

INTERNATIONAL WOLF

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INSIDE!

A PUBLICATION OF THE INTERNATIONAL WOLF CENTER
WINTER 2007



The Red Wolf



*Endangered
means there is
still time*

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INTERNATIONAL WOLF

THE QUARTERLY PUBLICATION OF THE INTERNATIONAL WOLF CENTER
VOLUME 17, NO. 4 WINTER 2007

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Wolf images, left to right:
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Letter from the Executive Director of the Red Wolf Coalition

by Kim Wheeler



“What does the Red Wolf Coalition do?” I am frequently asked that question, and there’s no better way to begin an answer than with the organization’s mission statement: *The Red Wolf Coalition advocates for the long-term survival of red wolf populations by teaching about the red wolf and by fostering public involvement in red wolf conservation.* Seems clear to me, but what exactly is an advocate? What does an advocate do?

The dictionary says an *advocate* is one who speaks or writes in support or defense of a person or a cause. The Coalition advocates through education—teaching people about red wolves and engaging them in the work of conserving wildlife and habitat. Our programs, informational materials and curricula are science-based, and our advocacy is grounded in truth and fact. We rely on our partnership with the U.S. Fish and Wildlife Service (USFWS)



Kim Wheeler

Red Wolf Recovery staff to offer up-to-date and accurate information about the recovery program and to give a firsthand account of the work being done in the field. The result is an increasing number of requests for red wolf programs from private citizens, schools, community groups and private organizations. It’s good to be popular!

In celebration of our 10th anniversary, the Coalition has brought the International Wolf Center’s new world-class exhibit “*Wolves and Wildlands in the 21st Century*” from its home in Minnesota to red wolf country in Columbia, North Carolina. This exhibit has enabled us to teach visitors and local residents alike about the wolves of North America and about the challenges of coexisting

with these fascinating and complex predators. As the 21st century evolves, more land will be developed and the human population will increase. Can we leave room on the landscape for wolves and other large carnivores? *Will we?*

The Red Wolf Coalition renews its commitment to advocate for the long-term survival of red wolf populations in this, our 10th anniversary year and in the 20th anniversary year of the red wolf’s return to its wild home in North Carolina. We will broaden our audiences, expand our programs and Web site, cultivate new partners including state and federal agencies and government entities, encourage new members to support our work, bring people to red wolf country—and swat mosquitoes at our popular howling safaris. And one day, our vision of a Red Wolf Center will become a reality!

We are proud of what we do, and we are grateful for the partnerships that have made us a stronger, more focused organization. Those include our partnership with the International Wolf Center. We hope that this issue of *International Wolf* will encourage others throughout the nation and the world to join us in our efforts to keep the red wolf forever wild in the southeastern United States. ■





From the Executive Director

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Milestones Matter

Milestones matter. Without them we lose perspective and the relevance of the milestone to our day-to-day work. Marking 20 years of red wolf recovery in the wilds of North Carolina is surely a conservation milestone that deserves reflection. Perhaps foremost we should take the moment to celebrate the decision to save a species from extinction. Can there be any higher calling than saving from oblivion a fellow passenger on spaceship earth? The Red Wolf Recovery Program also paved the way through its practices and personnel to further wolf recovery in other parts of the country, nowhere more so than in Yellowstone National Park. These successes, in turn, have given other species recovery programs around the globe reason to be optimistic that their work can be accomplished too.

A hearty howl of congratulations to all the people behind the program and especially to the Red Wolf Coalition, which marks its own milestone of 10 years of advocacy and educational work.

On a personal level I recently crossed a milestone of my own. In September, I marked 14 years of service as executive director of the International Wolf Center. It has been a great ride, full of wonderful wolf experiences. None was better than standing on the tarmac in 1995, watching a small plane with its cargo of wolves bank against the backdrop of the snow-capped Canadian Rockies, heading south for Idaho and Yellowstone, where a great experiment would return wolves to America's Northern Rockies. Equally satisfying has been the opportunity to meet dedicated people from all over the globe who play a part in the complex world of wolves—whether Dr. Djuro Huber from Croatia, who had to deal with unexploded mines while conducting his research, or Tungalagtuya Khuukhendu of Mongolia, whose magnificent native dress brightened the meeting rooms at one of our international wolf conferences.

I start a new adventure this fall as I leave the International Wolf Center and head to Vermont to assume the position of executive director of Northwoods Stewardship Center, an organization focused on land stewardship, environmental education, conservation science and outdoor recreation. The mountains, farms, fields and forests of the region and the challenges of a new job beckon me east. Leaving the Center is no small decision. Never have I worked for an organization with so many dedicated, hard-working staff and volunteers. Together we have created a powerful synergy, bringing intention, creativity and success to efforts on behalf of wolf survival.

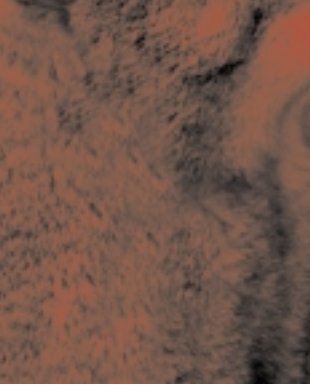
Wolves matter too. They represent so perfectly the elegant mechanisms that evolve within natural systems. Prey populations are healthy because of predator pressure. Healthy prey populations keep predators keen.

Because humans play such a dominant role in the world today, it's easy to dismiss the remarkable complexities of natural systems and the vast time frames in which those systems developed. Wolves matter in and of themselves, but because they and other predators play such a pivotal role within natural systems, they matter even more.

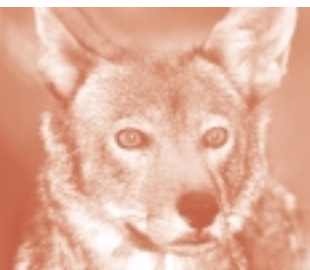
They say that anyone who plants a tree is an optimist. The same holds true for those who work to keep wolves on the landscape.

Thanks for your optimism and for your support of the International Wolf Center.

Happy howling to you all! ■



Greg Koch



Greg Koch

Red Wolf Restoration

A 20-Year Journey

by DIANE
HENDRY



Ryan Nordqvist, U. S. Fish & Wildlife Service

FALL 2007 MARKS THE 20TH ANNIVERSARY of the first release of red wolves back into the wild in northeastern North Carolina. The red wolf roamed a large portion of the southeastern United States as a top predator for centuries until aggressive control programs, habitat loss and interbreeding with coyotes eliminated the animal from nearly all of its former range. Restoring the species was not easy. Officially designated as extinct in the wild in 1980, the red wolf's path to recovery has been long and has required multifaceted coordination among scientists, government agencies, private landowners and communities. A look at the “early days” of the red wolf’s journey provides perspective on the triumphant story of *Canis rufus*.

The red wolf roamed a large portion of the southeastern United States as a top predator for centuries until aggressive control programs, habitat loss and interbreeding with coyotes eliminated them from nearly all of their former range.



Evelyn L. Mercer

perspective on the triumphant story of *Canis rufus*.

History

The red wolf was first described in 1791 by scientist William Bartram and lived principally in the southeastern United States. By 1962, however, sightings of red wolves were nearly nonexistent. Human howls were not getting a response. Scat evidence was nil. And where were the tracks? The elusive and wary red wolf no longer roamed its familiar territory. How could this have happened? How could a top predator have reached the brink of extinction without anyone’s noticing? The reasons are many, but the important fact is that during the 1960s, the scientific community did notice—but not until it was almost too late.

Action was needed. Two important developments made the race against extinction possible:

- The red wolf was listed as an endangered species under provisions of the Endangered Species Preservation Act (1967).
- The Endangered Species Act became federal law (1973), with various measures built in that recognized landowners' needs while protecting red wolves and mandating active recovery programs.

These legislative actions provided a framework for the U.S. Fish and Wildlife Service (USFWS) to develop a plan to save the species. But first the agency had to answer these questions: Were any red wolves left, and if so, where had they gone? In the late 1960s, biologists traced the last red wolves to the Gulf Coast of western Louisiana and eastern Texas. The region provided only marginal habitat with minimal prey, but it afforded the red wolf haven from systematic persecution.

As the plan progressed, USFWS wildlife biologists established criteria to distinguish the red wolf species from other wild canids. From 1974 to 1980, over 400 animals were trapped from the remnant population and evaluated for red wolf morphological characteristics. The results were astonishing: only 17 pure red wolves were among the 400. Of these, 14 were selected as founders for the captive breeding population. Point Defiance Zoo and Aquarium (PDZA) in Tacoma, Washington, was selected as the site for captive management and continues coordinating the program for the USFWS today, thus celebrating its 30th-year anniversary as a red wolf partner.

Fortunately, in 1977 a litter of red wolf pups was born at PDZA, and within a year, scientists were ready to experiment with a release. They selected Bulls Island off the South Carolina coast for this initial trial. The Bulls Island red wolves were set free, tracked and recaptured.

Restoration techniques were proven to work, at least at this site, and in 1978, the experiment was declared a success. So that recovery efforts could proceed, the red wolf was declared extinct in the wild in 1980. Meanwhile, during that year, genetic research supported the designation of *Canis rufus* as a distinct species.

During the next decade, red wolf restoration focused on three key efforts: getting approval for the updated and revised Red Wolf Recovery Plan, incorporating the red wolf into the American Zoological Association's Species Survival Plan, and searching for a future red wolf release site. In 1984, a generous land donation to the USFWS by Prudential Insurance Company became the Alligator River National Wildlife Refuge (ARNWR) in eastern North Carolina. The red wolf had a new home in the wild.

ARNWR was just what the scientists had in mind. Surrounded on three sides by water, the refuge provided habitat well suited to red wolf needs. Prey was abundant, and the sparse human population surrounding the refuge was mostly rural. Nevertheless, local support of red wolf restoration was necessary. For approximately one year, the USFWS conducted public meetings in Dare County combined with education programs. This successful outreach effort paved the way for the first release of four pairs of captive-born red wolves in ARNWR in 1987. It is worth noting that a 1995 North Carolina State University survey showed the majority of eastern North Carolina residents in support of red wolf restoration.

