

REESTABLISHMENT OF RED WOLVES IN
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U.S. FISH AND WILDLIFE SERVICE
REGION IV
ATLANTA, GEORGIA
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by

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INTRODUCTION

The purpose of this report is to summarize the activities of the U.S. Fish and Wildlife Service's (USFWS) efforts to reestablish a population of red wolves (Canis rufus) in eastern North Carolina in and around both the Alligator River (ARNWR) and Pocosin Lakes National Wildlife Refuges (PLNWR) from 1 January 1995 through 31 December 1995.

RELEASES

During 1995, staff released six wolves [(3 adult pairs): 464M/505F released 02/23/95; 663M/561F released 03/16/95; and 675M/593F released 04/06/95] west of Alligator River (Pocosin Lakes NWR / private land) [Table 1]. Only two adults released were captive born (464M, 561F). The remaining four wild born adults were captured in an effort to produce releasable pairs, including 675M who was removed from private land at the request of the landowner. Adult 593F was relocated from the Great Smoky Mountain National Park (GSMNP). Adults 675M and 593F left the release site separately but localized movements near each other by late June through the end of 1995 (although they never did pair). Adult 675M did not return to the private land he was removed from.

Of the six wolves released, four are currently free ranging (505F, 593F, 663M and 675M); adult 561F was returned to captivity on 03/22/95 after showing tolerance towards humans. Adult 464M was legally killed by gunshot while trying to dig into a dog pen on 04/22/95; no charges were filed. Released adults ranged in age from 23.20 months to 46.75 months. More releases are planned for Pocosin Lakes NWR during 1996.

TRANSLOCATIONS

In an effort to address local landowner concerns about wolf/deer interactions, the project pulled two groups of wolves off private lands in eastern NC during 1995. The first group: adults 504M and 496F, yearling 699F and four day old pups: 776M, 777M, 778M, 779M, 780M, 781M and 782F (Whitetail Pack) were captured 04/06-07/95 and relocated to the GSMNP on 04/21/95.

The second group consisted of two 1995 pups (773M, 774F) from 506M x 502F (Lux Pack); these pups were captured on 05/20/95 and released into PLNWR on 06/21/95. The idea was to lower the number of wolves on the property as opposed to removing the entire pack. Pup 773M was hit and killed by a vehicle on 06/26/95; 774F paired on 07/06/95 with dispersing yearling 755M (442M x 500F - 94) on PLNWR until 755M was killed by gunshot on 12/09/95. Pup 774F was still alive on PLNWR at the end of 1995.

PRODUCTION IN THE WILD

During 1995, a minimum of 19 pups were produced from a minimum of 10 litters [Table 2]. All ten of the wolf pairs consorting together in eastern NC during the 1995 breeding season produced litters [Table 3]. Nine of the ten breeding pairs had previously produced litters in the wild [Table 3]. Of the 20 adult wolves

that bred in the wild during 1995, 15 were wild born (75%) and 5 were born in captivity (25%) [Table 3].

MONITORING

During 1995, project staff continued to conduct aerial telemetry in an effort to monitor the free ranging wolf population in eastern NC. We flew 108 flights for a total of 198.5 hours (1.8 hr/flight) and recorded 3,185 wolf locations during 1995. Primarily using a modified version of the Woodstream #3 "soft-catch" leg hold trap project personnel captured 39 wolves a total of 45 times, 12 of the 39 wolf captures were 1995 pups.

RED WOLF MORTALITY DURING 1995

During 1995 in Carolina, red wolf births were offset by the death of 13 wolves [Table 4]. Two wolves (773M, 443F) were killed by automobiles on dirt roads (no wolves were killed on paved roads), while 3 wolves (464M, 379F, 755M) were shot during 1995. Adult female 379F was illegally shot while on PLNWR. In addition, 2 wolves (764F, 809F) died after ingesting pesticides during 1995.

CURRENT POPULATION

The free ranging population of red wolves during 1995 had access to over 551,000 acres of public and private: forests, pocosins, swamps and agriculture fields on the Pamlico Peninsula in eastern NC.

