



## Life Science

### INTERDEPENDENT RELATIONSHIPS

Read about a wolf's food web.

# LONE

Discover how living in a



A close-up photograph of a wolf's face, focusing on its right eye which is a striking green color. The fur is grey and textured.

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# WOLF?

group helps wolves survive.





Three wolf pups squirm inside their den. They're only a few days old. They're blind and helpless, barely able to crawl. They will stay in the den for the next few weeks. Only their mother will see and take care of them.

Not far away, however, five wolves wait. Wolves are pack animals. They live together in small groups, or families. As the pups grow, they'll join this pack and learn the ways of the wolves. The pack is eager to welcome the pups.

Outside the den, one member of the pack tips his head back and points his nose to the sky. He closes his eyes and howls. It's a howl of support, to let the pups know that the pack is there. The other pack members tip their heads back and add their voices to the call.



a wolf pup

## Joining the Pack

Winter gives way to spring. At last the pups are allowed to join the rest of the pack. Heading out of the den, they run ahead of their mother to meet the other wolves.

One tall, gray wolf steps forward. His eyes are watchful, and he holds his tail high. This wolf is the alpha male, or leader. He makes the decisions and is responsible for all the wolves in the pack.

The alpha male greets each pup by licking its face. Before long, the other wolves greet the pups, too. The pups yip and jump in excitement, clearly enjoying the attention.

The alpha male and mother wolf step away from the pack. The alpha male is the father of these pups. The mother wolf is called the alpha female. She is just as important as the alpha male in the pack.

One wolf with blonde fur takes a special interest in the pups. He's the beta wolf, or second in command. Often the beta wolf is a peacekeeper. Sometimes the beta wolf is the pack babysitter, too. He will act like a favorite uncle, watching over the pups. He'll help them learn their roles in the pack.

## Learning to Hunt

The beta leaps in front of the pups. He holds his head low, and his front legs are spread wide. He holds his rump high and wags his tail. This is an invitation to play.

The pups spring into action. They chase the beta. He circles around them. They pounce on him and nibble his ears. One pup bites his tail.

The beta doesn't react with anger, though. This type of play is practice. It teaches the pups how to stalk and kill prey. It also helps them learn their role in the pack.

Soon the pups will play with "toys" like bones, feathers, or the skins of dead animals. They are learning to hunt. As they get older, they will hunt small animals, like rabbits.

When the pups are six months old, they'll follow behind the pack and watch as it hunts large animals. Wolves are **apex predators**. They have few competitors for food. Their primary prey is elk, deer, caribou, and moose. When hunting large animals, wolves always hunt together as a pack. The alphas lead the hunt, and all of the wolves know their roles.





Wolves live and hunt together as a pack.



Wolves howl to communicate with one another.



## Finding Food

Wolves play a vital role in their **food web**. A food web shows how energy flows through an ecosystem. Every organism needs energy in order to live. Plants get energy from the sun, for example. Then some animals, like elk, eat the plants. Then some animals, like wolves, eat the elk.

A food web is a sign of how healthy an ecosystem is. If one part of the web changes, everything in that ecosystem changes, too. Without wolves, the number of elk would increase. The elk would eat more plants. Then, eventually, the elk wouldn't have enough food.

## Searching for Energy

Time passes, and the seasons change. It's winter now, and the wolf pups are the same size as other members of the pack. A fresh layer of snow has fallen. The bitter morning is cold, but the wolves are not. They're kept warm by their thick, winter coats.

The wolves are shaking snow off of their backs and stretching. As the alpha male walks by one of the pups, the pup crouches down low to be respectful. The pup's brother rolls onto his back, showing his stomach. This is also a sign of respect. The alpha male stands over the second pup and licks the pup's face. The pup whines softly. The beta has taught these pups well. The role each wolf plays is constantly reinforced by interactions like these.

The alpha male looks at the pack and sees that one member is missing. He sniffs the air. His eyes narrow. Something's wrong.

Leaving the pack in the care of the beta, the alpha male heads out to search for the missing wolf. It doesn't take long for him to find the missing wolf. A cougar has attacked and killed it. This is a troubling sign.

At times, wolves must share their **territory** with other top predators. These predators, like bears and cougars, rely on the same prey as the wolves for food. If prey becomes scarce, these predators could threaten the whole pack.