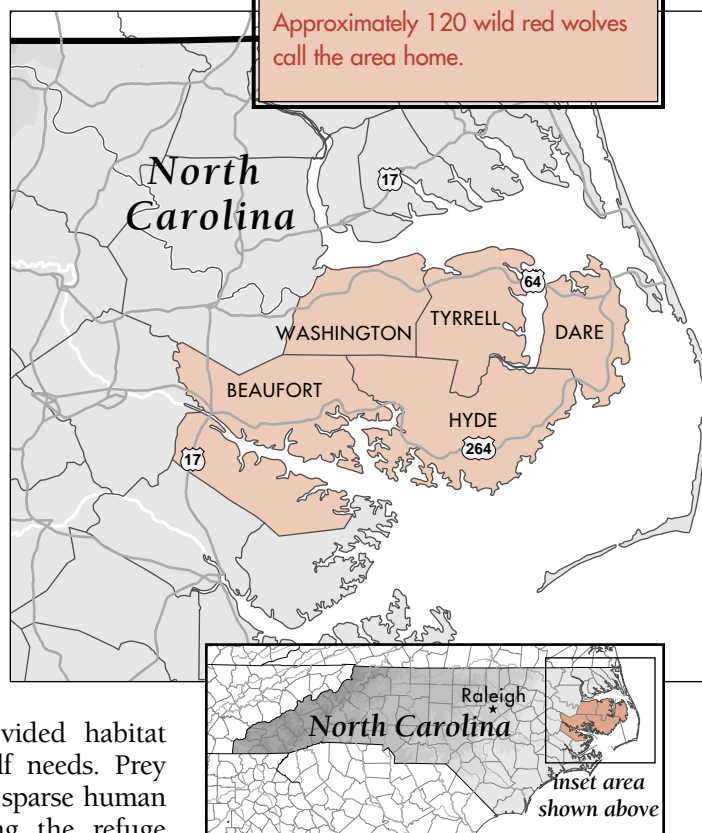
2007 Restoration Area

The restoration area encompasses 1.7 million acres in northeastern North Carolina in five counties: Dare, Tyrrell, Washington, Beaufort and Hyde.

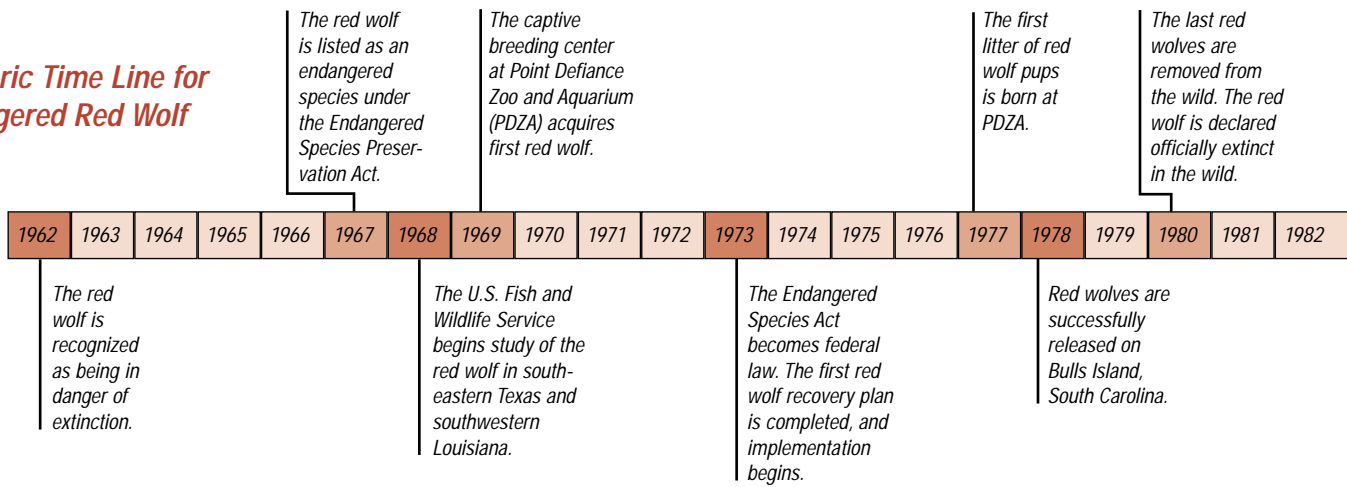
Over 60 percent of restoration area is privately owned land.

Three national wildlife refuges are contained within its boundaries: Alligator River, Pocosin Lakes, and Mattamuskeet.

Approximately 120 wild red wolves call the area home.



Brief Historic Time Line for the Endangered Red Wolf



U.S. Fish and Wildlife Service

Also in 1987, Bulls Island was selected as the first island propagation site, a project designed to offer red wolves time and freedom to acclimate in the wild prior to release on the mainland. Then in 1988, the first litter of red wolf pups was born in the wild at ARNWR. In 1989 a second restoration project began

with the release of red wolves into the rugged landscape of the Great Smoky Mountains National Park (GSMNP). During these years, the second generation of red wolf pups was born at ARNWR, and another “first” made quiet headlines: the birth of healthy pups, conceived by artificial insemination, at PDZA.

The red wolf population in the wild expanded at both the ARNWR and GSMNP sites. Then in 1992, red wolves were released into the Pocosin Lakes National Wildlife Refuge, not far from Alligator River. And that year, the first wild red wolf pups were born in the “Smokys.” The

captive population also increased as additional facilities throughout the country were approved for participation in the Red Wolf Species Survival Program (SSP). Public support for the reintroduction effort grew and was documented by a 1996 Cornell University economic study showing potential tourism benefits from red wolf presence as well as public willingness to pay for recovery efforts far exceeding the cost of the program. An East Carolina University study that same year reported similar results.

But 1998 ushered in a period of setbacks. The GSMNP reintroduction project was cancelled because of low pup survival and the inability of wolves to establish home ranges within the perimeter of the park. Meanwhile, the highly mobile and adaptable coyote, a non-native of the East, found its way to North Carolina—and to the red wolf recovery area. In 1999, a team of scientists and wolf experts determined that hybridization with the coyote posed the greatest threat to red wolf recovery. An adaptive management plan was initiated to deal with this crisis and to find a solution to the problem.

Today, coyote–red wolf issues such as hybridization, home range challenges, prey-base competition and illegal shootings all challenge the biologists of the Red Wolf Recovery staff. Differentiating between coyotes and endangered red wolves can be difficult, especially with the recent



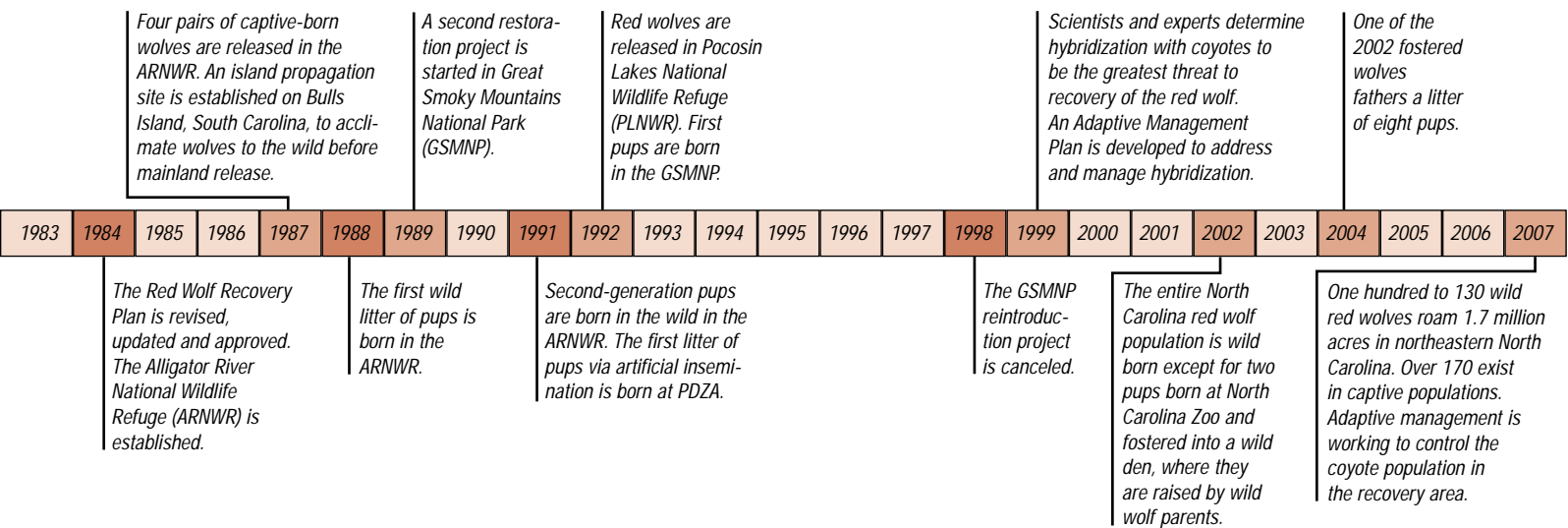
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Top: Jennifer Gilbreath collects a scat sample. The samples are used for genetic testing and species identification.

Above and right: Chris Lucash inserts a captive-born pup into a den to be raised by the wild parents along with their own offspring. “Fostering” infuses new genes into the wild population and promotes the survival and viability of the red wolf.



U.S. Fish and Wildlife Service



trend of transporting coyotes into the state to train dogs for fox hunting. The loss of a red wolf, particularly a healthy breeder, provides opportunity for a coyote to move in, thus upsetting a pack's social structure and possibly its genetic integrity. Therefore, coyote management in the recovery area remains a top priority for field biologists, who employ various control and monitoring methods such as radio tracking, live-trapping and sterilization. Evidence suggests that as red wolf numbers increase, coyote presence decreases.

Several years after the restoration program began, an important achievement was documented: the entire red wolf population in northeastern North Carolina was wild born except for two pups born at the North Carolina Zoo, which were successfully fostered to wild adults. "Fostering" is yet another red wolf management milestone. Captive-born pups are inserted into wolf dens to be raised by the wild parents along with their own offspring. Fostering infuses new genes into the wild population and promotes the survival and viability of the red wolf as one of two species of wolves in North America.

Red wolves benefit the restoration region in many ways. For instance, as top predators, they play a key role in ecosystem balance. Because they tend to cull weak or otherwise vulnerable deer, some landowners report "healthier and larger deer populations" since the arrival of the red wolf. The

eggs of ground-nesting birds have a better chance of survival due to the red wolf's appetite for nest-raiding mammals. Additionally, local economies are enhanced as visitors travel to red wolf country to attend summer howling safaris, view exhibits and participate in education programs.