As a result of releases, births, deaths and some management actions, the free-ranging red wolf population fluctuated on nearly a monthly basis [Table 5]. As of 31 December the population included a minimum of 36 wolves (88% wild born) that had been in the wild for an average of 32.8 months [Table 6]. The average age was 35.3 months old. This population consisted of 10 social groups [Table 7]. In addition, up to 32 wolves had unknown fates due to lost radio contact or wild-born wolves that were observed but not captured) [Table 8].

During February 1996, the staff expect about 10 red wolf pairs to breed in the wild. These breedings should result in the production of about 21 to 25 pups which will mature to an age of self-sufficiency. Thus, by December 1996, the red wolf population should include 75 to 95 animals if new home ranges can be established, of which over 90% will have been born in the wild.

DISPERSAL

There were 12 dispersal events during 1995 in eastern NC [Table 9]. Nine of the dispersers were male while three were female. Dispersal ages for these red wolves ranged from 8.6 to 32.8 months for first time dispersers. The average age for dispersers was 16.2 months old [(15.5 months for males) (18 months for females)]. Dispersal distances ranged from 14 km. to 82 km. Two males died while dispersing (759M - intraspecific aggression, 661M - unknown, possibly intraspecific aggression) while 755M was killed by gunshot after dispersing and pairing with yearling 774F.

displaced

After male pups 752M and 754M [(372M x 382F - 94) Air Force Pack] dispersed from their natal home range in mid - January 1995 (probably dispersed by adult 507M - Gator Pack), they were captured two weeks later and placed in captivity till being released back into their natal home range on 06/29/95. Male 754 died of unknown causes on 09/15/95; note: on 07/13/95 754M was diagnosed as possibly having tick paralysis after being brought in to the Manteo vet. for observation. After treatment 754M was released near sibling 752M on ARNWR. The pair was still present together near dam 382F as of 08/01/95. Sibling 752M remained in the area and paired with resident female 444F whose mate 507M died on 08/01/95 from an obstructed colon.

CAPTIVE POPULATION

During 1995, 12 to 19 captive wolves were maintained at the Alligator River NWR breeding facility. As of December 31, 12 wolves resided at the facility [Table 10].

Due to an overall lack of pen space within the red wolf captive breeding program, captive wolves were separated at the Sandy Ridge captive facility (ARNWR) to prohibit production of litters in 1995.

Captive breeding at the refuge has become an increasingly important component of the restoration effort. Since 1986, 125 wolves have been maintained at the facilities' 15 pens for a varying periods of time. This has included 30 captive adult pairs which have been maintained through breeding seasons. Eleven of these pairs bred successfully and produced 47 pups.

PUBLIC COMMUNICATION

During this, the seventh year of the red wolf program in eastern NC, the red wolf crew continued to present programs designed to not only to educate the public about wolves but also to address concerns voiced by local communities. The wolf crew presented 50 red wolf programs including 9 wolf howling safaris in addition to filling 11 media requests for interviews and information [Table 11].

EVENTS THROUGH 1995

A wide variety of events developed during 1995 that affected red wolf recovery in eastern NC. The most significant being the FWS announcement of the revised special rule package for management of the experimental, nonessential population of red wolves in North Carolina and Tennessee. Published on April 13, 1995, this revised rule making package significantly relaxed regulations on private lands in an effort to address local citizen concerns. Major amendments allow private landowners to take, on private land, red wolves that are in the act of killing livestock or pets, provided that freshly wounded or killed pets or livestock are evident. Private landowners may also harass red wolves on private lands by methods that are not lethal or physically injurious to the red wolf as a means of removing red wolves from their property.

On February 8, 1995 35 Hyde County landowners opposed to red wolf reestablishment met and formed the action/lobbyist group CROWN - "Citizens Rights Over Wolves Now" to identify problems and propose solutions to control wolves on their property.

