

IT'S A DOG'S WORLD

Dogs were the very first animals to be domesticated, so humans might not have become so successful without their help (which came in more ways than you might realize). But throughout history and into the present, our dealings with the family Canidae have often gone awry. Here's some new research that sheds light on how this connection began, why it's so strong with domesticated dogs, and why it gets so messy with their wild cousins: foxes, coyotes, and wolves.

Who's a Good Human?

Scene: The Dawn of Man. A band of prehistoric hunters is sitting around a fire eating from the day's kill. Wild animals are hiding far off in the shadows, except for a lone wolf that's sitting just inside the edge of the firelight. She's on her belly—not threatening, not snarling—looking toward the men but not right at them. Not sensing a threat, they continue their meal. At one point, a hunter takes a bite of his food, but is having trouble chewing through the gristle. On a whim, he tosses the scrap over to the wolf. The wolf inches a bit closer and eats it. Then she inches a bit closer...and slightly wags her tail.

Survival of the Friendliest

Scientists can't agree on exactly when or where the wolf (*Canis lupus*) and the dog (*Canis lupus familiaris*) became separate species. The split happened sometime between 15,000 and 40,000 years ago, most likely in Asia. What's really interesting is *how* the complicated relationship between humans and canines began. Recent findings reveal that it wasn't people who domesticated dogs but, according to evolutionary anthropologist Brian Hare, "Wolves largely domesticated themselves among hunter-gatherer people."

The theory, which Hare describes as "survival of the friendliest," explains how such an aggressive carnivore went from being the hunter's rival to eventually aiding in the hunt. "Anyone who has spent time with wild wolves would see how unlikely it was that we somehow tamed them in a way that led to domestication," says Hare, director of Duke University's Canine Cognition Center. Instead, he says, it was the friendlier wolves who risked entering our world (like our fictional account above), and exploited early humans by pulling on their heartstrings. Hare estimates that it took only a few generations of this "self-domestication" to bring about such physical changes as bigger eyes, floppy ears, and fluffy tails.



Type O: When CBS revived the 1968–80 series *Hawaii Five-O* in 2010, it replaced the "O" in the title with a "0."

Man's Best Friend...and Child

As agriculture allowed prehistoric people to stay in one place, dogs stuck around, and before long, several other wild animals had been domesticated—including cattle and poultry (and, for some reason, cats). In addition to hunting, domesticated dogs—thanks to selective breeding—aided our ancestors by standing guard at night, pulling sleds through snowy terrain, herding livestock, and protecting sheep from wolves. Today, dogs still guard livestock and property; they help with search-and-rescue operations; they sniff out bombs, contraband, and diseases; they aid people with special needs; and they provide billions of dog lovers with companionship and joy.

No other animal even comes close to interacting with humans in such a wide variety of ways, so there's got to be something very strong at work to make that bond possible. You know how some people say their dogs are like their children? They're not wrong—at least, as it relates to certain chemical reactions in the brain. In all mammal species, when a mother looks into the eyes of her offspring, both of their brains release a hormone called *oxytocin* that, among other things, reinforces feelings of trust and maternal bonding. A 2015 study at Japan's Azabu University discovered that when a dog and its owner gaze into each other's eyes, that hormone is released by both animals. This is the only case where this happens between two different species. "I have three standard poodles," said lead researcher Takefumi Kikusui, "I participated in the experiment, and my oxytocin boosted up after the eye gaze, like 300 percent." In other words, not only did dogs "self-domesticate," but in doing so they altered human behavior as well. To put it another way, says Kikusui, "We co-evolved."

Worlds Apart

Those are just two of numerous studies that show what we don't really need a study to show: our relationship with *Canis lupus familiaris* (dogs) is both profound and unique. What about *Canis lupus*—the wolf? Kikusui also examined people who had raised wolves from pups. The wolves neither gazed back the way dogs do, nor did their brains release any oxytocin. Although it was an ancient species of wolf that evolved into the modern dog, today's wolves cannot be so domesticated. Nor can their canid cousins: coyotes, foxes, jackals, and hyenas.