Management

Red wolves are still managed at four levels: population, gene pool, family groups and individuals. Within the framework of these management objectives, primary recovery goals are to maintain the strength of the present wild red wolf population and to increase the number of wild wolves to 220 and the number of captive wolves to 330. The cooperative efforts of agencies, organizations and individuals are necessary to ensure the long-term survival of the endangered red wolf.

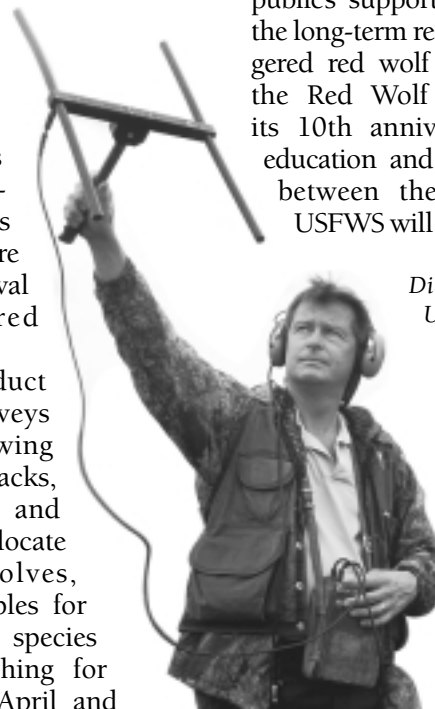
Biologists conduct frequent field surveys that include following miles of red wolf tracks, employing ground and aerial telemetry to locate radio-collared wolves, collecting scat samples for genetic testing and species identification, searching for pup litters during April and

May, and monitoring the health and expansion of the red wolf population.

The Future

In the future, genetics research will become increasingly sophisticated. Monitoring the displacement of coyotes by red wolves in the recovery area will continue, and data from special transmitters implanted in pups will yield valuable dispersal information. A possible second red wolf recovery area will be considered. The future of this species lies in the public's support and commitment to the long-term restoration of the endangered red wolf in the Southeast. As the Red Wolf Coalition celebrates its 10th anniversary in 2007, the education and outreach partnership between the Coalition and the USFWS will be vitally important. ■

Diane Hendry is the U.S. Fish and Wildlife Service Red Wolf Recovery Team Outreach Coordinator.



U.S. Fish and Wildlife Service

Wildlife biologist Michael Morse uses ground telemetry to locate radio-collared red wolves.



Greg Koch

Red Wolf FAQ

by STEVE GROOMS

What is a red wolf?


A great many facts about red wolves are controversial and mysterious, including this most basic question. Some scientists think the red wolf is a species of wolf that is native to the southeastern seaboard of North America, and that preceded the evolution of the gray wolf.

Aren't there many species of wolves?

No. Current thinking is that there are two, three or four. In spite of the many names for different kinds of wolves—buffalo wolves, McKenzie Valley wolves, timber wolves and so forth—those are all subtypes of the gray wolf. The gray wolf is the common wolf of North America, Europe and Asia. The red wolf is a different species, which might be the same as the eastern Canadian wolf, another possible species (see below). Some authorities believe the Ethiopian wolf is another species of wolf, although others believe it's a jackal.

Where did red wolves originally live?

Red wolves once lived and hunted an area that largely overlaps the states of the Confederacy of the 1860s. That area extends from central Texas all along the coast through Florida and as far north as southern New England, including some parts of Pennsylvania and Ohio (see map). One of the most intriguing areas to be explored is the question of how far north red wolves lived. The wolf that



Evelyn L. Mercer



Evelyn L. Mercer

Many scientists used to believe that the red wolf was a hybrid, a cross between the gray wolf and the coyote. Scientific opinion is still divided on whether the red wolf has existed as a distinct and unique species in North America for at least 150,000 years.

currently lives in Canada's Algonquin Park in eastern Canada, once thought to be a type of gray wolf, bears a great resemblance to the red wolf. Analysis of the DNA of that eastern Canadian wolf and the red wolf show them to be very closely related and possibly essentially the same species.

Are red wolves a species or hybrid?

Many scientists used to believe that the red wolf was a hybrid, not a species, being a cross between the gray wolf and the coyote. Scientific opinion is still divided on whether the red wolf has existed as a distinct and unique species in North America for at least 150,000 years.

What do red wolves look like?

The red wolf is a beautiful animal. Red wolves are mostly brown, buff and cinnamon in color. Most have some black along the back and often some red on the head, ears and legs. Compared to gray wolves, red wolves are leggy and delicate. They have sharper, longer muzzles and prominent, pointed ears. Their fur is not as heavy as the pelage of gray wolves, and their feet are smaller.

How big are they?

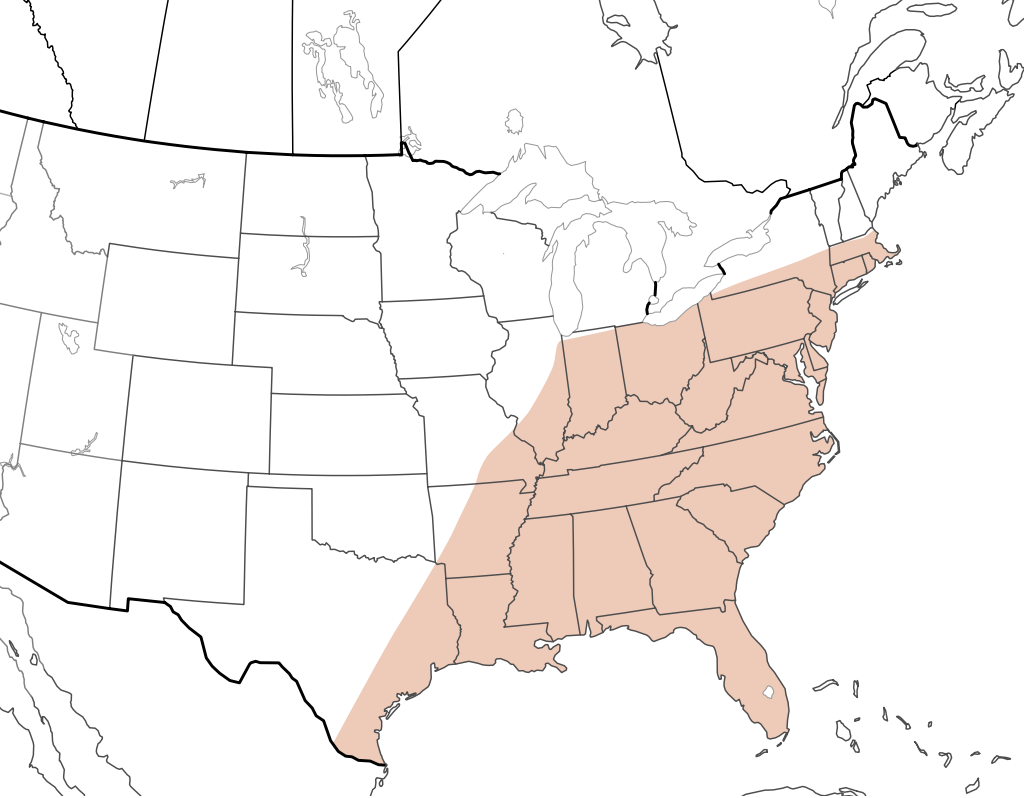
The average adult male is 61 pounds, and the average female is 52 pounds. Gray wolves range from 80 to 120 pounds; coyotes, from 20 to 45 pounds; and red wolves, from 50 to 80 pounds. The red wolf stands about 26 inches at the shoulder, comparable to a male German shepherd dog.

What do red wolves eat?

Like any wolf, the red wolf feeds opportunistically, taking what is available. Today, that includes white-tailed deer, raccoons and such smaller mammals as rabbits and nutrias. A red wolf consumes about two to five pounds of food a day and can travel up to 20 miles a day in search of food. They are carnivores.

Do red wolves live in packs?

Red wolves live and hunt in family groups, or "packs." As with gray wolves, this unit is the adult breeding



Approximate original range of the red wolf.

pair and several offspring of various years. Only the primary adult pair breeds. The pack size is usually five to eight individuals, and this group of wolves works as a tightly knit group to find food, defend territory and rear the pups.

Where are red wolves today?

Most wild red wolves inhabit a region of eastern North Carolina that overlaps five counties and includes 1.7 million acres (see map on page 5). This area includes the Alligator River National Wildlife Refuge, Pocosin Lakes National Wildlife Refuge and

Mattamuskeet National Wildlife Refuge. A few wild red wolves live as breeding populations on islands that are too small to sustain larger populations. Additionally, many red wolves live in zoos, often in captive breeding programs.

How many red wolves are alive now?

The number varies as young are born and as wolves die, but the wild red wolves in North Carolina usually number about 100 to 130 individuals. An additional 208 wolves live in zoos or captive breeding programs.

How has the red wolf restoration program differed from the program for gray wolves?

While gray wolves have lived continuously in at least some regions of North America, at one time all living red wolves were trapped and moved to a captive breeding program in a desperate effort to save the species from extinction. The red wolf is the first predator ever restored to the wild after existing only as a captive population. Moreover, the red wolf is in danger of losing its genetic identity because it hybridizes with coyotes, which most gray wolves do not do.

Many think the red wolf is an ancient race of wolves that preceded the evolution of the gray wolf.

Are red wolves a threat to humans?

There is no record of a red wolf ever harming a human. The red wolf is a large predator and should be given the respect with which we regard any wild predator, but red wolves are no threat to humans. Since restoration to the wild, red wolves have lived with remarkably little conflict with humans.

Why should these wolves be restored and protected?

The Endangered Species Act of 1973 calls for unique species to be protected and restored in the wild, insofar as possible. The red wolf is a unique type of wolf that may have lived in North America for at least 150,000 years. Its genetic identity needs

to be preserved, but beyond that the act dictates that such important species be sustained in the wild, not just in zoos. Moreover, it is desirable to have ecological communities that are as complete as possible. The red wolf was once an important member of the ecological community of the U.S. Southeast. It continues to play that role, albeit in a small area now.

What are the primary threats to red wolves now?

