The Hidden Lives of Cephalopods

With their suction cup–covered tentacles capable of tasting through their skin, their boneless bodies that can squeeze through the tiniest of holes, and their magnificent ability to shape-shift and change color, it's easy to understand why octopuses and their cephalopod relatives squids and cuttlefish are often referred to as "intelligent aliens."

Resourceful, cunning, and curious, cephalopods have been observed using tools and impersonating other animals. In captivity, they've opened child-proof jars and played with dolls and Legos.

What the Experts Say

When it comes to sentience, the science is clear: Cephalopods are capable of experiencing pain. Just like dogs, cows, and chickens, they have complex nervous systems, try to escape from noxious stimuli, show physiological stress responses, and guard their wounds—their reactions when harmed fulfill the scientific criteria for pain.

Dr. Jennifer Mather, a leading expert on cephalopod sentience, explains that octopuses "can anticipate a painful, difficult, stressful situation—they can remember it. There is absolutely no doubt that they feel pain." When asked about ghastly live-animal dishes—for which octopuses and other animals are mutilated and served alive—Mather added, "[T]he octopus, [whom] you've been chopping to pieces, is feeling pain every time you do it. It's just as painful as if [he or she] were a hog, a fish, or a rabbit, if you chopped a rabbit's leg off piece by piece. So it's a barbaric thing to do to the animal."

Mischievous Masterminds

Quite the masters of illusion, cephalopods can change color and texture, and they even walk on two limbs or take on the appearance of rocks to fool predators. The mimic octopus can impersonate more than 15 different marine species, including sea snakes and flatfish.
In captivity, octopuses have been known to make a run for it when no one is watching. Famed octopus Inky made international headlines in April 2016 after he climbed out of an aquarium tank, traversed the floor, and slid down a 164-foot pipe to freedom. Otto, an octopus at a German aquarium who was already notorious for juggling hermit crabs and rearranging his tank, repeatedly short-circuited an annoying bright light by climbing onto the rim of the tank and squirting it with water.

Cephalopods are capable of recognizing and learning from one another, and they can remember individual humans. A laboratory in New Zealand reported that an octopus took a disliking to one staff member and squirted her with water whenever she passed, while many captive cuttlefish have been known to soak new visitors.

Like chimpanzees, crows, humans, and dolphins, octopuses use tools. Veined octopuses carry coconut shells across the ocean floor and climb inside them for protection. Blanket octopuses snatch venomous tentacles from Portuguese man-of-wars and wield them like swords.

Given their knack for problem-solving and their feisty personalities, it's no surprise that scientists declared in the 2012 Cambridge Declaration on Consciousness that cephalopods, like mammals and birds, experience the world consciously.

The Hidden Lives of Chickens

Leading animal behavior scientists from around the globe know that chickens are inquisitive and interesting animals whose cognitive abilities are on a par with those of cats, dogs, and even some primates.

Like all animals, chickens love their families and value their own lives. Their social nature means that they're always looking out for their families and for other chickens in their group. People who have spent time with them know that they have complex social structures and adept communication skills, just as we do.

They can complete complex mental tasks, learn from watching each other, demonstrate self-control, and worry about the future. Chickens comprehend cause-and-effect relationships and understand that objects still exist even after they're hidden from view.

Social Smarts
When chickens are in their natural surroundings, not confined to factory farms, they form complex social hierarchies (aka "pecking orders")—all chickens know their place on the social ladder, remembering the faces and ranks of more than 100 other birds. Scientists agree that their complex social structures and good memories are undeniable signs of advanced intelligence comparable to that of mammals.

People who have spent time with chickens know that each bird has a unique personality that often relates to placement in the pecking order. Some are gregarious and fearless, while others are shy and watchful. Some enjoy human company, while others are standoffish or even a bit aggressive. Just like every dog, cat, and human, each chicken is an individual with a distinct personality.

Did You Know?
Researchers have also found that chickens have cultural knowledge that they pass down from generation to generation. In an ethically challenged study at University of Bristol in the U.K., chickens were fed a mixture of yellow and blue corn kernels. The blue kernels were tainted with chemicals that made the birds feel sick, and they quickly learned to avoid them. When these hens' chicks hatched, yellow and blue corn (which was harmless this time) was spread around the farm. The mother hens remembered that the blue corn had previously made them sick, so they carefully steered their chicks away from it.

