeastern North Carolina. MS thesis. Auburn University (Advisor: Troy Best, PhD).

Presentations

Gunn, K., A.I. Schulte-Hostedde, G. Mastromonaco, K. Goodrowe, and W. Waddell. Effects of inbreeding on sperm morphology of the red wolf (*Canis rufus*). Canadian Society for Evolution and Ecology, May 12-15, 2011, Banff, Alberta, Canada. [Program and Abstract available on the internet at: http://www.ecoevo.ca/banff2011/en/].

Staff and Volunteers

The Red Wolf Recovery Program employs eight full-time staff, including the program coordinator, four wildlife biologists, a biological technician, a public affairs/outreach coordinator, and an administrative assistant. The public affairs/outreach coordinator and administrative assistant positions are currently vacant. The Red Wolf Recovery Program also benefits from an unpaid intern.

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
April 15	Dare Co.	Wildlands Network	2 hr	6	M. Morse
April 16	Dare Co.	Red Wolf Coalition	2 hr	5	A. Beyer
April 27	Dare Co.	ENC/SEVA Strategic Habitat Conservation Team	2 hr	40	D. Rabon
May 5	Hyde Co.	Mattamuskeet Elementary School	2 hr	44	C. Heffley
May 25	Dare Co.	Pains Bay Firefighters	30 min	8	R. Nordsven
June 1	Dare Co.	Pains Bay Firefighters	30 min	6	R. Nordsven
June 7	Dare Co.	Pains Bay Firefighters	30 min	8	R. Nordsven
June 13	Dare Co.	Pains Bay Firefighters	30 min	7	R. Nordsven
June 22	Dare Co.	Pains Bay Firefighters	30 min	6	R. Nordsven

Howlings

Date	Location	Event	Length	Attend	Presenter
April 23	Dare Co.	Earth Day Howling	2 hr	85	M. Morse K. Whidbee J. Collins C. Heffley
May 28	Dare Co.	Endangered Species Day Howling	2 hr	45	C. Heffley D.J. Sharp
June 1	Dare Co.	Summer Howling Safari	2 hr	8	C. Heffley M. Dreibelbis B. Garrett
June 8	Dare Co.	Summer Howling Safari	2 hr	36	C. Heffley M. Dreibelbis B. Garrett
June 15	Dare Co.	Summer Howling Safari	2 hr	36	M. Dreibelbis B. Garrett D.J. Sharp
June 22	Dare Co.	Summer Howling Safari	2 hr	59	B. Garrett D.J. Sharp
June 29	Dare Co.	Summer Howling Safari	2 hr	90	M. Dreibelbis D.J. Sharp

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 globe 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 40 captive red wolf sites at zoos and nature centers housing about 179 wolves. 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 www.fws.gov/redwolf or redwolfssp.org.

During the third week of April, the SSP Coordinator visited the Red Wolf Recovery Area to assist in the field program's annual search for wolf dens and wild red wolf pups. He posted a blog about his visit on the Red Wolf Recovery Program's blog site at http://trackthepack.blogspot.com/2011/05/where-theres-will-theres-way.html.

The SSP Coordinator reported numerous correspondence and communications regarding red wolves, including coordinating the transfer of wolves to accommodate SSP institutional requests; being interviewed by graduate student, Jeffrey Mittlestadt, from the University of North Carolina at Chapel Hill's School of Journalism for a video project on red wolf restoration (http://www.vimeo.com/22841350); coordinating the transfer of two captive-born pups from Miller Park Zoo (Bloomington, IL) to the Red Wolf Recovery Area for fostering into a wild litter; and, coordinating the potential transfer of red wolves in association with the Pains Bay Fire at Alligator River National Wildlife Refuge. Special thanks to Chris Lasher, of the North Carolina Zoological Park (Asheboro, NC), and Sherry Samuels, of the North Carolina Museum of Life and Science (Durham, NC), for offering accommodations to house additional wolves in response to the Pains Bay Fire.

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) is a non-profit organization based in northeastern North Carolina that advocates for the long term survival of red wolf populations through education and outreach. The RWC's educational program teaches students about the history, biology, and status of the red wolf recovery program, and accompanies students to ARNWR and PLNWR to learn about the habitat of the red wolf. The RWC currently employees an Executive Director, and has a membership of approximately 400 individuals and organizations. Additional information on the RWC can be found at www.redwolves.com.

The Executive Director reported conducting seven red wolf education programs during the quarter. In-person presentations were given to 24 home-schooled children in Roanoke Rapids, NC; 39 5th and 6th graders from Raleigh, NC, at Pettigrew State Park (Creswell, NC); 11 adults and children at the RWC office in Columbia, NC; and, 50 adults and children in three different presentations at PLNWR. A video presentation was given at Exploris Middle School (Raleigh, NC) to 30 6th graders. The Executive Director also reported mailing educational "discovery boxes" containing a red wolf pelt and skull, a coyote pelt and skull, a radio telemetry collar, the Far Traveler teacher curriculum, a howling CD, red wolf tear sheets, the "Recovering a species" video, and RWC and FWS red wolf brochures to two elementary schools in NC.

The Executive Director reported that the RWC was awarded a grant from USDA Rural Development in the amount of $75,000 to construct a red wolf viewing facility at PLNWR in Columbia, NC. The red wolf viewing facility will include the construction of several enclosures to house red wolves, including a natural environment enclosure designed to showcase red wolves to the visiting public. Additional information on the red wolf viewing facility can be found at (www.crowdrise.com/enclosure/fundraiser/redwolfcoalition).

Announcements

On June 23, 2011, the Red Wolf Recovery Program lost long-time friend and colleague Thom Lewis. Thom died in a plane crash on Eglin Air Force Base in the panhandle of Florida. Thom was a pilot for the U.S. Fish and Wildlife Service, primarily involved with migratory bird programs. From 1992 to 2008, Thom was the wildlife biologist for St. Vincent NWR where he oversaw the refuge's red wolf program. One of his many legacies is the more than twenty red wolf pups that were born at St. Vincent NWR, and were later transferred to participating SSP facilities across the nation, including the Red Wolf Recovery Area. The Red Wolf Recovery Program extends their deepest sympathies to the Lewis family.

The Red Wolf Recovery Program congratulates Justin Bohling for successfully defending his dissertation and completing his PhD degree in Natural Resources in the Department of Fish and Wildlife Resources at the University of Idaho. Justin's dissertation is entitled "Exploring the patterns and mechanisms of red wolf (*Canis rufus*) hybridization in North Carolina." Lisette Waits, PhD, served as Justin's advisor and Committee Chair.

The Red Wolf Recovery Program also congratulates Justin Dellinger for successfully defending his thesis and completing his MS degree in Biology in the Department of Biological Sciences at Auburn University. Justin's thesis is entitled "Foraging and spatial ecology of red wolves (*Canis rufus*) in northeastern North Carolina." Troy Best, PhD, served as Justin's advisor and Committee Chair.

The U.S. Fish and Wildlife Service continues the investigation of the suspected illegal take of two red wolves found dead in two different locations in Hyde County, North Carolina, and one red wolf found dead on Alligator River National Wildlife Refuge in Dare County, North Carolina. Contributions from various organizations and individuals have increased the amount of a reward of up to $15,000 for information directly leading 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 these red wolves. 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 deaths of these red wolves or any others, past or future, is urged to contact Special Agent Sandra Allred at (919) 856-4786, Refuge Officer Chris Smith at (252) 926-4021, or North Carolina Wildlife Resources Commission Officer Robert Wayne at (252) 216-8225.