Each year, intentionally or unintentionally, some red wolves are killed by humans. But the number is not a major threat to the long-term prospects for red wolves. Potentially, diseases such as mange, hookworm and heartworm are a threat since

most wild red wolves live in just one area. Above all, the biggest threat is hybridization with coyotes. Red wolves will mate with coyotes, and the southeastern United States is now saturated with coyotes. That raises the constant specter of “genetic swamping,” the loss of distinctive, pure red wolf genes by mixing them with coyote genes. This problem is currently being addressed by aggressive coyote control operations along the interface between coyotes and wild red wolves in North Carolina.

Is the red wolf now safe?

The red wolf once was extremely endangered but has been brought back to a status that seems more or less secure. Because red wolves are limited in number and only live freely in one area, managers will need to exercise great care to preserve this unique and fascinating species. The future of the red wolf would be much more secure if other areas could become home to more wild red wolves. If genetic studies prove the wolf of eastern Canada is actually the same as the red wolf, the genetic future of the species will be greatly enhanced.

What are the most important next steps to secure the future of red wolves?

First, managers must maintain the integrity of red wolf bloodlines by suppressing coyotes in the region where wild red wolves and coyotes encounter each other. Second, it is important to establish a Red Wolf Center facility to spread information and promote tolerance of red wolves. Third, we need to find other areas where red wolves can live in the wild. ■

Steve Grooms has been writing about wolves and wolf management since 1976. He is the author of the book Return of the Wolf, and he serves on International Wolf's advisory committee.



Evelyn L. Mercer



International Wolf Center



Evelyn L. Mercer



International Wolf Center

Compared to gray wolves (on right), red wolves are leggy and delicate. They have sharper, longer muzzles and prominent, pointed ears. Their fur is not as heavy as the pelage of gray wolves, and their feet are smaller.



Chris Crowe

Return to the Wild

The Cliff-hanger Story of Red Wolf Recovery

by STEVE GROOMS



The red wolf just barely dodged the bullet of extinction, not once but several times.

Evelyn L. Mercer

When wildlife managers give progress reports on their programs, they typically exude confidence. “Well, we face some challenges,” they will report, “but we’ve got this thing going the right way.” Sometimes, however, the truth behind those blandly optimistic reports is dramatic. The managers never report about those nights they stumble home after a disastrous day and admit to anyone patient enough to listen, “Oh man, I think we’ve had it.”

In the case of the red wolf program, the drama could hardly have been more gripping. The red wolf program has been a lot like an Indiana Jones cliff-hanger film, full of narrow escapes from situations that looked like sure death. The red wolf just barely dodged the bullet of extinction, not once but several times.

In one sense, it was sheer luck that saved the red wolf from extinction in the 1960s. For decades, federal policy had been to extirpate wolves. That process had eradicated red wolves from all but a sliver of vile habitat along the Texas and Louisiana Gulf Coast.

Then, just before the red wolf was wiped out forever, more sophisticated thinking about predators led to a stunning reversal. The animal that had been considered a menace to be eradicated would, under the new program, be protected and managed as a critically endangered species. So abrupt was the change that for one year the red wolf was listed as endangered while federal agents continued to trap and destroy them. If management had drifted for another decade before the great change, the red wolf

Chris Crowe



Many people—wildlife biologists, agency officials, wildlife managers, researchers, citizens—have been instrumental in red wolf recovery. Their names and their specific contributions would be listed here if space permitted. To represent all the heroes of red wolf recovery, *International Wolf* has chosen red wolf recovery pioneers Curtis Carley, Glynn Riley, Roy McBride, Warren Parker and Mike Phillips. *International Wolf* salutes them and all the men and women who have devoted a great portion of their lives and energies to saving the red wolf from extinction and returning it to freedom.

would probably have been pushed off the cliff of extinction.

Studies done in the 1960s revealed that humans weren't the only threat to red wolves. The new and more insidious threat was hybridization. Red wolves were mating with coyotes. After passage of the federal Endangered Species Act of 1973, managers tried to save the red wolf from being genetically swamped with coyote genes. Agents trapped and destroyed coyotes in the last remaining red wolf habitat.

That effort failed. The supply of coyotes was virtually endless. The situation was so dire that it seemed the red wolf was doomed to disappear as a distinct species. That drove managers to an extreme remedy. They would save the red wolf from extinction by trapping all remaining wolves and putting them in captive breeding centers.

Consider how desperate that was. Removing the last free red wolves was the opposite of the intent of the Endangered Species Act. Red wolves might be saved from genetic extinction but at the price of being lost from the wild. Managers could not be sure that it would ever be politically possible to reintroduce wolves, one

of the most reviled species on earth. They could not be sure that wolves would survive the transition from zoo life in captivity to life in the wild. No predator species had ever been successfully restored. This decision was a massive gamble analogous to putting a man dying of cancer in a cryogenic chamber, hoping that some day the technology for thawing and curing him would appear.

And then things got worse. When managers began examining the 400 or so "wolves" they managed to trap and confine, they saw the taint of coyote blood in many. They culled away dubious wolves until there were just 43. But there was no test to indicate which of those animals were pure wolves. Managers went through a second anguishing round of culling. As managers destroyed the animals suspected of being hybrids they had to worry if they were killing authentic red wolves—one of the most endangered species in North America. After the last cull there were just 17 wolves, only 14 of which were able to breed.

When those red wolves began reproducing, managers were faced with daunting problems. Where could they reintroduce red wolves to the

Pioneers of Red Wolf

Glynn Riley

An outdoorsman and trapper who worked on a coyote control program in south Texas, Riley realized that red wolves were fast disappearing because of inbreeding with coyotes, starvation and disease. Riley urged radio-collaring and tracking to determine how many red wolves remained on the southeastern Texas coast.

Curtis Carley

In the early 1970s, Carley led the red wolf recovery project. Realizing the animal was on the verge of extinction, he recommended removing the last red wolves from the Texas and Louisiana coast, breeding them in captivity and finding a place to reintroduce their offspring in the wild.

And then a few wild-born wolves began rearing their own young. With that, the red wolf made the treacherous passage from zoo-born dummies to wild wolves. The wild-born pups of wild-born wolves were the real deal.

wild? It had to be a place where humans would accept them, if such a place existed. And it had to be a place where coyotes wouldn't hybridize with the red wolf, although coyotes are ubiquitous in the former range of the red wolf.

The next challenges to the program were legal and political. Managers struggled to find an area where people would tolerate wolves. Meanwhile, critical changes had to be made to the Endangered Species Act, which was so rigid in its original form that it imposed a straight jacket on restoration programs.

The U.S. Fish and Wildlife Service finally found a place to release a few wolves. The Alligator River National Wildlife Refuge release site was a

coyote-free peninsula. The presence of water on three sides reduced the chances that wolves would run away or that coyotes would enter the restoration area.

The first reintroduction release happened in 1987. That began another harrowing time for the red wolf program. In spite of determined optimism by managers, everyone knew that the wolves faced daunting odds against survival. It takes more than claws and teeth to survive as a predator. Above all, what is required is knowledge. Wild wolves have to know how to find and kill food. They must know what animals or objects are life-threatening. They need to know to avoid humans. The reintroduced wolves were dangerously naive.

As expected, mortality rates were high. Wolves were hit by cars, had accidents, drowned, succumbed to disease, hung out around humans or just disappeared. About 80 percent of the reintroduced wolves died shortly after being released.

In spite of that, managers kept releasing more captive-bred wolves. Eventually, a few wolves survived long enough to mate and raise young. And then a few wild-born wolves began rearing their own young. With that, the red wolf made the treacherous passage from zoo-born dummies to wild wolves. The wild-born pups of wild-born wolves were the real deal.

Just when it looked like the program was a success, disaster struck again. In the mid-1990s,

Recovery

Roy McBride

A skilled trapper, McBride caught canids in western Louisiana and eastern Texas when the all-out effort was being made to capture red wolves for captive breeding.

Warren Parker

Parker ran one of the boldest and most innovative wildlife projects ever undertaken. The first Endangered Species Coordinator in the United States, Parker was Red Wolf Coordinator of the U.S. Fish and Wildlife Service's red wolf reintroduction project starting in 1984.

Mike Phillips

From 1986 to 1994, Phillips was Coordinator of Field Projects for the Red Wolf Recovery Program. He serves on the International Wolf Center's board of directors.

The Red Wolf Recovery Program

has been granted the Association of Zoos and Aquariums (AZA) 2007 North American Conservation Award. This prestigious award recognizes the outstanding work of the Species Survival Plan, the island propagation efforts, the restoration of the wild population, the ongoing scientific research and more. Will Waddell, Coordinator of the Species Survival Plan (SSP) for the red wolf, accepted the award in Philadelphia in mid-September 2007.

coyotes began infiltrating the recovery area, and wolves began breeding with coyotes. While program leaders maintained determined optimism in public, some insiders believed that the red wolf program was doomed. It hadn't been possible to keep wolves and coyotes apart in the 1970s, and now it was proving just as difficult to keep coyotes from obliterating the red wolf species through hybridization.

Just in time, in 1999 managers crafted a new management protocol called "adaptive management." It focused intensive control on coyotes in the zone where they were most likely to encounter wolves. In spite of the discouraging precedent, this new protocol succeeded, and the program survived another crisis.

Although Indiana Jones almost dies about twenty times in each of his films, somehow he is always alive when the final reel has run and they roll the credits. Today, in spite of all the close brushes with extinction, the red wolf is still with us. Don't let anyone suggest it was easy! ■

Steve Grooms has been writing about wolves and wolf management since 1976. He is the author of the book Return of the Wolf, and he serves on International Wolf's advisory committee.

Wildlife biologists do a workup on a red wolf. A workup includes taking blood samples for genetic testing and to assess health, taking measurements (e.g., weight and body, limb and ear length), looking at overall condition and attaching a radio collar.



Chris Crowe



U.S. Fish and Wildlife Service

Free to Wander

by DAVID R. RABON JR.

The conservation of an endangered species is a slow, incremental process, and the story of red wolf (*Canis rufus*) restoration is no exception. Many successes and failures have occurred throughout four decades of red wolf conservation, but the effort has moved steadily forward, never losing its momentum.

Following the unprecedented and precarious attempt to save the species by removing the few remaining red wolves from the wild, the birth of a litter of pups in captivity 30 years ago was a victory in the struggle to recover the species. Ten years later another important milestone occurred in the recovery of the red wolf and ultimately in the conservation of other imperiled carnivores.

