U.S. Fish and Wildlife Service

Far Traveler

A Teacher's Companion to Red Wolf Recovery

Elise McCauley Hammond

A long time ago, the howl
became a word, a name.
Wa'ya to the Cherokee, to
whom the mountains also
listened in the old time.
Son of the wind;
companion to Kana'ti;
father of Ani'-Wa'ya, the
Wolf people, principal clan.
Familiar spirit to hunters.
Perfect walker. Far traveler.
Revenge taker and altruist.
Unseen shape between the
trees. Shy shadow from the
long past.

Christopher Camuto

Another Country:
Journeying Toward the
Cherokee Mountains

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Artist, photographer, and graphic designer.

Elise McCauley Hammond

Dear Teachers and Students:

The U.S. Fish and Wildlife Service is grateful for your use of "Far Traveler." We hope you will find some innovative ideas for teaching and learning about the beautiful and fascinating red wolf.

Learning about red wolves gives students and teachers an opportunity to investigate together the broader issues of biodiversity and conservation in the Southeast. In addition, it offers a way to explore part of America's past and to examine human attitudes toward large predators. Human misunderstanding and superstition have contributed to the widespread hatred and fear of wolves. The campaign to eliminate the red wolf, combined with habitat destruction, was so intensive and so effective that the red wolf was, by 1980, considered functionally extinct in the wild.

For over twenty years, the U.S. Fish and Wildlife Service, with the help of other public agencies,organizations and concerned private citizens, has worked to restore the red wolf to a portion of its former range. While the red wolf has reproduced relatively well in captive breeding facilities, and although red wolves have made a remarkable "return to the wild" in eastern North Carolina, there is still much work to be done. Many people remain convinced that the red wolf is a savage killer, a danger to the public, and a liability to farmers. In addition, interbreeding with coyotes, a non-native species of the Southeast, threatens the genetic integrity of the red wolf.

Education is the key to dispelling the myths and to eliminating the unfounded fears that hinder conservation efforts for red wolves. If the public is not informed about the reality of red wolf biology and ecology, restoration efforts will fail. With public acceptance and tolerance, however, ways can be found for humans and red wolves to coexist.

You, the teachers and the young people, hold the keys to wildlife and wilderness conservation in North Carolina and throughout the country. Our thanks to you for your commitment to learning, for your interest in red wolf recovery, and for your leadership to ensure a future for America's red wolves and for America's wild places.

Sincerely,

Jennifer Gilbreath

Jennifer Gilbreath
Wildlife Biologist/Red Wolf Outreach Coordinator
1991-2000
U.S. Fish and Wildlife Service

What is a red wolf?

Status: Endangered/experimental non-essential

Scientific Name: Canis rufus

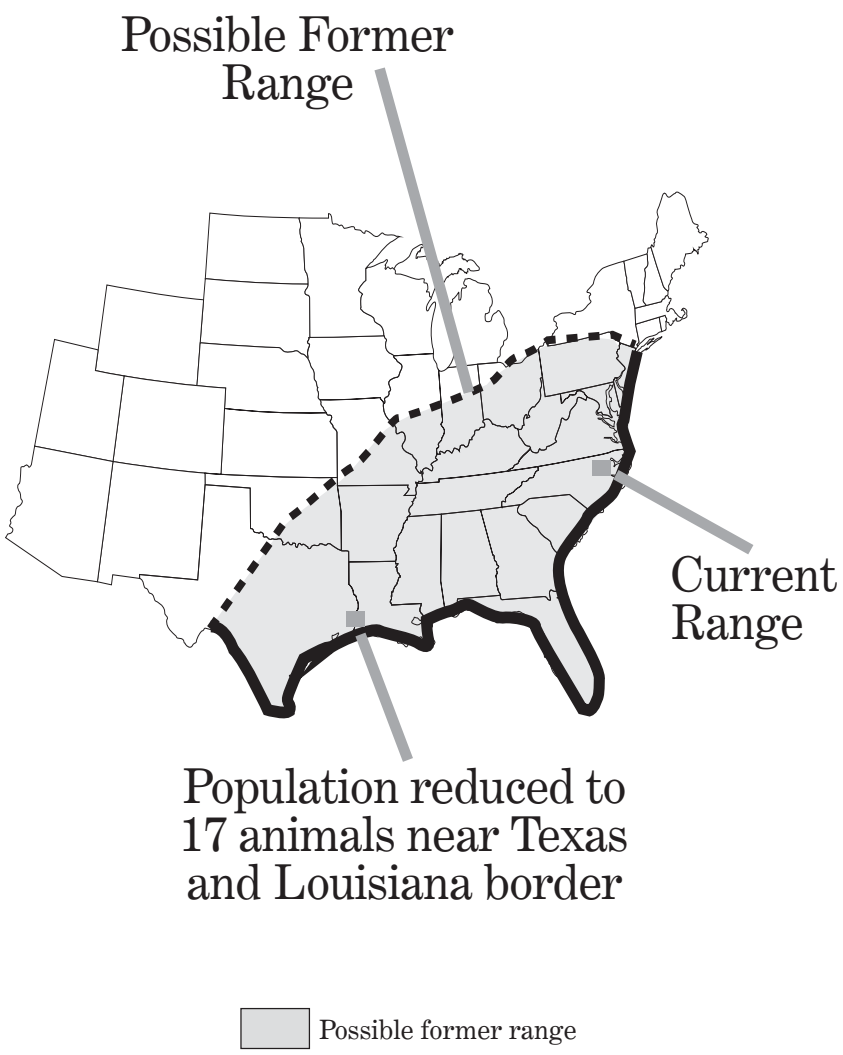
Description
The red wolf, *Canis rufus*, is one of two officially recognized species of wolves in North America. The other is the gray wolf, *Canis lupus*. Red wolves are intermediate in size between the larger gray wolves and smaller coyotes.

The average adult red wolf weighs from 50-80 pounds, stands about 26 inches at the shoulder and is about four feet long from the tip of the nose to the end of the tail. Red wolves have tall, pointed ears, long legs, and large feet. They are mostly brown and buff colored with some black along their backs. Typically there is a reddish color behind their ears, on their muzzles and along the backs of their legs.

Since coyotes sometimes enter the restoration area, it is important for people to know the physical differences between the two species. Adult coyotes weigh about one-half to two-thirds as much as adult red wolves and stand approximately four inches shorter. Coyotes are much less massive through the head, chest, legs, and feet. However, red wolf yearlings could be confused with adult coyotes based on size similiarities.

Habitat and Range
Originally, the red wolf roamed as a top predator from the Atlantic and Gulf Coasts, north to the Ohio River Valley through central Pennsylvania and New England, and west to southern Missouri and central Texas. Some biologists believe that it lived as far north as southeastern Canada. The red wolf lived in mixed forests, wetlands, and agricultural lands. By the 1920's, however, the red wolf, like its relative the gray wolf, had been extirpated in most of its range. Indiscriminate killing and large-scale predator control programs combined with destruction of habitat sealed the doom of this unique species. Ranchers and farmers believed that red wolves caused widespread cattle losses. In addition, logging, mineral exploration, road development, and drainage projects destroyed the red wolf's habitat. As forests were cleared in Texas and Oklahoma, coyotes expanded eastward, establishing themselves where wolves had once lived. The few remaining red wolves, failing to find mates of their own species, began to interbreed with the coyotes, further accelerating the red wolf decline. By 1970, fewer than 100 red wolves remained in the entire United States. This remnant population was confined to a small area of coastal Louisiana and Texas. By 1980, the red wolf was considered to be functionally extinct in the wild.

Pack Structure and Prey
Red wolf packs are usually smaller than those of the gray wolf. The pack is a family group consisting of the breeding pair, the young of the current year, and some offspring of previous years. Red wolves mate in January or February, and an average of 3 to 5 pups are born in April or May. Like gray wolves, red wolves maintain a strict hierarchy of dominant and subordinate animals within the pack. This enables the pack to function as a unit. Since the red wolf's diet does not consist of larger ungulates (elk, bison, or moose) group or pack hunting is probably less frequent. Most hunting by red wolves is believed to be done individually or in pairs. In northeastern North Carolina, most of their diet consists of white-tailed deer, raccoons, nutria, rabbits, and rodents.



Where Have All The Red Wolves Gone?

Reintroduction and Recovery

Recovery efforts for red wolves have a special urgency. Many researchers think the red wolf of eastern North Carolina represents the only wild population in the world. Unlike gray wolves, red wolves therefore face a real and imminent threat of extinction.

Because their numbers had been severely reduced by 1970, the U.S. Fish and Wildlife Service established a captive breeding program for the red wolf in 1973. Over a period of eight years, biologists captured over 400 wolf-like canids from coastal Louisiana and Texas. Genetic testing showed that only 17 were red wolves, and of that number only 14 were able to breed. **Seven pairs of animals stood between extinction and recovery.** At Point Defiance Zoo and Aquarium in Tacoma, Washington, the future of the red wolf was in the hands of the captive breeding specialists, who were careful to keep these animals from becoming too dependent on humans. No one knew, however, whether the wild instincts of the red wolf could be maintained over several generations in captivity.

In 1987, four pairs of red wolves were released in the Alligator River National Wildlife Refuge in northeastern North Carolina. Early releases resulted in a high mortality rate, but despite setbacks, the wolves produced the first litter of pups in the wild in 1988. By 1993, red wolves were successfully residing on many other public and private lands in northeastern North Carolina. Restoration in North Carolina has been successful in many aspects, but the future is not secure.

In 1991, Red Wolf Recovery efforts began in the Great Smoky Mountains National Park in Tennessee. Despite some of the successes in North Carolina, the wolves failed to establish home ranges within the National Park boundaries, and pup mortality was high due to disease, parasites, and malnutrition. In October of 1998, plans were announced to terminate the Great Smoky Mountains National Park Red Wolf Program. The remaining wolves were captured and relocated. Today a few red wolves live in the wild on island propagation sites on national wildlife refuges in other southeastern states. The very first red wolf release in the wild took place on Bulls Island, part of Cape Romain National Wildlife Refuge, off the coast of South Carolina. Many release techniques were tested there before the wolves were released in Alligator River National Wildlife Refuge. Red wolves are important for island ecosystems since they prey on rabbits which eat protective dune vegetation and raccoons and nutria which eat endangered sea turtle eggs.

"*For generations there was no far traveling. The unseen walls of lost habitat became the chain link of breeding pens. The great skills went unused. Sharp sight, keen hearing, shape-changing stealth. Great endurance, silent speed over forest litter, tolerance of the deepest cold....*

Generations without a hunt, without the joyous chase and the muzzle-bloody dance around the wide-eyed deer. Generations without a proper den. The young knew nothing of the world. Had no wildness in their hearts, no weather in their fur. Did not know the proper seasons - the short staccato southern winter, the long soft spring, the muggy summer, and the invigorating autumn....
Where was all that? How to pass that on to the fast-growing young confined in cages?

...After three generations, all of the old ones were dead and there was not a wild red wolf in the world. Only shadows of wolves. Pale flames of red wolf spirit licked the cages. The soul of the wild wolf nursed her young from afar. The wolf clan keened. Hunters wandered. Ravens held aloof. Even black bears turned their great heads to listen to the final silence. Then the red wolf returned to the old places, freed."

Christopher Camuto,
Another Country

The Red Wolf's Future:
A Cautious Optimism

Red wolves are special. They are the only large predators to date that have been declared extinct in the wild, bred in captivity, and successfully reintroduced to a portion of their former range. Bringing the red wolf back from the brink of extinction has been a pioneering venture, and thanks to the efforts of the people who worked diligently for years to ensure that red wolves would once again live in the wild, there is now hope and cautious optimism. The future of the red wolf is not, however, secure. Although red wolf numbers continue to rise slowly, the reintroduction effort faces challenges. First, the options for red wolf release sites are limited. Large tracts of wild lands are scarce in the eastern United States, and human density is high. Secondly, more than half of the population of red wolves live in captivity. Because of their limited numbers in the wild, eliminating hybridization with coyotes is a priority for wildlife biologists.

"*The wolf, I believe, is our teacher. But the wolf is also in competition with the people for the land, for the wilderness. Maybe that is why there is resentment. But I wonder, what do people want in the future? What is their vision? Will the world consist only of vast cities and factory farms? Will there only be pockets of wild animals preserved in parks and zoos? And if that happens, what will we become?*"

Teresa tsimmo Martino: The Wolf The Woman The Wilderness

Why Should Red Wolves Be Protected ?

"*In the beginning, the people say, the Dog was put on the mountain and the Wolf beside the fire. When the winter came the Dog could not stand the cold, so he came down to the settlement and drove the Wolf from the fire. The Wolf ran to the mountains, where it suited him so well that he prospered and increased.*"

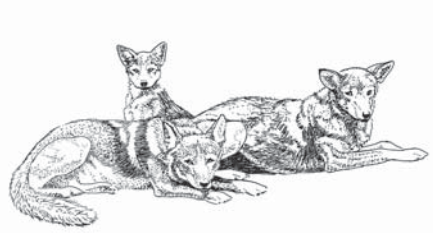
James Mooney: Myths of the Cherokee

The red wolf was once the top predator in its habitat. Writings dating back several centuries refer to wolves similar to the red wolf in what is now the southeastern United States. Many researchers believe that red wolves have shared the North American continent with humans for thousands of years. Native Americans revered the wolf. The red wolf was known as "Wa'ya" to the Cherokee; the "Ani'-Wa'ya" or Wolf People were the principal clan.

Summit predators play a positive role in maintaining healthy ecosystems. They help to ensure the natural hierarchy of animal species by keeping the numbers of prey populations in balance. Rather than eliminating large predators, humans must make a concerted effort to preserve them as necessary elements in regulating the food chain.

One of the most important reasons for protecting red wolves is the awareness that every species has intrinsic worth. The red wolf is a unique animal that contributes to the overall biodiversity of the ecosystem. But it has an aesthetic value as well as a practical one. Red wolves are beautiful. If they vanish from existence, we humans as a species are diminished. For all these reasons, we must protect and preserve this critically endangered animal.

Red wolves need your help! Here are some tips from the pack!



Elise McCauley Hammond

The red wolf once roamed the forested eastern United States in great numbers. Today, however, the red wolf exists in the wild only in northeastern North Carolina and on island propagation sites. Over 200 red wolves live in captive management facilities across the nation. Once a symbol of wild beauty, this magnificent predator has suffered the fate of wolves nearly everywhere in the world. Three hundred years of hunting and habitat destruction have diminished their numbers sharply. These two factors, plus interbreeding with coyotes, have brought the red wolf to the edge of extinction. This animal needs the help, understanding, and support of humans if it is to survive and to thrive in the wild.

Red wolves are shy and reclusive, hunting mostly at night, avoiding contact with humans. According to the legend of the Yuchi Indians, neighbors of the Cherokee, the wolf was one of the four lost sons of the wind, elusive and unseen, never where people imagined it to be. To the Creek Indians, the silence of the wolf was a virtue. Silence ensures the success of the hunter; thus the Creek emulated the stealth of the wolf by refusing even to utter its name.

But red wolves are scarce now, existing on a thin margin of survival. Yet, there is hope. The red wolf needs you, and you can help. No matter who you are or where you live, you can join with others to ensure that this remarkable predator has a home in the wild.

What You Can Do! Some Tips!

- Learn all you can about red wolves. As an educated citizen, you can teach others. The more you know, the more effective you will be. Many people still believe that wolves are dangerous to people and that they represent a major economic threat to livestock owners. Education is the key to changing attitudes.

- Get involved! Join the Red Wolf Coalition (www.redwolves.com) and support its red wolf conservation and recovery efforts. You can do many things on your own to help, but a group of people working together has more power to get things done.

- Visit a place where red wolves live. It might be a zoo, an island, or a wildlife refuge in northeastern North Carolina! Remember, if it weren't for zoos, the red wolf would be extinct! Be sure to tell the staff and directors how important they are for the red wolf! Ask how you can get involved.

- Adopt a local natural area. Volunteer to maintain and improve it.

- Inform elected officials, lawmakers, and civic and business organizations of your concerns about wildlife protection.

- Support land conservation initiatives and programs.

As a Matter of Fact: Vital Statistics at a Glance

Status: Endangered/experimental non-essential

Scientific Name:
Canis rufus

Common name:
Red wolf

Jane Rohling

Physical Characteristics:

- Larger than coyotes, smaller than gray wolves
- Color varies from dark gray to gray mixed with cinnamon, buff, tan, and black. Often has reddish tinge on ears and leg
- Mature adults weigh from 50 to 80 pounds
- Slender body, length about 4 1/2 to 5 1/2 feet from tip of nose to end of tail
- Long legs with height at shoulder about 26 inches
- Ears are longer than a gray wolf's and are often held at an angle away from the head

Behavior, Habitat, and Home Range:

Range:
Originally found from the Atlantic and Gulf Coasts, north to the Ohio River Valley, through central Pennsylvania and New England, and west to southern Missouri and central Texas. Presently living in the wild in Alligator River, Mattamuskeet, and Pocosin Lakes National Wildlife Refuges and adjacent private property, and on island propagation sites.

Habitat:
Mixed forests, wetlands, agricultural lands

Food:
Red wolves are carnivores. In northeastern North Carolina, the diet is mostly white-tailed deer, raccoons, nutria, rabbits and rodents. They will occasionally eat other items such as insects, grass, and fruit.

Habits:
Live in packs or small family groups. Often hunt in pairs or alone. Usually active at dusk, at night, and in early morning, rest during the day.

Breeding:
Mating usually in February. One litter per year. Gestation period 63 days. Average litter 3-5 pups usually born in April. Sexual maturity generally at age 2.

Vocalization:
Clear and resonant, not as deep and "chesty" as the howl of the gray wolf.

Some Basics of Wolf Biology

The table below compares the size and appearance of the red wolf to other canid species in the United States.

	Red Wolf *(Canis rufus)*	**Gray Wolf** *(Canis lupus)*	**Coyote** *(Canis latrans)*	**Fox** (red fox *Vulpes vulpes* or gray fox *Urocyon)*
Size	about 4 1/2 to 5 1/2 feet long from nose to tail	5 to 6 feet long from nose to tail	3 to 4 feet long from nose to tail	3 to 3 1/2 feet long from nose to tail
Weight	50 to 80 lbs.	80 to 120 lbs.	20 to 45 lbs.	10 to 15 lbs.
Color	reddish brown, brown mixed with tan and black, red on ears and legs	gray, mixed gray, white, black, and tan	reddish brown, tan, gray, mixture of tan and gray	reddish brown (red fox) grizzled gray with some red and brown (gray fox)
Eye Color	yellow, green or brownish	yellow, green, or brownish	yellow to green	yellow to brown

Gray wolf
Red wolf
Coyote
Fox

Gray Wolf
Red Wolf
Coyote
Fox

Gray wolf..... 80 - 120 lbs.
Red wolf..... 50 - 80 lbs.
Coyote ..... 20 - 45 lbs.
Red fox..... 10 - 15 lbs.

Seasons of the Red Wolf:

Spring

Pups are born in the safety of a **den** in April after a **gestation** period of 63 days. **Litters** vary in size from as few as one to as many as nine and sometimes more. The average litter is four or five, but the number of pups depends on a variety of factors such as the amount of **prey** available.

Dens vary from a hollowed-out place under a log to an underground chamber at the end of a tunnel. Because water is important to the nursing mother, den sites are typically near a stream or other natural water supply.

Pups weigh about a pound at birth. They are blind and deaf, and since they cannot regulate their body temperature, their mother stays close to keep them warm.

Pups are born without teeth. A set of **milk teeth** emerges during the second week of life, but these teeth are lost and replaced by the permanent teeth used for killing prey and for tearing and ripping meat. Pups make their first attempts at **howling** at about four weeks. Their eyes open within the first two weeks, usually between 11 and 14 days. Their ears, which are floppy and limp at birth, begin to become erect at about four weeks.

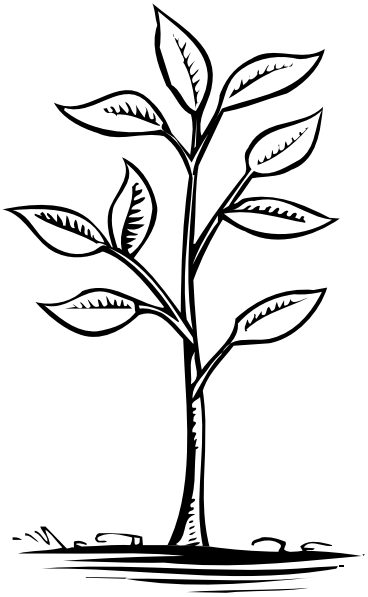
Meat for the mother is brought by the father. If the **pack** consists of several adults, all of the pack members will help to feed the mother. Only the mother enters the den with the pups. They begin to emerge from the den at about three weeks, but they are still dependent on the mother wolf for several more weeks until they are **weaned**. Caring for the pups is the responsibility of all the members of the wolf family. As weaning approaches, the pups begin to drink less milk and to eat more of the meat that is brought to them from a kill site by the adults. The adults carry the meat in their stomachs.

The pups greet the adults by licking their muzzles. This causes the adults to **regurgitate** a meal of partially digested meat.

By five or six weeks, the mother stops nursing the pups. Their diet consists of meat brought by the adults, bones, pieces of hide, and insects they catch. Pups grow rapidly in the first weeks of life. They explore the area close to the den, playing and wrestling with each other to gain strength. Personalities begin to emerge, and **dominant** and **submissive** behaviors begin to be evident in play.

Vocabulary

1. pups
2. gestation
3. den
4. litter
5. prey
6. milk teeth
7. howl
8. pack
9. wean
10. regurgitate
11. dominant
12. submissive



Seasons of the Red Wolf:

Summer

By the time they are six to eight weeks old, wolf pups are exploring outside the den. Their natural curiosity makes them anxious to explore under the supervision of the adults who never allow them to stray too far from safety.

By early summer, the pups are too active to stay around the den and still too young to hunt and to keep up with the adults. The pups and their mother abandon the den, and the pups are moved to a **rendezvous site** for the next stage in their development. This move can take place when the pups are as young as three weeks, particularly if the adults have been disturbed. Typically, however, the pups are moved between eight and ten weeks of age.

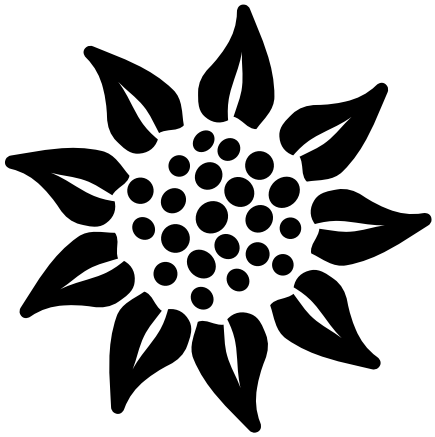
The rendezvous site is often an open area with a water source and a cluster of trees or rocks for shelter. A wolf pack may remain at one rendezvous site throughout the summer months, or it may move to several of these "resting places." Here, in the relative safety of a sheltered spot, the adventurous pups begin to learn the skills they will need to survive. Wolf childhood is long because there is so much to learn. The pups are watched over by the adults, but despite their constant care, a wolf pup has only a 50 percent chance of surviving its first year. Other **predators** may kill young pups, or they may die of starvation and disease. By late summer, the pups are large and strong. Soon they will be able to travel with the adults.

Wolves live by strict rules of cooperation, and frequent reinforcement of who is dominant and who is submissive keeps relationships peaceful and harmonious among the pack members. Adults discipline unruly pups by pinning them to the ground with a paw or mouth. Pups establish a hierarchy among themselves by playing with bones and tugging at pieces of hide. Timid pups are routinely bossed by the more dominant siblings.

A Wolf Pack is a Family
A pack may consist of just two wolves, a male and a female that have bonded and become a pair. When they have a pup or pups, the family has expanded - just like a human famly! Both parents care for the pups. The breeding male (historically called the alpha male) hunts and brings food to the breeding female (historically called the alpha female) while she is confined to the den nursing the pups. As the pups are slowly weaned from milk to solid food, the parents regurgitate partially digested meat to the young wolves. Fresh meat is brought to the rapidly maturing youngsters by the mother and father.

Older brothers and sisters (one, two and even three-year-olds) may live with the pack. These siblings, young adults that have not left the pack (dispersed) to find mates of their own, are subordinate to their parents and dominate over the new pups of the current year. They also bring food to the pups, and often they function as “nannies” or babysitters while the rest of the pack hunts.

While wolves seem to have distinct personalities with some being more dominant and others more submissive, there is little internal strife within the family. Wolves do not waste precious energy fighting among themselves, although they will fiercely defend their territory against other wolf packs and lone wolves. The parents are in charge, and their status is reinforced through body posture, tail position and ritual pinning. However, serious aggression among family members and challenges to the breeding pair are rare. It is believed that the more dominant and assertive siblings disperse to find mates of their own and start new families.



Vocabulary

1. rendezvous site
2. communicate
3. hierarchy
4. predators

Seasons of the Red Wolf:

Autumn

By fall the pups are approaching adult size. They are strong enough to travel longer distances, and they can keep up with the other pack members. In the autumn, the focus of the adult wolves shifts from protection and nurturing of the young to the survival of the pack. Pups who are not strong enough to travel may be left behind to **hunt** and survive alone.

