

# Why the deer and the antelope play

When wild animals goof off, they may be doing more than just having a good time

BY SAM CURTIS

**W**hen it's my turn to wash dishes, I spend a lot of time with my hands in the suds and my eyes gazing out the window above the kitchen sink. I can see our hay field and beyond to the partially forested hillside.

White-tailed deer are the most frequent visitors. Does and fawns move into the field at dawn and dusk, especially during summer. They lower their heads momentarily to tear off mouthfuls of vegetation, then snap to attention—sprigs of grass between their lips—to look, listen, and sniff for signs of danger.

One evening this summer, two does and two fawns appeared in the low light just before the sun dipped behind the western hills. The foursome seemed cautious and tentative at first. Then one fawn erupted into a headlong flight away from the group, only to wheel around and race back to make an abrupt halt in front of the second fawn. A doe made a lunge at the frisky fawn, and the young deer raced off again, zigzagging down the field with the other fawn in pursuit.

For several minutes, the two young whitetails took turns chasing each other around the meadow, sprinting, leaping, and dodging. Occasionally, they'd veer near their mothers, inciting the does to join the chase before abruptly stopping to test the surroundings for danger.

Anyone watching the behavior of those fawns would surely have described it as play. We also see play activity in kittens when they wrestle and cuff and jump at one another from hiding places. We say puppies are playing when they chew each other's ears, roll, tumble, bark, and chase. To us, their actions appear purposeless and random, unthreatening, and enjoyable.

Play is a phenomenon that animal behavior scientists, known as ethologists, have researched for only a few decades. "Like many other beautiful things, play is ephemeral, and often difficult to study," write Marc Bekoff and John Byers in their introduction to *Animal Play*, a book of essays by animal behaviorists. "Play typically occupies a small part of an animal's day, and in most species, occurs only during a circumscribed part of juvenile life."

Most researchers agree that play helps foster motor development, cognitive skills, and protocols for social interaction. In an attempt to better understand the significance of animal play, scientists have broken it down into three categories: object play, locomotor play, and social play.

## PLAYING WITH TOYS

Many animals, even turtles, toy with inanimate objects such as leaves, sticks, and rocks. Bobcat kits bat and pounce on moths. Wolf pups chew, toss, and shake bones and dried bits

**LEFT HOOF TO THE MUZZLE** Elk calves spar, play tag, jump, and frolic as a way to stretch and build muscles, develop reflexes, and learn about each other.

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**PLAY DATES** They may look comical, but the antics of young animals provide training for their survival in later life. Left: Mock fighting helps fox pups practice social skills. Above: Young raccoons explore new territory where they might find food. Right: Bighorn sheep lambs play chase in training for future pursuit by cougars and other mountain predators.

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of deer hide. Scientists believe this object play may act as practice for future predatory requirements.

In a study of ravens conducted by Bernd Heinrich and Rachel Smolker at the University of Vermont, young ravens pecked, poked, and pulled at leaves, twigs, pebbles, seashells, glass chips, and bottle caps. They obsessively manipulated and investigated both edible and inedible objects. But they soon tired of playing with anything inedible once they'd become familiar with it. The researchers concluded that the object play and manipulation "serves to familiarize young birds with potential food items that may be unique to their ecological circumstances."

In addition, a young raven would sometimes hang upside down from a branch by its feet, only to let go with one foot in order to pass a stick back and forth between its beak and free foot. Or, while flying, it would pass a stick from foot to beak, or between one foot and another. A raven might even drop a stick while flying and then catch it

*Bozeman writer Sam Curtis, a frequent and longtime contributor to Montana Outdoors, died in December 2009.*

again in midair. "Ravens engage in a number of behaviors that appear playful, but are likely to involve 'showing off' to other ravens as sexual or status enhancing displays," write Heinrich and Smolker.

Object play in birds and mammals may start out as a clumsy, hit-or-miss affair that slowly improves with repetition. For this reason, researchers believe play may also be a way young animals hone their motor and perceptual skills.