"Nov. 12 1986 — Wolves arrived today, numerous media personnel." A short entry in a biologist's field notes marked the arrival of eight red wolves that would soon be released into the wilds of northeastern North Carolina. The wolves, four male-female pairs, would represent a new chapter in the species' recovery. How these wolves would respond when set free to wander the pocosins, agricultural fields and forested swamps of the Alligator River

National Wildlife Refuge was anyone's guess. They had never experienced life outside of a pen, and their release would be the first of its kind.

Born and raised in captivity, the wolves were healthy adults ranging from 3 to 6 years of age. Some, including males 140M and 227M and females 196F and 194F, were experienced and proven breeders. Their role in this endeavor would be to sire and whelp pups in the wild. The others, males 184M and 211M and females 231F and 205F, were chosen because they exhibited a wildness the biologists hoped would contribute to their survival.

Upon arrival at the refuge, the wolves were paired, radio-collared and placed in a pen, each named for its location. Wolves 184M and 205F were penned at Point Peter; 227M and 194F were placed at Phantom Road; 140M and 231F were positioned at Pole Road but later transferred to South Lake; and 211M and 196F, first placed at South Lake, were later moved to Pole Road. The wolves' new home was similar in many ways to the captive environment in which they had spent their entire lives. The difference would be in their ability to leave it.



Chris Crowe

Red wolves were first released in the Alligator River National Wildlife Refuge in northeastern North Carolina in 1987. The refuge contains diverse habitats, including several types of wetland, which are home to numerous wildlife species, such as black bears and wading birds.



U.S. Fish and Wildlife Service

That opportunity came on September 14, 1987. After a lifetime in captivity and 10 months in a pen on the refuge, the first of the red wolf pairs was set free. In contrast to the excitement generated by the wolves' arrival in northeastern North Carolina, there was no media fanfare for the release.



Chris Crowe

The new South Lake wolves (140M and 231F) were the first to be set free, but they didn't immediately take advantage of their new independence. For several days the wolves seemed reluctant to venture outside of the pen. Eventually, though, they took their first steps of freedom—first the female, then the male. The other releases occurred about two weeks later, on October 1. One by one, the pens at Point Peter, Pole Road, and Phantom Road were opened. After a century's absence, red wolves were once again roaming coastal North Carolina.

And roam they did.



Chris Crowe



Chris Crowe

The wolves took to exploring the refuge and, to the dismay of the biologists, the nearby communities. By mid-October, the new South Lake male (140M) had ventured into a small town east of the refuge. Scrambling to prevent an incident, the biologists set out to capture him. The South Lake male was eventually tranquilized and returned to his pen, but not before ambling around the post office and a few homes and creating quite a stir among town residents.

To limit the wolves' roving, the new South Lake pair was relocated and released at a site in the southern portion of the refuge, where they remained until mid-December when the female was found dead on the bank of Pamlico Sound. The necropsy report attributed her death to "pleural effusion and internal bleeding," most likely the result of an unknown infection. The new South Lake female was the first mortality following the release. Sadly, she would not be the last.

Meanwhile, the other wolves were also moving around the landscape. The new Pole Road pair (211M and 196F) traveled toward the Phantom Road male (227M), who had remained in the vicinity of his pen. His mate, the Phantom Road female (194F), had taken to frequenting private property, like the South Lake male. Abandoned by his mate, the Phantom Road male was left to vie for his territory alone against the new Pole Road pair. Eventually, the Phantom Road female was recaptured and reunited with her mate back in their pen. But the new Pole Road pair remained in the area. Sometime around Christmas day (1987), the Phantom Road female and the Pole Road pair got into a clash through the pen fence. The Phantom Road female was severely injured in the process and had to be euthanized.

The death of the two females and the disruption of the two wolf pairs during winter 1987 took its toll



U.S. Fish and Wildlife Service

When red wolves were reintroduced in 1987, they were first placed in pens, such as the one shown here, before being released to the wild.

on the reintroduction effort. In an attempt to restore the balance, the biologists released two female wolves, a yearling (322F) and a two-year-old (300F), in spring 1988. Although these wolves would be released too late in the breeding season to find mates and reproduce, the biologists remained optimistic for the birth of wild red wolves from the other wolf pairs.

Their optimism was rewarded on April 28, when the Point Peter female (205F) gave birth to a single female pup (351F). A second pup, a female (344F), born to the new Pole Road pair followed on May 5. Although the litters consisted of only one pup each (a typical litter is four to six pups), the biologists were elated over the wild births. More than a decade had passed since the last red wolf pup was born in the wild. Their excitement, though, would be tempered by even more loss.

The new Pole Road female died on May 25, 1988, succumbing to a uterine infection following the birth of her pup a few weeks earlier. Four

days later (May 29) the Point Peter male was killed when struck by a vehicle, as was the new South Lake male in mid-June (June 15). And later that year (December 27), the new Pole Road male died when he suffocated on the kidney of a raccoon he was devouring.

Naturally, with so many losses, more wolves would be needed for the program to continue. In the ensuing years, more captive-born wolves would be set free, and with these releases came the formation of new pairs and the birth of pups. In 1989, the Phantom Road male was paired with the Point Peter female and produced a litter of four pups. After the death of the Phantom Road male in September 1989, the Point Peter female paired with a newly released, island-born male (331M). They produced a litter in 1991, one of four wild litters whelped that year. The reintroduction effort was taking off; five short years into the reintroduc-

tion there were 30 free-ranging wolves in northeastern North Carolina.

In the years following the initial release, wild litters would be born of wild-born wolves, and the release of captive-born adult wolves would end. The original eight wolves may not have contributed to the program in terms of reproduction. But their release, the first reintroduction of a carnivore that had been declared extinct in the wild, solidified the red wolf's place in the history books. The red wolf reintroduction effort also became a model for reintroducing other imperiled species. With that, it is impossible to deny the contribution these first eight wolves made in preserving the future of the species and other species like it. ■

David R. Rabon Jr. is an endangered species biologist with the U.S. Fish and Wildlife Service in Raleigh, North Carolina, and a Ph.D. candidate at North Carolina State University, where he is studying factors affecting social and reproductive behaviors of red wolves.



Ryan Nordsven, U.S. Fish and Wildlife Service



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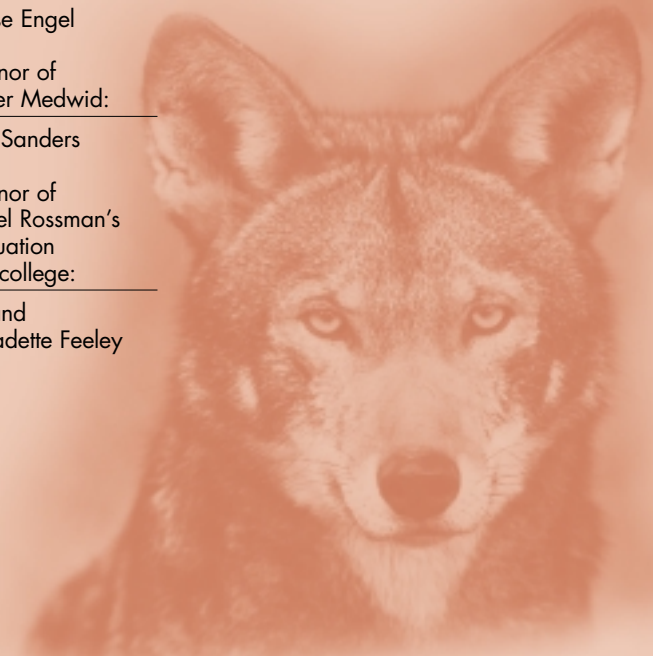
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Tracking the Pack

Captive Wolf Management: Socialized versus Non-socialized

by Lori Schmidt, Wolf Curator,
International Wolf Center

The International Wolf Center's resident wolves are true ambassadors, enchanting visitors who view them in their spacious wooded habitat. A Web cam enables Web site (www.wolf.org) visitors to "track the pack" online.

The Center's management philosophy emphasizes socializing wolves at a young age to reduce anxiety and stress for the wolves that are "on exhibit" at the educational center, to maximize wolf handling and veterinary care opportunities and to enhance the visitor experience. Future *Tracking the Pack* articles will address the process of socializing pups as the Center prepares for new arrivals in spring 2008.

The Center's wolves represent two gray wolf (*Canis lupus*) subspecies that are not endangered in the wild. Thus, the Center's wolves would never be candidates for release in the wild. Born in captivity, they will stay in captivity. Their job is to support the Center's mission to give the public an understanding of the physiology and behavior of wild wolves and to further understanding of the issues facing wild wolves.

But it is important to understand that this social-

ized captive wolf management plan is just one style represented in a captive environment. In facilities with non-socialized captive wolf management, interaction with humans is strictly avoided. The primary purpose of these Species Survival Program (SSP) facilities is to breed and raise highly endangered gray wolves like the Mexican gray wolf and the red wolf for reintroduction into the wild.



Theresa Williams

The Center's ambassador wolves represent two gray wolf (*Canis lupus*) subspecies that are not endangered in the wild. Their job is to support the Center's mission to give the public an understanding of the physiology and behavior of wild wolves and to further understanding of the issues facing wild wolves.

However, most red wolf SSP facilities do maintain exhibit wolves (see list).

Wolves bred and held for potential release in the wild are managed in a way to reduce wolf-human bonding or dependence on humans. If possible, handling tech-

niques are designed to reinforce interaction with humans as a negative experience. The more fear-avoidance reaction the SSP wolves have toward people, the higher will be the chance of survival when these wolves are released in the wild. ■

Red Wolf Captive Management Facilities

All the facilities listed here offer viewing of red wolves to visitors.