Humanity's relationship with the family *Canidae* has always been one of give and take: We take away the wild canines' habitats by developing an area for our own use, which gives them new opportunities to find food and shelter. But when that development goes unchecked, the entire ecosystem can be thrown out of whack. In North America, for example,

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The aardwolf looks nothing like an aardvark. It's a relative of the hyena and is native to Africa. It eats insects—termites mostly—and can consume 250,000 in a single night.

indigenous peoples had thrived alongside of gray wolves for millennia. Then in the 1800s, Europeans transformed the New World's flourishing savannas into endless tracts of farmland. In doing so, the government waged a war of extermination on wolves, which even the environmentalist president Theodore Roosevelt described as "beasts of waste and destruction." By the mid-20th century, the U.S. gray wolf population had been reduced from 500,000 to fewer than 300 (near the Canadian border). This widespread endangerment created a "trophic cascade," a change that occurs from the top downward in the food chain when the apex predator is removed.

The Wolves of Yellowstone

A famous example of how a trophic cascade works—in reverse—was documented in Wyoming's Yellowstone National Park after 66 wolves were reintroduced there in 1995. The wolves immediately reduced the overabundance of grazing animals like deer and elk, which had all but decimated the grasslands. Even more important, the wolves' return changed the deer's behavior by scaring them out of the wide-open meadows. This aerated the soil and revived the grasses and wildflowers. Reduced deer numbers also increased the foliage and undergrowth in the forests, which made the trees grow taller—some to five times their previous height. The increased foliage brought back songbirds, and bears enjoyed the bounty of berries. The thicker undergrowth was ideal for smaller animals like mice, weasels, and beavers. The beavers built more dams in the streams, which created even more habitat in the form of ponds for reptiles, amphibians, fish, and waterbirds. That led to more hunting grounds for raptors, and more carcasses for scavengers.

Within a decade, these biological changes had physically altered Yellowstone's geology. With the grasses and undergrowth restored, soil erosion was greatly reduced, which strengthened the riverbanks and reduced silt in the crystal-clear waters. Result: The barren landscape that Yellowstone had become in the 20th century was reborn a thriving, balanced ecosystem that still exists today. All because of 66 wolves.

Public Enemy No. 1

That's great news for the wild animals *inside* Yellowstone's two million acres. Outside the park, the reintroduction of wolves, reported *National Geographic*, "provoked fear, resentment, and even lawsuits among people concerned about their livestock and livelihoods." Subsequent reintroduction programs have brought wolves back to other U.S. states that haven't seen them for nearly a century, sparking even more controversy. And just as humans and wolves have a tenuous connection, so too do wolves and other wild canids. When the wolves retook Yellowstone, they killed off many of the coyotes.



So many attractions at Universal Studios theme parks are based on Steven Spielberg's movies that he earns up to \$50 million a year in royalties and fees from the parks.

Outside Yellowstone, coyotes (*Canis latrans*, which means “barking dog”) have had an even tougher go of it. Native to western North America, they were first called “prairie wolves” when explorers Lewis and Clark encountered them in 1804. As farmers settled the frontier, coyotes gained a reputation—just as wolves had—for taking livestock. Whereas people feared wolves, they truly despised coyotes. As Mark Twain wrote in 1870:

The coyote is a living, breathing allegory of Want. He is always hungry. He is always poor, out of luck, and friendless. The meanest creatures despise him, and even the fleas would desert him for a velocipede. He is so spiritless and cowardly that even while his exposed teeth are pretending a threat, the rest of his face is apologizing for it. And he is so homely! So scrawny, and ribby, and coarse-haired, and pitiful.

Thanks to this reputation, coyotes were hunted and poisoned with little if any thought to their well-being. But they proved a lot harder than wolves to get rid of.

Wily Coyotes

The first big misconception about coyotes is that they prey on the same animals as wolves. They don’t; they mostly scavenge, but they also hunt mice and rats (which tend to overrun farms when the coyotes are gone). Another misconception is that coyotes behave like wolves, which are strictly pack animals. Coyotes aren’t so bound by instinct. As Dan Flores, author of *Coyote America: A Natural and Supernatural History*, explains, “Coyotes evolved alongside larger canids, like wolves, which often persecuted and harassed them and killed their pups. As a result, coyotes developed a fission-fusion adaptation, which human beings also have. This enables them to either function as pack predators or as singles and pairs.” If a pack is broken up, coyotes can survive on their own until they find others to pack up with again.

Coyotes have another tactic that’s even more impressive: If 70 percent of a local population is killed, then the next season, litter sizes can increase by that same amount to keep their numbers stable. The coyotes’ nightly howling and barking sessions serve as a sort of census-taking to keep track of their numbers. Ironically, the nation’s coyote population was greatly “helped” by government-funded poisoning campaigns in effect until the 1970s. How? Because the coyotes’ efforts to get away from poisoned areas, explained Flores, “was one of the things that kept scattering them across North America.”