On March 6, 1995 Lux Farms (Hyde Co.) withdrew from the red wolf private lands program stating that wolf/deer interactions conflicted with a \$200,000/5 year hunt lease. After five meetings between Lux Farms management and hunt club members and Federal and State biologists a compromise was reached where the Lux Pack would be culled as opposed to pulling the entire pack.

On March 30, 1995 results from a public attitude study conducted by North Carolina State University were released that showed the majority of residents of the five eastern NC counties involved in the reestablishment program support efforts to reintroduce the red wolf. Of 600 people interviewed in Beaufort, Dare, Hyde, Tyrrell and Washington counties, 51.7 percent said they support the reintroduction, while 30.2 percent said they oppose it. The remaining 18.1 percent offered no opinion.

A second survey studying economic impacts of the red wolf project was conducted by Cornell University during 1995; the results should be published by spring of 1996.

On August 9, 1995 proposed amendment #2309 to the 1996 Interior Appropriations bill by Senator Jesse Helms (R-North Carolina) was narrowly defeated. The amendment would have cut all funding for the red wolf project.

On the evening of October 5, 1995 a deer spotlight survey was conducted by NC Wildlife Resources Commission biologists on Lux Farms. Their finding was that for the quality of deer habitat present on the farm, there was an adequate deer population present on Lux Farms.

On November 8, 1995 Defenders of Wildlife offered a \$2,500 reward (matched by FWS) for information leading to the arrest and conviction of the individual responsible for RW 379F's shooting death on Pocosin Lakes NWR. This was the first time a reward was offered for information concerning the death of a red wolf since the wolf project began in 1987.

On November 13 and December 18, 1995 federal government shutdowns severely curtailed field activities (eg. pup trapping, population monitoring) through the end of 1995. Regrettably, we also had to cancel the annual Christmas howling safari set for December 23, 1995.

ACKNOWLEDGEMENTS

Many people and organizations have contributed to the success of the red wolf reestablishment effort in eastern NC during the last year. Biologists Art Beyer, Jennifer Gilbreath and Jonathan Windley continued to be highly productive during 1995. We would like to thank: the staffs at Alligator River and Pocosin Lakes National Wildlife Refuges; Red Wolf Species Coordinator, Gary Henry and the FWS Asheville Field Office for their support and help throughout the year. We would also like to thank the 1995 red wolf volunteer caretakers: Penny Rodrick - January 95 - March 95, Jennifer LaBranch - April 95 - June 95, Katy Fitzgerald - July 95 - September 95 and Kim Romain - October 95 through December 95 for all their efforts while they were here; they all did an outstanding job. Many thanks go out to the Red Wolf SSP Coordinator Will Waddell, RW Primary Caretaker Sue Behrns and all of the Red Wolf SSP cooperating zoos and breeding facilities for their participation in the RWSSP. Special thanks go to both the North Banks Rotary Club for all their efforts with funding our caretakers and for continuing to lead fund - raising programs and to the National Fish and Wildlife Foundation for continuing to administer the Red Wolf Fund. Thank you all.

Table 1. Information about red wolf pairs released into eastern North Carolina (west of Alligator River) from 1 January 1995 to 31 December 1995.

Wolf Pair	Release Date	Release Age (mos)	# Months Paired ^a	Location of Home Range ^b	Produced Offspring (Y/N)	Outcome
464M 505F	02/23/95 "	46 46	.3 "	private "	N N	gunshot on 04/22/95 free ranging
663M 561F	03/16/95 "	21.7 34.5	1.25 "	public "	N N	free ranging pulled for management purposes
675M 593F	04/06/95 "	22.45 23.75	2.75 "	public "	Y Y	free ranging free ranging

^a - Number of months paired together before release.

^b - Public lands include State and Federal holdings; Private lands accessed through agreements with landowners.

Table 2. Information about red wolves born in the wild in northeastern North Carolina during the 1995 breeding season.