Chickens also have impressive communication skills. They use dozens of types of vocalizations to distinguish between threats that are approaching by land and those that are approaching over water, and a mother hen begins to teach these calls to her chicks before they even hatch. She clucks softly to them while sitting on her eggs, and the chicks chirp back to her and to each other from inside their shells.

The Hidden Lives of Cows

Cows are as diverse as cats, dogs, and humans. Some are very quick learners, while others are a little slower. Some are bold and adventurous, while others are shy and timid. Some are friendly and considerate, while others are bossy and devious.

Cows are generally quite intelligent animals who can remember things for a long time. Animal behaviorists have found that they interact in socially complex ways, developing friendships over time and sometimes holding grudges against other cows who treat them badly.

These gentle giants mourn the deaths of or even separation from those they love, sometimes shedding tears over their loss. The mother/calf bond is particularly strong, and there are countless reports of mother cows who have continued to call and search frantically for their babies after they've been taken away and sold to veal or beef farms.

Brainy Bovines
Research has shown that cows clearly understand cause-and-effect relationships—a sure sign of advanced cognitive abilities. For example, they can learn how to push a lever to operate a drinking fountain when they're thirsty or to press a button with their heads to release grain when they're hungry. Researchers have found that cows not only can figure out problems but also enjoy the intellectual challenge and get excited when they find a solution, just as humans do.

Pecking Orders Aren't Just for Chickens
A herd of cows is very much like a pack of wolves, with alpha animals and complex social dynamics. Each animal can recognize 50 or more members of the herd, and relationships are very important to cows. They consistently choose leaders who have good social skills and are intelligent, inquisitive, self-confident, and experienced—while pushiness, selfishness, large size, and brawniness are not recognized as suitable leadership qualities.

Raising cows in unnatural conditions, such as on crowded feedlots, causes them distress because it upsets their social hierarchy. Researchers note that cows who are kept in groups of more than 200 on commercial feedlots become stressed and constantly fight for dominance. (Feedlots in the U.S. hold thousands of cows at a time.)

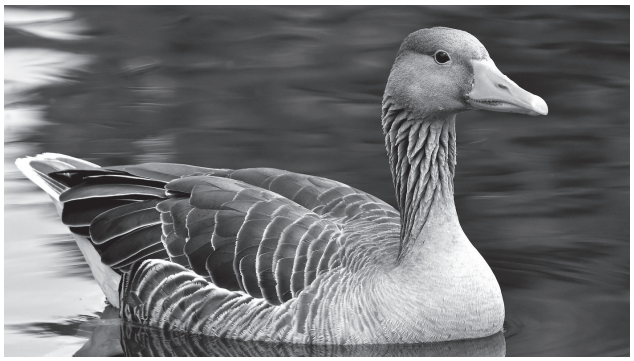
Cows Value Their Lives
Like all animals, cows value their lives and don't want to die. Stories abound of those who have gone to extraordinary lengths to fight for their lives.

A cow in Virginia named Idabelle was about to be loaded onto a freighter bound for Venezuela when she turned around, ran back down the gangplank, and leaped into the river. Even though she was pregnant, she managed to swim all the way across the river, eluding capture for several days. She was rescued by PETA and sent to a sanctuary.

When workers at a slaughterhouse in Massachusetts went on break, Emily the cow made a break for it. She took a tremendous leap over a 5-foot-tall gate and escaped into the woods, surviving the harsh New England winter weather with the aid of concerned local residents who began watching for her and leaving out hay for her to eat.

When she was caught several weeks later by the owners of a nearby sanctuary, the public demanded that the slaughterhouse allow the sanctuary to buy her for $1. Emily lived out the rest of her life in peace. Her story is a testament to the fact that eating meat means eating animals who don't want to die.

The Hidden Lives of Ducks and Geese



Geese: A Lesson in Family Values
Geese are very loyal. They mate for life and are protective of their partners and offspring. They often refuse to leave the side of a sick or injured mate or chick, even if winter is approaching and the others in the group are flying south. If their mate dies, they will mourn in seclusion—and some geese spend the rest of their lives as widows or widowers, refusing to mate again. This enduring bond was evident in a series of photos that went viral in which a distraught male goose in China was seen giving his mate a "kiss" goodbye as she was being loaded onto a motorcycle to be taken to slaughter.

