WOLF CONSERVATION CENTER'S

JUNIOR RED WOLF BIOLOGIST

TRAINING GUIDE

Become a certified WCC Junior Red Wolf Biologist! Children are encouraged to build upon their knowledge of red wolves by completing the guide and sending it to the WCC wolf experts for approval. Upon completion, the child will receive a digital Junior Red Wolf Biologist Certificate.

This guide contains:

- **Reading skill checks**
- **Tracking activities**
- **Answer keys for parents**
- **And more!**

Name: _____

Email info@nywolf.org with the subject line "Completed Junior Wolf Biologist Guide" when finished!

RED WOLF HISTORY

The red wolf (*Canis rufus*) is one of the most endangered animals in the world. Once common throughout the southeastern United States, red wolf populations were destroyed by the 1960s due to killing programs and habitat loss. A small remaining population of red wolves was found along the Gulf coast of Texas and Louisiana.

Red wolves were first listed as "threatened with extinction" under the Endangered Species Preservation Act of 1966. Red wolves were listed as an endangered species under the Endangered Species Act of 1973 and the Red Wolf Recovery Program was established to save red wolves from extinction.

In 1973, the U.S. Fish and Wildlife Service (USFWS) created a captive-breeding program for red wolves to save them from extinction; the captive-breeding program, part of the Red Wolf Species Survival Plan, provided safe places for red wolves to live in conservation centers and zoos across the country. Wild red wolves were captured and sent to the Point Defiance Zoo and Aquarium in Washington in the hopes that they would produce pups. Only 14 red wolves that were sent to PDZA actually bred, and the first captive red wolf pups were born in 1977.

The red wolf reintroduction effort began in 1987 when eight captive-born red wolves were released into the Alligator River National Wildlife Refuge in Dare County, North Carolina. Each wolf wore a tracking collar so biologists could monitor their movements. The location was chosen because there were not many humans or other threats to red wolf survival. The first wild pups were born in 1988 and pups were then born every year between 1991 – 2018.

USFWS created "propagation sites" on various islands in the southeastern U.S. – these islands allowed wolves to have their first wild experience away from humans while still living with their families in a wild environment. The wolves were then captured and released into North Carolina. One of these island sites, St. Vincent National Wildlife Refuge in Florida, is still in use today.

A second reintroduction site was chosen in the Great Smoky Mountains National Park in Tennessee to see if red wolves could re-establish themselves in the Southern Appalachian Mountains. Two red wolf family groups were released in 1992 but biologists eventually halted the reintroduction effort in 1994.

Currently, wild red wolves are only found in North Carolina in a region known as the "Non-essential Experimental Population" area. In 2014, USFWS announced that they would no longer release red wolves from captivity, allowed landowners to kill red wolves on private property, and stopped other practices that were helping red wolves recover; these practices led to USFWS being challenged in court. As of September 2021, there are only 9 red wolves known to remain in the wild but USFWS is now taking positive steps to release more captive red wolves into the wild.

RED WOLF HISTORY

KNOWLEDGE CHECK

1. What is the scientific name of the red wolf?

2. Where were the last remaining wild red wolves found?
   - ◯ Washington
   - ◯ Texas
   - ◯ Florida
   - ◯ Louisiana
   - ◯ Both Texas and Louisiana

3. Why was Alligator River National Wildlife Refuge chosen as the reintroduction site for red wolves?

4. What island "propagation site" is still in use today? Where is it located?

5. What happened in 2014 that caused the wild red wolf population to decline in number?
   a.

   b.

   c.

6. How many red wolves currently live in the wild?
   - ◯ 14
   - ◯ 43
   - ◯ 9
   - ◯ 20

RED WOLF HISTORY

KNOWLEDGE CHECK - ANSWER KEY

1. What is the scientific name of the red wolf?

   Canis rufus

2. Where were the last remaining wild red wolves found?
   a. Washington
   b. Texas
   c. Florida
   d. Louisiana
   e. Both Texas and Louisiana

3. Why was Alligator River National Wildlife Refuge chosen as the reintroduction site for red wolves?

   There weren't many people or other threats to red wolves

4. What island "propagation site" is still in use today? Where is it located?

   St. Vincent National Wildlife Refuge, Florida

5. What happened in 2014 that caused the wild red wolf population to decline in number?
   a. USFWS stopped releasing captive red wolves to the wild
   b. USFWS gave landowners permission to kill red wolves on private property
   c. USFWS stopped other practices that helped red wolves recover

6. How many red wolves currently live in the wild?
   a. 14
   b. 43
   c. 9
   d. 20

PREPARED WOLVES

Red wolves have many adaptations that help them survive in the southeastern United States. Can you figure out how red wolves survive in both the hot, humid summers and the cold, snowy winters?

Hi, I'm Jack!