Wolf# & sex	Parents (M/F)	Birth date	Period monitored	# Mos. monitored	Comments
776M	(504/496)	4/03/95	-----	-----	shipped to GSMNP with 504M, 496F, 699F and sibs.
777M	" "	"	-----	-----	
778M	" "	"	-----	-----	
779M	" "	"	-----	-----	
780M	" "	"	-----	-----	
781M	" "	"	-----	-----	
782F	" "	"	-----	-----	
796?	(331/394)	4/07/95	-----	-----	observed 06/25/95
797?	" "	"	-----	-----	" "
798?	" "	"	-----	-----	" "
799?	" "	"	-----	-----	" "
800?	" "	"	-----	-----	" "
801?	" "	"	-----	-----	" "
805?	(519/500)	4/07/95	-----	-----	observed 09/11/95
810F	(442/508)	4/07/95	12/05/95	.9	free ranging
811F	" "		12/05/95	.9	free ranging
803M	(392/344)	4/28/95	11/08/95	1.75	free ranging
804M	" "	"	11/11/95	1.66	free ranging
809F	(506/502)	5/01/95	12/02/95	1.0	free ranging

Table 3. Information about red wolves consorting together during the 1995 breeding season in eastern North Carolina.

Wolf# & sex	Birth location	Produced litter 95	Produced litter previously	Months spent together	Outcome
331M 394F	captivity captivity	yes "	yes (w) yes (w)	50	free ranging free ranging
507M 444F	wild wild	yes yes	yes (w) yes (w)	10	died 08/95 free ranging
506M 502F	wild wild	yes yes	yes (w) yes (w)	33.5	free ranging free ranging
392M 344F	captivity wild	yes yes	yes (w) yes (w)	76.75	free ranging offair 11/95
519M 500F	captivity wild	yes yes	yes (w) yes (w)	24	free ranging free ranging
504M 496M	wild wild	yes yes	yes (w) yes (w)	24.25	pulled/GSMNP pulled/GSMNP
442M 508F	wild wild	yes yes	yes (w) yes (w)	11.25	free ranging free ranging
670M 503F	wild wild	yes yes	yes (w) yes (w)	24.5	free ranging free ranging
674M 379F	wild captivity	yes yes	no no	12.75	free ranging shot 11/95
583M 443F	wild wild	yes yes	no no	2.4	offair 03/95 died 07/95

Table 4. Information on mortality of red wolves in eastern North Carolina from 1 January through 31 December 1995.

Wolf	Date of Death	# Mos in Wild	Cause of Death
698F	01/27/95	9.6	drowned in a local's trap
374M	02/23/95	8.25	euthanized due to blindness
764F	03/16/95	10.5	agricultural pesticide
464M	04/22/95	12.0	gunshot
661M	05/17/95	26.0	unknown (only hair and bones left)
773M	06/26/95	14.0	killed in collision with vehicle
443F	07/01/95	62.75	killed in collision with vehicle
507M	08/01/95	50.6	impacted colon
754M	09/15/95	12.5	unknown (only hair and bones left)
379F	11/05/95	60.5	gunshot
759M	11/20/95	19.8	intraspecific aggression
755M	12/09/95	20.3	gunshot
809F	12/17/95	8.5	agricultural pesticide

Table 5. Information on monthly population fluxes of red wolves in eastern North Carolina during 1995.

Month	Population	Month	Population
January	41	July	39
February	39	August	38
March	41	September	37
April	41	October	36
May	38	November	34
June	41	December	36

Table 6. Free-ranging red wolves in eastern North Carolina as of 31 December 1995.