Geese enjoy preening, foraging for food in the grass, and collecting twigs, bark, and leaves to make improvements to their nests. They lay eggs once a year in the spring, and females incubate them for 30 days while their mates guard their well-concealed homes. Some birds like to use the same nest each year if they can.

A Lesson in Teamwork
Multiple families of geese come together to form a larger group called a *gaggle*, in which birds look out for each other. There are usually one or two "sentries" who keep watch for predators while the others feed. The gaggle members rotate sentry duty, like sailors standing watch on a ship. Observers have noted that healthy geese sometimes look after injured comrades and that injured birds stick together to protect each other from predators and help each other find food.

Geese are adept at flying and may travel thousands of miles during their yearly migrations. Flocks fly in a characteristic "V" formation so that the geese in front reduce the air resistance for those behind them, which helps the birds fly about 70% farther as a group than they could on their own. They rotate from the front to the back when they get tired, and those in the rear honk their encouragement to the leaders. Geese have long memories, and they use familiar landmarks and the stars to navigate during their annual journeys.

Ducks are outgoing social animals who feel most at ease when they're in large groups, which are called *paddlings* when on water. They spend their days looking for food in the grass or in shallow water, and they sleep with their paddling-mates at night. They're meticulously clean animals who keep their nests free of waste and debris, and they enjoy preening and flaunting their beautiful plumage for potential mates. In nature, they live for up to 10 years.

Ducks can travel hundreds of miles each year during their migrations. Like geese, they fly in formation for protection and to reduce air resistance, and they can travel at speeds of up to 60 miles per hour!

Duck Dialects
Ducks use vocalizations and body language to communicate. Researchers at Middlesex University London in the U.K. reported that ducks even have regional accents, just as humans do. The scientists found that city ducks have more of a "shouting" quack so that other birds can hear them above the hustle and bustle, while country ducks have softer voices.

The Hidden Lives of Fish

What the Experts Say
Dr. Sylvia Earle, one of the world's leading marine biologists, said, "I never eat anyone I know personally. I wouldn't … eat a grouper any more than I'd eat a cocker spaniel. They're so good-natured, so curious. You know, fish are sensitive, they have personalities, they hurt when they're wounded."

Scientists are learning more and more about our finned friends, and their discoveries are fascinating.

Hundreds of scientific papers about fish intelligence show that these animals are smart, they can use tools, and they have impressive long-term memories and sophisticated social structures. A paper published in the journal *Fish and Fisheries* said that they're "steeped in social intelligence … exhibiting stable cultural traditions, and cooperating to inspect predators and catch food."

Dr. Culum Brown, a Macquarie University biologist who is studying the evolution of cognition in fish, says this: "Fish are more intelligent than they appear. In many areas, such as memory, their cognitive powers match or exceed those of 'higher' vertebrates including non-human primates."

Fish's long-term memories help them keep track of complex social relationships. Their spatial memory allows them to create cognitive maps that guide them through their watery homes, using cues such as polarized light, sounds, odors, and visual landmarks. Brown says that "fish perception and cognitive abilities often match or exceed other vertebrates."

Dr. Theresa Burt de Perera of Oxford University says this: "We're now finding that [fish] are very capable of learning and remembering, and possess a range of cognitive skills that would surprise many people."
An article about fish intelligence in the U.K.'s *Telegraph* supports this claim. It reports that Brown has found the following about fish who were cruelly kept in a net inside a tank: "Australian crimson spotted rainbowfish, which learnt to escape from a net in their tank, remembered how they did it 11 months later. This is equivalent to a human recalling a lesson learnt 40 years ago."

Furthermore, a scientific review presented to the Australian Veterinary Association disproved the myth that goldfish have three-second memories—instead, veterinarians found that they have impressive memories and problem-solving abilities. One of the researchers said that after conducting the review, "We're wanting to get [the] message out to the broader veterinary community to start looking more closely at fish and considering their welfare like they do other animals."