Red wolves are currently found in the southeastern United States and inhabit wetlands, mixed forests, and agricultural lands. Red wolves are known for the characteristic reddish color of their fur, which is most apparent behind the ears and along the neck and legs, but are mostly brown and buff colored with some black along their backs. Their coat colors allow them to camouflage with their surroundings. A red wolf's large ears aid in heat dispersal and help them stay cool. Adult red wolves average between 45-80 pounds and have 42 teeth. Red wolves have large paws that can act like snowshoes and aid in swimming. Red wolves grow an insulating under coat of fur in the winter that allows them to survive in cold temperatures.

PUT YOUR KNOWLEDGE TO THE TEST

Using what you've just learned, list four adaptations red wolves have that allow them to survive in their environment. Use the diagram for help!

1. _____

2. _____

3. _____

4. _____

PREPARED WOLVES

ANSWER KEY

Hi, I'm Jack!

Red wolves are currently found in the southeastern United States and inhabit wetlands, mixed forests, and agricultural lands. Red wolves are known for the characteristic reddish color of their fur, which is most apparent behind the ears and along the neck and legs, but are mostly brown and buff colored with some black along their backs. Their coat colors allow them to camouflage with their surroundings. A red wolf's large ears aid in heat dispersal and help them stay cool. Adult red wolves average between 45-80 pounds and have 42 teeth. Red wolves have large paws that can act like snowshoes and aid in swimming. Red wolves grow an insulating under coat of fur in the winter that allows them to survive in cold temperatures.

PUT YOUR KNOWLEDGE TO THE TEST

Using what you've just learned, list four adaptations red wolves have that allow them to survive in their environment. Use the diagram for help!

1. Large paws act like snowshoes, help wolves swim
2. Unique coat color helps wolves camouflage
3. Large ears allow heat to dissipate, keep wolves cool
4. Teeth are used to catch and eat prey

RED WOLF BASICS

The red wolf is considered to be a medium-sized canid; smaller than a gray wolf but larger than a coyote. On average, adult red wolves weigh between 45 – 80 pounds.

Adult red wolves have amber-hued, almond-shaped eyes; a broad, light colored muzzle; and a wide nose pad. Their coat color can vary but it is usually cinnamon or brownish with black or gray shading and white around the muzzle. Even a black-colored red wolf used to exist historically! The muzzle, belly, and throat are whitish-buff and the tail is bushy and tipped with black. Large ears and long legs are the two most obvious characteristics that distinguish red wolves from gray wolves and coyotes.

The average life expectancy for a wild red wolf is about three years but captive red wolves can live to be over 14 years old. Like gray wolves, red wolves live in family groups (sometimes to referred to as "packs"); a family consists of a breeding pair (parents) and their offspring from varying years. Wolves are monoestrous, which means they breed once a year. A female will give birth to a litter of pups in the spring; a litter typically has four to five pups on average. Red wolves are considered to be mature adults at two years old, which is also the age at which they might choose to disperse, or leave their family in the hopes that they will find another red wolf to pair up with. Dispersal is how new packs are formed and is essential for wolf populations to grow and expand.

A red wolf family will maintain a territory or a home range that is dependent on the amount of available space and prey in the area. Red wolf territory sizes range from 22.8 square miles to 42.7 square miles, with an average size of 28.6 square miles.

Wolves across the world primarily prey on ungulates (hooved animals) but red wolves consume a variety of other food sources as well. Red wolves are opportunistic predators and will prey on white-tailed deer, rabbits, nutria, smaller rodents, birds, etc.

Red wolves communicate in a variety of ways – primary methods of communication include scent marking, howling, and body language. Howls are arguably the most well-known method of wolf communication and allow wolves to convey information while several miles apart. Red wolves have higher pitched and more screechy howls than gray wolves. Red wolves can howl to locate other wolves, advertise the size of their pack, to warn other family members of danger using a bark howl, and more. To maintain order, wolves will rely on their posture, tail position, facial expression and ear position to articulate their status and role within the family. Parents will express their leadership positions with erect posture and high-held tails; less-dominant family members exhibit their position through submissive behaviors.

Wolves will communicate the boundaries of their territory through territorial scent marking. By marking the boundaries with urine and feces, wolves are telling other wolf packs "no trespassing" – the area is already occupied! A scent mark is a longer-lasting form of communication because while a howl is fleeting, scent marks can be uncovered by other wolves days after a wolf left the mark.

RED WOLF BASICS

KNOWLEDGE CHECK

1.List the red wolf's main prey.

2.What is the average lifespan for wild red wolves?

- 12 years
- 1 year
- 3 years
- 9 years

3.How are new red wolf packs/family groups formed?

4.What does "monoestrous" mean?

5.Historically, black phase red wolves existed.

- True
- False

6.How does a red wolf howl differ from a gray wolf howl?

7.What factors determine the size of a red wolf territory?

RED WOLF BASICS

KNOWLEDGE CHECK - ANSWER KEY

1.List the red wolf's main prey.

White-tailed deer, rabbits, nutria, rodents

2.What is the average lifespan for wild red wolves?

a. 12 years
b. 1 year
c. 3 years
d. 9 years

3.How are new red wolf packs/family groups formed?

Dispersal. Wolves will leave their families in search of another wolf to live with.

4.What does "monoestrous" mean?