Wolf# & sex	Birth location	Age ^a (mos)	# Mos. in wild (mos) ^b	Location of home range		Comments
331M	captivity	91.2	83.2	federal	land	probably consorting with 394F
382F	captivity	78.4	40.9	federal	land	lone female
392M	captivity	79.1	71.5	private	land	possibly consorting with 344F
442M	wild	67.8	67.8	private	land	consorting with 508F
444F	wild	67.8	66.4	federal	land	consorting with 752M
500F	wild	56.0	56.0	private	land	consorting with 519M
502F	wild	56.0	56.0	private	land	possibly consorting with 506M
503F	wild	56.0	56.0	private	land	probably consorting with 670M
505F	wild	56.1	55.7	private	land	lone female
508F	wild	56.1	56.1	private	land	consorting with 442M
519M	captivity	43.5	39.9	private	land	consorting with 500F
582F	wild	43.8	43.8	private	land	lone female
593F	wild	32.4	16.1	private	land	lone female
662M	wild	32.5	32.5	federal	land	pack member
663M	wild	32.5	30.0	private	land	lone male
665F	wild	32.0	33.0	private	land	pack member
666M	wild	32.0	33.0	private	land	pack member
671M	wild	32.0	32.0	private	land	consorting with 673
673F	wild	32.0	32.0	private	land	consorting with 671M
674M	wild	32.0	31.5	private	land	consorting with 760F
675M	wild	32.0	22.3	private	land	lone male
745M	wild	19.8	19.8	federal	land	pack member
746M	wild	19.8	19.8	federal	land	pack member
752M	wild	20.0	15.6	federal	land	pack member
756F	wild	20.0	20.0	private	land	pack member
760F	wild	20.6	20.0	private	land	consorting with 674M
761F	wild	20.1	20.1	private	land	lone female
763F	wild	20.1	20.1	private	land	pack member
768M	wild	20.4	20.4	private	land	pack member
772M	wild	20.0	20.0	private	land	pack member
774F	wild	20.0	19.0	private	land	lone female
795M	wild	20.1	20.1	private	land	pack member
803M	wild	8.0	8.0	private	land	pack member
804M	wild	8.0	8.0	private	land	pack member
810F	wild	8.4	8.4	private	land	pack member
811F	wild	8.4	8.4	private	land	pack member

^a - Age was calculated relative to 31 December 1995.

^b - Number of months in the wild did not necessarily span the period from the date of release for animals born in captivity or from birth for animals born in the wild, as some wolves were placed in captivity for varying periods of time and subsequently re-released.

Table 7. Information on social structure of red wolves free ranging in eastern North Carolina on 31 December 1995.

Pack	Land ownership	Adults		Yearlings		Pups	
		M	F	M	F	M	F
Milltail	public	331	394	662	747 ^a	796 ^a	797 ^a
				745		799 ^a	798 ^a
				746		*800?/	801?
Gator	public	752	444				
Lux Farms	private	506 ^b	502	772			
Mattamuskeet Ventures	private	392	344 ^c	666	665	803	
				795	763	804	
Matt. Farms	private	671	673				
Kilkenny Farms	private	442	508				810
							811
Fairfield	private	519	500		756	*805?	
Weyerhauser	private	663				813 ^a	814 ^a
Pocosin	public	670 ^d	503	768		815 ^a	806
Pungo	public	674	760				

^a - 747F, 796M, 797F, 798F, 799M, 813M, 814F & 815M captured in 1996.

^b - 506M not audible; last location for 506M was on 07/17/95; estimated collar quit date was 09/01/96.

^c - 344F not audible; last location for 344F was on 11/13/95; estimated collar quit date was 09/17/96.

^d - 670M not audible; last location for 670 was on 01/17/95; estimated collar quit date was on 07/21/95. Note: 670M observed from air with pups 766M and 768M on 01/24/95.

* - Wolves observed but not captured.

Table 8. Information about red wolves free ranging in eastern North Carolina with fates unknown as of 31 December 1995.