When we watch a hawk soar, swirl, swoop, and dive in the absence of predators, prey, or other birds, it looks like the raptor is simply having fun. The same is true when we watch young mountain goats leap and twirl, or elk calves wheel and race. Young ravens actually slide down snowbanks on their backs.

Researchers believe these and other acrobatics help in what they call "performance-dependent development," which takes place early in an animal's life. For example, in cats, rats, and mice, nerve development in the area of the brain controlling body movements occurs when they are most actively involved in locomotor and rotational play.

"In other words," says Byers, a University of Idaho animal behaviorist, "in these three

species, play is turned on when there is an opportunity for experience-dependent modifications of the cerebellum, and it is turned off shortly after the architecture of the cerebellum is complete."

Scientists have also found in lab animals that the early pattern of muscle use determines which types of fibers the muscles will develop. Because that early development coincides with active play, the goofy acrobatics may help a young animal develop specific muscle fibers it will need as an adult to perform essential physical skills.

#### PLAYS WELL WITH OTHERS

Social play is when animals frolic with other members of their species. It often includes mock fighting and chasing that develop essential skills. For wolves and other pack animals that depend on inner-group cooperation to hunt and kill prey, these games are especially important.

For play to not escalate into serious, dangerous fighting, participants need to make their harmless intentions known to each other. Wolves and coyotes often initiate play with a stylized bow. Crouching with front legs stretched flat on the ground, back legs stand-

ing, they bark or wag their tails. This "play bow" may be repeated in the middle of wrestling—especially if one animal gets too rowdy—as a reminder that this is supposed to be all in fun.

Deer, elk, and pronghorn also use signals to communicate playful intentions and prevent injury when sparring, an activity that involves pushing one another around with their antlers or horns. Pronghorn "movements in sparring are slower and more gentle than those used in fighting, and communicative postures are different," write Byers and Michelle Miller in a chapter of *Animal Play*. "As in forms of social play, a set of cues dictates the beginning and ending of sparring matches. The lowering of horns by one male is enough to initiate such a match, while the turning away indicates that it is over and the interaction is mutually terminated. Male pronghorns, at the termination of each bout, occasionally swing their horns around and redirect sparring at the nearest bush."

Play may have other important purposes. Sergio and Vivien Pellis, at the University of Lethbridge, Canada, hypothesize that young animals must overcome the fear of retaliation before they will launch a serious attack on

another animal. Play-fighting animals have the opportunity to practice counterattacks without injury, reducing over time the fear of instigating a genuine attack. Like a karate novice safely sparring with a black belt, this helps the animals train themselves to counter when confronted with a real aggressor.

Sparring and mock fighting may also be a peaceful way for adolescent pack and herd animals to establish dominance hierarchies and develop social skills and bonds. Katerina

Thompson, at the University of Maryland, thinks play is a way of managing development through self assessment. "Play provides developing individuals with immediate feedback on their physical abilities, and this feedback can be used to regulate future activities," she writes in a chapter of *Animal Play*.

"In many species manipulative and locomotor play predominates during early life," Thompson continues. "More interactive forms of play (e.g., play fighting) usually arise later, perhaps after the requisite physical skills have been developed through solitary manipulative and locomotor play."

Despite the difficulty of studying play objectively, some researchers believe the activity is as fundamental to the healthy development of young animals as it is to that of young children. Object play allows a bear cub or a fledgling golden eagle to discover the physical nature of its surroundings, along with the environment's possible dangers and benefits. Locomotor play and social play help young coyotes and ravens safely learn, in various situations, which responses help them cope successfully and which do not.

At its most basic, play is a rehearsal for handling the diverse objects and situations an animal will confront if it survives to maturity. For those whitetail fawns out my kitchen window, it may be that the more playful they are in their youth, the more adept they will be at coping with mountain lions, or vying for mates, as adults. 🐾

**SERIOUS BUSINESS** The outcome of life-and-death struggles between predator and prey may depend in part on how effectively each animal played as a youngster.



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