Hunting strategy depends upon the region and the size of the prey. Because **red wolves** depend on smaller prey for food than gray wolves, they tend to be more solitary, often hunting alone or in pairs. Food is usually difficult to obtain. Wolves are skilled hunters, but more often, it is the prey that succeeds in getting away. Wolves will eat as often as they are successful in the hunt. If there is more meat than they can consume in one feeding, they may **cache** the remainder by burying it just as a dog buries a bone.

A wolf pack lives and hunts in an established **territory** which must contain enough prey to sustain all the pack members. Wolves, therefore, defend their territories against the intrusion of outsiders. Pack members **scent mark** their territories by urinating on trees or rocks, and they will often announce their presence by howling. Wolf territories often overlap, and many **biologists** believe that there are **buffer zones** at the edges of established territories. Wolves that have **dispersed** from their natal, or birth packs, may stay in buffer zones at the fringes of established territories in order to keep from being injured or killed by **resident packs**.

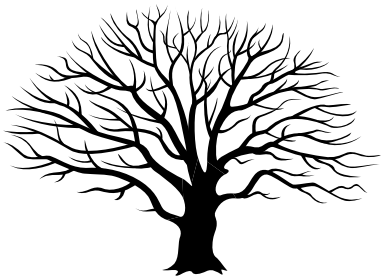
VOCABULARY

1. hunt
2. red wolf
3. gray wolf
4. cache
5. territory
6. scent mark
7. biologist
8. buffer zone
9. disperse
10. resident pack

Seasons of the Red Wolf:

Winter

In the winter, the wolf pack spends a great deal of time on the move. By now, the pups are as large as their parents and older siblings, although



like human adolescents, they will continue to gain weight and to "fill out" as they approach the end of their first year. Although severe winters can seriously compromise the survival of a wolf pack, winter is often a time of relative ease for wolves. Hunting and finding food is always difficult, but in winter, the wolves are not confined to the area of the den or the rendezvous site, and they are not preoccupied with feeding the fast-growing pups.

Wolves are marvelously **adapted** for travel and for cold weather. Long slim legs enable the wolf to travel tirelessly, often as much as twenty miles or more a day. Big feet with flexible toes that grasp and cling to rocks distribute the wolf's weight on snow and mud. Narrow chests act like snowplows in deep drifts. Long **guard hairs** protect a layer of downy **underfur**, keeping the wolf warm in the coldest of weather.

Because red wolves hunt smaller prey than gray wolves, some biologists concluded that perhaps they were more solitary, living and traveling singly or in pairs. Research shows, however, that red wolves often stay together in families in the winter traveling in packs consisting of the **breeding pair**, the pups of the current year, and often the offspring of the previous year. The pack feeds mainly on raccoons, nutria, rabbits, white-tailed deer, and rodents.

Young adult wolves who leave the pack in search of new territories and a mate are called **dispersers**. These dispersers often spend the winter in search of a wolf of the opposite sex so that they can begin a new family in an unoccupied territory.

Usually only the **breeding male** and the **breeding female** of a pack mate and produce pups. Wolves have been observed to mate for life, but this is not a hard and fast rule. When one of the breeding pair dies, it may be replaced. The breeding pair will spend a month or more in winter bonding with one another. Mating occurs only once a year, usually in February. Before giving birth, the mother wolf chooses a den site that is near a good supply of food and water. Although a den may be a niche among some rocks for a hollow under a log, usually the mother digs a den.

Vocabulary

1. adapted
2. guard hairs
3. underfur
4. breeding pair
5. mammal
6. disperser
7. breeding male
8. breeding female

How Can You Tell?

One of the major challenges facing the red wolf as it reclaims its role in the wild is its similarity to the coyote. The same is true for some gray wolf species, especially when they are young and closer in size to a coyote! Coyotes and red wolves often share the same habitats. It is legal to kill coyotes under certain conditions prescribed by state agencies; they are not protected by the Endangered Species Act. Intentionally or willfully killing or harming a red wolf is, however, a federal crime. Heavy fines and prison sentences can be imposed.

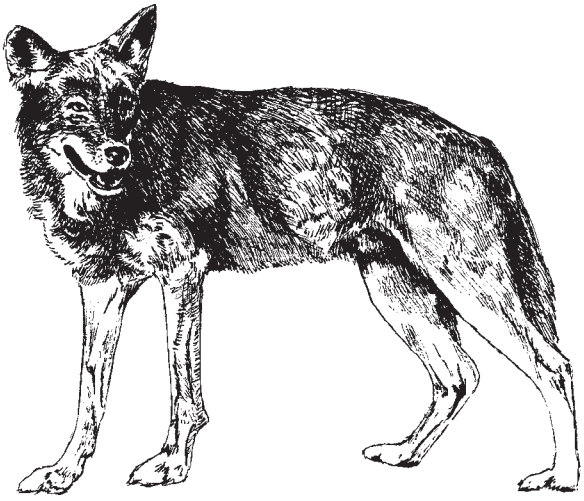
Red wolves are generally larger than coyotes and much more robust. Their bodies are muscular and solid. The coyote, on the other hand, is smaller and more delicate. Check out the heads. A red wolf's head is broad even though the muzzle is longer and thinner than that of the gray wolf. The give-away is often the ears. The ears of the red wolf are long - often more than 4 1/2 inches! Some people say they look like the ears of a German shepherd dog.

Is the Red Wolf Really Red?

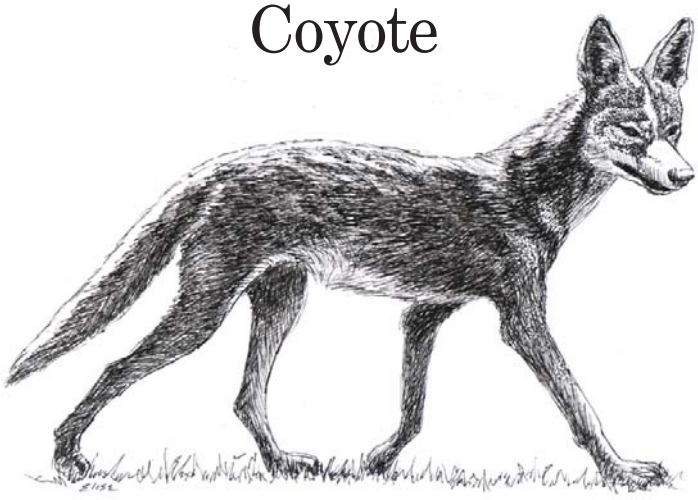
"*Despite the disclaimers in the technical literature, the wolves are red, some more than others - laced through the back of the ears and neck and splashed through their shoulders and haunches and legs. Not bloodred...but the brown-red color of certain animals like the copperhead and the grouse, a forest red that easily darkens to brown or black in a wolf's shoulders and across its back and flanks, or bleeds into the ruddy yellow that fades to the pale fur of its underbelly....Red in the signature way that a red-tailed hawk is red. Red as a point of departure. A red quickly hidden in the flowing motion of a running wolf, when the animal turns darker, almost black, not red at all.*"

Christopher Camuto: Another Country

Red Wolf



Coyote



Elise McCauley Hammond

Activities K-5

How the Red Wolf Lives

The activities in this section are designed for young children who are being introduced to wild animals and how they live. Children will be able to:

- Recognize some of the distinguishing physical characteristics of the red wolf
- Understand the structure of the wolf pack
- Describe the cycle of the red wolf's life through the seasons
- Apply the concept of the web of life
- Understand the relationship between predator and prey
- Recognize how a top predator contributes to the health of an ecosystem

The Fun Stuff Inside!

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Elise McCauley Hammond

To Teachers:

This article appeared in The Wild Canid Center Review in fall of 1998. The author, Debbie Causevic, is the Education Curator for the Wild Canid Center. We think you will find the article relevant and thought-provoking.

Where Is Wild?

Recently, during an outreach program for the Wolf Sanctuary, I was faced with what I believe to be one of the most profound questions I had ever been asked by one of my program attendees. In this case, the person happened to be a 6-year-old boy. His hand was lifted into the air, as were at least 12 others of similar shape and size. When I finally called on him, I felt I was well-prepared for any question he might ask - which usually varied anywhere from, "Do wolves bite?" and "Can I pet a wolf?" to the occasional personal account of a wolf living nearby a child's house.

What he asked, though, presented such a myriad of potential answers that, for the first time in a long time, I was stumped. It wasn't that he questioned one of the little-known facts regarding wolves that I had learned long ago and stored in the deep recesses of my brain. Instead, his question was so simple and straightforward, yet at the same time so infinitely complex, that I found myself turning over in my head how best to answer him.

For the first time I was acutely aware of how I can shape a young person's mind by the choice of information that I present in a program whose relatively simple aim is to better inform individuals about the lives of wolves. His question was in response to what I had said earlier about the goal of the Wolf Sanctuary to reintroduce wolves into the wild. He had asked, quite simply, "Where is wild?" And he expected a simple answer in return.

I quickly realized that my answer would need to be more than just relaying impressive facts which can be quickly forgotten. This young boy was searching for a concept, a concept that would bring clarity to a puzzled picture forming in his mind. As he patiently awaited my response, I could imagine the thoughts that must be going through his head. "What's the big deal about reintroduction anyway? Why all the fuss? The city park near my house: is that wild? Or that patch of forest the bus passes on the way to school: is that wild? What about the rolling farmland just outside the city? Isn't that wild?"

I briefly wondered if I should try to explain wild in terms of relative size. A simple fact about the average size of territory that a single wolf needs to survive might fit in nicely here. Or should I speak in ideals - of land without humans, livestock, fences, and roads? Or, more realistically, of approved recovery zones, radio-collars and tracking devices? I finally opted to tell the young boy that wild, like many things in life, has different meanings for everyone. After all, there are many degrees of wildness. Humans, for example, might be content to only experience wild in the wide network of parks, which are designed, for the most part, with human needs in mind. Other forms of life, particularly those that we label as wild, have different needs. I tried to explain that for every animal, there is a unique definition of wild. For some types of wildlife, back yard, forest patches, and city parks are ideal. Others, like the wolf, need something else.

Wolves, I explained, need to live in places that are apart from humans. They need land - undeveloped land. Land without parking lots, shopping malls and highways. They need prey, and they need space in which to hunt and track it. They need trees to mark as their own. They need earth in which to dig their dens. Young wolves need land to which they can disperse.

That afternoon, I better realized the sheer immensity of the task facing environmental educators. It is said that the future of our planet's wildness lies in the hands of today's children. Perhaps the conservationists of today realize this and often times push a little too hard to make children understand the wide array of problems facing us. I often catch myself trying to squeeze all the information I can about wolves and reintroduction efforts into an hour-long education program in hopes that by teaching children everything I can, they will make the right decisions when they are faced someday with such issues as finding a place for wolves in a crowded world.

Perhaps I should try to forego telling the children at my programs some of the somber realities facing wolves and other wildlife, and focus instead on helping them to better develop the concepts still forming in their fragile minds. Concepts like freedom and wildness, those very concepts that might perhaps instill a greater appreciation of wild life.

After all, I only have an hour, and I am trying to make an impression that will last a lifetime.

The Wild In My Neighborhood

A habitat is the type of environment where a plant or animal lives. People live in many different habitats. Some live in big cities or in small towns. Some live in neighborhoods outside of cities. We call these areas the suburbs. Some people live in the country with lots of land around them, but they do not grow plants or raise animals. Other people live on farms. They may raise animals called livestock and they may grow plants called crops.

Where do you live? Put a check in the box by the picture of the habitat that looks most like where you live.

People and animals need shelter. What type of shelter do you live in? Put a check beside the shelter you live in.

☐ **Big City**

☐ **Small Town or Village**

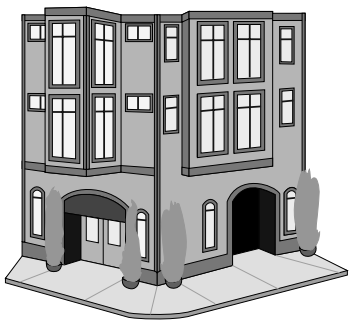
☐ **Country**

☐ **Suburbs**

☐ **Mobile Home**

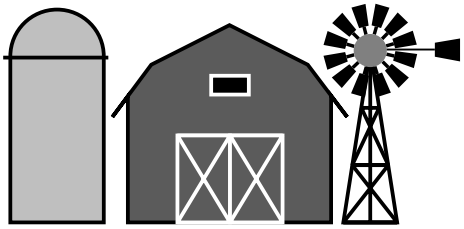
☐ **House in Suburbs**

☐ **Apartment or Townhouse**



☐ **House in Country**

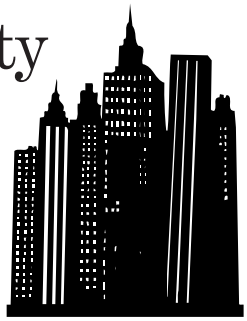
☐ **Farm**



Where is Wild?

If you want to go to a place that is wild, where would you go? What would you see? What would you NOT see? Draw a circle around the words of things you might see in a wild place. Draw a box around the words of things you would NOT see in a wild place. It will be fun to talk about your answers because not everyone will agree about what you might or might not see in "WILD!"

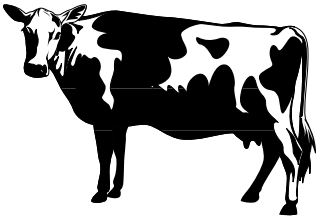
City



Poodle

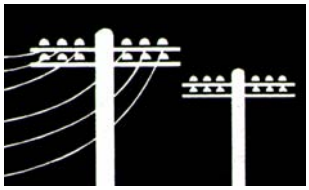
Deer

Cow



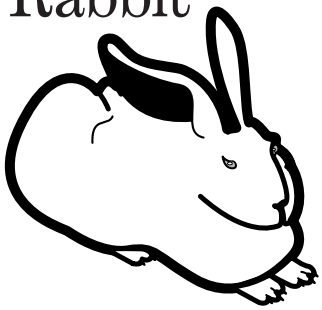
Beaver

Phone Lines

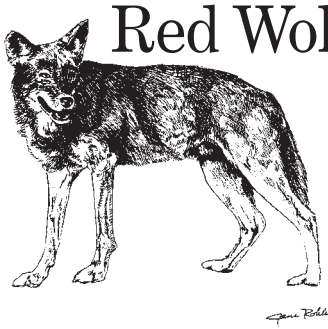


Airport

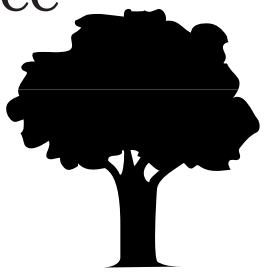
Rabbit



Red Wolf

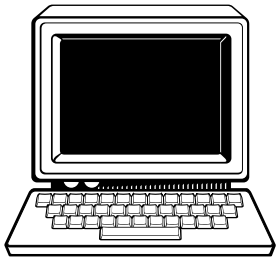


Tree



People

Computer

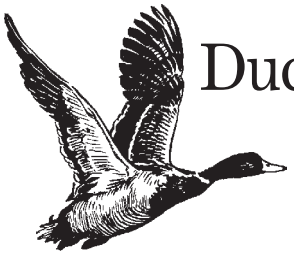


House

Frog

Shark

Duck



Who Else Lives in My Neighborhood?

Your neighborhood is your habitat. Write down as many animals as you can think of that live in your habitat. You may work alone or in a group!

Now look at "My Neck of the Woods." Can you add some more animals that live in your habitat?

Pick one of the animals that lives in your habitat. Write in this box.

Can you think of some reasons why the habitat you live in can also be the habitat of your animal? HINT! What food does this animal need? What type of shelter does it need?

Now think of an animal that could not live in your habitat. Write its name in the box.

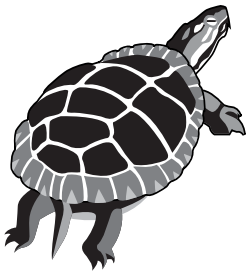
Think of some reasons this animal could not live in your habitat.

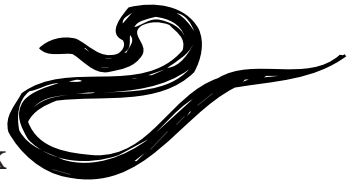
Can the red wolf share your habitat? Yes or No? Why or Why Not?

Can I share your habitat?

Elise McCauley Hammond

My Neck of the Woods
Some Neighbors in our Southeastern Habitat



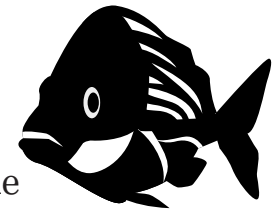


Black bear - Red wolf - Raccoon - Skunk

Nutria - Mink - Groundhog - Rabbit

Fox - Coyote - Rabbit - Squirrel - Rat

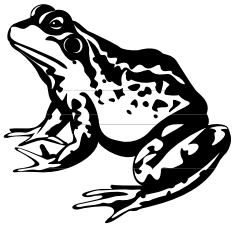
Mouse - Muskrat - Coyote - White-tail deer

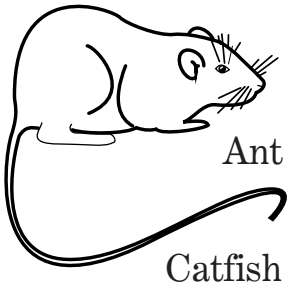


Beaver - Weasel - Otter - Feral pig - Panther

Chipmunk - Squirrel - Snapping turtle - Box turtle

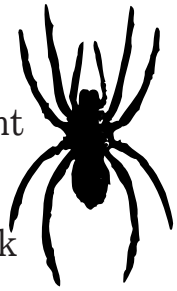
Frog - Toad - Lizard - Black snake - Copperhead





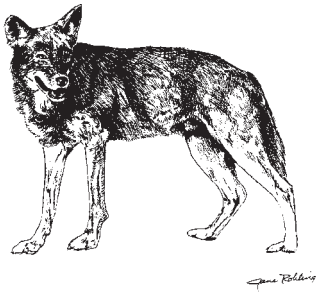
Mosquito - Wasp - Hornet - Bee - Spider - Worm

Ant - Grasshopper - Oyster - Clam - Shrimp - Bass - Trout



Catfish - Wild turkey - Sea gull - Duck - Canada goose - Pheasant

Bat - Heron - Owl - Buzzard - Crow - Songbirds - Grouse - Hawk



Where is Wild to YOU?

Wilderness means different things to different people. What does wilderness mean to you? Is it a wooded mountain? A watery marsh? The woodlands at the edge of a farm? A city park? Could wilderness be all of these?

Share what "wild" means to you. Here are some suggestions!

- Write an extended definition of the word "wilderness" or the word "wild." Your teacher will explain what an extended definition is.
- Write a first-person narrative about an experience you had in a "wilderness" setting. A camping trip? A family hike? A quiet moment by a stream in the woods? A time when you watched the birds (and the squirrels!) at your bird feeder?
- Write a paragraph about what wilderness means to you.
- Write a poem. You may write a rhyming poem or a free-form poem. Your teacher will help you brainstorm for ideas.
- Draw a picture. Choose a habitat you would find in the Southeast - a forest or a marsh, for instance. Select some animals from "My Neck of the Woods" for your habitat. If you draw your habitat on poster board, you could cut out pictures of animals and glue or paste them in the habitat. Ask your classmates to identify the animals in your picture.
- Use your computer skills to create a slide show or to create an original drawing of "Wild."

Some fun with words! Try these with a partner or by yourself!

Acrostic Poems

Begin each line with a letter in the word. Try these! Use a separate sheet of paper

W _____
I _____
L _____
D _____
E _____
R _____
N _____
E _____
S _____
S _____

C _____
A _____
N _____
I _____
S _____
R _____
U _____
F _____
U _____
S _____

R _____
E _____
D _____
W _____
O _____
L _____
F _____

P _____
R _____
E _____
D _____
A _____
T _____
O _____
R _____

Can you think of some other words?

Diamante Poems

Choose words that mean the opposite of one another or that can be contrasted. Write the poem in a "diamond" shape using the model below.

Red Wolf

_____, _____

_____, _____, _____

_____, _____, _____

_____, _____

Gray Wolf

Noun
2 adjectives } Red wolf
3 verbs ending in "ing" }
3 verbs ending in "ing" } Gray wolf
2 adjectives }
Noun

More Ideas? **Predator/Prey** **Wild/Domestic** **Wilderness/Civilization** **Parent/Pup** **Living/Extinct**

The Tracks of My Mind

What is Fact? What is Fiction ?
Perceptions are generally formed by some combination of fact, fiction, reason, emotion, and cultural background. In this activity and in the one following it ("Things I Know About Red Wolves"), students can examine their perceptions, thoughts, and feelings about wolves.

This is a good beginning activity for a study of wolves. It can be modified for students of any age from kindergarten through high school. It encourages students to assess what they know and to examine the basis of this knowledge before learning about the "real" wolf.

Procedures, Tips, and Helpful Hints:

- Hand out "The Tracks of My Mind" concept maps.

- Ask the students to draw a picture of a wolf in the center. Let them be creative. They can draw only the head, the "whole wolf," a cartoon, whatever they visualize. Allow as much time as need depending on the age of the students.

- Say the word, "Wolf." Tell students they have 3 to 5 minutes to write in the boxes any words or phrases that come to mind. Have them think about physical characteristics, behavior, habitat, stories they have read or heard. Anything is acceptable here.

- For upper elementary and above: At the end of the allotted time, ask students to examine their maps. Have them identify those words/phrases which they believe to be FACTS by underlining them in red. Identify those words/phrases which they believe to be FICTION in blue. If they are uncertain, have them leave the word or phrase unmarked.

- Older students can be asked to write a paragraph telling what they think and/or believe about wolves. This paragraph can be written on the back of "The Tracks of My Mind" concept map or on a separate sheet of paper or in a journal. Have the students save these paragraphs so they "re-visit" and "revise" them when they have learned more about wolves. With some groups, it might be fun to have a general discussion about the basis of personal beliefs. On what do we base these beliefs and perceptions? Personal experience? What others have taught us? The experiences of others? Research? The opinions of "experts?" Cultural traditions? Stories? How might information and the acquisition of knowledge change someone's personal beliefs? Can you think of some once firmly-held beliefs that have been proven wrong by information? (Example: The earth is flat.)

Extension Activities:

1. Have students study their drawing in the center of the concept maps. Beneath the picture, ask them to write some phrases or sentences telling what the picture indicates about their attitudes toward wolves. Is the drawing a cartoon in which the wolf seems harmless and benign? Is the wolf the demon of some traditional children's stories? Does the wolf appear as a noble symbol of the wilderness? Is the drawing an effort to depict the wolf accurately and objectively?

2. Have the students meet in groups of 3 or 4 in an activity to reinforce the difference between "fact" and "fiction." Each student will share his/her concept map with the group members. A recorder will fill in the information on the attached worksheet.

3. Have each group select a recorder. Have students in the group give the recorder ONE of the words or phrases on their concept maps. The teacher can make a transparency and record the lists from each group. The words and phrases can then be discussed by the class.

The Tracks of My Mind

Wolf By

The Tracks of my Mind
"Pack" Worksheet on Fact and Fiction

Name of Recorder

_____

Names of "Pack" Members

_____

_____

_____

_____

Directions: Each of you has a concept map on which you have written words and phrases that come to mind when you think, "Wolf." You have also drawn a picture or some sort of representation of a wolf in the middle of your concept map.

- Share and discuss your maps with each other. How are they alike? How are they different? Which words and phrases do you think are "fact?" Which are "fiction?" How do you decide?
- List your combined words and phrases below. The recorder will be responsible for the "official" copy of the "pack's" list. Each person, however, will record his or her own individual list.
- If your list is to be discussed with the class, the recorder may be given an overhead transparency on which to write the "pack's" list.

Fact	Fiction

Do You Know ?

RED wolves are smart! RED wolves are sociable! RED wolves can smile! RED wolves work together! RED wolves talk to each other! RED wolves work hard and play hard! RED wolves rely on teamwork! RED wolves live in families! RED wolves sing and play! RED wolves care for their pups and teach them survival lessons!

Red wolves and humans have much in common!

Wolves of North America
Gray wolves - *Canis lupus*
Red wolves - *Canis rufus*

Things I know about red wolves!

Chances are, you already know a lot about red wolves. Write down some of the things you know. If you're not sure if something is "fact" or "fiction," write it down anyway! Then write down three things you want to learn about red wolves.

Share your red wolf know-how with a small group. Share the things you want to learn.

Who's who?

Red wolf? Gray wolf? Coyote? Dog? Fox? How do you know who is who? They all belong to the dog family called the Canidae. How are the members of the dog family different from one another? See if you are a good science detective. Write down the differences you see from the pictures on the next page.

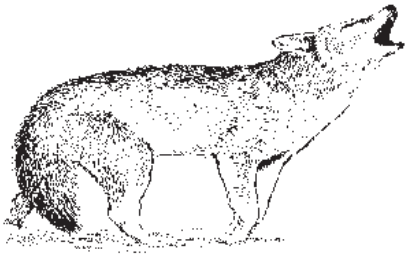
What I know about red wolves!

What I want to learn about red wolves!