Wolf # & sex	Age ^a	Birth location	Comments
316F	8	captivity	last location 12/20/89
344F	7	wild	last location 11/13/95
394F	6	captivity	last location 11/13/95
499?	4	wild	observed 06/08/91, never captured
506M	4	wild	last location 07/17/95; collar malfunc.
509?	???	wild	observed 06/10/92, never captured
517M	3	captivity	last location 09/07/92
583M	3	wild	last location 03/22/95; dispersed from natal homerange on 12/30/94 (392M x 344F)
587F	2	captivity	last location 09/17/93
634M	2	captivity	last location 12/01/93
667?	2	wild	observed with 392M and 344F on 07/02/93, never captured
669F	2	wild	last location 11/23/93
670M	2	wild	last location 01/17/95
700?	1	wild	observed with 496F and siblings 698F and 699F on 05/18/94
747F	1	wild	last location in natal homerange (331M x 394F) - slipped collar on 03/17/95, sibling of 745M, 746M
748?	1	wild	observed with siblings (749? and 750?) and mother (444F) on 08/09/94
749?	1	wild	observed with siblings (748? and 750?) and mother (444F) on 08/09/94
750?	1	wild	observed with siblings (748? and 749?) and mother (444F) on 08/09/94
753M	1	wild	captured, processed, and released on 10/19/94 (slipped collar on 11/07/94)
758?	1	wild	observed on 10/01/94, sibling of 670M & 671M [1993 litter of (? x 508F)]
762?	1	wild	observed in wild while siblings (759M, 760F, 761F) were in captivity at SR
766M	1	wild	last location 10/20/95, dispersed from natal homerange on 10/10/95 (670M x 503F)
775?	1	wild	observed on 02/25/95 while trapping siblings (772M, 773F, & 774F)
796?	pup	wild	observed with parents 331M & 394F & sibling 797? from air on 6/27/95
797?	pup	wild	observed with parents 331M & 394F & sibling 796? from air on 6/27/95

Free-ranging wolves whose fates remain uncertain include: (cont.)

Wolf # & sex	Age ^a	Birth location	Comments
798?	pup	wild	observed with parents 331M & 394F, 2 yearlings and 5 other pups (796?-801?) from ground on 6/26/95
799?	pup	wild	observed with parents 331M & 394F, 2 yearlings and 5 other pups (796?-801?) from ground on 6/26/95
800?	pup	wild	observed with parents 331M & 394F, 2 yearlings and 5 other pups (796?-801?) from ground on 6/26/95
801?	pup	wild	observed with parents 331M & 394F, 2 yearlings and 5 other pups (796?-801?) from ground on 6/26/95
805?	pup	wild	observed with parents 519M & 500F, and yearling 756F from air on 9/11/95
806?	pup	wild	observed with parents 670M & 503F, and yearling 768M from air on 10/23/95
???M	adult	???	508's mate during 1993

a - Age was calculated as if wolf was alive as of 31 December 1995.

Table 9. Information about dispersal by red wolves born in the wild in eastern North Carolina during 1995.

Wolf# & sex	Birth date	<u>Dispersal</u>		Dist/Dir travelled		Comments
		date	age (mos)			
754M	05/01/94	16.5	01/20/95	8.6	18 km S	captured and returned to natal home range, died 09/15/95
663M	04/16/93	32.5	02/06/95	21.0	82 km S	lone male
752M	05/01/94	20.0	02/06/95	9.1	51 km NW	captured and returned to natal home range
759M	04/12/94	19.3	02/06/95	9.8	14 km SW	died 11/20/95
760F	04/12/94	20.6	02/06/95	9.8	48 km S	consorting with 674M
661M	04/16/93	25.0	03/17/95	23.0	54 km S	died 05/17/95
761F	04/12/94	20.6	03/27/95	11.5	14 km SW	lone female
755M	05/01/94	18.0	04/10/95	11.3	28 km N	died 12/09/95
766M	04/18/94	18.3	10/10/95	17.7	72 km NW	disappeared 10/27/95
665F	05/01/93	33.0	11/24/95	32.8	48 km NW	lone female
768M	04/18/94	20.4	12/11/95	19.8	17 km SE	lone male
795M	04/27/94	20.1	12/11/95	19.5	35 km W	lone male

- ^a - Age was calculated from birth date through 12/31/95, death date, or date of disappearance.
- ^b - No date is provided for wolves that had not dispersed from their natal home range before their death, disappearance, or 12/31/95.
- ^c - Dispersal age was calculated from birth date and dispersal date.