More Fascinating Facts About Fish
- Fish talk to each other using squeaks, squeals, and other low-frequency sounds that humans can hear only with special instruments.
- They like physical contact with other fish and often gently rub against one another in the same way cats weave in and out of their guardian's legs.
- Scientists documented that cichlids would play with a bottom-weighted thermometer, intentionally knocking it over just so that they could watch it bounce back up again.
- When cleaner fish—who nibble parasites and dead tissue off larger, predator fish—accidentally bite their "clients," they make amends by giving the larger fish back rubs.
- Fish even use tools. The blackspot tuskfish, for example, has been photographed smashing a clam on a rock until the shell breaks open. Pearlfish use oyster shells as speakers to help amplify the volume of their communications.
- Goldfish have longer sustained attention spans than humans, according to a study by Microsoft, which found that the small fish can concentrate for nine seconds compared to eight for humans.

The Hidden Lives of Frogs

Frogs are best known for their webbed feet and flying leaps, but these complex, sensitive animals have many other amazing characteristics and capabilities.

Frog Families
Many frog species are devoted—and resourceful—parents. Some species of dart frogs lay eggs on the forest floor, guarding them from predators and keeping them moist by urinating on them if they become too dry. In other species, after the tadpoles hatch, the parents carry them on their backs to a water-holding bromeliad (flowering plant). The parents then feed the tadpoles by laying unfertilized eggs in the bromeliad for them to eat until they have metamorphosed.

Some frogs even protect their offspring inside their own bodies. The male Australian pouched frog has pouches along his side, where the tadpoles live until metamorphosis. Darwin's frogs from Chile hold tadpoles in their vocal sacs for development.

Male bullfrogs defend their territory by inflating their lungs and floating in open water. If another male gets closer than about 6 meters, the guarding frog will make a sharp, staccato "hiccup" sound and move toward the intruder. Usually, the intruder will leave, but if he doesn't, the two frogs will leap at each other until one is forced onto his back.

Most frogs live in moist areas, such as ponds and creeks. Some species, such as the Catholic frog and the flat-headed frog, can survive in desert environments by using a technique called bloating, in which they burrow underground during the dry season and surface during the rainy season to absorb as much water as possible before burrowing again.

Frogs absorb oxygen and moisture through a thin film covering their skin that allows oxygen to be dissolved and passed into their bloodstream. Because of this, they're very susceptible to environmental toxins. Pollution, pesticides, and habitat destruction are some of the components contributing to declining frog populations.

Countless frogs are tortured, killed, and deprived of everything that's natural and important to them in classroom dissection exercises. Pins are stuck through their skulls to destroy their brains, and they're dissected while their hearts are still beating. Frogs are also used in pharmaceutical development and are sold as desktop "decorations" by the pet industry, doomed to bleak lives in small plastic boxes, in which they're slowly poisoned by their own waste.

Fun Facts About Frogs
- Many frogs secrete mild toxins that make them undesirable to potential predators, including irritants, hallucinogens, convulsants, nerve poisons, and vasoconstrictors (which constrict blood flow).
- Poisonous frogs are often brightly colored to warn potential predators. At least two nonpoisonous species of frogs in tropical America mimic the coloration of poisonous dart frogs for protection.
- Female gastric-brooding frogs from Australia (who are now probably extinct) swallow their tadpoles, who then develop in her stomach. To do this, she must stop secreting stomach acid and suppress peristalsis (contractions of the stomach).
- Some frog species use a "babysitter" to watch over their eggs until they hatch. In a few species, one of the parents watches over the eggs and sometimes cares for the tadpoles, too.
- In some species, male frogs create choruses during mating season in order to attract more females.

The Hidden Lives of Pigs

When in their natural surroundings—not on industrial farms—pigs are social, playful, protective animals who bond with each other, make nests, and relax in the sun. Pigs are known to dream, recognize their own names, learn "tricks" like sitting for a treat, and lead social lives of a complexity previously observed only in primates. They've been seen showing empathy for other pigs who are happy or distressed. Many even sleep in "pig piles," much like dogs sleep nestled together. Some love to cuddle, while others prefer to have their space. And they don't "sweat like pigs"—they're actually unable to sweat, and they like to bathe in water or mud in order to keep cool.

People who run animal sanctuaries that harbor pigs note that they're more similar to humans than some might guess. Like us, they enjoy listening to music, playing with soccer balls, and getting massages. They can even play video games!