I am the _____

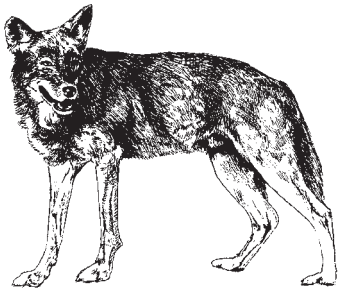
I am the _____

I am the _____



Elise McCauley Hammond

I am the _____



I am the _____

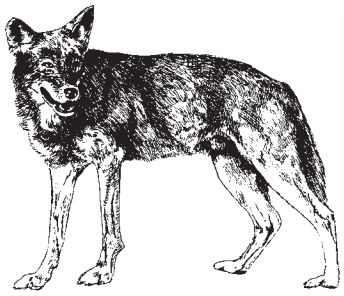
Wolf Pack Portrait

Breeding Pair

Mother

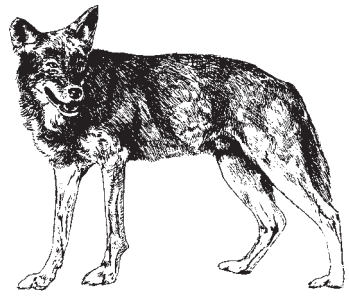
Father

Draw Mother and Father Wolf



Elise McCauley Hammond

Draw the Pups

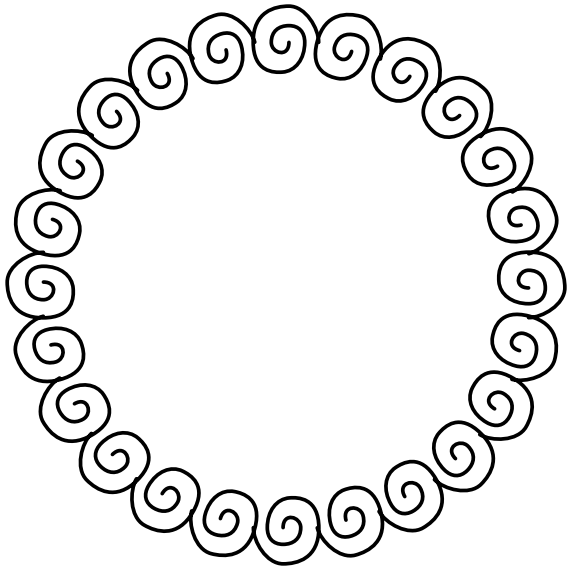


Older Brothers and Sisters

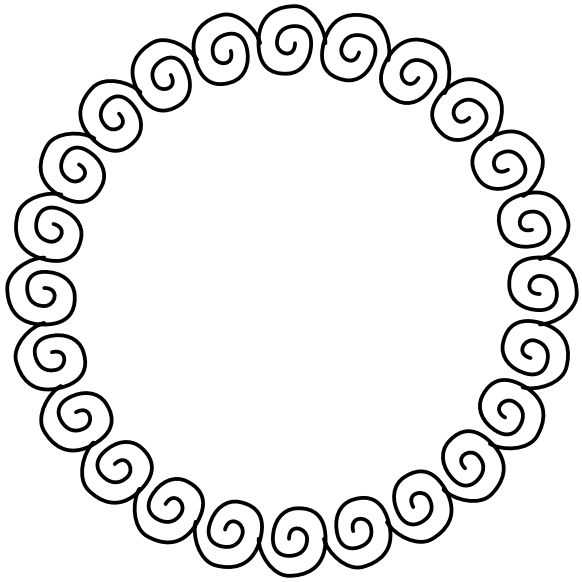
Pups

A wolf pack is a family. Wolves take good care of their pups. Mother wolf keeps them warm and feeds them. The big wolves bring the pups food and play with them. The pups learn how to hunt. They howl with the big wolves. They learn to respect the leaders of the pack. Wolf pups have to learn many lessons.

Adult Care Givers



Draw a picture of the adult or adults who take care of you or attach photograph. If you have brothers and sisters you could bring in photographs of them as well! It might be fun to create a poster of your family to share with your classmates.



"Pups" Children

How many "pups" are in your "pack?"

_____

What are their names?

_____

_____

_____

In a wolf pack, the members all contribute to the well-being of the "family." The same is true in the human family. Use the box below to name some things the members of your family do for one another. Perhaps you could draw some pictures, too!

_____

_____

_____

_____

_____

_____

Name some other members of your "pack." Grandparents? Aunts , uncles, and cousins? others? Who is older than you? Who is younger? Who makes the "rules" in your "pack?" Who follows those rules?

Other Members of My "Pack"

_____

_____

_____

_____

_____

Rule Makers:

_____

_____

_____

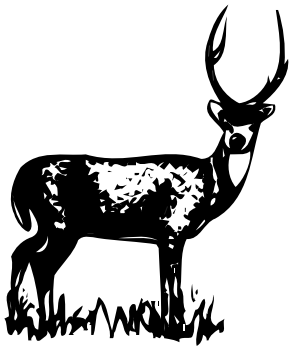
Rule Followers:

_____

_____

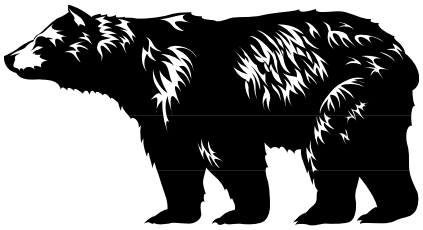
_____

Discuss with your classmates the reasons why younger members of a family follow the rules and guidelines of the older members.

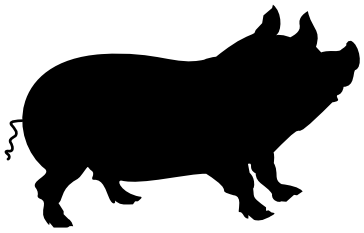


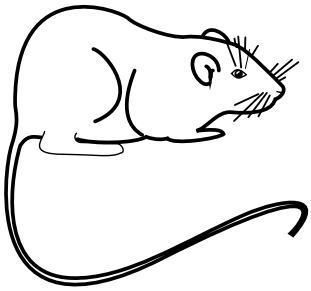
Wolfing Down Dinner

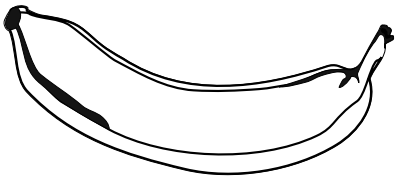
Wolves eat meat. Animals that eat meat are called carnivores.Wolves must hunt for their food. Animals that hunt are called predators. Red wolves hunt prey such as deer, wild pigs, rabbits, nutria, mice and other small mammals. Sometimes they eat insects such as grasshoppers. Hunting for food is hard work. Usually the prey gets away! Red wolves eat just about whatever they can catch. Sometimes they may hunt together in packs. Usually they hunt alone or in pairs. The father wolf brings food for the mother wolf when the pups are too young for her to leave them. As the pups are being weaned, the adult wolves carry food to the den in their stomachs and bring it back up for the pups to eat. This is called regurgitation. Carrying food to the den in their own "grocery baskets" keeps it clean for the pups. It is also easier for the adults to carry food back to the den in their stomachs than to carry it in their mouths! When the pups no longer need their mother's milk, the parents move the family to a rendezvous site, a place where there is shelter and water. Here the pups learn to catch small prey as they gain weight and strength.



- Which foods does a red wolf eat? Circle the foods!
- Which food do YOU eat? Put an X beside the foods!
- Which foods do red wolves AND humans eat? Talk about the foods!







Think about It! Write about it!
What does "wolfing your food" mean?

Picking Teeth

Deer eat tender leaves and shoots. Sometimes they eat grass. Compared to wolves, deer have an easy time getting food. Usually, it's a matter of browsing on vegetation that grows in their habitat. What do you think the INCISORS are for? What about the MOLARS ? Animals with hooves are called UNGULATES. What other ungulates can you name? Make a list!

Deer
Herbivore

Human
Omnivore

Adult humans have 32 teeth and eat both meat and plants. How are human teeth adapted to the foods humans eat? What are the INCISORS for? How about the MOLARS? Humans have modified canine teeth beside the molars. What is the purpose of these CANINE teeth?

Wolf
Carnivore

The bones of the WOLF'S jaw are heavy. The muscles of the jaw are strong, too. The jaws have great crushing power. Wolves have 42 teeth. The 6 INCISORS in each jaw are for gnawing and nibbling. The CANINES, 2 in each jaw, are 3/4 to one inch long from the gumline in red wolves! Wolves use the canines to grip and hold prey. The canines are the wolves knives and forks! The CARNAISSIAL teeth are special molars that act like scissors for shearing and cutting.

Taking Care of the Kids

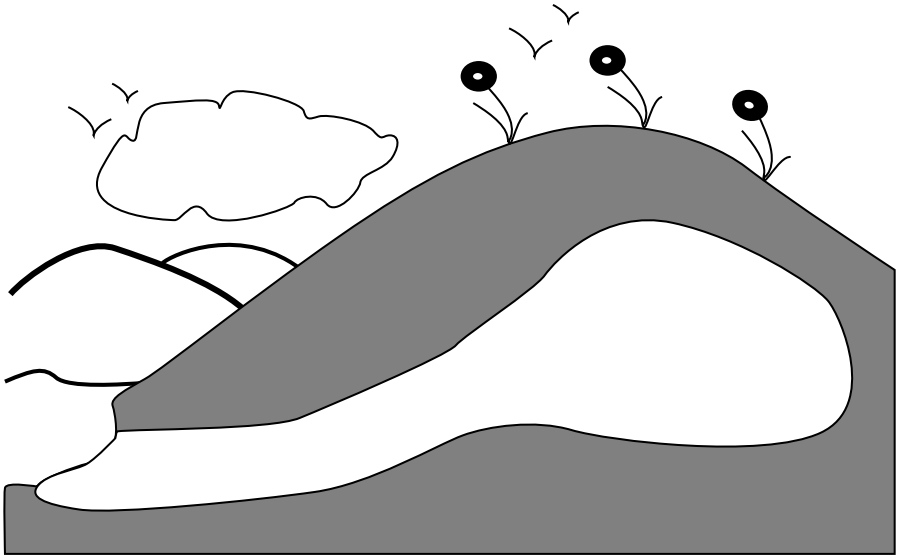
The pups born at the same time are called a litter. Can you draw some wolf pups in this den? How many pups are there in this litter?

Think about it!

Why is the den higher than the tunnel or passageway?

Wolves are good parents. They take care of their babies by feeding them and keeping them warm and dry. Most mother wolves have four to five pups. The pups are born in a den in the spring. Sometimes the mother wolf digs a den. Sometimes the den is a hollow under a fallen tree. Wolf pups are tiny when they are born. They weigh about a pound. Their eyes are closed, and they cannot walk. Their ears are small and flat against their heads. Mother wolf keeps the pups warm and feeds them milk from her body. Father wolf brings the mother wolf food.

When the pups are two weeks old, they open their eyes and start to walk. When they are three weeks old, they begin to play around the opening of the den. The adult wolves bring the pups meat which they carry in their stomachs. The pups lick the mouths of the big wolves. This makes the adults bring the food up so the pups can eat it. Wolf pups begin to practice howling. Howling takes practice!



Some Things To Talk About

- Wolf pups cannot see or hear when they are born. Can human babies see and hear when they are born? _____ How much did you weigh when you were born? _____ pounds

- How old were you when. . .?

  1. You began to eat solid food? _____What was your first solid food?_____
  2. You started to crawl?_____
  3. You started to walk?_____
  4. You started to talk?_____

- Why do wolf parents carry food in their stomachs to the pups instead of carrying it in their mouths?_____

_____

Amazing Ambulation Adaptations

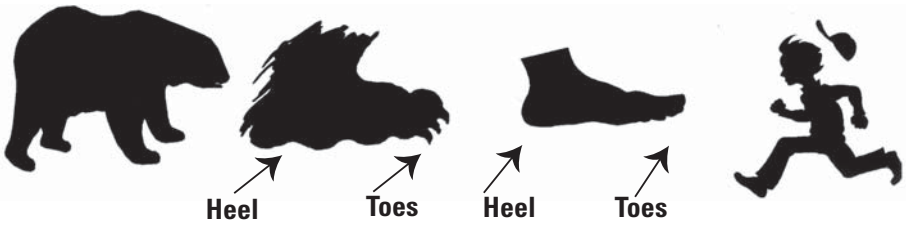
Vocabulary

Digits -
fingers and toes

Plantigrade -
walking on the soles of the feet. Humans and bears, for example, walk on the soles of the feet.

Digitigrade -
walking on the toes. Members of the dog and cat families walk on their toes. Animals like horses with hard hooves walk on "hardened" toes.

Plantigrade



Think About It ~ Talk About It (Answers on next page!)
What are the advantages of walking on the soles of the feet with heels and toes in contact with the ground?

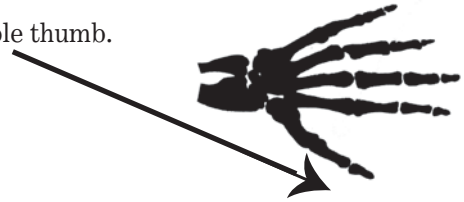
Digitigrade

Think About It ~ Talk About It (Answers on next page!)
What are the advantages of walking on the toes with the heels elevated off the ground?

Do Some Observations!
Bring in some pictures of large dogs. Find some pictures of RED WOLVES. Which of the two canids has longer legs in comparison to its body size? Which has a narrower chest? What advantages do long legs and a narrow chest give a canid?

Did you know? The elbows of wolves turn in. The elbows of most domestic dogs turn out. What advantage do inward-turning elbows give the wolf?

The human hand has an opposable thumb.



What does this make humans able to do? The canid paw has a fifth digit, but not an opposable thumb.

Foot Facts and Feats

1. **What are the advantages of walking on the toes with the heels elevated off the ground?** Humans walk upright. Bears often stand on their hind legs. The more foot surface on the ground, the better the weight distribution - it's that simple. Ever try walking around for a long period of time on your toes? What happens to your balance? Try it and see.

2. **What are the advantages of walking on the toes with the heels elevated off the ground?** No doubt about it. The advantage is speed! Having the heels elevated allows wolves and other canids to lengthen their strides and run fast. Watch your dog sprint after a squirrel. Do you think you could outrun your dog? Wolves need to put on bursts of speed when chasing prey such as deer.

3. Look at the pictures of large dogs that you and your classmates have collected. Pay particular attention to pictures that show the dog's chest. Look at some pictures of red wolves. **Which member of the dog family has the longer legs and narrower chest?** Can you figure out the reason for these "amazing adaptations?" Red wolves have long slender legs and narrow chests. So do gray wolves. Long legs help the long-distance traveler to cover the miles while hunting for food. Wolves often travel 20 miles or more each day in search of a meal. When covering long distances, the wolf travels at a trot. This is an energy-efficient gait with the diagonal legs moving forward and backward at the same time.

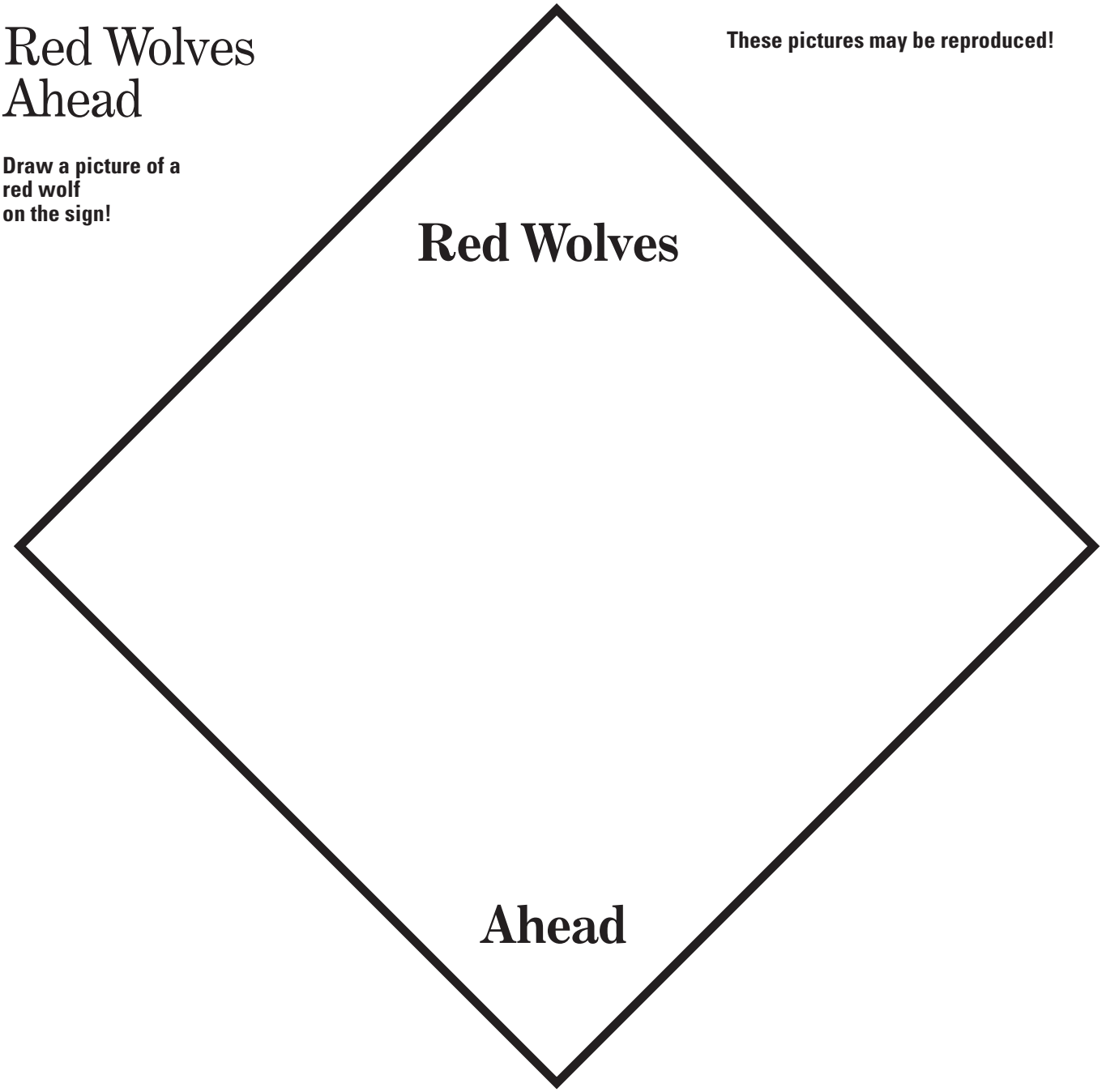
4. **Why do wolves have elbows that turn inward and narrow chests?** A narrow chest helps the long-distance traveler through the air, water, and in deep snow. Although the red wolf no longer lives in areas of the Southeast that have significant snow in winter, it once lived in the southern Appalachian Mountains where snow is often deep. Think about a triangle and a square. Which goes through the air, water, and snow more easily? Look at some head-on pictures of wolves. The wolf's narrow chest resembles a wedge or a triangle. Most dogs of comparable size have wider chests. The in-turning elbows make the wolf's gait more efficient. It can trot with little stress on the shoulder muscles. The tracks of a wolf are in a straight line because the feet of the wolf are underneath its center of mass.

5. **What is the advantage of having opposable thumbs?** How does your dog pick up an object? With its mouth, right? Why? No opposable thumbs!

Red Wolves Ahead

These pictures may be reproduced!

Draw a picture of a red wolf on the sign!



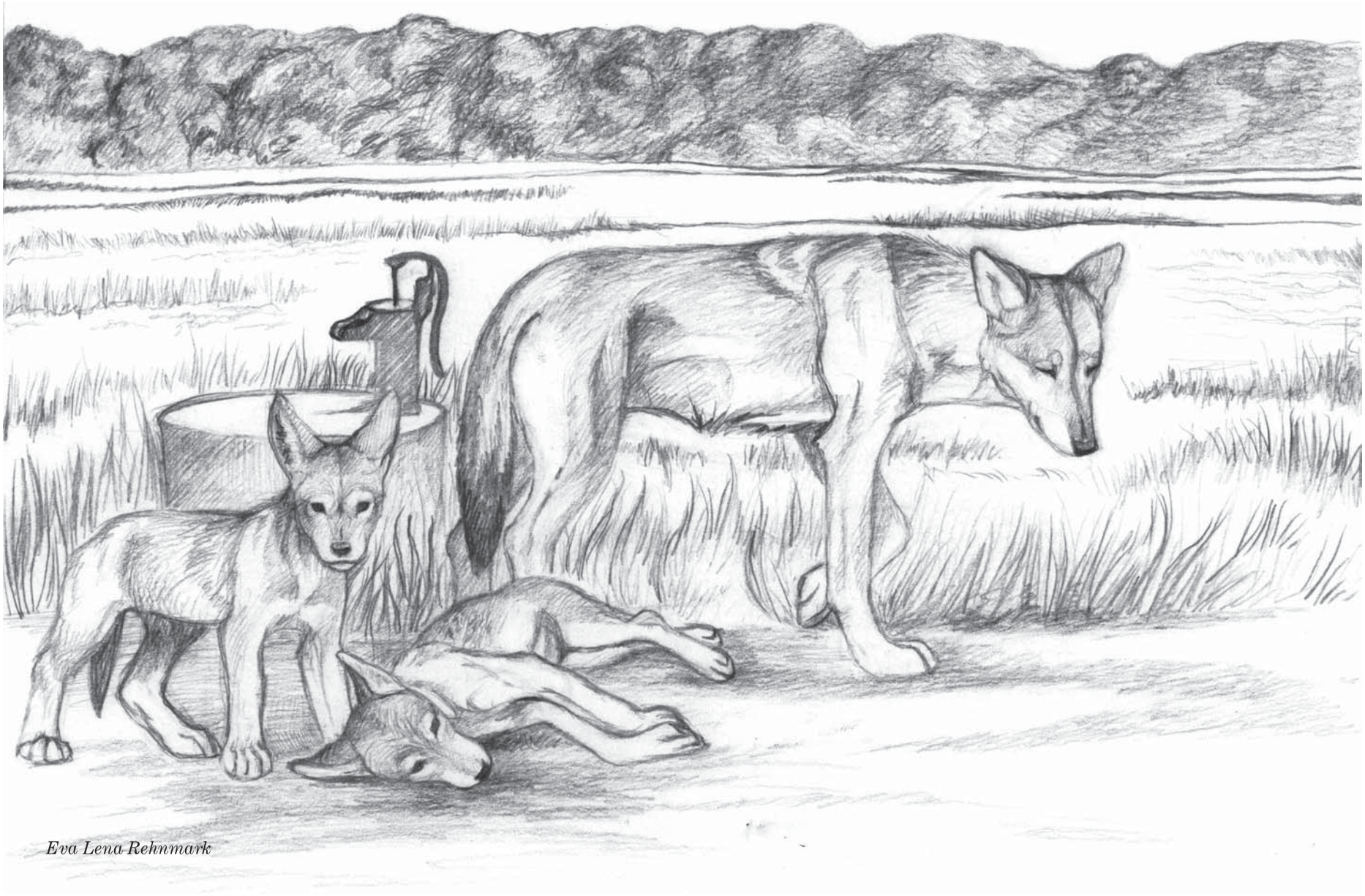
The next four pages contains four special pictures of red wolves for you to color. They are original drawings by the artist Eva-Lena Rehnmark.You may use crayons or colored pencils. As you work on your pictures, use what you know about red wolves and about their eastern North Carolina habitat. What in the background of the pictures makes you know these red wolves live in "your neck of the woods?" Notice the special physical features of the red wolf. The long ears help to keep the animal cool during the hot humid summers in the South. Long ears and sensitive hearing may aid the red wolf in locating small mammals. Notice the long slender legs that make the red wolf a "far traveler" indeed. The pelage of the red wolf can range from tawny brown or tan to a darker shade of russet. Often the ears and the backs of the legs are tinged with red. Many times the underbelly is a creamy tan. The pelage of the red wolf is not as thick as that of most gray wolves. Do you know why?

When you have finished coloring the pictures, perhaps you can make mats and frames for them from heavy construction paper or rail board. Here's another idea! Bind the pictures together with yarn and present them as a "book" to someone special. Make a cover for your book. Read the text out loud to someone special so they can learn about red wolves, too!

Spring

Eva Lena Rehnmark

Summer



Eva Lena Rehnmark

Fall

Eva Lena Rehnmark

Winter

Eva Lena Rehnmark

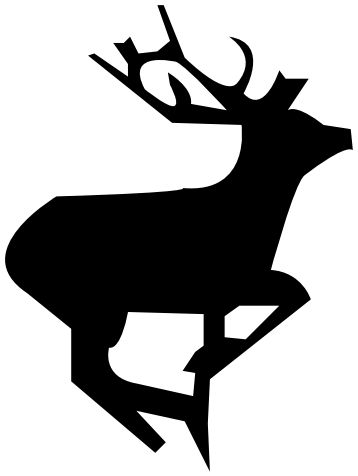
"Go Red Wolf!"

A game of red wolves and their prey

Teachers!
Photocopy these cards! We suggest you copy them on heavy-weight copy paper or laminate them before you cut them out. There are 13 pictures. You will need to photocopy four sheets so that you have 52 cards with 4 of each kind in a deck. You can play with 40 cards if you wish.

Red wolves, like their relatives the gray wolves, eat whatever they can catch! Hunting is never easy; the prey usually has the advantage! Red wolves eat a variety of small to medium sized mammals, white-tailed deer, wild pigs, insects, and even fruit!

This game is played just like "Go Fish." Each player draws 7 cards. Pair the pictures of the red wolves and the pictures of the prey. Pairs get placed face down on the table. Each player in turn asks another player for a specific card, trying to match one of his or her single cards. When the player gets a match from an opponent, he or she lays the pair face down on the table and takes another turn. If the opponent does not have a match, the opponent says, "Go Red Wolf." The player then draws a card from the pile, and it is then the next player's turn to ask for a match. If a player gets a match when drawing, that pair of cards may be placed faced down. The winner is the player who goes "out" first!