## Mourning a Member

Seeing the missing wolf, the alpha male lets out a long howl, calling the rest of the pack. The wolves come running, then stop short at the sight of the dead wolf.

The pups bark in alarm. There aren't many animals that can kill a wolf. A cougar is one of them. Now the pack has to watch out for it.

The loss of a member hits the pack hard. In the following weeks, the wolves don't play or interact much. They keep to themselves, mourning their lost friend. From time to time, they howl, but they howl alone. It's a sad sound. The pups seem unsettled. The pack feels unbalanced now.

A wolf's thick, winter coat protects it from the cold.



# A Wolf's Food Web

Wolves are apex predators. They have very few competitors for food.





## Hunting for Prey

Time passes, and the pups are now old enough to help the pack hunt. The beta and other pack members have taught the pups everything they need to know. The pups know this land. They know the animals that live here, and they know how to hunt them.

To hunt large prey, the wolves must work together. The first step is finding prey. Wolves rely on their sense of smell to find prey. Of all a wolf's sharp senses, its sense of smell may be the strongest. It's estimated to be up to 100 times more sensitive than a human's.

Wolves can smell prey several kilometers away. From the smell, they can tell how close the prey is. They can also tell if the prey is in poor health, old, or injured.

So when the alpha male catches the scent of elk on the wind, he is ready to lead the pack. The wolves spread out to cover more ground. When wolves track an animal, they follow the scent from the animal's hair, skin, hoof-prints, urine, and droppings.

After several hours of searching, one of the pups spots a small herd of elk. The wolves move closer, but don't act yet. First, the pack studies the elk. The wolves are looking for any animals that seem weak, old, or sick. These elk might be slower than the others and easier to catch.

Hunting is difficult and dangerous work. A kick from an elk can shatter a wolf's jaw. Wolves have neither the strength of a bear nor the claws and fangs of a cougar. Their greatest strength is in their numbers and in their ability to work together to bring down large prey. Silently and cautiously, the wolves move closer to the elk.

Suddenly, the wolves charge. The elk bolt forward, but one of them lags behind. It can't keep up. The wolves dart toward it. They know to chase the slowest prey.

The chase doesn't last long. The wolves quickly surround the lone elk. As the pack closes in, the alpha male dives forward and bites the elk, knocking it to the ground. The other wolves attack the elk, killing it.

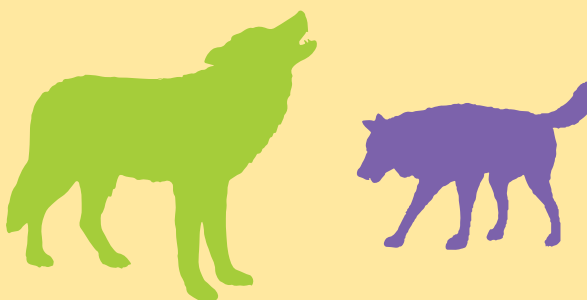
## Obeying the Alpha

The alphas usually eat first. The alpha male also chooses the order in which the other wolves eat. The wolves prowl around the elk carcass, waiting for their turn. A smaller wolf gets restless. He thinks he might be able to take a bite without the alpha male noticing. He creeps up to the elk and bites down. This is a mistake.

The alpha male stops eating. His head snaps up. He curls his lips to bare his teeth and snarls. His ears flatten against his head. He bares his teeth again and growls.

Instantly, the smaller wolf hunches down. He backs away with his tail tucked between his legs. This wolf is the omega, the lowest ranking wolf in the pack. He has angered the alpha male by eating before his turn. The omega is hungry, but he'll have to wait. The alpha male goes back to his meal. The pups learn two important lessons. Every wolf has a role in the pack, and no one questions the alpha.

Eventually, all of the wolves get a turn to eat, even the omega. Now they sit and rest. This pack is a family. The wolves play an important role in their ecosystem. By working together, the pack will survive.



## WORDWISE

**apex predator:** a predator that is rarely killed by other predators and may kill smaller predators

**food web:** shows how energy flows through an ecosystem

**territory:** an area occupied by a pack of wolves that can provide sufficient prey to support the pack





The wolves spread out during a hunt to cover more ground as they search for prey.



The alpha male snarls to keep the other wolves away while he eats.