Chaffee Zoo,
Fresno, California

Beardsley Zoological
Gardens, Bridgeport,
Connecticut

Homosassa Springs
Wildlife Park,
Homosassa, Florida

Jacksonville Zoo,
Jacksonville, Florida

Brevard Zoo,
Melbourne, Florida

Tallahassee Museum
of Natural History,
Tallahassee, Florida

Lowry Park Zoo,
Tampa, Florida

Chehaw Wild Animal
Park, Albany, Georgia

Miller Park Zoo,
Bloomington, Illinois

Lincoln Park Zoo,
Chicago, Illinois

Niabi Zoo, Niabi, Illinois

Henson Robinson Zoo,
Springfield, Illinois

Land Between the Lakes,
Golden Pond, Kentucky

Alexandria Zoological
Park, Alexandria, Louisiana

Salisbury Zoological Park,
Salisbury, Maryland

Wildlife Science Center,
Forest Lake, Minnesota

Jackson Zoological Park,
Jackson, Mississippi

Wild Canid Survival
& Research Center,
Eureka, Missouri

Trevor Zoo,
Millbrook, New York

New York Wolf
Conservation Center,
South Salem, New York

Burnet Park Zoo,
Syracuse, New York

North Carolina Zoo,
Asheboro, North Carolina

Western North Carolina
Nature Center,
Asheville, North Carolina

North Carolina Life
& Science, Durham,
North Carolina

Dan Nichols Park
Nature Center,
Salisbury, North Carolina

Oklahoma City Zoo,
Oklahoma City, Oklahoma

Roger Williams Park Zoo,
Providence, Rhode Island

Cape Romain NWR
(Sewee), Awenda,
South Carolina

Great Plains Zoo,
Sioux Falls, South Dakota

Chattanooga Nature
Center, Chattanooga,
Tennessee

Knoxville Zoo,
Knoxville, Tennessee

Fossil Rim Wildlife Center,
Glen Rose, Texas

Fort Worth Zoo,
Fort Worth, Texas

Texas Zoo, Victoria, Texas

Virginia Living Museum,
Newport News, Virginia

Mill Mountain Zoo,
Roanoke, Virginia

Point Defiance Zoo
& Aquarium,
Tacoma, Washington

Wolf Haven International,
Tenino, Washington

Oglebay's Good Zoo,
Wheeling, West Virginia

North Eastern Wisconsin
Zoo, Green Bay, Wisconsin

Check online for Web sites for these red wolf captive management facilities.

Hunter Education and Red Wolf Restoration

by David Denton

North Carolina has a long heritage of hunting, and in the state's more rural areas, it's a way of life. Of the many species hunted in North Carolina, the coyote is becoming a favorite among sportsmen because of the challenge of hunting a top predator. A few sportsmen now hunt specifically for these wily critters. But by far, most of the coyotes harvested in the state are taken as an incidental prize while hunting another species.

In North Carolina, coyotes are considered a "nuisance" animal, along with beavers, groundhogs, nutria and skunks. The North Carolina Wildlife Resources Commission (NCWRC) allows year-round hunting for these species with few to no restrictions.

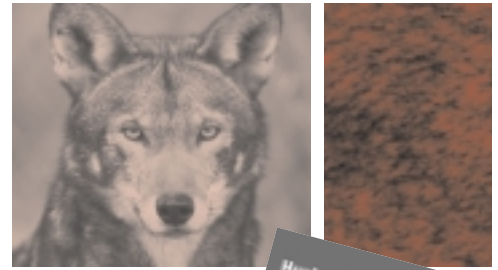
Since a large southeastern coyote weighs up to 40 pounds, a positive identification between a coyote and a red wolf, especially a young wolf, can be difficult. Even trappers with an animal in hand sometimes have trouble telling the difference.

As coyote populations continue to increase, so will the numbers of

sportsmen looking to harvest this non-native and highly adaptive animal. With more sportsmen hunting coyotes in areas the endangered red wolf now inhabits, the problem of identification will increase. Thus, wildlife managers must come up with solutions.

Hunter education is a good place to start. The U.S. Fish and Wildlife Service (USFWS) and the NCWRC along with Defenders of Wildlife and the Red Wolf Coalition worked cooperatively to create red wolf pocket ID cards. These laminated cards show and explain the physical differences between the red wolf and the coyote and include a map of the current range of the red wolf in the five northeastern counties of the state. This colorful and informative pocket pamphlet has helped educate the public about the expanding range of the red wolf as the wild population increases.

With the distribution of the cards through the NCWRC's Hunter Education Program, wildlife managers are reaching out to outdoorsmen and raising awareness about the impor-



tance of making a positive ID in the field. The ID cards are given to all who attend a hunter education class in the northeastern part of the state and are available wherever hunting licenses are sold. With NCWRC officers and volunteer instructors teaching about the importance of all species, sportsmen will gain a deeper respect for the broader aspects of wildlife management.

Eastern North Carolina has seen many changes in the past 20 years. With new roads, highways and subdivisions being built for the ever-increasing human population that is spreading into rural areas, educating the public about red wolves will be a major challenge. The pocket ID cards along with the materials and information in hunter education classes will help both the hunting and non-hunting public to protect the red wolf. ■

David Denton is a Hunter Education Specialist with the North Carolina Wildlife Enforcement Division, where he has worked since 1984 with wildlife management, research and education.

West Gate

Personal Encounters

The Bulls Boys

by Michael L. Morse

You never forget the first time a wild wolf responds to your howls, offered into the dark night. But my first attempt was even more memorable because, not being an accomplished howler, I finished with a series of uncontrollable coughs—to the great amusement of the senior wolf biologists. Everyone stopped laughing, though, when the two newly released red wolf brothers returned my howl. Although my vocal cords felt scorched, the swelling sensation in my chest and mind made all else insignificant.

I remember clearly when the “Bulls Boys” arrived from Bulls Island in 1989. These red wolf siblings, 331M and 332M, had been born in captivity on the island the previous year and released with their parents into the wilds of the Cape Romain National Wildlife Refuge off the coast of South Carolina. When the “Boys” were later set free into the Milltail Farms on the Alligator River National Wildlife Refuge in northeastern North Carolina, we had no clue that they would catapult the fledgling wolf project onto the road to success.

As yearlings, the brothers gave no hint of their substantial impact on the recovery program. With their tall, lanky bodies, sizable feet and broad heads, their appearance was not particularly impressive. Only one other wolf lived at Milltail Farms—the female 351F. We thought the 10,000 acres of fields and forest were enough to support the brothers and 351F, plus another wolf family. The Bulls Boys had other ideas.

Only a month after the release of a new wolf family (227M and 205F and their four pups) into Milltail

Red wolf siblings 331M and 332M, known as the “Bulls Boys,” were born in captivity on Bulls Island and released with their parents into the wilds of the Cape Romain National Wildlife Refuge off the coast of South Carolina in 1989.

Farms, the yearling brothers attacked and killed adult 227M. In the following months, one of the “Boys” (331M) paired with 205F (the mother of the four pups), and the other brother (332M) paired with 351F. To top all this, the Bulls Boys allowed 205F’s four pups to remain in the Farms and grow up with the two packs! The possibility of two family groups in the Farms producing two litters, one of which would contain second-generation pups was incredible. Second-generation pups were a major measure of the recovery program’s success, and it was happening in the first two years!

Unfortunately, it was all too good to last. Unused to negotiating highway traffic on Bulls Island, 332M did not have 351F’s experience with cars. She regularly crossed Highway 264, probably to hunt marsh rabbits. One night just before the 1989 breeding season, 332M was killed while crossing a highway just north of Milltail Farms.

In 2000, no longer a “Boy” at the advanced age of 12, 331M was still hanging on and living with the



Michael L. Morse, U.S. Fish and Wildlife Service

Milltail pack. One of his pups raised his own family virtually “next door” at the Farms, tolerated by the Old Man, who likely would not have given up a portion of his territory in his younger days. Near the end of his life, he may no longer have been the breeding male of the Milltail pack, but he has left a living legacy. Siring at least 22 pups from seven litters, his genes are today an integral part of the wild population of red wolves in northeastern North Carolina. And I hope it’s true, what the old-timers say: “All dogs go to heaven.”

Michael L. Morse is a native of northeastern North Carolina and a biologist and private land coordinator with the U.S. Fish and Wildlife Service Red Wolf Recovery Team.

Checked Out by a Wolf!

by Art Beyer

I learned early in my career as a field biologist that observing red wolves in the wild is difficult. As a volunteer in 1989, I felt I knew each pack inside and out from daily tracking, but I had yet to see a wolf during my first three months in the recovery area because of the flat terrain and thick vegetation. Even now, aside from the times we remove a wolf from a trap or sneak up on one to get a sighting or to locate a den, we just don't see them. Occasionally I'll spot wolves during telemetry flights. I've watched adults chasing deer and pups playing together, and once I watched a wolf chasing off a couple of dogs that had wandered too close to its den. However, even from the air it is difficult to see much detail because of the vegetation.

But a few years ago, something extraordinary happened. Mange had cropped up in an area of the recovery region, and the field team wanted to observe some wolves. Mange mites, parasites that burrow into the skin, can be life threatening. The intense itching and loss of the protective coat can cause the wolf to suffer extreme weight loss and, in cold weather, hypothermia.

So, one midsummer day, I went looking for a radio-collared female and picked up her signal in a cornfield. Wolves seem to prefer tall corn, maybe because there is shade to provide a cool spot, and there are fewer bugs to contend with. I crawled into the field and saw her lying down in one of the rows. She was a good distance away, but with binoculars I could see her well. She was facing me, her eyes closed. Before long, she lifted her head briefly and looked away. Then suddenly, she stared back in my direction.

I thought she would turn and run off, as wolves normally do, so I looked hard for signs of mange. But instead of bolting, the wolf got up, lowered her ears, crouched, and began slowly walking toward me. It was eerie. I had never encountered a wolf that didn't run, and this one seemed to be stalking me as if I were prey.

Through the binoculars, she appeared to be about 20 yards away, so I let her get close enough for a good look before I whistled. She turned immediately and disappeared from sight. When I got out of the corn, I wiped the sweat from my eyes and listened again for her signal. I found it—coming right from where I had been lying in the corn.

Maybe she was just curious, trying to figure out just what exactly she had seen. I can't say for certain, but it was an experience I won't forget.

And best of all, she looked healthy and mange-free!

Art Beyer is lead biologist of the U.S. Fish and Wildlife Service Red Wolf Recovery Team in northeastern North Carolina.

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Brad McPhee, Point Defiance Zoo and Aquarium



Field biologists do not often see red wolves in the wild unless they are removing one from a trap or sneaking up on one to get a sighting or to locate a den.

Bombing Range Balloons

by Chris Lucash

Red wolf whelping season is a brief period each spring that the field biologists both look forward to and dread. This stage of the wolves' biological cycle is the payoff for our work throughout the rest of the year. It holds the promise of a new wolf generation and foretells, in part, the future status of the population. An annual, critical first step in monitoring and managing the red wolf population occurs at the dens. It sounds deceptively quick and simple: track to the breeding female's radio collar, find the pups, take a drop of blood from each for a genetic record and pedigree confirmation, and insert a tiny transponder chip under each pup's skin for lifelong instant identification.