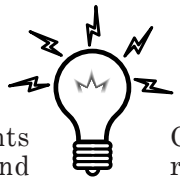
Deer

Raccoon

Rabbit

Squirrel

Idea! Idea!



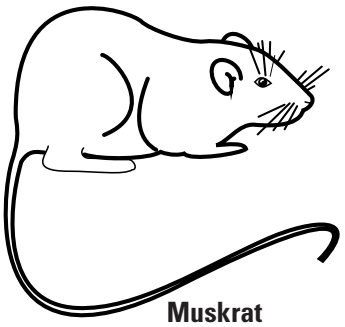
Have the students Color the backgrounds of the cards and review the spelling of prey animals. If you want a two-sided playing card, line up the "Go Red Wolf" designs with the prey cards and photo copy front and back. Have the children research the prey animals. What do THEY eat? Use these words on a spelling list!

Go Red Wolf!

Go Red Wolf!

Go Red Wolf!

Go Red Wolf!



Rat

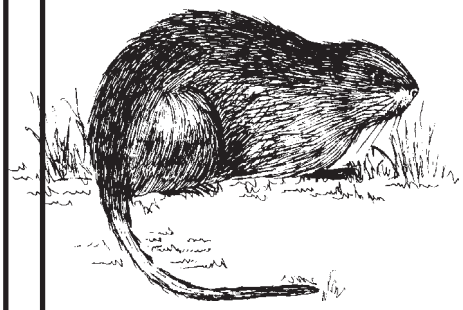
Muskrat
Rice Rat
Cotton Rat

Mouse

Groundhog

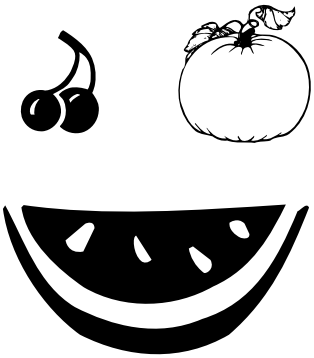
Beaver

Wild Pig

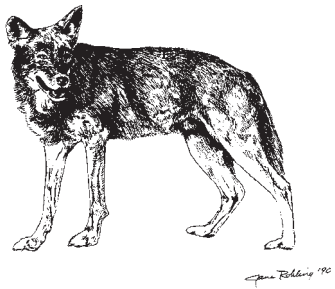


Nutria

Insects



Fruits



Red Wolf

Go Red Wolf!	*Go Red Wolf!*	*Go Red Wolf!*
Go Red Wolf!	*Go Red Wolf!*	*Go Red Wolf!*
Go Red Wolf!	*Go Red Wolf!*	*Go Red Wolf!*

BE A WHIZ WITH WOLF WORDS!

How many words can you find?

red	paw	den	pack	fur
wolf	pup	deer	hunt	litter

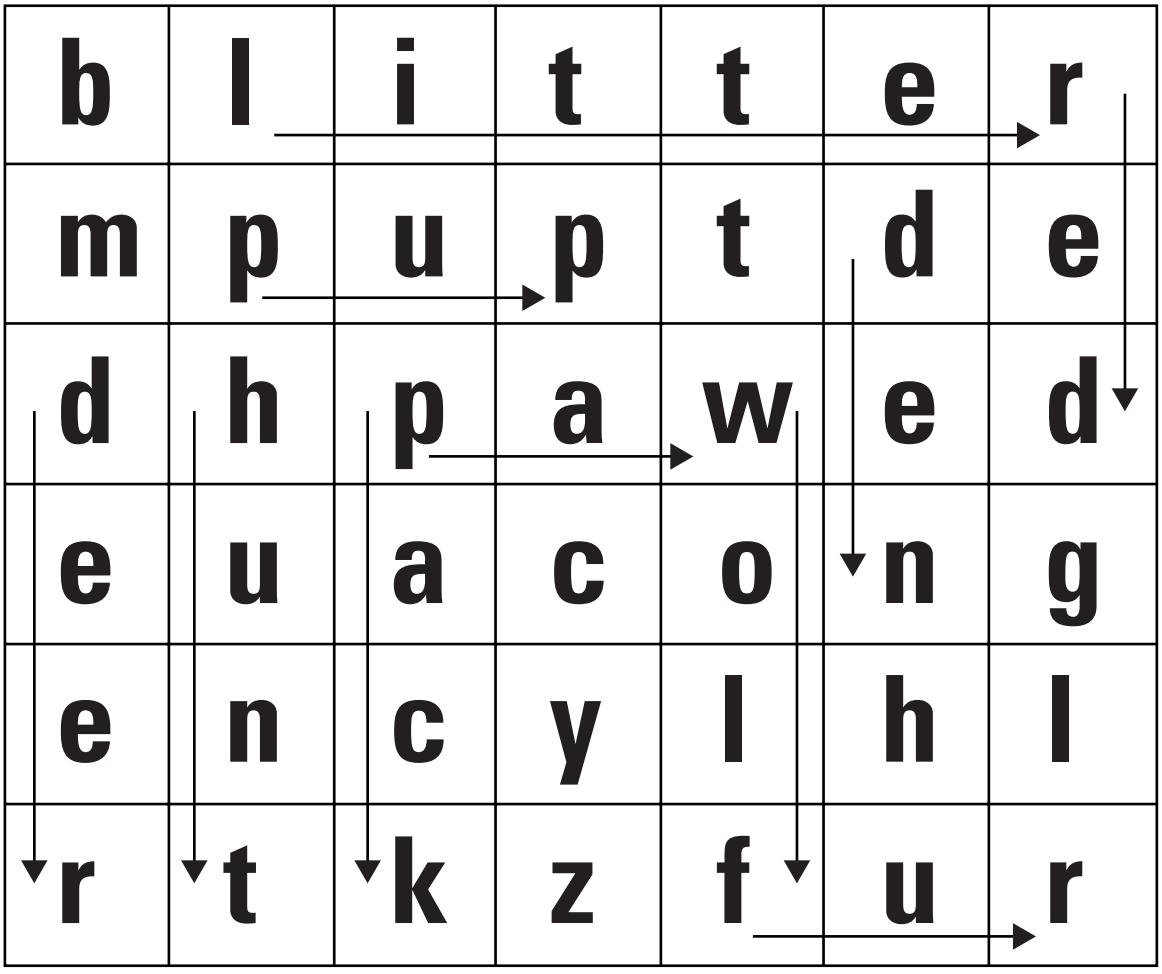
b	l	i	t	t	e	r
m	p	u	p	t	d	e
d	h	p	a	w	e	d
e	u	a	c	o	n	g
e	n	c	y	l	h	l
r	t	k	z	f	u	r

BE A WHIZ WITH WOLF WORDS!

Answers

How many words can you find?

red	paw	den	pack	fur
wolf	pup	deer	hunt	litter



Name Our Pack

Find out the name of our pack by writing the words on the lines. The name of our pack will be in the box!

Elise McCauley Hammond

1. Two species live in the USA,
   One is red, the other gray!

2. Dogs are tame, but not me!
   The wolf is_ _ _ _, the wolf is free!

3. I'm the top wolf in the pack,
   Size and strength I do not lack.

4. Here the new pups safely stay,
   Mom and Dad keep harm away.

5. Kids grow up and leave their home,
   Wolves_ _ _ _ _ _ _ _ and freely roam.

6. I'm often born beneath the
   ground, At birth I weigh
   just one pound!

7. Wolf packs are really meant to be
   Just like the human_ _ _ _ _ _!

8. All the things we like to eat,
   Rabbits, deer - they're quite a
   treat!

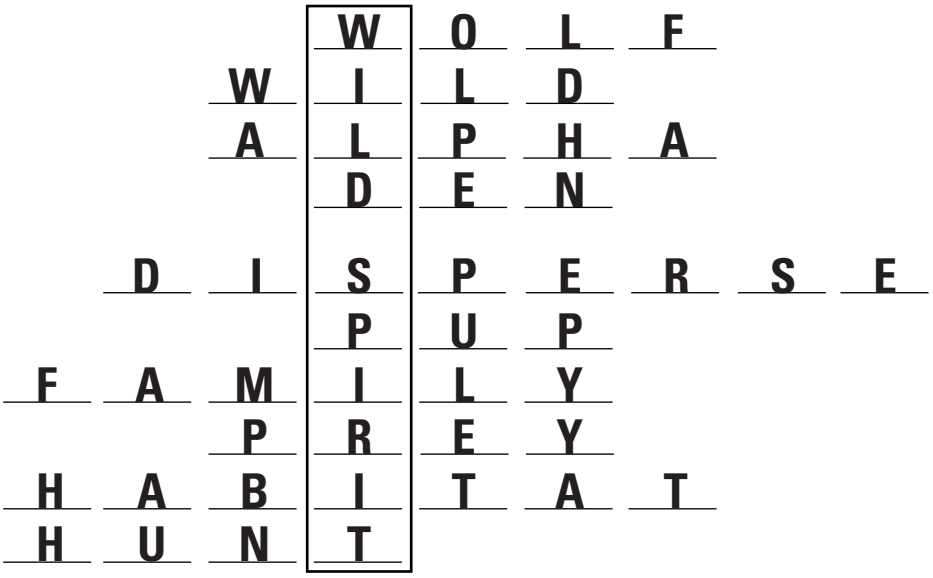
9. Forests, fields, swamps - all that,
   Make up the red wolf's_ _ _ _ _ _

10. For food, most humans simply shop,
    Wolves instead do this non-stop!

The Name Of Our Pack Is

Name Our Pack - Answers

Find out the name of our pack by writing the words on the lines. The name of our pack will be in the box!



1. Two species live in the USA,
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   freely roam.

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7. Wolf packs are really meant to be,
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8. All the things we like to eat,
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   treat!

9. Forests, fields, swamps - all that,
   Make up the red wolf's_ _ _ _ _ _ _.

10. For food, most humans simply
    shop, Wolves instead do this non
    stop!

The Name Of Our Pack Is Wild Spirit

WORD FIND

P P H U N T Y J D E N

U R E D W O L F C C G

P E H M I C G H O A R

P X S W L A X A Y N A

R T H O W L S B O I Y

E I H I H R K I T D W

Y N A Q O O I T E R O

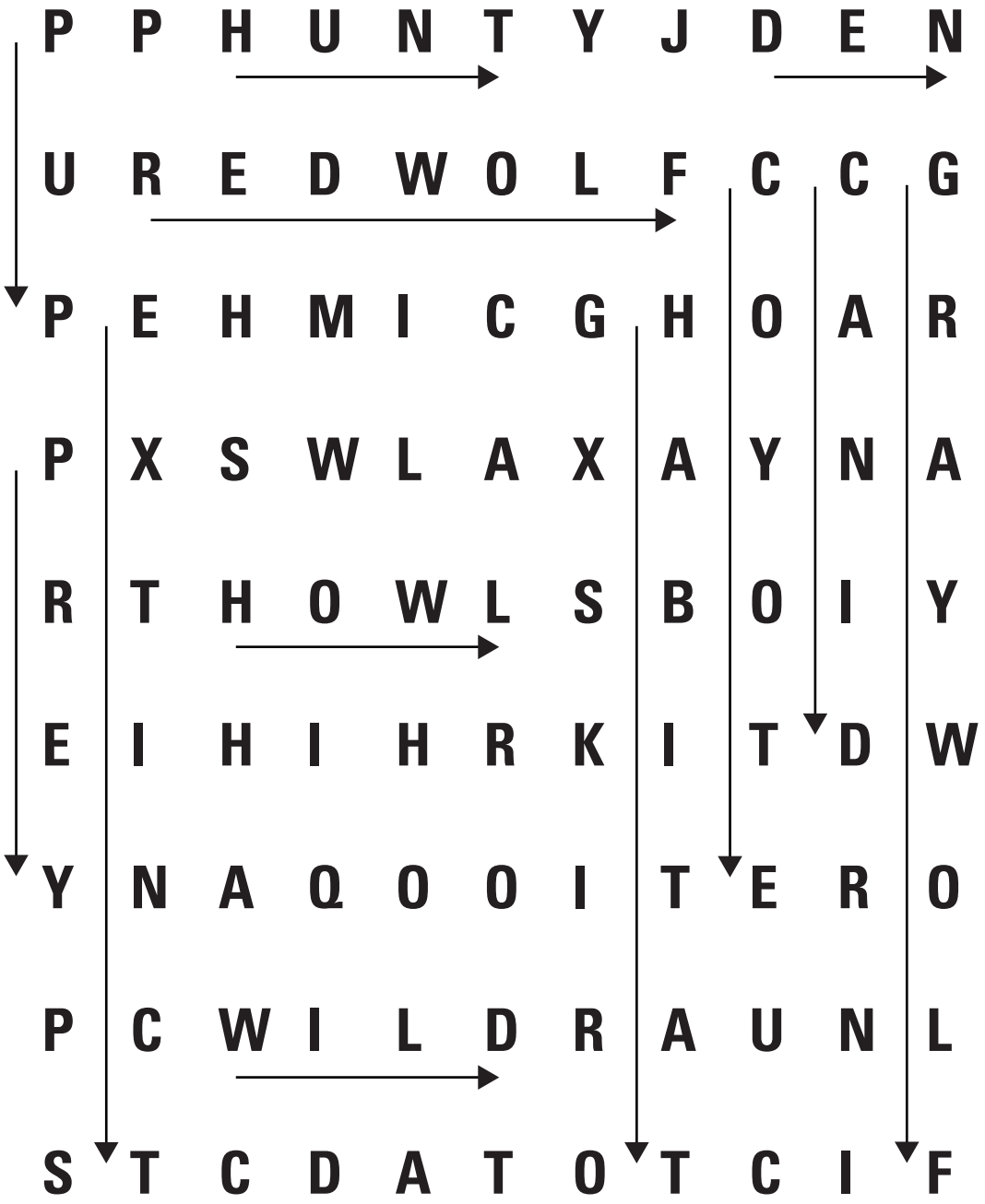
P C W I L D R A U N L

S T C D A T O T C I F

Can you hunt as well as the wolves? See how quickly you can find the words!

HABITAT	GRAY WOLF	DEN	EXTINCT
RED WOLF	COYOTE	PUP	WILD
HOWL	PREY	HUNT	CANID

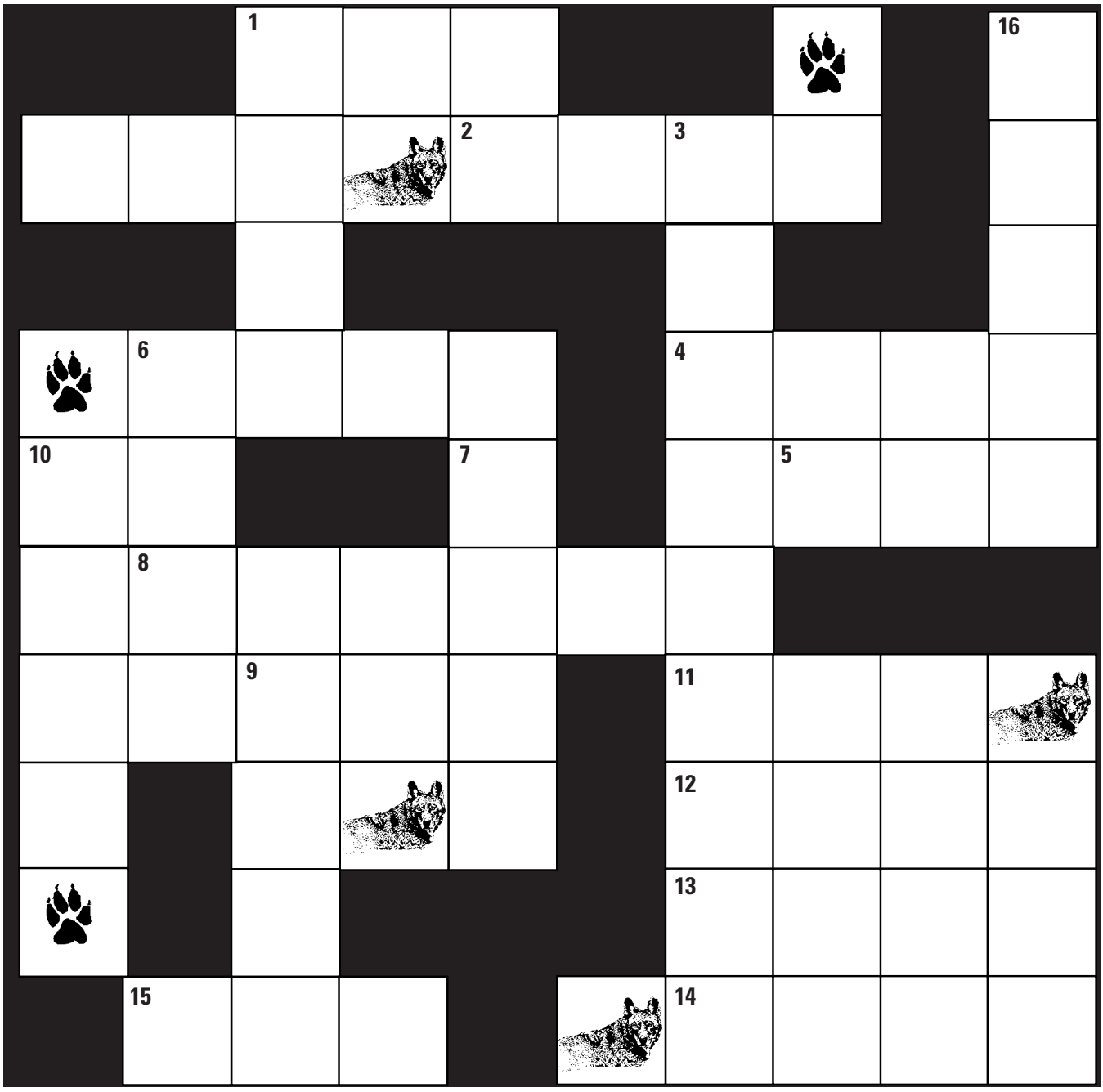
WORD FIND
Answers



Can you hunt as well as the wolves? See how quickly you can find the words!

HABITAT	GRAY WOLF	DEN	EXTINCT
RED WOLF	COYOTE	PUP	WILD
HOWL	PREY	HUNT	CANID

Those Puzzling Wolves



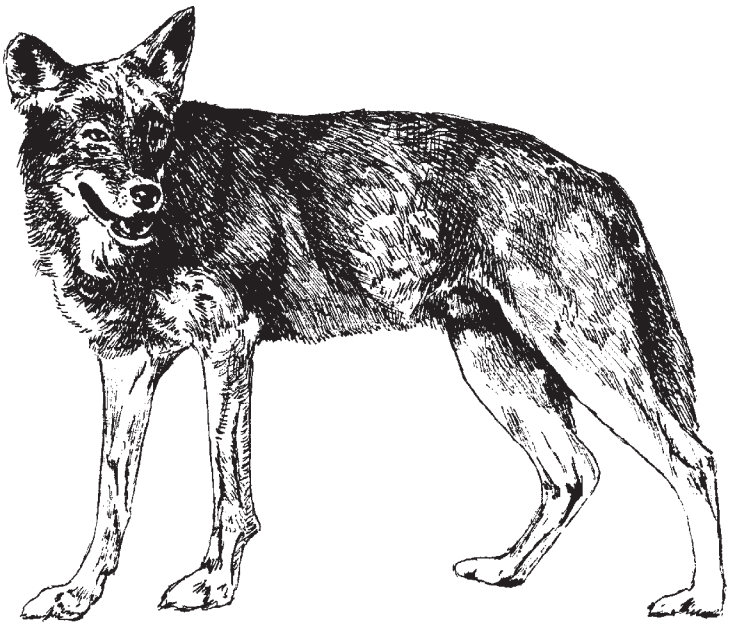
Those Puzzling Wolves Clues

Across

1. Where wolf pups are born
2. The largest of the Canids
4. An animal that can be controlled or managed by humans
5. The wolf's protective covering
6. An animal that is hunted by another animal
8. Another canid predator, sometimes a scavenger
9. The wolf's foot
11. One of two species of wolves in North America
12. What carnivores eat
13. Not tame nor domesticated
14. The larger of two species of wolves in North America
15. Abbreviation for a law to protect and restore animals and plants in danger of extinction

Down

1. One of the prey animals of the red wolf
3. The name for pups born at the same time in the spring (6 letters!)
6. A family of wolves
7. One of the main ways wolves communicate
9. Wolf babies
10. How wolves get their food
16. Wolves need a lot of this because of their meat diet



Jane Rohling '90

Those Puzzling Wolves

Answers

			1 d	e	n								16 w		
s	e	e		2 w	o	3 l	f						a		
			e			i							t		
		6 p	r	e	y			4 t	a	m	e				
10 h	a			7 h				t	5 f	u	r				
u	8 c	o	y	o	t	e									
n	k	9 p	e	w				11 r	e	d					
t		u		l				12 m	e	a	t				
		p						13 w	i	l	d				
	15 e	s	a					14 g	r	a	y				

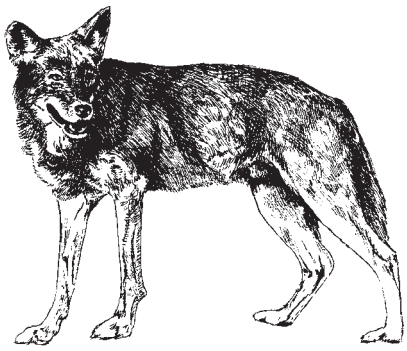
Activities 6-8
Conservation and Recovery

The activities in this section are designed for older children who are beginning to examine wildlife recovery and management issues. Students will be able to:

- Examine the role of the red wolf within the ecosystem
- Understand the concept of biodiversity and the role of the top predator
- Make decisions regarding wildlife management issues that will affect their lives
- Apply conflict resolution strategies to wolf recovery issues.

Exciting Stuff Inside!

- Reading Strategies You Can Use! ..... 52 - 56
- Word - O! ..... 57 - 58
- Fact and Opinion: Which is Which? ..... 59 - 60
- The Web of Life ..... 61 - 62
- Designed for Hunting 63
- Conflict Resolution Activity ..... 64 - 73
- Puzzles ..... 74 - 84



Elise McCauley Hammond

"I'm the red wolf, says the dark old father, All right, the red-dawn wolf I am."
D. H. Lawrence

To Teachers
The following material in "Far Traveler" can be read by upper elementary and middle school students. This will provide some information on red wolf biology and the on-going red wolf recovery efforts. We suggest that teachers photocopy the pages and use them as informational reading lessons. This would be a good place to teach outlining skills and to teach informational reading strategies such as KWL and Double-Entry Reading Logs. Examples of these two strategies are included.

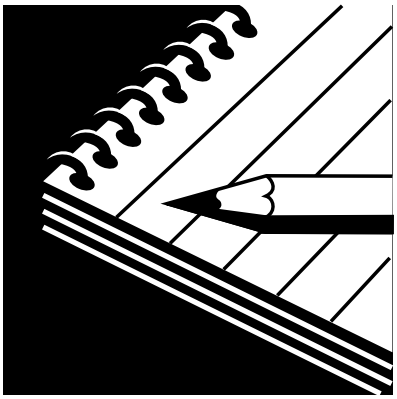
When students have learned about how the red wolf lives, about its role within its regional ecosystem, about how it hunts and about the role of a top predator, they will be ready to apply conflict resolution strategies to red wolf recovery issues and to examine the process of making wildlife management decisions.

We encourage you to help students enrich their vocabularies by playing the game of "Word-O!" Instructions and model grids for this game are included.

Specific Skills
Students can use the material in "Far Traveler" to learn to:

- Read for information and pleasure
- Develop informational reading strategies - KWL and Double-Entry Reading Logs, for example
- Ask questions to clarify what they do not understand
- Distinguish between fact and opinion
- Apply problem-solving strategies
- Build vocabulary
- Listen to a variety of viewpoints and assess those viewpoints
- Present their own viewpoints orally and in writing
- Achieve a balanced perspective
- Resolve conflicts
- Work with others to construct rational and flexible solutions to real problems

KWL



KWL will help you to select what is important when you are reading for information on a topic. Let's pretend for a moment that you are reading the selection "Where Have All the Red Wolves Gone?" in the introductory section "What Is a Red Wolf?" STEP #1: BEFORE YOU BEGIN READING, write in the first column everything you know about the disappearance of red wolves and about red wolf recovery. If you aren't sure about something, jot it down anyway. If you know absolutely nothing about the topic, that's all right, too. Be honest. STEP #2: BEFORE YOU BEGIN READING, write in the second column a list of questions. What do you want to learn about why red wolves became extinct in the wild? Do you know what "reintroduction" means? If you don't, look it up in the curriculum glossary. Try to write at least five questions. This will take some time and thought, but it will be worth the effort because it will focus your reading. STEP #3: Read the selection. You may want to take notes in column #3 under the heading "What did I learn?" That would be especially appropriate if you find information in the selection that answers one of your specific questions. WHEN YOU HAVE FINISHED READING: Make a list of questions you have that remain unanswered. Perhaps you missed that piece of information in the selection. Ask someone else who read it and find out. Perhaps the selection did not cover that aspect of the topic. In that case, you may want to consult another source. Go to one of the suggested books or to one of the websites listed. They are filled with current and accurate information.

The KWL method can be used successfully for any informational reading you do. You will discover that you actually save time; you will remember what you have read because you will have established a purpose for reading; you will have searched what you already know about the topic; you will be focused on specific questions when you read; and you will have a quick and easy method for recording the information you gather. Give it a try!