Only breed once a year

5.Historically, black phase red wolves existed.

a. True

b. False

6.How does a red wolf howl differ from a gray wolf howl?

Red wolf howls are higher pitched and more screechy

7.What factors determine the size of a red wolf territory?

Territory size depends on the amount of available space and prey in an area

MATCH THE TRACKS

Can you identify which North Carolina-based animal left these tracks? Write the letter on the line next to the animal that the track belongs to. Track size is not to scale.

Black bear  _____

Red wolf  _____

Mouse  _____

Turkey  _____

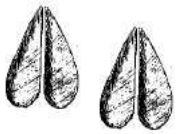
Raccoon  _____

Fox  _____

Nutria  _____

Deer  _____

A. 

B. 

C. 

D. 

E. 

F. 

G. 

H. 

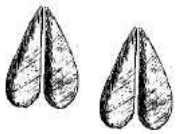
Track renderings from bear-tracker.com

MATCH THE TRACKS

ANSWER KEY

Black bear		H
Coyote		A
Mouse		E
Turkey		C
Raccoon		D
Fox		F
Nutria		G
Deer		B

A. 

B. 

C. 

D. 

E. 

F. 

G. 

H. 

Track renderings from bear-tracker.com

DR. RED WOLF

Do you want to study red wolves in the future? Meet Joseph W. Hinton, PhD - he's a red wolf expert! Dr. Hinton (or Dr. Red Wolf) explains how and why he became a red wolf biologist, and describes what he does on a daily basis.

Dr. Hinton holding two wild red wolf pups.

Q: Why did you decide to study red wolves? How did you make your dream come true?

I became a wildlife biologist to help bring **imperiled** species back from the brink of extinction. As my career developed, I focused my research on understanding the benefits of coexisting with wild wolves rather than fearing them. I got started by working hard in school, getting several advanced degrees in environmental sciences and ecology, and conducted **field research** on red wolves and coyotes to gain experience and prove my abilities and determination to those who hired me.

Q: What does a typical day of work look like?

My typical workday depends on the time of year. Much like the wildlife that I study, my work activities largely depend on the season. During my field seasons, most of the day will be spent doing the stereotypical things people imagine wildlife biologists doing. This entails a lot of traveling to different locations to scout for the presence of red wolves and coyotes and speaking with landowners for permission to **trap** their properties. Once **trap lines** are established, my mornings are spent checking traps for captured animals. When I capture red wolves and coyotes, they are taken to a safe location to be processed. This involves giving animals health checks, recording body measurements and weights, taking blood samples for genetic testing, fitting animals with **radio collars**, and then releasing them back at their capture sites. Once this is completed, I use the remaining hours of my day scouting new areas, collecting **scats** from known red wolf and coyote territories to assess their diets, entering recorded data into spreadsheets, and updating collaborators on the progress of our field work.

Q: Many people assume wolf biologists spend all of their time outside, looking for wolves. Is this true?

When my field seasons end, I travel back home and my workday becomes more of a desk job where I spend a lot of time front of my computer, entering research data, summarizing notes, and writing reports and proposals. I spend a lot of time talking on the telephone and responding to requests from students, reporters, and the general public about red wolves and coyotes. However, publishing research is one of the most important responsibilities of my job, outside of my field seasons. This involves conducting statistical analyses, writing manuscripts, presenting findings at conferences, and pursuing funding for future research projects. Additionally, research findings are then used by state and federal agencies to better manage and protect wolf populations.

Dr. Hinton giving a presentation about red wolves to interested individuals.

DR. RED WOLF

Cont.

Q: How does your job help create a better future for red wolves?

As I have become more established in my career, I spend more time in the office than I like. When the office work is caught up, I try to get out in the field as much as possible. Those trips are local to the areas I live and, consequently, raises my interest in study wildlife in those areas. It is easy to identify missing components in our ecosystems like wolves and other **carnivores**. Carnivores, like clean air and water, are needed to help stabilize and improve our environment. Complete **ecosystems** are vital for human survival and quality of life. When I can make connections between wildlife and improving our ecosystems, I will contact collaborators and organizations to pursue a new round of research. Once the appropriate administrative tasks and research budgets are approved, a new field season begins.

Dr. Hinton releasing a newly collared red wolf.

*Dr. Hinton tracking wild red wolves using **telemetry** tools.*

Key Terms

Carnivore - An animal that eats meat. Carnivores are sometimes called predators.

Ecosystem - A biological community of interacting organisms and their physical environment.

Field research - The collection of information and data to better understand animals and the environment.

Imperiled - At risk of being harmed or destroyed

Radio collar - A wide collar fitted with a small radio transmitter and battery. The transmitter emits a specific frequency that can be tracked by biologists with telemetry equipment. Radio collars allow biologists to track an animal's movements.

Scat - Poop!

Telemetry - The process of transmitting the information through the atmosphere.

Trap - The act of capturing an animal, sometimes for research purposes. In some states, people trap animals like wolves and coyotes to kill them. Trapping for this purpose is not scientific and is cruel.

Trap lines - A series of traps.