The dreaded part stems from knowing that red wolves choose isolated den locations that are as unapproachable as possible. Sometimes the mother is not at the den, or she detects us before we get close and leads us off in the wrong direction. The whelping season also coincides with other uninviting seasonal changes: the beginning of high heat and humidity, the prolific growth of thorny vines and poison ivy, and the burgeoning population of biting insects.

Locating the Gator pack den is always tough. This pack dens near the target area of an air force bombing range; thus, the field crew has to work on Sunday, when the range isn't "hot" with machine gun strafing and practice bombs. Because the breeding female's radio transmitter has quit functioning, finding her den means tracking her mate, who might be near the pups. This requires fighting dense shrubs and downed trees overgrown with blackberry and entwined with honeysuckle, greenbrier and grapevine. Always the ground is rarely visible and all but unreachable when I fall.



U.S. Fish and Wildlife Service

Red wolves choose isolated den locations that field biologists must reach by fighting through dense shrubs and downed trees overgrown with blackberry and entwined with honeysuckle, greenbrier and grapevine.

For long stretches, I have to drag myself on my elbows through low narrow tunnels, driven on by the fleeting hope of finding a den or a pup but also by the unnerving thought of countless seed ticks traveling up my clothing and the maddening realization that dozens have already made it through to my skin. Most searches yield pups only after many hours and repeated attempts. Some years, I find nothing but lonely, empty day-beds, followed then by several weeks of itching.

In spring 2007, we were fortunate. The male wolf's signal indicated he

was in an isolated patch of myrtle shrubs in a sparsely vegetated bog not far from our trucks. As a visual reference, I noticed his signal came from just north of two vagrant party balloons that had snagged on a nearby branch. I could see well-traveled trails leading through the bog in that direction. Moving quietly, we circled around to get downwind and crept within a few meters of the male wolf before he detected us and fled. Surprisingly, within 30 minutes, we found two healthy pups, one male and one female.

Most searches yield pups only after many hours and repeated attempts. Some years, I find nothing but lonely, empty day-beds, followed then by several weeks of itching.

For more first-person accounts from the field, please visit:

<http://www.fws.gov/alligatorriver/red%20wolf/refieldnotes.html>

After processing the pups, we started back, lighthearted, relieved and joking. On the way in, we hadn't paid much attention to those two balloons bobbing in the breeze near the den. But now we took a closer look. They could not have been snagged there long with the thorny vines, wind, machine gun rounds, exploding practice bombs and all—a couple of days, tops. Someone made an offhand comment about birthday balloons for the newborn pups, and we all laughed. A co-worker veered off trail to retrieve the balloons, and his return put a sudden end to our jabbering. "Happy Birthday!" proclaimed a yellow balloon. The other was white and appropriately covered in tiny black puppy footprints. I took a photograph to remember and to prove the remarkable coincidence to my wife.

After more than 20 years of work with red wolves, I see some drawbacks. I get stuck in routines, and sometimes think I have it all figured



Chris Lucash

In spring 2007, Chris Lucash located two healthy red wolf pups—nearby were these two balloons bobbing in the breeze near the den.

out. Often, however, I am reminded that I do not. And I look forward to "going to work" every day—sometimes even on Sunday. ■

Chris Lucash is a field biologist with the U.S. Fish and Wildlife Service Red Wolf Recovery Team in northeastern North Carolina.

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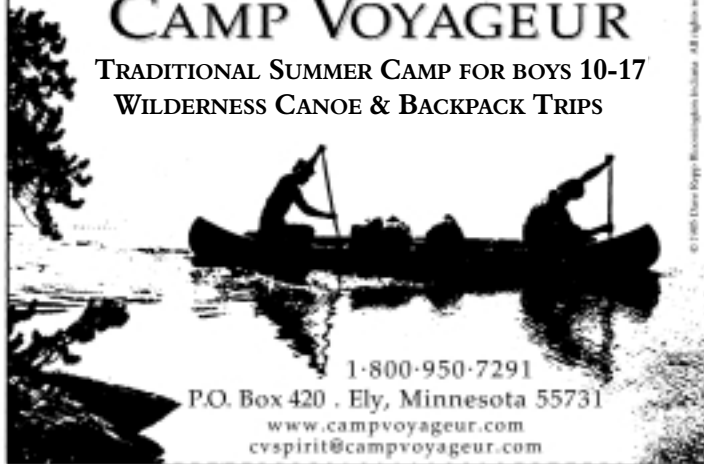
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Back from the Brink of Extinction:

The Red Wolf Species Survival Program



by Will Waddell

A critical step in the red wolf's journey from near extinction to reintroduction in northeastern North Carolina was initiating a managed breeding program. Without this effort, securing the red wolf's future would have been doubtful.

Before the Association of Zoos and Aquariums established the Species Survival Plan® (SSP) program in 1981, only three facilities were involved in red wolf captive management. The SSP concept is straightforward; conserve rare species in a cooperative way to promote long-term population diversity and demographic stability. Cooperation is the operative word and is a hallmark of the Red Wolf SSP. Today, 42 approved zoos and wildlife centers around the United States participate in the Red Wolf SSP and collectively manage a population of 208 red wolves.

How does the Red Wolf SSP fit into the recovery equation with field efforts focused on monitoring the wild population? Managing the population as a genetic reservoir is our primary task. Since all red wolves managed by the U.S. Fish and Wildlife Service (USFWS) and the Red Wolf SSP are descended from just 14 founder wolves, preserving genetic diversity is critically important. However, the Red Wolf SSP does fill multiple roles. While the need to provide adult wolves for reintroduction has diminished in recent years as more red wolves breed and produce pups in the wild, the innovative technique of cross-fostering pups from the Red Wolf SSP to wild litters (where the captive-born pups are raised by wild wolves along with their own offspring) has emerged as an important way for the Red Wolf SSP

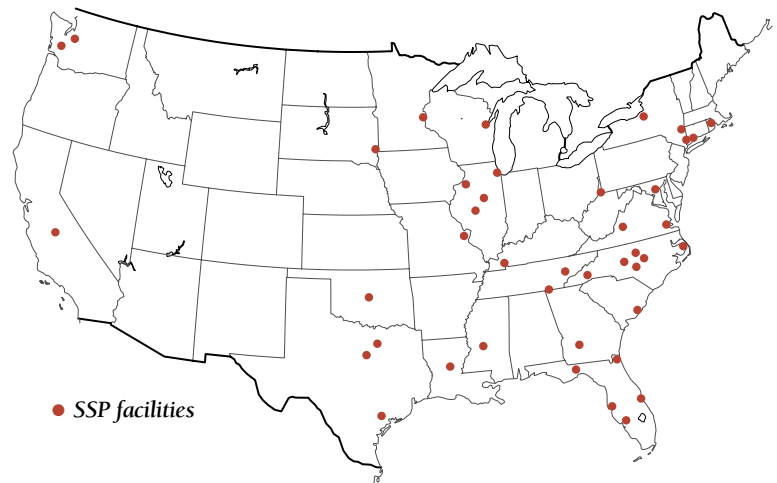
to support interactive management between the two populations.

Coordinating research in genome banking, assisted reproduction, behavior studies and veterinary medicine are all examples of areas that will enhance our ability to manage the population and are possible through Red Wolf SSP cooperation and involvement. Informing the millions of people who annually visit Red Wolf SSP institutions about the red wolf story provides a great opportunity for education. In recent years, educators in the Red Wolf SSP, the USFWS and the Red Wolf Coalition have organized education workshops to evaluate education programs and materials and develop initiatives that can be shared with red wolf partners and local teachers.

It is fitting that we celebrate 20 years since red wolves from the Red Wolf SSP were released at Alligator River National Wildlife Refuge. This effort represents a conservation success story that has been a model for other species restoration projects. This year also marks another important anniversary in the red wolf program. In 1977, four years after the breeding program was formalized, the first litter of red wolf pups was born at the Point Defiance Zoo and Aquarium in Tacoma, Washington. The partner-

ship between the USFWS and the Red Wolf SSP is an important component of implementing strategies outlined for the recovery program. This long-standing commitment to red wolf recovery by the USFWS and the Red Wolf SSP illustrates our collective understanding of the role this unique predator plays in the diverse landscape of the southeastern United States. The fact that the red wolf is living in the wild is a testament to the tenacity of red wolves and the people who want them to succeed. ■

Will Waddell is the Coordinator of the Red Wolf Species Survival Program at the Point Defiance Zoo and Aquarium in Tacoma, Washington (<http://www.pdza.org/page.php?id=296>).



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Red Wolf Learning Resources

A Sampling for Teachers, Non-formal Educators, Parents and Students

by Mark MacAllister



Education is an important component of red wolf recovery. Several organizations have developed high-quality learning materials and offer them in a variety of formats.

Teachers, Non-formal Educators, Parents, Students:

How would you like to learn about red wolves?

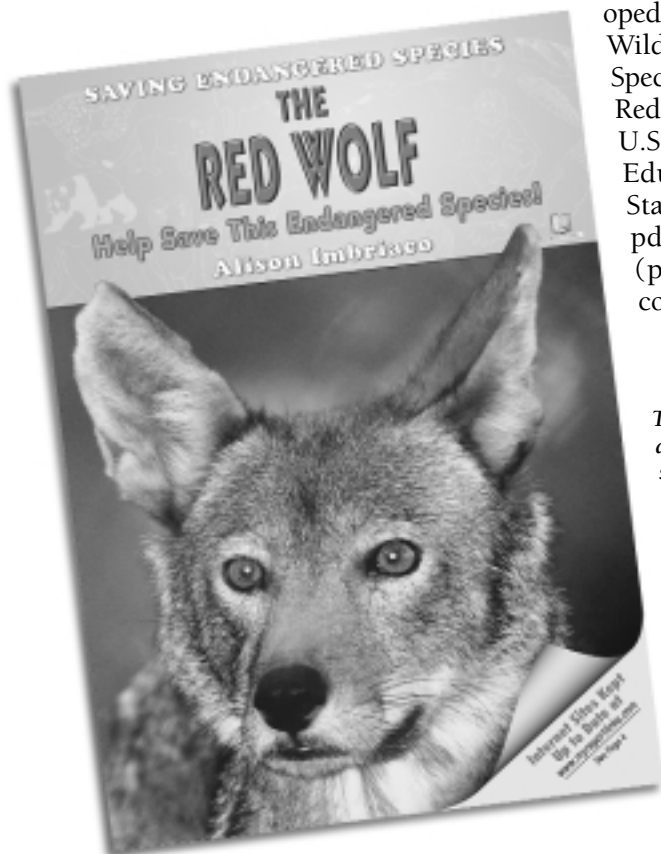
Red Wolf Discovery Box offers “hands-on” experiences for all audiences. It contains a wolf pelt, skull, tracking collar, track cast and inter-

pretive resources. Available from U.S. Fish and Wildlife Service. Call 252-473-1131, ext. 246, or e-mail redwolf@fws.gov.