K W L

What do I Know? **What do I Want to learn?** **What did I Learn?**

Topic _____

Additional Questions

Double-Entry Reading Logs

This reading strategy may help alleviate that "I read the material, but I don't remember a thing" feeling. Double-entry reading logs can sharpen your thinking skills, help you to respond to a whole text, provide ideas for class discussion, and improve your writing fluency. Use the model on the next page. After that, a piece of notebook paper will work just as well.

STEP#1: READ a paragraph of an identifiable section. Stop then and ask yourself, "What did I just read?" WRITE in the left column your UNDERSTANDING of what you just read. Be sure to write your understanding of the section in your own words. DRAW A LINE WITH A HI-LIGHTER WHEN YOU GO FROM ONE PARAGRAPH OR ONE SECTION TO THE NEXT.

STEP #2: In the right column, write: (a) the things you DON'T understand (b) the questions you have (c) any opinions you have (d) any vocabulary words that are confusing or that you don't understand.

STEP #3: Discussion. This may be done with the whole class or in small groups. Groups can select questions and write them on an overhead transparency to share with the whole class. Vocabulary words may also be listed and shared.

STEP #4: On a separate sheet of paper, list everything you would like to remember from a reading. What do you think is important to remember from the selection? What was particularly interesting?

STEP #5: The next day (or for homework), write a summary of everything you learned from the material you read.

Elise McCauley Hammond

Developed by Linda Perry, Reading Resource Teacher, Robinson Middle School

Text -
What do I understand?

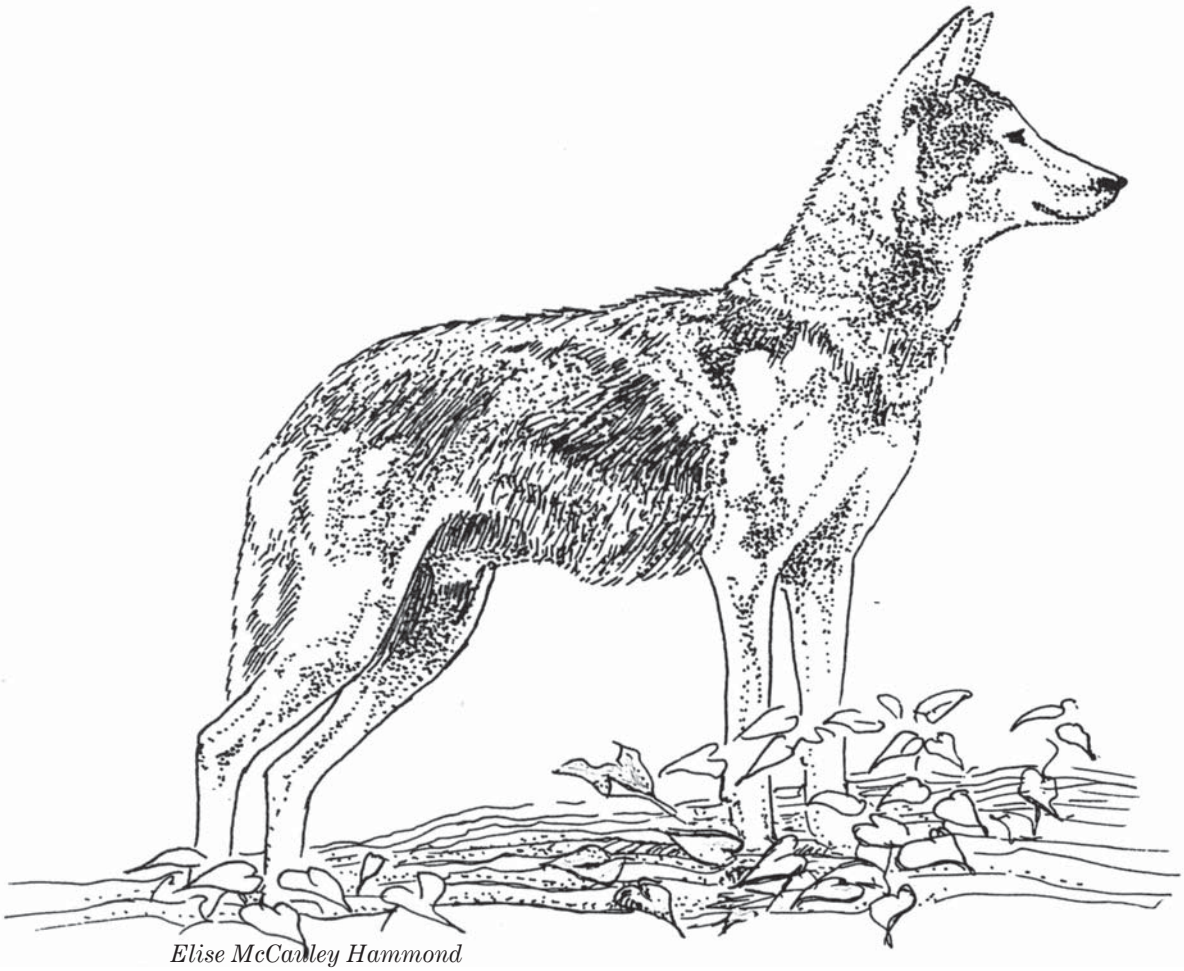
Me -
What do I think? What do I want to ask? What don't I understand?

Word-O
Vocabulary Extravaganza

Become the Alpha Vocabulary Red Wolf!
How many of the red wolf words from the glosary and in bold from the "Far Traveler" text do you know? How many of the words do you know? It will all depend on whether you are a "Pup" or an “Old Experienced Wolf” with lots of expertise about wolves, wilderness, and wildlife! If you and your classmates have learned the meanings of a lot of the words, you can have a WORD-O game. This is fun, and it's a great way to review for any vocabulary test in any subject.

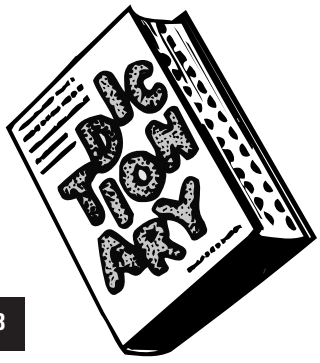
Directions
Do you know how to play BINGO? Then you can play WORD - O! Fill in 25 vocabulary words in the squares, one per square, that is! The teacher (or the winner of each "round" if you want some variety) will call out the definitions. As each definition is called, locate the word on your grid and place a piece of colored paper (or an M&M if you can find a source - and if you can resist eating them before the game is over!) on the square. Five in a row, horizontally, vertically, or diagonally is WORD - O! The center square, by the way, gets filled in!

This is a great game for rainy Friday afternoons, for jump starts on Monday mornings, for any old time the teacher will say, "Well, all right, just for a little while!" when someone asks, "May we play WORD - O?



Elise McCauley Hammond

Word - O!



Fact and Opinion: Which is which? How can you tell the difference?

As students move from upper middle school to high school, they begin to acquire and to refine expository and persuasive writing skills. Students at this level are also expected to determine purpose in reading-reading for pleasure and entertainment, reading to gather information, and reading to analyze a writer's opinion on a subject. When students have a basic understanding of purpose, audience, and of the difference between statements of fact and statements of opinion, they have cleared the first hurdle in expository and persuasive writing and speaking.

Students will find the answers to each question in the "Far Traveler" book. Don't forget to use the introductory section and the K - 5 section as well!

Directions:
Read each statement. Write the word FACT on the line if you can prove it OR disprove it. In other words, there is concrete evidence to verify the statement or to prove it false. Write the word OPINION on the line if the statement is a "belief" or a position statement. The underlined words are in the glossary! Part of the challenge is to learn new words! Practice your vocabulary expertise by playing "Word-O!"

1. _____ Wolves are carnivores, and red wolves prey mainly on mammals.

2. _____ The two officially recognized species of wolves in North America are the red wolf and the gray wolf.

3. _____ Top predators like red wolves should be reintroduced on all public lands in the Southeast that provide a large enough range to support a population.

4. _____ Farmers should be permitted by law to shoot any red wolf that kills livestock.

5. _____ A captive management program and a Species Survival Plan were necessary to save the red wolf from becoming extinct.

6. _____ One of the greatest problems with red wolf recovery is the potential for hybridizing with coyotes.

7. _____ Wolves are often portrayed as villains and savage killers in legends and in children's stories.

8. _____ Red wolves are shy and tend to avoid contact with people.

9. _____ Wolves are social animals with a pack structure based on a dominance hierarchy.

10. _____ Stories portraying wolves in a negative way are harmful to children.

11. _____ Red wolf pups are born in the spring and are cared for by both parents.

12. _____ Red wolves are generally smaller than gray wolves and larger than coyotes.

13. _____ Wolf hunting should be legal in areas where wolves are not listed as endangered or threatened.

14. _____ Wolves do not generally make successful pets because wolves are wild, not domestic, animals.

Answers

1. Fact 2. Fact 3. Opinion 4. Opinion 5. Fact 6. Fact
7. Fact 8. Fact 9. Fact 10. Opinion 11. Fact
12. Fact 13. Opinion 14. Fact

On Your Own!

Can you write three FACT statements about red wolves? Sure you can! If you were to write an informational paragraph, your fact statement would be the topic sentence.

1. _____

_____

_____

2. _____

_____

_____

3. _____

_____

_____

Can you write three OPINION statements about red wolves? If you were to write a persuasive paragraph, your opinion statement would be the thesis statement.

1. _____

_____

_____

2. _____

_____

_____

3. _____

_____

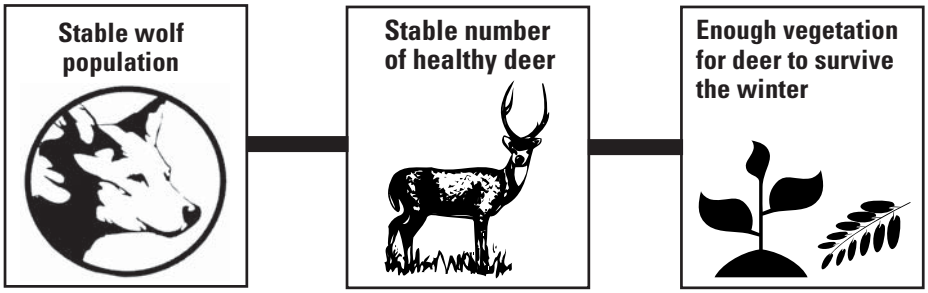
_____

Review the form of the persuasive paragraph. If you are learning to write short persuasive essays, one of your opinion statements might be a good thesis statement! Try writing a persuasive paragraph after you have reviewed the parts: thesis statement, supporting statements, concluding statement, transitional words and phrases.

The Web of Life

The Role of the Top Predator

Red wolves are important to the health of an ecosystem. The natural prey of red wolves are white-tailed deer and other small to medium sized mammals. Wolves help limit the number of prey animals in their territory. For example, by helping to keep the deer population under control, wolves also help keep the vegetation healthy by preventing overgrazing and overbrowsing. The flowchart will illustrate this for you.



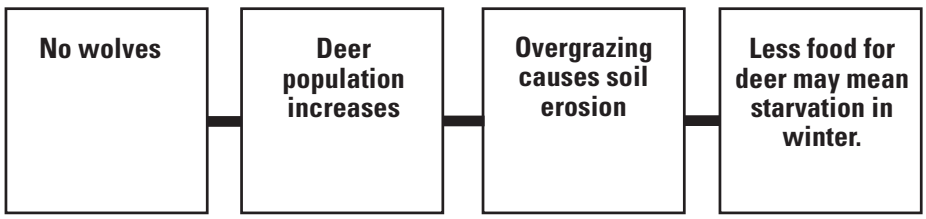
Aldo Leopold, the great naturalist, wrote the following description in his famous essay "Thinking Like a Mountain." Leopold is remembering an experience in his youth when he shot a wolf.

Read this selection aloud as a whole class with the teacher and discuss it, or read it in small groups and speculate about what you think Leopold is saying. Combine your ideas with the whole class.

"We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes-something known only to her and to the mountain. I was young then....I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view.

Since then I have lived to see state after state extirpate its wolves. I have watched the face of many a newly wolfless mountain, and seen the south-facing slopes wrinkle with a maze of new deer trails. I have seen every edible bush and seedling browsed...to death. I have seen every edible tree defoliated to the height of a saddlehorn....In the end the starved bones of the hoped-for deer herd, dead of its own too-much, bleach with the bones of the dead sage....

I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer."



The Web of Life

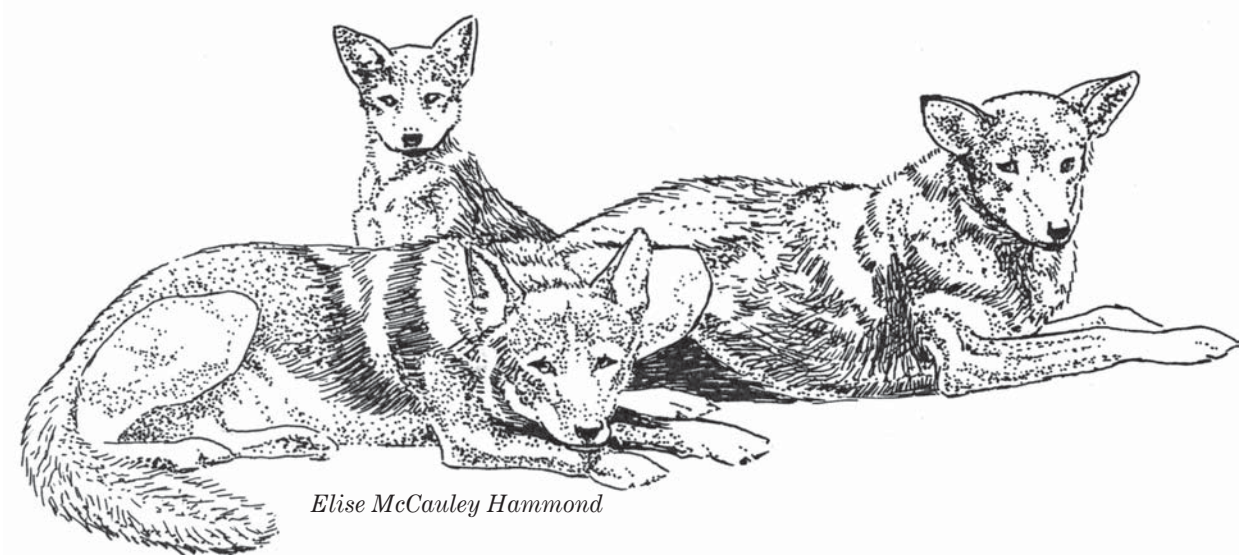
Red wolves and other top predators must kill to live. Their bodies are designed for predation (see "Designed for Hunting"), and their digestive systems are specially adapted to process their diet of meat. Being a predator can be a dangerous job. For example, the sharp hooves of a deer can kill or severely injure a wolf. It makes sense for a wolf to select the prey that is easiest to catch and kill. If the prey is an ungulate, or hoofed animal such as a deer, the wolf may often select one that is vulnerable - old, sick, or young.

Predators are essential ingredients of a healthy ecosystem. They feed the scavengers that visit wolf kills no matter what the prey the wolves have selected. In a process called "resource partitioning," various animals, depending on the time of day, divide up the leftovers. This eating in shifts means that different species take turns at the kill, and competition is thus reduced. Crows and vultures dine at a wolf kill; blue jays, nuthatches, chickadees and woodpeckers search for morsels just as they do at the suet feeder in your backyard. Foxes and coyotes watch for their chance. Others who search for wolf leftovers are weasels and skunks who pick at bones. Small rodents make nocturnal visits at a kill to search for bits of food. Beetles and other invertebrates benefit from carrion - and many birds come to devour the bugs! Ticks, fleas, flies and other parasites also buzz and crawl around a rotting carcass. Larvae produced by flies attract more birds and often bears. The process of decomposition provides fertilizer for the plant life around the carcass. This vegetation will provide food for the herbivores such as deer, thus ensuring the continuation of the cycle of life.

(Resource: "Wolves: Engineers of Biodiversity" by Nancy Gibson - International Wolf, Summer, 1999)

Your Turn!

Design a graphic to illustrate the role of the red wolf as a top predator in strengthening the biodiversity of an ecosystem. See how many different animals and plants you can include that benefit from the presence of a dominant predator like the red wolf. Important food items in the red wolf diet are nutria, raccoons, and deer. Nutria destroy wetland, aquatic plants.Deer can damage crops and cause hazards on roads. Raccoons prey on eggs of ground nesting birds such as quail and turkey. You can create a web or a pyramid using a variety of art materials. You might want to work independently or with a partner.



Elise McCauley Hammond

Becoming Part of the Web of Life (Lesson Plan and Activity)

"Each extinction is a unique voice silenced in a universal conversation of which we are only one participant."
Mark Jerome Walters

"For one species to mourn the death of another is a new thing under the sun."
Aldo Leopold

Materials

■ ball of yarn

■ name cards (see below)

■ list of organisms from which to choose

■ list of survival needs.

Preparation

■ Review the definition of the word organism. Simply defined, an organism is a plant or an animal. It might be microscopic, or it may be huge.

■ Ask students to make a list of what organisms **need** in order to survive. If you do the Conflict Resolution Activity, this will provide background.

■ Compile the list on the overhead or the chalkboard. Students should have listed needs as food, shelter, and water.

■ Next have students compile individual lists of organisms. Limit this list to organisms that live in your area and about which students have at least some knowledge.

■ Write the list on the overhead or the chalkboard. Encourage variety. Be sure you have a balanced list.

■ Write the names of the organisms on pieces of colored construction paper. The names should be written in large letters. Children can illustrate these name tags. Decide whether the organisms will be assigned or whether the students will choose them from the pile of name tags placed face down.

■ Students should sit in a circle, close together. On a nice day, this could be done outside!

■ Students should pin the name tags to their clothing or place the name tags in front of them for easy reading. If the class is large, you might want to divide them into two groups.

■ Remind students of what organisms need to survive.

■ Hand the ball of yarn to a student. Tell the student to wrap the ball of yarn around his or her hand so that it remains secure.

■ Tell that student to look around the circle. Choose an organism with which his or her organism interacts. **Have the student consider these things: What does my organism eat? What, if anything, eats it? What does my organism use for shelter or for protection? What other organisms does it need in order to survive? What organisms need it in order for THEM to survive?**

■ When a student has chosen an organism with which it interacts in some way, have the student say, for example, "I am a worm. I am going to toss the yarn over to the robin because a robin is a bird that depends on worms and grubs for food." Then the student will toss the ball of yarn to the student who represents the bird, meanwhile keeping the strand wrapped securely around his her own hand. The student who receives the yarn wraps it once around his or her hand, and the process is repeated.

■ If students get stuck, you may have to prompt their thinking. If, for instance, the student representing the robin is genuinely confused, have him or her think about what the robin needs. Where does it nest. What materials does it use to build nests? Is there any organism that eats birds? What about the eggs of birds? Are scavengers in the circle who would eat a dead robin? What about the feathers of the robin? Would any organism utilize those? What about bird droppings? Do they fertilize plants, carry seeds? Students must expand their thinking beyond "eat and be eaten."

■ The process of passing the ball of yarn continues until all the organisms have been included.

■ Important! Tell students that an organism may be chosen more than once! This will help them to see that the elimination of some organisms may cause subtle changes, while the elimination of others causes major and immediate changes. Be sure to have students announce what organism they represent and why they are passing the yarn to another particular organism representative.

Follow-up Dicussion
Pose the following questions:

■ What does it mean to be attached to so many organisms?

■ Why do some organisms have more than one connection?

■ What would happen if some of the organisms were to disappear, become extinct?

Ask one student at a time to tug gently but firmly on the yarn. Have them notice how many other students feel the tug. Tell students that if they feel a tug on the yarn, they should tug the yarn in return. Each additional tug should generate more tugs from the group until everyone is tugging on the yarn. This can be a bit rowdy, but the activity reinforces the concept that all organisms are interrelated.

Ask students if they think one of the organisms in the circle is less important than another. Have them select one, or a student can volunteer if he or she can justify the claim. Ask that student to drop the yarn and move back from the circle. Ask any student who was attached to that organism to drop the yarn and move back also. Eventually all of the students will have dropped their yarn and moved back.

Talk about the outcome of extinction. How does the elimination of one species affect the web of life? What if isolated populations such as the Florida key deer were eliminated by natural disaster? What about the red wolf? Does the red wolf risk extinction through natural disaster or disease or development or hybridization with coyotes?

Further Exploration
■ Ask students to interview a grandparent, another older relative, or an older person in the community. Ask this person if he or she remembers plants or animals that no longer exist in the area or which have declined in population so that they are rarely seen. Share these interviews.

■ **Reflective Writing:**
Ask students to write about a particular plant or animal they enjoy seeing in the world. This can be an essay or a first-person narrative in which the student tells about the experience of seeing an animal he or she had never seen before. Ask students to reflect about what would happen if this plant or animal ceased to exist. What would be the damage to the web of life? Would there be economic damage? Is there something in the human spirit that responds to the existence of other life?

"We owe it to the wolf to try one more time to work out a relationship that protects legitimate human interests while allowing living space for wolves. Further. . .we owe it to ourselves to try again to manage wolves wisely. . . .The true measure of the morality of a political society is how justly it treats its least powerful and popular citizens. In much the same sense, the ecological decency of a society can be measured by how it treats the most troublesome and notorious animal species. When our society proves it has learned to live with wolves, we can begin to like ourselves a little better. It will then be time to ponder how we can improve our relations with several hundred other species."

Steve Grooms

Jane Rohling

Designed for Hunting

Eyes

- Binocular vision
- Can see to hunt in darkness as well as in daylight

Ears

- Long ears that can detect the slightest of sounds
- Long ears help body get rid of heat in summer

Nose

- Sense of smell is strongest of all the senses
- Can smell prey from long distances

Mouth and Jaws

- 42 teeth
- Long canine teeth for piercing and gripping
- Incisors for nibbling and cleaning bones
- Carnaissials for shearing and cutting meat
- Powerful jaws for crushing bones

Feet and Legs

- Long slender legs enabling wolf to trot tirelessly for long distances or to sprint when chasing prey
- Elbows that turn inward so that feet track in a straight line underneath body
- Runs on toes for speed - review activity on plantigrade and digitigrade
- Large round feet for traveling on snow and mud
- Long flexible toes that spread out for gripping on rock

Did You Know. . .?

- Wolves don't "kill for the fun of it!" It's a hard enough job just to find enough to eat in order to survive.
- Wolves sometimes kill more than they can eat at one time. They may cache extra food, or they may leave it for scavengers to consume.
- Wolves must drink a lot of water because of their meat diet in order to digest their food.
- Wolves don't chew their food; they gulp it down in chunks. That's where the expression "wolfing your food" comes from.
- Wolves often go several days - sometimes a week or more - without eating. Life is truly "feast and famine."
- Wolves carry food to the den or the rendezvous site in their stomachs. They regurgitate food for the pups or for the nursing mother who cannot leave the den to hunt.

Working It Out: Divergent Viewpoints, Creative Solutions

The future of the red wolf in the wild remains uncertain. Although the recovery efforts in northeastern North Carolina have shown significant progress, two major challenges remain. The first is the potential for hybridization with coyotes. Data are being collected which demonstrate that some wild red wolves have indeed bred with coyotes in northeastern North Carolina. Much research remains to be done to determine the extent of this problem and to find solutions. The second challenge is to find additional habitat for red wolves. This is difficult for two reasons. First, there are no areas in the eastern United States that are coyote-free. Second, the human population is large, and road density is high. Also, the national parks and state forests are heavily utilized for recreational purposes. In addition, many people think that wolves will compete economically with human interests, principally farming and hunting. Lastly, a significant number of people are convinced that wolves pose a major danger to people.

Students need to examine a variety of perspectives about red wolf recovery and management. This Conflict Resolution Activity is designed to help students examine divergent points of view and find creative solutions. The issue of restoring the red wolf to some portions of its former range in the southeastern United States is controversial and often volatile. Summit predators like wolves are at the heart of a broader issue, which is, in a word, wilderness. How much wilderness is enough? How do we preserve our remaining wilderness areas? How can we best be stewards of the earth? The issue of wolf restoration forces us as humans to scrutinize our wants and needs. It forces us to look at ways to achieve compromise and to examine what is really important, both for ourselves and for the generations that follow.

Preparation

1. Have students work in groups writing definitions for the following terms. Have them write their own definitions before they look the words up in the dictionary.

conflict	**compromise**	**stakeholder**
	wants / needs (What is the difference?)	
negotiate	**perspective**	**solution**

2. Practice finding a solution to an issue using "management skills." For instance, give students a situation to which they can relate. The controversy over backpacks in the classroom would work! Have groups role-play five people with different perspectives on students carrying large backpacks to class. See if they can find a compromise.

Parent:
Having everything in a large backpack makes it easier for my child to stay organized.

Principal:
We have fewer kids returning to lockers during class time if they have everything in one backpack.

Teacher:
Backpacks are dangerous in classrooms. Students trip over them. In addition, it takes too much time for kids to find what they need, and they start packing up before class is over.

School Nurse:
Backpacks are a strain on shoulders, and they are bad for posture. We are treating bruises caused by students bumping one another in the crowded halls with heavy backpacks.

Student:
I get to class on time if I have everything in a backpack. If I don't have to go to my locker between classes, I have time to visit with my friends.

3. Have students write a narrative about a time when they had a conflict with another person or group of people. Have them focus on the following: Was the conflict resolved? Did someone "win" and someone "lose?" Were you happy about the outcome? Did you have to give anything up?