What the Experts Say

Pigs communicate constantly with one another. More than 20 types of oinks, grunts, and squeals have been identified, which they use for different situations—from wooing their mates to expressing hunger. Newborn piglets learn to run toward their mothers' voices, and mother pigs "sing" to their young while nursing.

They also have very long memories. Dr. Stanley Curtis, formerly of Penn State University, put a ball, a Frisbee, and a dumbbell in front of several pigs and was able to teach them to jump over, sit next to, or fetch any of the objects when asked to—and they could distinguish between the objects three years later.

Biologist Tina Widowski studies pigs and marvels at their intelligence: "When I was working with the monkeys, I used to look at them and say: 'If you were a pig, you would have this figured out by now.'"

Scientists at the University of Illinois have learned that not only do pigs have temperature preferences, but they can also figure out through trial and error how to turn on the heat in a cold barn and turn it off again when they get too warm.

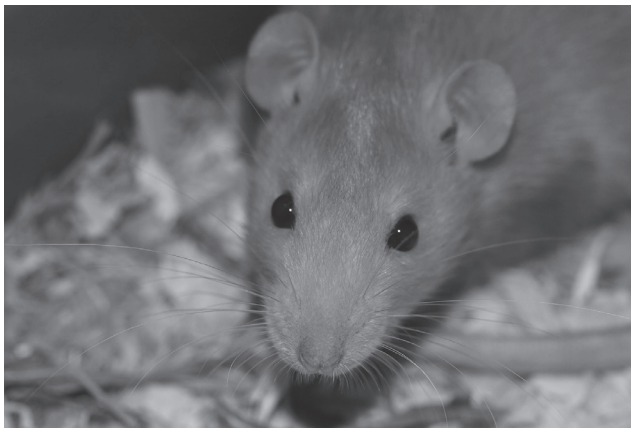
Pig Prowess

Pigs have been known to save the lives of others, including their human friends. According to BBC News, a pig named Pru saved her guardian's life by dragging her out of a muddy bog. "I was panicking. I didn't know what to do and I think the pig sensed this," she said. "Without Pru I wouldn't have been able to get out of the mire."

In addition to Pru, there's Priscilla, a pig who saved a young boy from drowning, and Spammy, who led firefighters to a burning shed to save her calf friend Spot. And Lulu the pig found help for her human companion, who had collapsed from a heart attack. A pig named Tunia chased away an intruder, and another, named Mona, held onto the leg of a suspect attempting to flee until the police arrived.

Many who have ended up in sanctuaries found their new homes after jumping off slaughterhouse-bound trucks and escaping. And in England, a stone carving of a pig named Butch was placed at a historic cathedral after he and his friend Sundance escaped from a slaughterhouse and roamed the countryside for several days before being captured. Fortunately, a national outcry against their slaughter allowed the duo to go to a sanctuary.

The Hidden Lives of Rats and Mice



Rats and mice are highly intelligent. They are natural students who excel at learning and understanding concepts. Rats are considerably smaller than dogs, but they're at least as capable of thinking about things and figuring them out as dogs are. While rats are much smaller than elephants, they have excellent memories. And although their eyesight is poor, once rats learn a navigational route, they never forget it.

Social Smarts

Both mice and rats are also highly social animals. They become attached to each other, love their own families, and easily bond with their human guardians—returning as much affection as is given to them. Many rats even "groom" their human companions' hands and appreciate a massage, a scratch behind the ears, or even a tickle in return.

Recent studies by Jaak Panksepp, a neuroscientist at Bowling Green State University, suggest that when rats play or are playfully tickled, they make chirping sounds that are strikingly similar to human laughter. The rats he studied also bonded socially with the human tickler and even sought to be tickled more. Panksepp corroborates what rat lovers have known all along: "[Y]oung rats have a marvelous sense of fun."

Male rats like to snuggle and cuddle and are content when curled up in a person's lap. Although female rats are just as affectionate, they tend to be tremendously energetic and inquisitive. Rats love seeing kind people and will often bounce around waiting to be noticed and picked up. They can form such a strong bond with their human companions that if they're suddenly given away to someone else or forgotten, they can pine away—and even die.

It is estimated that tens of millions of rats and mice are killed in experiments each year in the U.S. alone. With the popularity of genetic engineering, the numbers are increasing. These small, sensitive creatures are not even protected under the federal Animal Welfare Act, which exempts birds, rodents, and coldblooded animals entirely from consideration.