So, despite a war of extermination that continues to this day—as many as 500,000 coyotes are shot by ranchers or the U.S. government annually—they’ve managed to inhabit every state in the lower 48. There’s even a thriving coyote population in New

U.S. astronauts aboard the International Space Station vote using absentee ballots. Their address is listed as “low-Earth orbit.”

York City. And it was reported in 2020 that coyotes were inching closer and closer to South America. It will be interesting to see their effect there...especially how they get on with the jaguars.

Outfoxed

There are 12 species of foxes—the genus *Vulpes*—and few have had an easy time with humans. Europeans bred foxhounds specifically to help them hunt the swift creatures for sport. And the fox’s soft, red fur was in high demand for centuries, peaking in the 1970s. The fox is no friend to farmers, either, who must constantly reinforce their chicken coops to keep the cunning canines at bay. Yet despite efforts to reduce or even eradicate foxes, their numbers have remained steady.

Nowhere have foxes had a larger impact than in Australia. In the 19th century, when the British Empire spread Down Under, colonizers brought along European red foxes (*Vulpes vulpes*) solely so they could continue hunting them. A century and a half later, Aussies are still trying to correct that mistake. First to go were the indigenous prey animals that proved no match for the clever, nocturnal hunters. Foxes are so effective, in fact, that they exhibit “surplus killing behavior”—taking more animals than they could ever consume. According to the Australian government, foxes “have contributed to the extinction of several species of small mammals and birds.” So you’ll never get to see a greater bilby, a numbat, a bridled nail-tail wallaby, or a quokka. Foxes also pursue poultry, lambs, baby goats, and, occasionally, cats.

Australia’s government estimates the cost of eradicating these “pests” (their official designation) plus the monetary damage to farmers, at around \$200 million annually. The taxpayer-funded extermination campaign includes “baiting, trapping, and shooting.” Has it worked? Hardly. “The red fox may be the most destructive species ever introduced to Australia,” explains Chris Johnson, professor of wildlife conservation at the University of Tasmania, who blames the animal for playing a major part in the loss of at least 20 Australian mammal species.

Two mammal species that do deter foxes happen to be other canids: the domesticated Maremma sheepdog (originally bred in Italy) and the dingo, a feral breed whose ancestors were domesticated dogs. But these canines can only do so much. By the turn of the 21st century, foxes had spread to every corner of Australia, except one...maybe.

Tasmanian Devils

If foxes were to make it to Tasmania, an island state off Australia’s southern coast, they could wreak havoc on the local wildlife and farm animals like nowhere else on Earth, according to some experts. But are they there already? According to Australia’s



What is “Wi-Fi” short for? Nothing—it’s a play on “Hi-Fi,” which is short for “high fidelity,” a term applied to home stereos beginning in the 1950s.

ABC News, “It has been alleged that hunters smuggled fox cubs into Tasmania around 2000, raised and set them loose in the wild, in order to hunt them.” A police investigation failed to find any hard evidence of a fox population, despite reported sightings. Taking no chances, in 2006 the state government initiated the expensive decade-long “Fox Eradication Program” with the goal of eliminating foxes before they could establish themselves or have any impact on the island’s animal population. This included utilizing “preventative broad-scale poison baiting.” (Game wardens used a toxin called 1080 that affects foxes but not native animals.)

The situation got really ugly when conspiracy theories emerged that government agents had planted fake fox evidence to justify the high costs of the \$50 million program, which was abruptly canceled with no real evidence that any foxes had been found or eradicated. Then, in October 2016, the state’s Invasive Species Hotline received a call about a dead fox on a street corner in northern Tasmania, renewing the debate in the news and online. One person commented, “I saw a live fox last time I was there. I didn’t realize there weren’t supposed to be any until I saw a TV program later.” At last report, there were “officially” zero red foxes on Tasmania. Hopefully it stays that way, and not just for the sake of the local critters; foxes and coyotes can do harm to people, too—and you don’t even have to touch them.

Beware of Dog

The U.S. Centers for Disease Control and Prevention estimates that there are 4.7 million domestic dog bites in the United States every year, with 800,000 requiring a visit to the doctor, and 30 to 50 resulting in fatalities. Other than a mauling, the greatest threat from dogs is rabies, which causes the infected animal to become overly aggressive and likely to bite, thus transmitting the fatal disease to humans. That’s one of the biggest risks of exposing domestic dogs to their wild counterparts. Along with bats, skunks, and raccoons, foxes and coyotes are the animals most likely to spread rabies to dogs—as well as other diseases like mange, canine distemper, and CPV (canine parvovirus infection).