4. Have students compare the conflicts that were resolved with the ones that were not. What was the difference?

5. Have students make a list of the ingredients for conflict resolution.

SPECIAL ISSUE
RED WOLF
RECOVERY

History in Brief

Red wolf recognized as distinct species ***1905***

Red wolf listed as endangered species ***1967***

Endangered Species Act becomes law ***1973***

Last red wolves removed from wild. Red wolf declared extinct in wild ***1980***

14 captured animals become nucleus of Captive Breeding Program to save the red wolf from extinction ***1980-1985***

*Reintroduction begins with release of red wolves into ARNWR** ***1987***

*First pups born in wild at ARNWR** ***1988***

*Reintroduction into GSMNP** ***1991***

First release into PLNWR in northeastern North Carolina* ***1993***

Red wolf recovery effects terminated in GSMNP in* ***1998***

The Southeast Chronicle

Volume 1, Number 1

Debate Over Red Wolf Recovery Begins

Plans are underway to investigate the possibility of restoring red wolves to the High Pines State Park. A recent feasibility study conducted by a team of biologists reveals that the High Pines area will support a sustained population of approximately 40 red wolves.

Several factors were studied by the biologists whose findings have been published and released to the public. Prey base was the first criterion examined. Biologists determined that the High Pines has sufficient numbers of small mammals and deer needed to sustain red wolves. Secondly, road density is low. The park is accessible to hikers and to back country campers. Some logging roads are maintained for private timber companies holding leases to log specific areas. Permanent human population is low, although there is some private property within the perimeter of the park. There are no towns or villages within the park, although there are a number of vacation cottages. In addition, two ski resorts operate during the winter season, and three year-round lodges host hikers, hunters, sightseers, and men and women who fish the mountain streams.

The unspoiled wild area of High Pines State Park is the center of controversy over the proposed reintroduction of red wolves.

High Pines State Park is ringed with several small towns and a number of sheep and dairy farms.

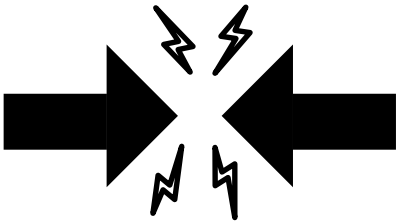
A poll of residents living in and near High Pines State Park indicates a division of opinion over red wolf reintroduction. A Citizens Roundtable has been convened.

Community in Conflict

Findings from the recent feasibility study involving the proposed reintroduction of red wolves to the High Pines State Park were greeted with mixed reactions by a Citizens Roundtable held in the town of Clear Creek. A representative of each of several perspectives on the issue of red wolf recovery spoke. Some groups strongly advocate the return of the red wolf to this portion of its former range; others, however, voiced firm opposition. Some stakeholders were undecided. Each of the perspectives will be presented by the representative stakeholders at the next Roundtable session where a compromise plan will be drafted.

***ARNWR - Alligator River National Wildlife Refuge**
***GSMNP - Great Smoky Mountains National Park**
***PLNWR - Pocosin Lakes National Wildlife Refuge**

Can the Conflict be Resolved?



Resolving Conflict

The newspaper article shows how wolves and humans can clash when their needs conflict. Some of the basic needs in this news story include having enough food, having a place to live and protecting what belongs to you. The challenge lies in finding ways in which all stakeholders can meet their needs and wants and still live in harmony with one another. To do this, all parties must assess their needs and wants. Are they reasonable? Are they destructive or harmful to the well-being of others? Remember! NEEDS are things that one requires in order to survive. WANTS, on the other hand, are things that would be nice to have but that are not necessary in order to survive.

Stakeholders

A stakeholder is a person or a group who has a strong concern about a particular issue. Stakeholders often have a "vested interest" in an issue; that is, they expect some private benefit from the resolution of the issue in their favor. In the past, many stakeholders have been successful at getting their personal wants and needs met, but often at the expense of wildlife and habitat. The current goal in protecting and preserving habitats and the wildlife native to those areas is for all stakeholders to work cooperatively to achieve a plan that works for everyone. Red wolf recovery is a controversial issue. That is, it arouses strong feeling and opinions from a variety of individuals and groups. Before you read the stakeholders' perspectives on the following page, try this! Working with a small group, list all the stakeholders you can think of - people and groups who are in some way affected by having the red wolf, a top predator, reintroduced to a portion of its former range.

The article in the Southeast Chronicle states that a study has revealed that it is feasible to reintroduce red wolves to High Pines State Park. Feasible means "capable of being accomplished." Now a Citizens Advisory Committee is being organized to discuss whether or not such a plan would be beneficial to the region and to the citizens who live in the area close to the reintroduction site. Who are these stakeholders and what are there perspectives? How many can you list? Use a separate sheet of paper if you wish.

Stakeholders	Perspective (Point of View)
1.	
2.	
3.	
4.	
5.	
6.	

Stakeholders and Perspectives

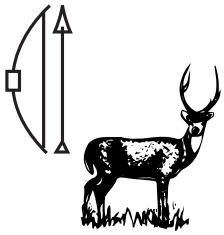
Persons or groups with a vested interest in an issue

Points of view - ways of looking at issues

The stakeholders are affected both by the problem and by the solution.

Note to teachers: For the conflict resolution activities that follow, these "stakeholder cards" can be photocopied and cut so that students can "draw" a card rather than simply selecting one with a point of view they find compatible with their own!

Hunter

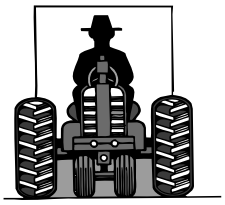


This has always been a hunting community. The local people enjoy hunting deer and small game, and we use the meat to feed ourselves and our families. Most of us are not trophy hunters, and we don't get many folks from outside the area who need guides. I am worried that red wolves will deplete the supply of game. Sure, we have a lot of deer around here, but sometimes, if we get a bad winter, the white-tail have a hard time of it. I am also concerned that if red wolves are reintroduced, there will be pressure to stop hunting altogether. Money from hunting licenses is a source of income for the state, and some of that money is used to protect wildlife and habitat. Hunting is a way of life around here. Hunters want to be sure that deer and small game are not stressed by a top predator like the red wolf.

Red Wolf Biologist

So little is known about red wolves in the wild. Few studies were done, and red wolves were almost extinct before field research could be done and data collected. Red wolves are shy and elusive, and it is hard to do observations of their behavior in the wild. The Captive Management Program taught us a lot, but we still have much to learn about this beautiful and tenacious animal. The radio-collared wolves in the restoration area have taught us a lot about how the red wolf lives and hunts and about its pack structure. We are deeply concerned about the potential for the red wolves breeding with resident coyotes. This is a problem for which we are seeking solutions. Coyotes are an exotic species here; they are not native to North Carolina. Red wolves are. High Pines State Park is one of the few areas that has very few coyotes, thus making it an ideal recovery site.

Farmer



I have a herd of dairy cattle. My neighbor raises beef cattle and sheep. Our income depends on our livestock. If red wolves live around here and start killing our cattle and sheep, we will lose money. We aren't rich, and we can't afford to lose livestock. We have enough trouble with coyotes around here as it is. But at least it's not against the law to shoot a coyote. But red wolves are endangered. I could go to jail or have to pay a big fine if I kill a red wolf. Maybe both. I don't have anything against wolves or any other wild animal. But something has to be done to make sure my interests are protected if wolves are restored to this area. I just barely get by some years as it is, and red wolves would just add to my list of worries.

Resort Owner

I depend on visitors to the High Pines State Park. The park attracts hikers, river runners, and hunters. Families come because of the recreational opportunities in the park. I admit I have a few concerns about public safety. We don't have to worry much about bears around here except when people ignore common sense and leave food around. We have heard that red wolves are shy and stay away from people. But what if they lose their fear of humans? Could there be problems? Would people try to attract them with food so they could see them and take pictures? The whole idea of having red wolves in this area kind of intrigues me, but some plan would have to be worked out so the public would accept them but so they wouldn't try to get them to hang around campsites like dogs. Red wolves might actually be good for business because we could sell mugs and t-shirts in our gift shop. We could even help with an education program if someone would sponsor one.

Animal Rights Activist

Animals have as much right to live as humans do. It is wrong for humans to kill animals for their own purposes and to replace their habitats with shopping malls, subdivisions, and roads. Red wolves are a prime example of how humans can destroy an entire species. Red wolves were rescued only after having been pushed to the brink of extinction by humans. The future of this animal is still in jeopardy. It is time for us humans to reconsider our place in the scheme of life on earth. In the case of red wolves, humans should find ways to coexist with these magnificent predators. No animal except man has ever caused the artificial extinction of hundreds of species by exploiting plants and animals and their habitats. It is time to halt this destructive process and, as Thoreau and others suggested, to work out some relation to wildness.

The Red Wolf

"*I am a hunter's hunter, my track a sign of hope, its absence a warning,*" (Christopher Camuto). I was here long before settlers came from across the seas. I am Wa'ya to the Cherokee, principal clan animal to the Ani'-Wa'ya, the Wolf people. I am a provider, a loyal mate, a devoted parent. I am responsible for my pups and for making sure they know how to hunt in order to survive. I am a carnivore. I depend on deer and small mammals to live. We red wolves have evolved over thousands of years with our prey. We have to kill to live. We have no other food source. Successful hunting is hard and dangerous. We have never caused the extinction of another species. We are blamed for declines in prey populations, but that is an unfair accusation. We would never cause our own extinction by eliminating our food source. Every healthy ecosystem needs summit predators. Our role is vital.

The Local Resident

Many of us have lived in this area for generations. We don't farm,but we own small businesses. Many of us see no reason to reintroduce an animal that has not lived here for many years. We worry that an endangered species means property restrictions. What if a red wolf pack takes up residence on the twenty acres I own in the park? Could I build a cabin if a wolf pack has a den there? It is against the law to kill an endangered animal. But what if I need to protect my children and pets? I am not clear on how the law works in that case. I don't hate wolves, and I don't believe that fairy tale stuff. But I don't think red wolves belong here. They belong in an area where there are fewer people. What if wolves lose their fear of people because they are protected? Would little kids be in danger? How would their numbers be controlled?

Environmentalist Naturalist

Top predators are essential to a healthy ecosystem. Red wolves play an important role in a well-balanced ecosystem. Too many ungulates such as white-tailed deer cause extensive damage to vegetation, and even with the hunting season, some hard winters, and natural mortality, their numbers are increasing. We need red wolves for the natural control of the deer and to ensure that the strongest and healthiest animals survive to breed. Red wolves generally do not kill livestock as long as their natural prey is plentiful. Coyotes sometimes kill livestock, and although coyotes are surprisingly scarce in this area, their numbers could increase in the absence of a top predator. One reason we are considering High Pines for red wolf recovery is the absence of large numbers of coyotes. This factor could help red wolves recover in the wild without the danger of being hybridized out of existence. Here is a chance for humans to do something positive to help an endangered animal!

Visitor Hiker Camper

I live in the city, but my family and I come here every year to enjoy the outdoors. We want our children to experience nature and wildlife, and that includes hearing red wolves howl and finding tracks - maybe even seeing them. We hear conflicting information about whether or not red wolves could be dangerous to humans. We need accurate information. We plan to teach our children responsible behavior toward all wildlife. We don't want a situation like we sometimes have with bears where they have to be destroyed because they become nuisances around campsites when people leave food around. We would hate to see the same thing happen with wolves. We need to work on public education.

Wildlife Management Officials

Everyone wants wild areas and wildlife for some personal or economic reason. We are trying to find a balance here between the demands for recreation, solitude, wildlife habitat, and jobs. The truth is, there is something for everyone - including the red wolf. What needs to happen is for everyone to compromise. People can't just be out for themselves and their personal interests any longer. We have to look at the big picture together, and maybe we will all have to adjust our thinking about what's important. Maybe farmers can re-think their livestock-raising practices. Maybe hunters will see the health of the deer herds improve with a top predator around. Maybe hikers can hear the howl of a wolf. Maybe, just maybe, we will ALL benefit from the return of the red wolf.

Resolving Conflict - Finding Balance

The following Conflict Resolution Activity will take several class sessions depending on the length of your class periods.

The article in The Southeast Chronicle and the perspectives of the stakeholders show how complicated the issue of red wolf recovery can be. Each stakeholder needs food, shelter, and a means of protecting what is valuable to him or her. Each stakeholder has wants as well - things that are not necessary for survival but that are nice to have.

The questions and the challenge!

Can the issue of red wolf recovery in this area be resolved? If you think it can, then how? The challenge will be to work out ways that all the stakeholders can meet their needs and wants and live together in harmony. In order for a plan to be successful, two things must happen:

1. Each stakeholder must assess needs and wants carefully and be sure they are REASONABLE.

2. Each stakeholder must assess needs and wants carefully and be sure they are not harmful or destructive to the well being of others.

What to do!

1. Divide the class into groups of three or four students depending on the size of the class.

2. Photocopy the perspective cards. You may want to be the alpha wolf and present the red wolf's perspective. Each group may draw a perspective card, or you may assign a stakeholder perspective to each group. This will encourage each student to examine and to defend a point of view which he or she may not have previously considered or which he or she might not personally support.

3. Each group should have a copy of the Group Solution pages that follow. They should be prepared to share all work with the rest of the class. You will come together to negotiate a solution to the proposed recovery of the red wolf to High Pines State Park.

Elise McCauley Hammond

1

Compromises and Creative Solutions

Look at your perspective card. Write the name of your stakeholder on the line.

Name of stakeholder_____

Your first task is to list the needs and the wants of your stakeholder. Read the perspective card carefully. It will help you, but you should also include your own ideas! Stop and check to be sure that the needs are reasonable and are not harmful or destructive to others.

	Needs	Wants
1.		
2.		
3.		
4.		

Stop! Check!

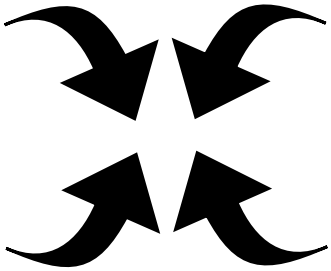
☐ My needs and wants are reasonable and

☐ are not harmful or destructive to others.

Solution

With your group members, write a DRAFT solution to the issue of red wolf recovery in High Pines State Park using compromise and consensus. Your draft solution should be in line with the reasonable needs and wants you have listed above. Use a separate sheet of paper if you wish.

Compromise
Consensus



Roundtable 2

Step 1
If possible, arrange the desks or tables so the entire class can sit in a big circle. This way, each member can listen carefully to each stakeholder and ask questions if necessary for clarification. Members of the roundtable should take NOTES on notebook paper as each stakeholder speaks. Each group will select a spokesperson to speak for the stakeholder the group represents. When you speak:

1. ANNOUNCE the name of the stakeholder you represent. PAUSE to let the members of the roundtable write it down.

2. READ slowly and carefully your list of needs and wants. Pause to let roundtable members take notes. Speak slowly and clearly.

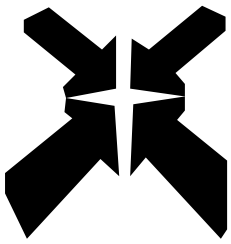
3. READ aloud your stakeholder's solution. Read slowly and carefully, pausing to look at the members of the roundtable. This is a good place to practice your public speaking skills.

4. When you have finished, ask if there are any questions or if you need to repeat anything you have said.

Step 2
Each stakeholder group will meet again. This time your task will be to work on a compromise. You have listened to the other stakeholders. You have notes recording their needs and wants and their respective Draft solutions. You should now be prepared to assess your own needs and wants. What must you retain? What can you give up? What needs and wants can you compromise so that a solution can be reached and so that other stakeholders' needs and wants can be met as well as your own? Remember teamwork, communication, decision, and balance. Use a separate sheet of paper if you wish. List the compromises.

Compromises

Teamwork
Communication
Decision
Balance



Revised Group Solution To The Red Wolf Recovery Proposal

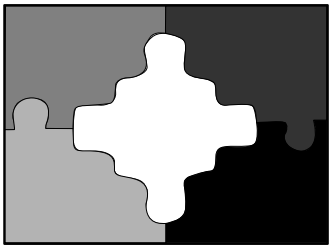
3

Now that each stakeholder as spoken and you have made your list of compromises, write your group Solution to the red wolf recovery proposal. Be prepared to negotiate in the final round-table session so that the plan can be finalized and voted upon.

Revised Group Solution Red Wolf Recovery Proposal

Stakeholder

Proposal
Strategy
Progress
Success



4 Final Roundtable Proposal

The entire roundtable (whole class) will reconvene. A spokesperson for each stakeholder will present the final proposal made by the group. As the speaker for the stakeholder group presents the solution to the roundtable, he or she should note the COMPROMISES made by the stakeholder group.

As each Stakeholder group presents the group's proposals for a solution to the red wolf recovery issue, the teacher will write the proposals on a large sheet of tagboard or on the chalkboard. The list of proposals should then be revised so that each proposal is clearly stated and is not repeated. It would be a good idea at this point for a student volunteer to type the proposal list and to provide a place for a "Yes" or "No" vote. Another idea would be to have students vote on the entire list of proposals - either the entire plan is accepted or it is rejected. Teachers can base their decision on the age of their students and on the amount of time and preparation spent with this activity.

What I Learned

NEGOTIATION and COMPROMISE are not easy processes. They are, however, necessary. Each of you is to write a paragraph stating what you achieved through this process. Remember the steps: performance, achievement and solution. What skills have you learned? What realizations have you come to? When you have finished, the class may want to compile a list of what has been learned and achieved.

Performance
Achievement
Solution

Who's Afraid of the Cool Red Wolf?

An adjective is a word that is used to describe a noun or a pronoun. These words describe the red wolf. Can you find them?

endangered	carnivorous	smart	social
shy	predatory	strong	mysterious

v	n	e	k	w	c	p	g	m	n	d
k	f	n	b	j	y	p	q	y	m	s
k	v	d	r	h	b	r	o	s	g	t
s	m	a	r	t	e	e	i	t	u	r
y	i	n	o	s	a	d	r	e	a	o
f	e	g	d	o	p	a	t	r	e	n
k	p	e	v	c	i	t	e	i	s	g
c	a	r	n	i	v	o	r	o	u	s
r	p	e	a	a	q	r	d	u	k	h
m	t	d	y	l	h	y	d	s	x	y

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ANSWERS!

v	n	e	k	w	c	p	g	m	n	d
k	f	n	b	j	y	p	q	y	m	s
k	v	d	r	h	b	r	o	s	g	t
s	m	a	r	t	e	e	i	t	u	r
y	i	n	o	s	a	d	r	e	a	o
f	e	g	d	o	p	a	t	r	e	n
k	p	e	v	c	i	t	e	i	s	g
c	a	r	n	i	v	o	r	o	u	s
r	p	e	a	a	q	r	d	u	k	h
m	t	d	y	l	h	y	d	s	x	y

WORD STALK

C	A	C	H	E	M	Y	T	H	E
A	P	D	O	L	P	R	E	Y	N
N	U	A	W	K	P	A	W	U	D
I	P	T	L	H	U	N	T	P	A
S	C	A	V	E	N	G	E	R	N
R	F	D	E	E	R	E	S	A	G
U	U	E	X	T	I	N	C	T	E
F	P	R	E	D	A	T	O	R	R
U	N	G	U	L	A	T	E	M	E
S	W	I	L	D	L	I	F	E	D

Special Challenge!
Find the words without looking at the list! Can you do it?

Canis rufus	wildlife	predator	data	hunt
cache	ungulate	endangered	myth	extinct
pup	deer	howl	scavenger	
prey	paw	range	ESA (Endangered Species Act)	

ANSWERS

WORD STALK

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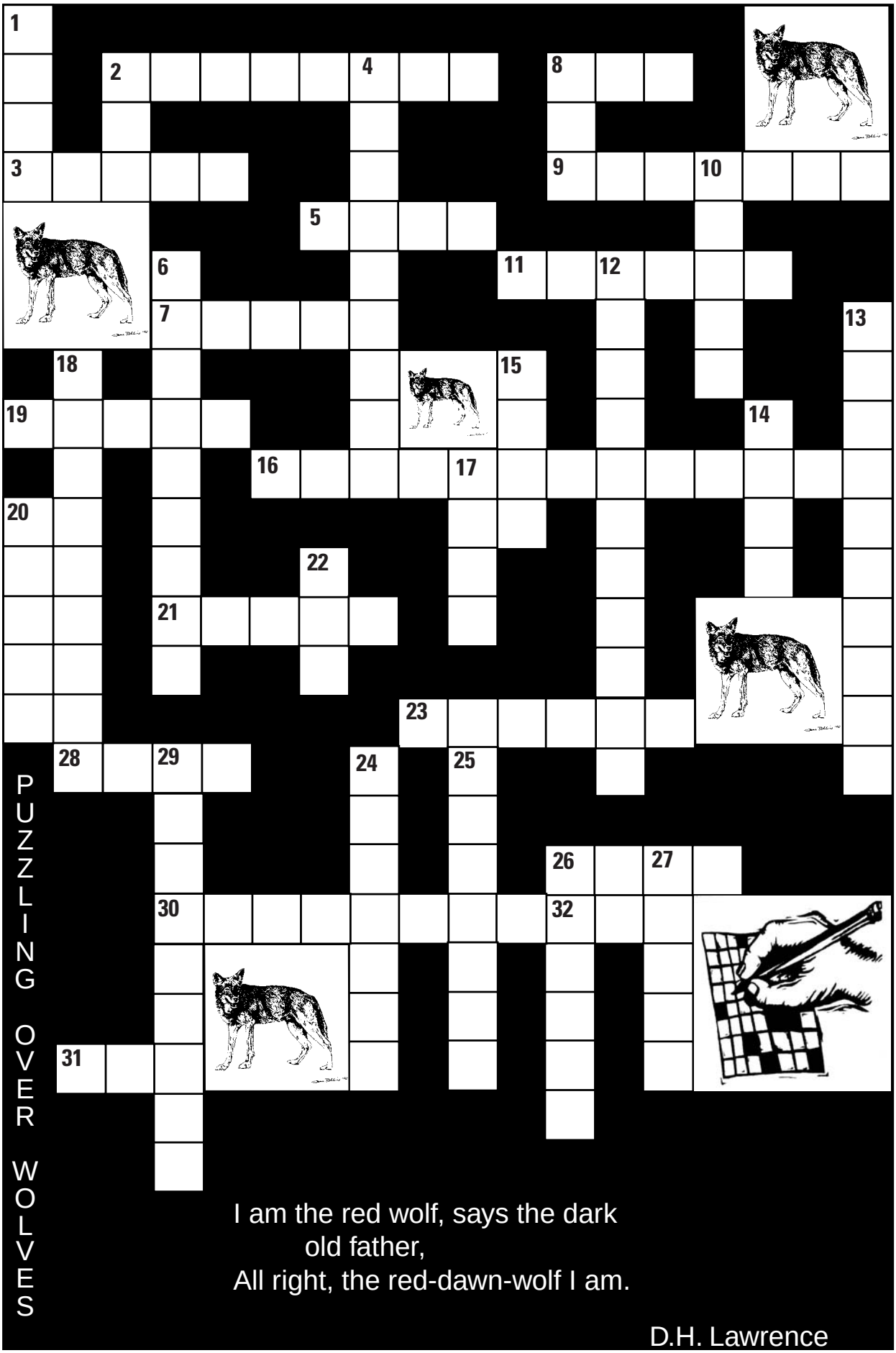

PUZZLING OVER WOLVES
I am the red wolf, says the dark
old father,
All right, the red-dawn-wolf I am.
D.H. Lawrence

Clues!