Far Traveler is a comprehensive activity workbook containing lesson plans, crossword puzzles, word finds, matching challenges and other games to teach about red wolves and how they live. It can be downloaded at no cost from the U.S. Fish and Wildlife Service (see “Red Wolves on the Web” below). A revised edition will be available in 2007.

Red Wolf Species Survival Plan (RWSSP) Educator Packet 2006 contains educational materials developed by the U.S. Fish and Wildlife Service, Red Wolf Species Survival Program, the Red Wolf Coalition and the U.S. Forest Service. Contact Education Advisors Craig Standridge (cstandridge@pdza.org) or Pam Meyer (pmeyer_wcc@onemain.com) for information.

This 2007 publication is being distributed to all libraries and schools in the five-county red wolf recovery area in North Carolina, and to various agencies and red wolf education facilities throughout the United States. Funds are provided by the U.S. Fish and Wildlife Service Red Wolf Recovery Team and the Red Wolf Coalition.



Books and Videos

The Red Wolf (Wolves and Wild Dogs Series), by Fred Harrington

The Red Wolf (Saving Endangered Species Series), by Alison Imbriaco

Red Wolf Country, by Jonathon London

Gray Wolf/Red Wolf, by Dorothy Patent

Journey of the Red Wolf, by Roland Smith

Return of the Wolf, by Steve Grooms

“Restoration of the Red Wolf,” by Michael K. Phillips, V. Gary Henry, and Brian T. Kelly, chapter 11 in *Wolves: Behavior, Ecology, and Conservation*, edited by L. David Mech and Luigi Boitani

Meant to Be Wild, by Jan DeBlieu

Recovering a Species: The Red Wolf (DVD from U.S. Fish and Wildlife Service)

World Wide Web:

Red wolf lovers of all ages interested in the latest and most in-depth information will find it on the World Wide Web. Here are some not-to-miss sites. The URLs are listed in the textbox below.

Field Trip Earth: Operated by the North Carolina Zoological Society, this Web site has monitored the red wolf recovery program since 2002

and offers stories, photos and video resources about red wolves and the history of the recovery program.

Red Wolf Coalition, International Wolf Center, U.S. Fish and Wildlife Service, Defenders of Wildlife and Point Defiance Zoo and Aquarium Red Wolf Species Survival Program: These organizations provide important facts about red wolves and about the people who work to protect them.

The red wolf barely evaded extinction just a few short years ago. Public education will help ensure that it won't come close again. Click to the Web, visit the library, or contact red wolf experts to learn more—and be sure to share your newfound knowledge with the children in your life. ■

Mark MacAllister coordinates Field Trip Earth and serves as vice-chair on the Red Wolf Coalition's board of directors.

Red Wolves on the Web

Far Traveler

www.fws.gov/alligatorriver/red%20wolf/rwee.html

Field Trip Earth

www.fieldtripearth.org

Red Wolf Coalition

www.redwolves.com

International Wolf Center

www.wolf.org

Defenders of Wildlife

www.defenders.org

Wild Canid Survival and Research Center

www.wolfsanctuary.org

U.S. Fish and Wildlife Service Red Wolf Recovery Program

www.fws.gov/alligatorriver/redwolf.html

Point Defiance Zoo and Aquarium Red Wolf Species Survival Program

www.pdza.org/page.php?id=296

The Wolf Conservation Center

www.wolfconservationcenter.org

North Carolina Wildlife Resources Commission

www.ncwildlife.org

Thank you, Walter.



For 14 years the International Wolf Center has enjoyed the leadership of a remarkable man.

At a board-staff retreat in early days, we were each asked to select an animal which best represented our role in the organization. Walter Medwid was an eagle, the visionary, flying high, searching out the next delicious possibility. And yet he has also brought to the Center the characteristics of the buffalo in his steady marching forward, the bear in his focus on essential details, and the mouse in his good friendship.

Walter's success as executive director is reflected in the strengths of our staff, the collegiality of the Center's board and the organizational results: hundreds of successful initiatives and credibility in the world of the wolf.

As Walter leaves the Center, we are grateful for these years and the gifts he has shared—energy, intelligence, integrity and friendship.

Fly well, eagle.



A Look Beyond

A Look Beyond for the Red Wolf

by Bud Fazio

The journey of the red wolf is extraordinary. Going from top predator for 10,000 years in eastern and southeastern North America to “extinct in the wild” by 1980, the resilient red wolf has made an astonishing comeback since 1987. Red wolves again roam and howl in the wild, and we celebrate the 20th anniversary year of restoration. Hard work by veteran field biologists and captive breeding program specialists have established one wild red wolf population in North Carolina and a captive breeding population comprised of many facilities across the United States. New techniques such as pup fostering have been developed and implemented. We all have reason to be proud.

We expect creative innovations and solid accomplishments in years to come. Pioneering advances will continue in genetics, adaptive management, satellite telemetry, habitat studies and field monitoring. New insights will be developed in canid taxonomy. Interaction studies between red wolves and eastern coyotes will move from planning stages to field implementation. Fresh perspectives in the human dimensions of wolf restoration will be explored. The central roles of outreach education and ecotourism in red wolf conservation will grow. Additional partnership opportunities will develop, while existing partnerships strengthen.

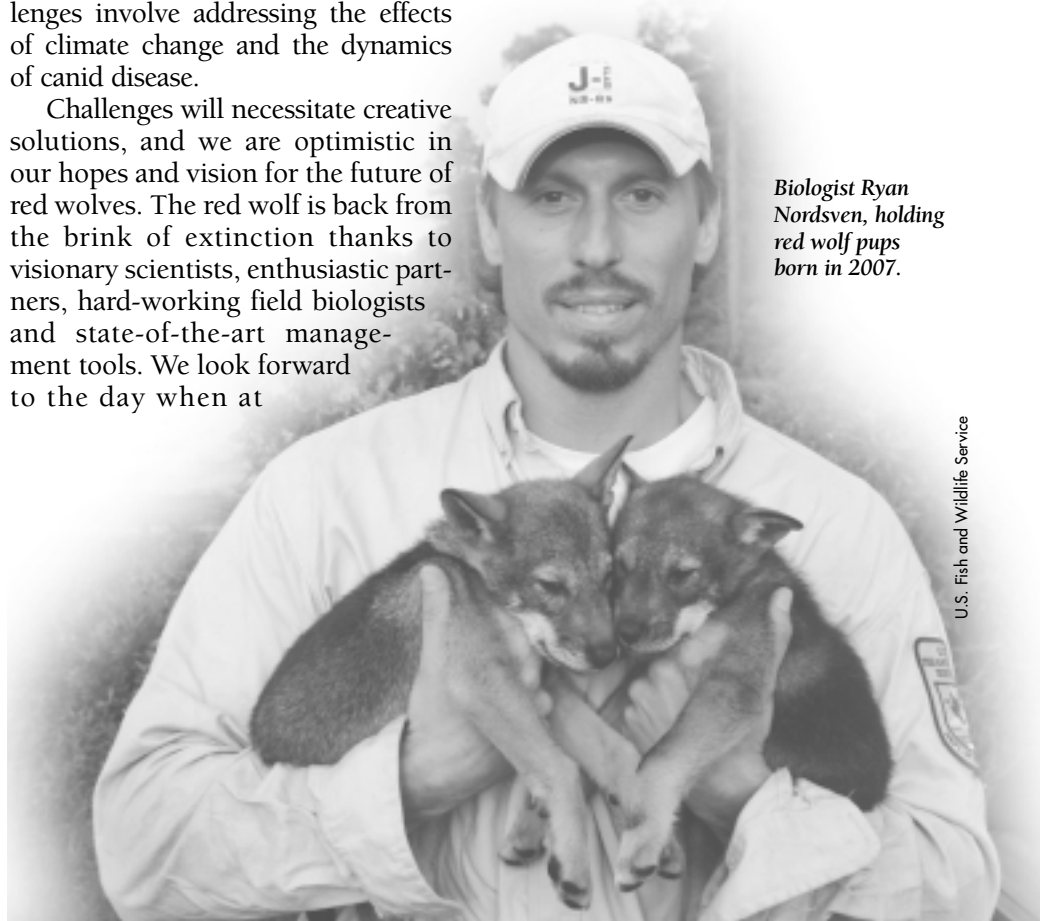
We anticipate challenges as well. For example, we know how to effectively build a red wolf population, how to successfully manage eastern coyotes, and how to reduce or eliminate threats of interbreeding. Yet, we

must seek additional scientific data on wolf-coyote interactions and develop strategies to ensure long-term red wolf survival in the face of continuing pressures from people and from eastern coyotes. Another challenge is to reduce red wolf mortality from gunshot and vehicles by educating and working with targeted audiences through programs and widely distributed informational materials. A third challenge is to rally support from state governments, select communities and natural resource partners to establish additional populations of red wolves in new locations. Other challenges involve addressing the effects of climate change and the dynamics of canid disease.

Challenges will necessitate creative solutions, and we are optimistic in our hopes and vision for the future of red wolves. The red wolf is back from the brink of extinction thanks to visionary scientists, enthusiastic partners, hard-working field biologists and state-of-the-art management tools. We look forward to the day when at

least two or three wild and viable red wolf populations are thriving on portions of their former historic range. We will continue in our determination to help red wolves survive and to reach to new levels of renewal, and it is our hope they will be appreciated and enjoyed by people from many lands across many generations. ■

Bud Fazio, a wildlife biologist, has served as Team Leader of the Red Wolf Recovery Program since 2001 for the U.S. Fish and Wildlife Service (USFWS) in North Carolina. Previously, Fazio worked for the USFWS as an endangered species biologist overseeing efforts for more than 30 federally endangered or threatened species in Ohio and surrounding states.



Biologist Ryan Nordsven, holding red wolf pups born in 2007.

U.S. Fish and Wildlife Service