Direct attacks of wild canids on humans are rare, but they do happen, as in the case of Norman Kenney. The 88-year-old Mainer was attacked by two foxes in two separate incidents in the fall of 2019. The second fox bit him several times... and he later tested positive for rabies. Without several rounds of painful injections, Kenney would have died. When asked why foxes were targeting him, he answered, “I wish I knew.” Kenney’s experience aside, very few of these wild dog attacks occur, and only one to three Americans contract rabies in a given year. Coyotes, foxes, and wolves—even the rabid ones—tend to keep their distance when given the chance. And if you’re scared of being eaten by a wolf, it’s very unlikely. There have been only two documented cases of North Americans being killed by wolves in the last century.

The Volkswagen auto plant in Wolfsburg, Germany, produces more sausages than cars. (The links have their own part number: #199 398 500 A.)

A Wag of the Tail

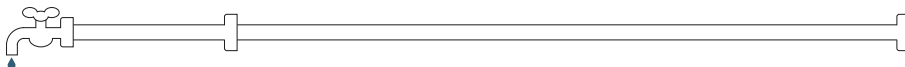
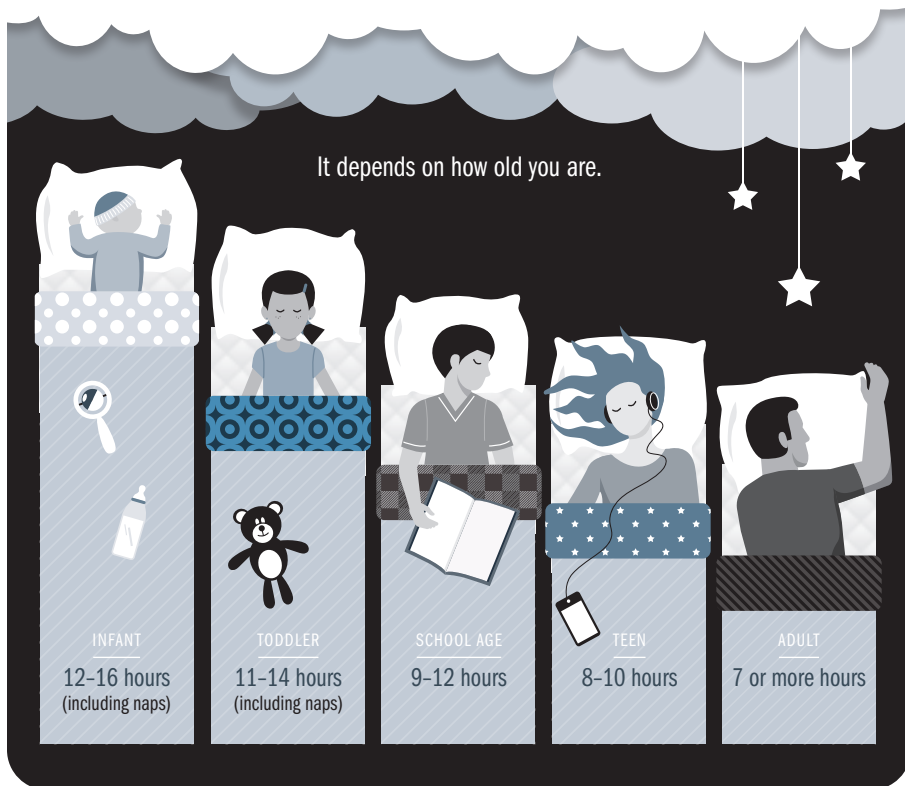
Canines have had a profound impact on human civilization and the natural environment, much of it positive, some of it negative. But history has proven again and again that we work much better with them than against them—even though this partnership doesn't always end well (as in the case of the foxes). The challenge is to co-exist with these animals when possible, and when necessary, to minimize the damage they do to native species and other living creatures. Either way, dogs—wild or domesticated—are survivors. They always seem to find a way to live on.

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“Be the person your dog thinks you are.”

—J. W. Stephens

HOW MUCH SLEEP DO I NEED?



Make a note of it: Isaac Newton predicted that the world will end “no earlier than 2060.”