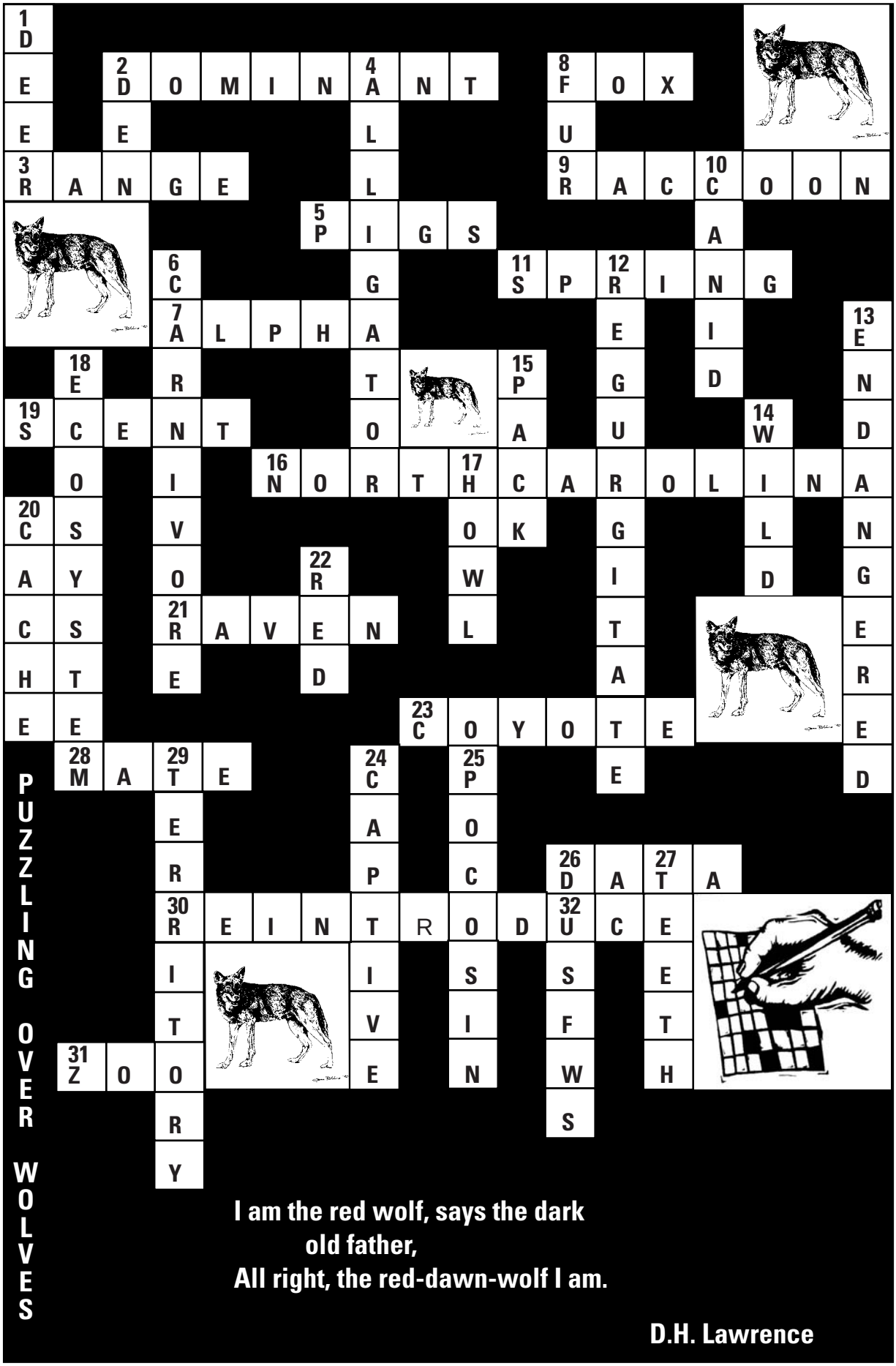
Puzzling Over Wolves

Across

2. a behavior demonstrating high rank
3. area where an animal normally lives
5. big bad wolf blew their house down
7. highest ranking wolf
8. small wild Canid - also red and gray!
9. a masked prey animal of the red wolf
11. pups are born in this season
16. This state could be nicknamed "The Red Wolf State!"
19. The red wolf uses this to locate prey.
21. black scavenger with feathers
23. smaller non-native wild canid in North Carolina
26. information collected by scientists from which hypotheses and conclusions are drawn
28. one of the individuals in a breeding pair
30. strategy for restoring wolves to portions of their former range
31. facility for captive management

Down

1. ungulate prey
2. where pups are born
4. "River" where red wolves were reintroduced!
6. meat eater
8. protective coat
10. family of wolves, dogs, foxes and coyotes
12. method of feeding growing pups!
13. near extinction
14. not tamed or domesticated
15. wolf family
17. wolf song
18. area defined by links and relationships of organisms that live there
20. to hide food for later use
22. color of "Far Traveler"
24. breeding program to ensure survival of critically endangered species
25. "Lakes" home to red wolves
27. canines, carnaissials and incisors!
29. protected and defended against intruders
32. government agency responsible for wildlife and endangered species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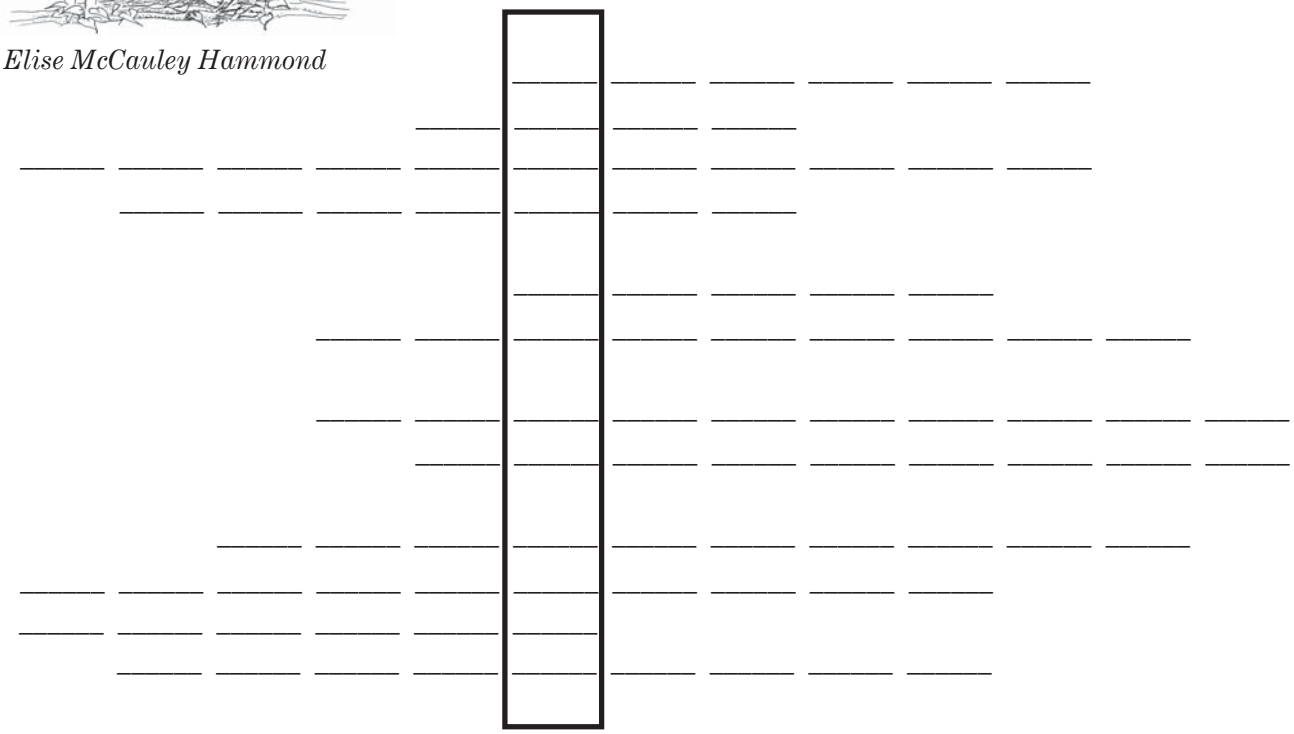
Elise McCauley Hammond

Dispersers and the Pack

The "box" is the pack's territory. The red wolf pack is inside the territory! The “dispersers” are the lines outside the territory. Find the name of the pack by placing a letter on each line as you answer the questions.



Here are the "scent marks" that will allow you to identify the pack's territory!

1. a payment for removing certain species of animals, such as wolves,that are considered "harmful"
2. the voice of the wolf; a major means of wolf communication
3. to bring animals back to a portion of their former range
4. no longer in existence; no longer living on earth
5. the paw print of an animal
6. a natural area defined by its physical characteristics and by the links and relationships between the plants and animals that live there
7. the act of acknowledging another wolf's higher rank
8. the area where a wolf pack lives and hunts
9. the area between wolf territories not occupied by a resident pack
10. the scientific name for the red wolf
11. a canid predator that often comes to feed on wolf kills
12. an animal that eats other animals it did not kill but that have died from other causes

Dispersers and the Pack Answers

The "box" is the pack's territory. The red wolf pack is inside the territory! The "dispersers" are the lines outside the territory. Find the name of the pack by placing a letter on each line as you

Jane Rohling

	B	O U N T Y
H	O	W L
R E I N T	R	O D U C E
E X T I	N	C T
	T	R A C K
E C	O	S Y S T E M
S U	B	M I S S I O N
T	E	R R I T O R Y
B U F	F	E R Z O N E
C A N I S	R	U F U S
C O Y O T	E	
S C A V	E	N G E R

answer the questions

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WOLF AND PREY WORD HUNT

You are the red wolf! The words are the prey!

g	e	s	t	a	t	i	o	n	r	z	i	l	d	n	r
c	p	a	w	l	v	w	e	a	n	o	x	q	e	e	e
a	d	i	s	p	e	r	s	e	u	j	t	c	n	b	i
c	o	v	c	h	i	e	r	a	r	c	h	y	s	t	n
h	m	i	e	a	e	n	d	i	e	s	q	o	c	z	t
e	i	k	n	p	g	x	t	j	g	v	i	c	a	c	r
r	n	d	t	a	x	b	a	i	u	q	u	a	v	l	o
e	a	h	m	i	l	k	t	e	e	t	h	b	l	u	d
g	n	u	a	r	a	i	j	e	t	p	d	c	s	c	u
u	t	n	r	e	s	i	d	e	n	t	p	a	c	k	c
r	t	t	k	t	e	r	r	i	t	o	r	y	p	v	t
g	c	a	r	n	i	v	o	r	e	l	u	z	q	j	i
i	l	s	u	b	o	r	d	i	n	a	t	e	k	p	o
t	b	u	f	f	e	r	z	o	n	e	t	r	x	k	n
a	t	a	s	c	a	v	e	n	g	e	r	p	t	c	n
t	l	p	p	r	e	d	a	t	o	r	s	e	d	e	e
e	r	e	n	d	e	z	v	o	u	s	s	i	t	e	i

WORDS

paw	resident pack	territory	gestation	hierarchy
den	milk teeth	scent mark	subordinate	dominant
wean	rendezvous site	buffer zone	carnivore	alpha pair
cache	regurgitate	scavenger	reintroduction	predator

WOLF AND PREY WORD HUNT

Answers- You are the red wolf! The words are the prey!

g	e	s	t	a	t	i	o	n	r	z	i	l	d	n	r
c	p	a	w	l	v	w	e	a	n	o	x	q	e	e	e
a	d	i	s	p	e	r	s	e	u	j	t	c	n	b	i
c	o	v	c	h	i	e	r	a	r	c	h	y	s	t	n
h	m	i	e	a	e	n	d	i	e	s	q	o	c	z	t
e	i	k	n	p	g	x	t	j	g	v	i	c	a	c	r
r	n	d	t	a	x	b	a	i	u	q	u	a	v	l	o
e	a	h	m	i	l	k	t	e	e	t	h	b	l	u	d
g	n	u	a	r	a	i	j	e	t	p	d	c	s	c	u
u	t	n	r	e	s	i	d	e	n	t	p	a	c	k	c
r	t	t	k	t	e	r	r	i	t	o	r	y	p	v	t
g	c	a	r	n	i	v	o	r	e	l	u	z	q	j	i
i	l	s	u	b	o	r	d	i	n	a	t	e	k	p	o
t	b	u	f	f	e	r	z	o	n	e	t	r	x	k	n
a	t	a	s	c	a	v	e	n	g	e	r	p	t	c	n
t	l	p	p	r	e	d	a	t	o	r	s	e	d	e	e
e	r	e	n	d	e	z	v	o	u	s	s	i	t	e	i

WORDS

paw	resident pack	territory	gestation	hierarchy
den	milk teeth	scent mark	subordinate	dominant
wean	rendezvous site	buffer zone	carnivore	alpha pair
cache	regurgitate	scavenger	reintroduction	predator

Glossary of Wolf Words

Look for ACTIVITY suggestions in the text boxes

■ Active Submission
When one animal actively or intentionally acknowledges another pack member's higher status (as opposed to being forced to submit by a higher-ranking individual). The wolf does this by wagging its tail rapidly in a low position and by flattening its ears and placing its body at a lower level than the higher-ranking wolf.

Observe your dog's behavior when it is greeting you or when it is begging for food or when you have scolded it for raiding the trash can. If the dog accepts you as having the "higher status", what does it do? Watch the dog's body language carefully and record your observations.

■ adaptation
A change in an animal's behavior or body that allows it to better live in its surroundings. Some adaptations in wolves include having large feet with toes that spread out. The wolf's feet and legs are marvelous examples of adaptations which enable the animal to travel long distances. The red wolf's long ears help it to regulate its body temperature in the extreme summer heat of its southeastern habitat.

■ agonistic pucker
The horizontal contraction of the lips showing aggression.

Observe a dog warning another dog to stay away. What does the dog do? Record all observations. What does the fur or hair between the shoulders do? What about the dog's eyes? Its lips and teeth? What sounds does it make?

■ alpha
Term historically used to refer to the highest-ranking male and female in a wolf pack. However, since a wolf pack is a family with the parents in charge, most biologists have replaced the terms "alpha" male and "alpha" female with the terms "breeding male" and "breeding female." Most often, these wolves are the sole breeders in a famly, although here are exceptions. Wolves produce one litter of pups a year. The parents reinforce their authority by body posture (hey carry their tails high, and they "stand tall), facial expressions (direct stares, retraction of the lips, ears forward) and by ritualistically discipling other adult members of the family and the pups of the current year. Although wolves defend their territories against neighbording packs adn single wolves, real aggression among family members is rare.

■ behavior
What an animal does; its reactions or actions under specific conditions.

Once you learn about wolf behavior, your teacher can suggest several activities in which you can observe a dog's behavior under specific conditions and compare these behaviors to a wolf. One example is communication. Wolves communicate through vocalizations, body posture, and facial expressions.

■ Big game (large game)
Term used to designate larger species that are hunted by humans. Examples are bear, moose, deer, elk, caribou, and bighorn sheep. SMALL GAME includes squirrels, rabbits, and game birds such a pheasant and grouse. NON-GAME animals include songbirds and birds of prey.

Hunting is a controversial issue. There are several ways you can research different points of view on this subect. After you have examined these viewpoints, you can come to a conclusion of your own and share it in writing and discussion. Think about why people hunt. Is there a difference between substistence hunting and recreational hunting? How does the issue of humans-as-hunters impact red wolf recovery? Do all hunters oppose the reintroduction of wolves? Do some research on that one! You may be surprised!

■ biological diversity (biodiversity)
The variety of insects, fish, animals, plants and other living things that share ur planet. The esential interdependence of all living things.

Some Native Americans make a distinction between "interdependence" and "interrelatedness." They believe that not only are living things dependent upon one another, but that they are related to one another as well. The also believe that this link to one another, this bond, is not a burden but a blessing for which we should be grateful. React in your writing logs to this idea. Think about the ways you can encourage biodiversity. Be creative with this! You can make posters! If you have computers available, you could create a slide show.

■ **biologist**
A person who studies living organisms, life processes, and/or the animal or plant life of a particular place. Biologists also study the relationship of living things to one another.

Are you having a career unit? Interview a biologist! Maybe you could invite a wildlife biologist to talk to the class.

■ **bounty**
A payment or other reward for removing certain species of animals designated as harmful. In the past, bounties were paid to people who killed wolves, thus helping to extirpate them from most of the lower 48 states.

For you researchers: Are bounties still paid on wolves in some parts of the world? If so, where?

■ **breed**
To reproduce; to produce offspring. Many wolf offspring (pups) never reach maturity because they die of starvation or disease or they are killed by other predators.

■ **buffer zone**
An area between wolf pack territories that are not occupied by established packs. Prey species often flourish in these buffer zones. Wolves that have dispersed and who are alone often find relative safety and food in buffer zones with less risk of being attacked and killed by members of established packs. Buffer zones are not necessarily neutral areas. These zones are contested by resident packs, and supremacy shifts back and forth.

■ **cache**
A hiding place used for storing food if there is an abundance of meat.

■ **canids**
The family of mammals that includes dogs, wolves, coyotes, and foxes.

■ **canines**
The sharp pointed teeth (fangs) that carnivores use to pierce and tear the flesh of their prey. The canine teeth of a wolf may be as long as 1 1/2 inches!

Examine the teeth of a friendly dog. How are they similar to a wolf's teeth (see the activity "Picking Teeth"). What about your teeth? How are they adapted to what you eat?

■ ***Canis lupus***
The scientific name for the gray wolf.

■ ***Canis lupus familiaris***
The scientific name for the domestic dog.

■ ***Canis rufus***
The scientific name for the red wolf.

Dogs and wolves are nearly genetically identical. Some scientists believe, therefore, that they both should have the same scientific name — Canis lupus. Others disagree, arguing that although a dog and a wolf are genetically identical, a wolf is not a dog and a dog is not a wolf. What's YOUR opinion?

■ captive management
Breeding animals in such places as zoos. Captive breeding is a tool used to save critically endangered species such as the red wolf and the Mexican wolf. These captive populations are often used for reintroduction of wolves to portions of their former range.

■ carnivore
An animal that eats meat as its main source of food. (Note: Carnivores like the red wolf will occasionally supplement their diets with plant matter such as fruit. Meat, however, is the main staple of the red wolf's diet. It could not survive on plant matter. Without meat, the red wolf would starve.)

The word carnivore is a noun. The word carnivorous is an adjective. How many carnivorous animals can you name? Work in small groups. See who can compile the longest list in 5 minutes. Review the terms omnivore (omniverous) and herbivore (herbivorous). How many omnivores can you name? How many herbivores?

■ carrion
Dead and decaying animal flesh. Not "fresh" meat. Wolves will eat carrion if no fresh meat is available. Scavengers depend on carrion for survival.

■ carrying capacity
The total number of animals that a given area of a habitat will support at any given time; the ability of a given area to supply water, food and shelter to an animal.

■ class
Part of the classification system scientists use to help identify plants and animals. Wolves and humans are in the class Mammalia.

■ conservation
Preservation of natural resources from loss, waste, or harm. The wise and intelligent use of natural resouces so they will be available for future generations.

Have you begun to form an opinion about the conservation of top predators like wolves, grizzlies and mountain lions? What are the advantages? What are the difficulties?

■ consumer
In an ecosystem, this is an organism that feeds on other organisms. An herbivore is a primary consumer because it gets it food directly from plants. Carnivores are secondary consumers because they get their nutrition from eating herbivores!

Here is something to discuss! Which has an easier time finding food - an herbivore or a carnivore? Does that depend on certain circumstances? What? Make a list of which animals are primary consumers and which are secondary consumers. What about a rabbit? A fox? A wolf? A mountain goat? How about you?

■ courtship
The behaviors animals use to attract a mate. The bond between a mated pair of wolves is very strong. In many cases, wolves remain together year after year, raising their pups and staying steadfastly loyal to one another. The wolf pack is a family, and that family attempts to remain intact. The wolf pack is, in fact, an example of how coordinated teamwork, sharing of responsibilities, and taking time for fun and play is good for all family members. The number one priority in the wolf family is the pups. Parenting is the most important job, and all of the adults put the protection and the education of the youngsters first.

What comparisons can you find between the wolf family and the human family?

■ data
Factual information used as a basis for reasoning, discussion or calculation.

■ delisting
Removing a plant or animal from the endangered species list when it is no longer in danger of extinction.

■ den
The shelter wolves use to give birth and raise their pups. A den is often a hole dug in the ground by the mother. Sometimes, especially in warmer climates such as the southeastern United States where the red wolf lives, the den is a shallow hole or a hollowed-out place under fallen trees. Since newborn pups cannot regulate their body temperature, the mother remains with them constantly. For this reason, dens are usually located near water since a nursing mother needs plenty of water to drink.

■ depredation
Refers to the damage done by wildlife to people's crops and animals. Livestock depredation by wolves means the killing of domestic animals raised for food.

■ digitigrade
Walking so that the toes touch the ground and the heel is raised. Animals that use this form of locomotion include wolves, deer, horses, and cats.

■ disperser
A wolf that leaves the pack and strikes out on its own. Some of these "lone wolves" have no social territory, and they live on the fringes of established packs or in the areas where serveral territories come together. Their solo status makes them more vulnerable to attack by other wolves and to malnutrition. Some dispersers are subordinates who leave when food becomes scarce. Some dispersers are seeking a mate and unoccupied territory. These wolves will travel sometimes hundreds of miles from where they were born. Males and females will sometimes meet and form new packs if they find an unoccupied area with sufficient prey.

One of the challenges of red wolf recovery in the Southeast is the potential for dispersing red wolves breeding with coyotes. When red wolves were at the edge of extinction, the few that remained in the wild along the Texas and Louisiana coast had hybridized with coyotes in a phenomenon known as "hybrid swarm." One of the difficulties encountered in the Captive Breeding Program was finding enough pure red wolves to ensure the survival of the species. Since there are coyotes almost everywhere in the Southeast, how can we prevent interbreeding of red wolves and coyotes? Are there any coyote-free areas where red wolves could be reintroduced? Can you help find the answers to these questions?

■ domesticated
Refers to animals that people have tamed, kept in captivity and used for special purposes for many generations. Domestic animals have lived among people long enough to have adapted to humans and to human environments.

Look up the word TAME in the glossary. Many people use "domestic" and "tame" interchangeably. They are not the same thing. Discuss these two words in class. Divide a piece of paper into two columns. Head one DOMESTIC and the other TAME. Brainstorm first with a list of animals (horse, monkey, Holstein cow, donkey, ferret, raccoon, lion - make a long list). Write the name of each animal in one column or the other. Are there wild animals that cannot be tamed - that is, easily managed or controlled by humans? If so, what are they? Can wolves be domesticated? Can they be tamed?

Wolves as Pets
Unfortunately, some people attempt to keep wolves as pets. There are many reasons why wolves do not make successful pets. Can you think of some? What often happens to wolves that people have tried unsuccessfully to keep as pets?

How can you discourage people from "owning" wolves? Wolf-dog hybrids can be an unpredictable and dangerous mix. Dogs are generally protective and can have aggressive natures. Wolves, on the other hand, are shy and predatory. What is the possible danger in that combination?

■ dominant
One animal having a higher position or status than another. The parents are dominant to all other wolves in the pack.

■ dominance hierarchy
A social order in which high-ranking individuals are at the top of the pyramid, and the submissive animals are ranked beneath. Dominant wolves express their rank through body language, facial expressions, vocalizations, and posture. Since wolves are social animals, and since the pack is critical to their survival and to the successful raising of the pups, the ranking system is important. Bonds among pack members are solidified through expressions of dominance and submission.

■ ecological niche
The role or "job" of a species in its environment. The wolf fills the niche of top predator in the ecosystem.

■ ecology
The science of the relationships between plants, animals and the environment.

■ ecosystem
An area defined by its physical characteristics and also by the complex links and relationships between the plants and animals that live there. Ecosystems are always undergoing change and alteration as a result of many factors.

Get into groups and compile lists of factors that impact on ecosystems. What factors are "natural?" Which are "artificial?" What changes occurred in the red wolf's ecosystem when this animal was eliminated?

■ encounter
When a wolf meets its prey. Much has been learned about how wolves select a specific prey animal, but much is still a mystery. Wolves are opportunistic - that is, they look for opportunities to get a meal at the least amount of risk to themselves. This means they ususally select vulnerable animals - the weak, the old, and the young. No one is really sure how a wolf detects weakness in a prey animal. Sometimes it is obvious - if the animal is lame, for example. Often, however, weakness is not obvious to a human observer. Wolves pick up cues that are too subtle for humans to discern.

■ endangered
An endangered species is one that is in danger of extinction throughout all or most of its range.

■ environment
The external conditions, including sun, air, water, soil, and plants that make up an area where an animal lives.

■ extinct
No longer in existence. An animal or plant facing extinction is one in danger of vanishing forever from our world.

■ extirpate
To exterminate or wholly destroy a species in an area.

The effort to extirpate the wolf in the United States is a sad chapter in the nation's history. Wolves were trapped, shot and poisoned for decades. Bounties were paid by the U.S. government to people who killed wolves. There are still people who think wolves should be eliminated.

Reactions and Thoughts
Name some specific animals that arouse strong NEGATIVE reactions in many people. Why? Name some animals that arouse strong POSITIVE reactions. Why? Make a class list of negative and positive expressions we use comparing animals to humans. Example: sly as a fox, lion-hearted, a bear hug, strong as an ox, worming your way into a conversation, badgering someone. How many can you come up with?

React to each of the following quotations. What does each writer mean? Do you agree? Do you disagree? Support your opinion.

"The last word in ignorance is the man who says of an animal or a plant, 'What good is it?'"

Aldo Leopold - A Sand County Almanac

"For all things share the same breath - the beast, the trees, the man, they all share the same breath. What is man without the beasts? If all the beasts were gone, man would die from a great loneliness of the spirit. For whatever happens to the beasts soon happens to man. All things are connected. Whatever befalls the earth befalls the sons of the earth."

Chief Seattle, 1854

■ fact
Something that is supported by evidence; a truth.

■ family
Part of the classification system scientists use to identify plants and animals. Wolves are in the family Canidae along with coyotes, foxes and domestic dogs.

■ feral
Domesticated animals that have gone wild - e.g., burros, goats, cats, dogs, and pigs. Red wolves prey on feral pigs. Sometimes livestock depredations are blamed on wolves when, in fact, the killing was done by feral dogs.

■ fiction
Something invented; a literary work whose content is based on the imagination and not necessarily on fact.

■ food begging
A behavior which pups and subordinate wolves use to get food from dominant members of the pack. The pup or subordinate lowers its body posture and licks around the muzzle of the wolf who has the food. It may even whine. Sometimes the dominant wolf can be enticed to give up some food to the subordinate. Pups induce the adults to give them food by this behavior. Pups also induce the adults to regurgitate food by engaging in food begging.

■ food chain
The transfer of food energy from one organism to another as each consumes a lower member and in turn is preyed upon by a higher member.

Where is the wolf on the food chain? Where are humans? What other animals can you name that are in the same position on the food chain as humans and wolves?

■ food web
An interlocking pattern of food chains. For instance, a green plant, a leaf-eating insect, and an insect-eating bird would represent a simple food chain.

Draw some other food chains and create a food web. You could do this on poster board, or if you have a computer to design multi-media presentations, you could create some slides! See also "web of life."

■ game animal
Legal name for animals that may be hunted under regulations and laws.

Name the game animals in North Carolina. Are wolves designated as game animals in any state or country? Find out!

■ genus
Part of the classification system used to identify plants and animals. Wolves are of the genus *Canis* along with domestic dogs and coyotes.

■ gestation
The time from fertilization of the egg to the birth of the young; the period of pregnancy. Wolves have a gestation period of approximately 63 days.

■ guard hairs
The long outer hairs of an animal's coat which keep the downy underfur from getting wet or dirty. The underfur keeps the animal warm by preventing heat loss from the body. Red wolves, because they live in relatively warm climates, do not have to be as well insulated as the the wolves of the north.

■ habitat
The type of environment in which a plant or animal lives. Forests, deserts and marshes are examples of habitats.

■ hackles
The guard hairs along the back of an animal, especially on the neck and shoulders. The hackles are often raised as a form of communication, especially to indicate aggression.

■ heartworm disease
A disease caused by a parasitic worm that lives in the hearts of carnivores. These worms can reach up to 30 cm in length.

■ hierarchy (or dominance hierarchy)
The ranking system among wolf pack members in which some are higher ranking, or dominant, and others are lower ranking, or submissive.

■ home range (or range)
The area an animal like a wolf or a wolf pack uses to find food, shelter and water to survive. The area over which the animal travels in the scope of normal activities. Ranges vary depending largely on the type and number of prey.

■ howl
A form of communication among wolves. Scientists aren't entirely sure why wolves howl, but this form of communication seems: to help wolves locate one another when they have become separated; to warn pack members of intruders or other possible danger; to aid in the demarcation of territory; to unify the pack - kind of like a "sing-along"; to announce or to defend a kill; to announce the beginning of a hunt; to assemble pack members. It has been observed that prey species often seem to ignore wolves howling. Many observers think that the howl of the red wolf is different from the howl of the gray wolf!

■ hunt
To stalk or chase a prey animal, such as a deer, for food.

One of the persistent myths about wolves is that they "kill for the fun of it." What stories do you know in which the wolf is portrayed as killing for reasons other than survival? The truth is that wolves must kill to live. They are carnivores with no other means to survive. That is hard for some humans to accept, but it is reality. Many humans are omnivores; they eat meat, too, but in many cultures it is no longer necessary to hunt animals for food. Hunting for a wolf is hard work. Most of the time, the wolf is not successful. The prey is too fast or too strong, and the wolf has to give up and try again. Most wolves are injured at least once in their lifetime. They suffer broken bones and fractured skulls from being kicked and stepped on.

■ hunter
A person or animal who searches for another animal with the intention of killing it.

■ hybrid
The offspring produced by breeding plants or animals of different varieties or species. Since dogs and wolves and wolves and coyotes can breed and produce pups, these offspring are referred to as hybrids.

Wolf-Dog Hybrids
A controversy rages on the subject of wolf-dog hybrids. Many people believe that if they obtain a hybrid, they will get an animal that looks like wolf and acts like a dog. This is often not the case, however. Hybrids sometimes have a dog's aggressive nature combined with the wolf's fear of humans and predatory nature. That combination can be dangerous. Do you know anyone who owns a hybrid? Look up the law in your county or state about owning hybrids. Can these animals be vaccinated against rabies and licensed? What is your opinion about breeding hybrids?

Wolf-Coyote Hybrids
Some gray wolves hybridize with coyotes, but in the case of the red wolf, hybridization with coyotes is the largest challenge facing red wolf recovery. Researchers have determined that some of the red wolves in eastern North Carolina have bred with coyotes. The question is what to do about this. The coyote is what is known as an exotic species in North Carolina. That is, coyotes are not native to the state; they moved in when the wolf was eliminated. Coyotes adapt easily to living near humans. Can you think of a solution to this problem?

■ kingdom
Part of the classification system scientists use to identify plants and animals. Wolves are in the animal kingdom. So are humans.

■ legend
A story, often one that cannot be verified, that is passed down from one generation to the next.

■ litter
A group of wolf pups born at the same time. Wolf litters can range in size from 1 to 9 pups. The average is 4 or 5.

■ livestock
Cows, sheep and other farm animals.

■ locomotion
The act of moving from place to place. Wolves depend on their feet and long legs for locomotion. The wolf may indeed kill with its teeth and powerful jaws, but the wolf hunts with its feet. The feet and legs of wolves are uniquely adapted to their lives as hunters and "far travelers." When they are trotting or loping along, their feet are compact in order to reduce friction and to increase speed. If the terrain is uneven or rocky, the toes of the wolf spread out, enabling it to cling, much as your fingers do. The long legs of the wolf are ideal for traveling in snow and for carrying it tirelessly over the miles of their ranges and beyond. Long legs also help wolves to leap over fallen and tangled trees and brush and to wade through streams and bogs. Wolves are, by the way, excellent swimmers!

■ mammals
Animals that are warm-blooded, have hair on their bodies and produce milk for their young with special glands called mammary glands.

■ mange
A skin disease caused by a parasitic mite. Mange is characterized by intense itching and hair loss.

■ mate
One of a pair of animals that associates for breeding.

■ myth
A traditional story that serves to unfold a world view of a people or to expain a practice, belief, or natural phenomenon. Wolves are the subject of many of the myths of the Cherokee. A good place to read about the place of the red wolf in Cherokee mythology and legend is a book called Another Country by Christopher Camuto.

■ niche (ecological niche)
An ecological term used to describe a place or a position occupied by a plant or animal with reference to other organisms. The things that determine the niche, or place in society of an organism, are: where it lives, where it finds shelter, who its friends are, who its enemies are, where it gathers food, what it takes from the community where it lives, what it gives to the community, and how the community is affected by the organism.

Where is YOUR ecological niche? Where do you live, where do you find shelter, who are you friends, who are your enemies? Where do you get your food? What do you take from the community where you live? What do you give to the community? How is the community affected by you?

■ offspring
The babies, the pups, the "children" that an animal has. The primary focus of adult wolves is the raising and nurturing of the pups. Responsibility for feeding the pups is shared by the adults in the pack. Since the social ties between pack members are very strong, wolf pups raised without the bonding system of the pack have a difficult time adapting to life in the wild.

■ olfactory communication
Many species of animals communicate with one another by "reading" scents. For example, an animal scent marks to designate a territory. Wolves and other dog species sniff certain parts of another individual's body when they are reunited or meet for the first time. A good deal of information is exchanged between two animals in this manner. Wolves rely on their noses more than anything else to find prey. Wolves can smell prey 1.6 km away. They also have keen hearing. Wolves can hear one another howling several miles away. By turning their ears from side to side, they can easily tell from which direction the sound is coming.

■ omega
The lowest-ranking animal in a wolf pack. These subordinate wolves may become dispersers, especially if food is limited.

■ oral tradition
The tradition of telling stories and passing along information to new generations. This system of verbally reciting history has been practiced for many centuries by many indigenous cultures around the world. The Cherokee and other Native American cultures in the United states used this method of recording and reciting history.

Do you know anyone in your family who is a good storyteller? Perhaps you could interview an older member of your family and ask him or her to tell you a story from the past. What stories from your life will you save as memories to tell you own children and grandchildren?

■ pack
A family of wolves. Packs usually consist of the breeding pair and their recent offspring - pups and juveniles from the previous year. Pack sizes can be as small as two or three and as large as twenty or more. The size of the pack may depend on prey density and size. For example, wolves that prey on moose may form larger packs because moose are so large that they are easier to kill if the pack is composed of several wolves. On the other hand, the more wolves, the more quickly a kill is consumed and the sooner it is necessary to hunt again. In general, wolf packs number between five and eight animals. Because they hunt smaller prey, many biologists assumed that red wolves are more solitary than gray wolves. Observations in the wild have been limited, but there is evidence that red wolves do, indeed, live in packs but often hunt as individuals or pairs. Order within the pack is maintained by a functional dominance hierarchy. Roles are expressed and reinforced through body language, vocalizations and facial expressions.

■ **parasite**
An often harmful organism that lives in or on another organism. For example, fleas are parasites. So are ticks.

■ **passive submission**
Expressed when a low-ranking wolf is threatened by a dominant wolf who is expressing its authority by baring its teeth and growling. In this behavior, the low-ranking wolf tucks its tail between its legs, lies on the ground and exposes its belly to the dominant wolf. The lower-ranking wolf may also demonstrate subordinate affection such as face licks and mouth nuzzling.

Have you ever seen a dog demonstrate these behaviors? Passive submission should not be interpreted by humans as weakness. The strict dominance hierarchy of the pack structure is necessary to the survival of the pack, and it reinforces the bonds that hold wolves together. Dominant wolves rarely hurt subordinate wolves.

■ **pelage**
The hairy coat of an animal.The pelage does not include the skin. In their natural habitats, the pelage of the wolf is an adaptation that helps it blend into its surroundings. Red wolves are hard to see, but you might get lucky if you are persistent!

■ **pelt**
The skin and fur of an animal.

■ **perspective**
A point of view. People have varying perspectives about wolves.

Think about this: Where does your point of view on a particular subject come from? Experience? Direct teaching? Investigation and research? The experiences of others? All of these? Think of a subject about which you have a strong opinion. Your task here is NOT to defend your point of view but to CONSIDER ITS ORIGIN. Where did it come from? Humans have, for example, very rigid and highly emotional perspectives about wolves. Why? Pick a subject about which you have a strong subjective evaluation (in other words, you react strongly to the subject), and write about its "roots." You may be surprised at "where you are coming from."

■ **plantigrade**
Walking so that the back part of the foot (the heel) touches the ground. Examples of animals that use the form of locomotion include humans, raccoons and bears. Wolves and dogs, on the other hand, walk on their toes.

■ **play bow**
The wolf extends it front legs, raises its hindquarters, cocks its ears forward and puts on a big grin. Often it will pant and wag its tail. How many times have you seen your dog do this?

■ **play face**
An expression used to elicit play. Basically, it is a big open-mouthed smile. The mouth is open, and the teeth are bared, but the lips are not retracted in an agonistic pucker. This is a friendly face and can be paired with other actions such as rolling on the ground to show others that play is intended. And, of course, the play bow often accompanies the grin!

■ **pinch period**
The period in the annual cycle when the conditions for living are least favorable. Humans often automatically assume that winter presents hardships for wolves. Not necessarily!

Can you think of any reason why winter is often "prime time" for wolves?

■ **poaching**
Taking game illegally.

■ **population**
All of the individuals from the same species (or closely-related species or subspecies) that occupy a certain area.

■ **predation**
The act of preying upon other animals. Predation means hunting with the intent of killing. The word often has a negative connotation, but for wolves, predation is the only means of survival.

■ **predator**
An animal that kills and eats other animals for survival.

Make a list of all the predators you can think of. Are humans predators? What is the difference between a predator and a scavenger? How do they benefit one another?

■ **preservation**
Protection of wildlife and habitat which emphasizes non-consumptive values and uses such as no direct use by humans. Conservation, on the other had, emphasizes both consumptive and non-consumptive use of resources.

Are you confused? Cutting timber in a national forest would be conservation. The forest would be designated for future generations to use, so trees would be replanted, and the forest would be conserved. In a wilderness where preservation is the goal, no timbering would be permitted. The wilderness would be preserved.

■ **prey**
Animals that are killed and eaten by other animals.

■ **public lands**
Land owned by the general public and managed by local, state or federal agencies such as the National Park Service or the United States Fish and Wildlife Service.

■ **pup**
Pups are baby wolves born in the den in early spring. They weigh about a pound and are blind and deaf at birth. When their eyes open at about two weeks of age, they are blue. Later they will turn the distinctive yellow or yellow-green that makes the wolf's direct stare so mesmerizing. Wolf pups grow rapidly. They have to so they can travel with the pack and learn the hunting skills that will enable them to survive. In addition, they must soon grow strong in order to get through their first winter. Wolf "childhood" is long. Learning to hunt takes practice, and the adults are persistent and patient. Pups play almost constantly; embedded in this play, however, is the "stuff of survival." Through play, the pups establish rank and learn social roles. In addition, exercise improves muscle tone and strength. All adults in the pack assist in nurturing and teaching the pups.

■ **rally**
Wolves may gather in a group (rally) for various reasons such as before a hunt and to greet other pack members.

■ **range**
The land upon which animals live. See "home range."

■ **rank**
The relative social positions of animals in a pack. The more dominant animals are higher in rank.

■ rare
Wildlife species not presently endangered but with numbers so low that there is concern.

■ recovery plan
A guide that identifies actions necessary for restoring an endangered or threatened species to being a self-sustaining member of its ecosystem. It is a structure or framework to guide biologists toward the objective of species recovery. A good recovery plan is critical to the success of species restoration.

■ regurgitate
To throw up food shortly after consuming it. Wolves will eat at a kill site and then return to their pups and regurgitate the food which the pups eat.

Before you react with the conclusion that eating regurgitated food is the most disgusting thing you can think of, STOP and THINK! When and why is regurgitation necessary for wolves to survive? Work it out through these questions. Can pups join in the hunt when they are very young? How far away from the den or the rendezvous site can a kill take place? Twenty miles? Could be. Farther? Sometimes. What's the most efficient means for "bringing home the groceries" if you are a wolf - carrying a big hunk of meat in your mouth when you have to travel five miles or more after a hunt - or carrying the groceries in your stomach? What about the mother wolf who cannot leave the young pups to hunt? Fresh meat would be preferable for her - but what if the kill is miles away? The survival of the wolf pack depends upon teamwork, cooperation and working in harmony with one another. This includes regurgitation as a means of feeding one another and ensuring that the pups are well-nourished during the weaning period

■ reintroduction of species
A wildlife management strategy whereby a species is returned to its historic range.

Where in the lower 48 states have wolves been reintroduced? How successful have these efforts been? Species reintroduction is costly! Many people are working on saving endangered species and on restoring damaged ecosystems. Many people view this restoration as a legacy for the future. What do YOU think?

■ rendezvous site
The area to which wolves move their pups when they are 8 to 10 weeks old. The rendezvous site is a gathering place for the pack, and the pups are left at the site while the adults hunt for food. The rendezvous site must meet certain criteria. 1) It must provide security from harm for the pups by having shelter where the pups can play and exercise without being seen. 2) It must provide shelter from bad weather. 3) It must be located near water. 4) It must be able to be easily patrolled by the adult wolves who will bark (yes, wolves can bark!) at the first sign of danger. The pups will scramble instantly to shelter! 5) The pups can begin to learn the most essential life lesson of all: how to hunt.

■ scat
Animal poop - to put it simply and plainly! Scientists often identify the animals that have been in an area by looking at their scat. Wolf scat often looks like a hairy cocoon. Since wolves consume nearly every part of the carcass, scat is encased in hair so that bone fragments to not puncture the intestines.

■ scavenger
An animal that eats animals it did not kill directly but that die from other causes such as disease, starvation or predation.

Work alone or with a group. Set a time limit for brainstorming. Make a list of scavengers - birds, insects, mammals. What is the effect of wolf predation on the scavenger population in an ecosystem? Here's an interesting idea. Some biologists speculate that wolves might even help bears in late summer by killing deer and leaving carcasses for them to scavenge. This could prove especially helpful at the end of long dry summers where there are few berries for bears to eat. Also, winter kills might provide bears with food when they are emerging from dens in spring.

■ scent marking
Leaving a mark such as urine to establish territory and to communicate with other animals. When you see a domestic dog urinating on a tree, it is scent marking. Both male and female wolves mark their territory. "Lone wolves" do not usually scent mark because they do not wish their presence to be revealed to established packs.

■ scent post
An object or area an animals uses through scent marking to establish territory. Examples include trees, fence posts and rocks. You can think of scent marking as "invisible graffiti." Graffiti, after all, say, "I was here." Sometimes it's used as a warning for others to stay away. (Trivia question; What is the singular form of graffiti?)

■ small game
Term designating smaller hunted species. Examples are rabbits, squirrels, pheasant, quail, and goundhogs. See big game and nongame.

■ social animal
An animal that lives in a group with its own kind. Wolves are highly social animals because they live in a pack or family according to strict cooperative rules. The pack members are dependent upon one another for survival, and they all participate in the care and raising of the young.

How many social animals can you name? What animals tend to be solitary? Some animals band together according to gender. What animals band together in "matriarchal" (female) groups to raise their young? Which are the "herd" animals?

■ soft release
A reintroduction strategy whereby the animal is brought to the release area and kept in a "holding area" in order to become acclimated or accustomed to its surroundings. Soft release was used with the red wolves at Alligator River. The key to success is, however, to keep the wolves from bonding in any way with humans. Food is provided with minimum contact between wolves and the caretakers. In fact, the caretakers try to keep the wolves wary and afraid of humans. This is so that they will avoid humans and the danger that could present once they are released into the wild. HARD RELEASE, on the other hand, is simply releasing the captive-bred animals into a new area with no opportunity to acclimate to the surroundings. The gray wolves that were brought from Canada in 1995 and 1996 to central Idaho were reintroduced using the hard release method. Those wolves and their offspring are doing well.

■ species
Part of the classification system scientists use to identify plants and animals. There are two officially recognized species of wolves in the United States: *Canis lupus* (gray wolf) and *Canis rufus* (red wolf). The proper name of a species is made up of two words: the genus name (*Canis*) and the specific name (*lupus* or *rufus*).

■ Species Survival Plan (SSP)
Organized breeding of endangered species in captivity to help increase their populations and ensure species survival. Managed by the Association of Zoos and Aquariums (AZA), there is an SSP for Mexican wolves and one for red wolves.

■ stalk
To follow, track, and eventually sneak up on an animal.

Do wolves stalk their prey? Perhaps that perception is one of the things that gives wolves a sinister reputation. Wolves do locate and track prey. Many people, however, when they think of wolves hunting, visualize them hiding, waiting to ambush their unsuspecting victims and succeeding purely because of the element of surprise. If you can, view a video that shows wolves hunting. YOU may be the one that is surprised! The method of hunting depends on the prey. Red wolves feed on many small mammals and even insects. With their long ears (which help them hear tiny rustling sounds), their agility and their speed, they can catch mice and rabbits and squirrels. This means they must get as close as possible before attempting to catch their equally speedy and agile prey! Larger prey present a different challenge, however. When hunting deer, the wolves must carefully select the animal they intend to kill, and this means assessing the herd. Who is weak, who is lame, who is arthritic, which young animal can be separated from the safety of its mother? In order to make this assessment, wolves often try to get a herd running so they can read the cues that help them select an animal that appears to be vulnerable. White-tail deer may appear delicate and fragile, but a well-placed kick with their sharp hooves can kill or seriously injure a red wolf.

■ **stereotype**
A conventional, oversimplified opinion, belief or conception. A group or person or animal that is thought to be "typical" or to conform to a formula or fixed pattern, lacking any individuality.

Expressions we use have their origins in stereotypes. Why do we say. . .?
So-and-So is a chicken
Sly as a fox
I'm going to squirrel away some money
So-and-So chatters like a magpie
Timid as a mouse
An old goat
Fierce as a tiger
Lion-hearted

The list is endless. How many stereotypes can you list about wolves? Which have some legitimacy? Which ones are sometimes true, sometimes not? Which ones are false? Which are positive? Which are negative? Which apply to humans as well as to wolves?

■ **stewardship**
Stewardship is responsible caretaking of the environment, based on the premise that we are managers of natural resources and that we are responsible for conserving and preserving these resources. This is a relatively new idea in the history of the United States and one that does not have acceptance everywhere. If you study your history carefully, you will see that the expansion of America westward was based on the concept of utilitarianism. Resources were here for human use and consumption, and wilderness was something that should be "tamed."

■ **stress**
Harmful pressure to an organism or a population. A good reintroduction management plan must take the factor of stress into careful consideration. What pressure, for instance, might be brought to bear on deer herds that would cause wolf recovery to be in jeopardy? Red wolves were reintroduced to the Great Smoky Mountains. This effort encountered major problems, and the wolves were eventually recaptured. Pup mortality rate was high, and the wolves dispersed out of the park and into adjacent areas.

What stresses caused this lack of success in the Great Smoky Mountains? Go to a web site or a current article, and see if you can discover the answer. What stress is now considered the greatest threat to red wolf recovery?

■ submission
The act of acknowledging another animal's dominance or higher rank. Wolves do this in serval ways including lying on their backs and exposing thir bellies, tucking their tails between their legs, flattening their ears against their heads, and assuming a lower body position. Another behavior exhibited by submissive wolves is food begging. Subordinates learn that they can sometimes get higher ranking members of the pack to relinquish food. Submission should not be confused with weakness. Wolves must adhere to specific roles in order for harmony and cooperation to exist in the pack Submissive behavior is a way of communicating an awareness of one's rank.

■ tame
Brought from wildness into a manageable or easily controlled state. Tame animals may be handled by humans and used in some cases to perform work. Domesticated animals, on the other hand, are animals that have, over a series of generations, become accustomed to living with humans and which have, to varying degrees, become dependent upon humans to provide for their needs. Domestic animals that live in a wild state are called feral animals. Cows are domesticated, circus lions are tame, and wild dogs are feral.

■ territory
The portion of an animal's home range which is defended against other animals of the same species. Wolves are fiercely territorial, and they will often attack and kill other wolves that intrude on their domain. Although the boundaries of pack territories are not visually defined, wolves announce their occupancy of an area in several ways. One is by scent marking, a second is by howling to warn others of a resident pack's location, and a third is by direct attack on intruders. Wolves seem to prefer to rely on the warning system of scent marking and howling. Fighting saps precious energy which is needed for hunting and killing prey. Once in awhile, a wolf pack will accept an outsider. This may happen if one of the breeding pair dies or is killed. Sometimes a disperser may return to its family. Sometimes a stranger is tolerated and accepted. This is rare as far as biologists know, but it proves the point that the one thing you can never say about wolves is that they NEVER do this, or they ALWAYS do that. The wolves of the far north that following the migrating caribou herds have more fluid territories than do wolves that depend on resident wildlife for food.

■ threatened
A species present in its home range but in low numbers and at risk of becoming endangered. On the other hand, a species that has been listed as endangered but whose numbers are increasing may be moved from endangered status to threatened.

■ top predator
A predator, usually large in size, that is rarely killed by other predators and may kill smaller predators. Wolves are top predators and have few natural enemies. They often kill smaller predators.

■ track
A print left by an animal. Wolf tracks are large in comparison to most domestic dogs and other canids such as coyotes. The front feet of the wolf are larger than the back feet. Claws are usually visible. Most cats walk with their claws retracted.

What cat cannot retract its claws?
Answer: The cheetah

■ underfur
The soft downy fur beneath the guard hairs that keeps an animal warm. It is more dense than the guard hairs and has "loft" which traps body heat much the way a down jacket does.

■ ungulate
Animals with hooves such as deer, moose, caribou, and elk.

■ United States Fish and Wildlife Service
"The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people."

■ web of life
The term used to describe the interrelatedness of all forms of life.

■ wild
Not tamed or domestic. Wild animals provide their own food, shelter and other needs in an area that serves as a suitable habitat.

■ wildlife management
A term referring to the technical and scientific skills applied to protect, conserve, preserve, extend and limit the value of wildlife and wildlife habitat. Wolf management is a difficult issue. When wolves and humans come into conflict with one another, there are problems for both. One of the critical questions in wildlife management is how to manage wolves so that they and humans can coexist. Wolves are travelers, they are prolific (meaning they produce a lot of pups), and some people see wolves as competition with humans for space and food. How best to manage wolves? Your help is needed to answer this question.

Suggested Resources

For More Information:

Books:

Gray Wolf Red Wolf by Dorothy Hinshaw Patent, Clarion Books, for middle school readers, 1990

Journey of the Red Wolf by Roland Smith, Cobblehill Books, for middle school readers, 1996

Meant to be Wild by Jan DeBlieu, Fulchrum Publishing, for the serious student and adults, 1993

Red Wolf Country by Jonathon London, Puffin Books, for the very young reader, 1996

Return of the Wolf by Steve Grooms, Northwood Press, 3rd edition, for the serious student and adults, 2005

The Red Wolf by Alvin, Virginia & Robert Silverstein, Millbrook Press, for middle school readers, 1994

The Red Wolf by Alison Imbraco,Enslow Publishers, Inc., for middle school readers, 2007

Wolves: Behavior, Ecology, and Conservation edited by David Mech and Luigi Boitani, University of Chicago Press,for the adult reader, 2003

Websites:

www.fws.gov/alligatorriver/redwolf for U.S. Fish and Wildlife Service general information and updates on Red Wolf Recovery

www.fieldtripearth.org for redwolf information and educational activities on a variety of wildlife species

www.redwolves.com for information on supporting the red wolf and getting involved with the Red Wolf Coalition

www.wolf.org for information and classroom instruction on the status of wolves across the planet and getting involved with the International Wolf Center

www.defenders.org for information and classroom instruction for protection of wild plants and animals (including wolves) in their native habitat and getting involved with Defenders of Wildlife

www.pdza.org for Point Defiance Zoo & Aquarium to learn more about red wolves and other animal species. Educational resources.

Video:

"Recovering a Species" to learn more about the history of red wolf restoration - obstacles, progress and successes. 23 minutes

Red Wolf Recovery Program
Northeastern North Carolina
Alligator River National Wildlife Refuge
P. O. Box 1969
Manteo, North Carolina 27954
252/473 1131
www.fws.gov/alligatorriver

U.S. Fish and Wildlife Service
1-800/344 WILD

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