Did You Know?

- Mice and rats are fastidiously clean, grooming themselves several times a day. In fact, they're less likely than dogs or cats to catch and transmit parasites and viruses.
- Mice and rats are highly social animals. They communicate with each other using high-frequency sounds that we can't hear without instrumentation. They have even been recorded "singing" like birds but at ultrasonic frequencies. They play together, wrestle, and love sleeping curled up together. Much like us, if they don't have companionship, they can become lonely, anxious, depressed, and stressed.
- Rats have clearly demonstrated empathy. In one ethically questionable study, the vast majority of the rats tested chose to help another rat who was being forced to tread water, even when they were offered the opportunity to receive a chocolate treat instead.
- Rats can recognize expressions of pain on other rats' faces and react to them.
- Mice and rats are so smart that they can recognize their names and respond when called.
- Mice are choosy. They like variety and pick through their food, eating the tastiest parts first and separating out what they dislike.
- Female mice with litters vigorously defend their nests and their young.
- If not forced to live in a dirty cage, a rat's skin has a very pleasant perfume-like scent.

The Hidden Lives of Sheep

Sheep are gentle, sensitive animals who are emotionally complex and highly intelligent. The following recent studies have found that sheep and humans have many things in common.

What the Experts Say
Keith Kendrick, a professor of medicine at Gresham College in London, found that sheep can distinguish between different expressions in humans and can detect changes in the faces of anxious sheep. He also discovered that they can recognize the faces of at least 50 other sheep and can remember 50 different images for up to two years.

Professor John Webster of the University of Bristol found that, like humans, sheep visibly express emotions. When they experience stress or isolation, they show signs of depression similar to those that humans show, hanging their heads and avoiding positive actions. Like us, sheep experience fear when they're separated from their social groups or approached by strangers. Sheep's heart rates have been found to increase by 20 beats per minute when they're unable to see any members of their flock and by 84 beats per minute when approached by a man and a dog.

Captivating Personalities
When PETA staff members Carrie and Jackie visited the Poplar Spring Animal Sanctuary in Maryland, they found out just how captivating sheep and lambs can be. Playful and puppy-like, the sheep wagged their tails when they were stroked. They affectionately nuzzled and head-butted the women in order to get their attention.

One sheep, named Adam, who loved to cuddle and have his face stroked, made a big impression on the two staff members. "Adam was set to be a religious sacrifice before being rescued in the Washington, D.C., area. I couldn't even begin to fathom such a hideous fate for the sheep who was softly stroking my neck with his warm, fuzzy face," recalls Jackie.

Carrie also found that spending time with sheep was an eye-opening experience: "I had always seen sheep depicted as herd animals who didn't have individual personalities. While I knew that this wasn't true, my experience with such affectionate and personable sheep truly made me understand what unique animals they are and how horribly cruel it is that they suffer so greatly in wool production and live export."

Cruelty in the Wool Industry
Although sheep are intelligent, social, emotional beings—just as humans are—the wool industry continues to abuse them in ways that would warrant cruelty-to-animals charges if dogs or cats were the victims. When they're still lambs, sheep in Australia—the world's leading exporter of merino wool—are subjected to *mulesing*, a cruel mutilation in which farmers carve skin and flesh from the animals' backsides, often without giving them any painkillers. Every year, millions of unwanted Australian sheep are loaded onto extremely crowded multitiered cargo ships and sent on a terrifying journey to the Middle East or North Africa, where their throats are cut—often while they're still conscious.

The Hidden Lives of Turkeys

Many people think of turkeys as little more than holiday centerpieces, but they are social, playful birds who enjoy the company of others. They relish having their feathers stroked and like to chirp, cluck, and gobble along to their favorite tunes. Anyone who spends time with them at farm sanctuaries quickly learns that turkeys are as varied in personality as dogs and cats.

Take Mayflower, for example. After being rescued from a Pennsylvania auction, where he was about to be sent to slaughter for someone's Thanksgiving dinner, he befriended Lucy and Ethel, two chickens at a sanctuary in Middleburgh, New York. He was smaller than they were when he arrived but quickly grew to be four or five times their size. That doesn't bother them though—they still do everything together, including cuddling up for naps, foraging in the grass, and enjoying fresh fruits and veggies.

Talking Turkey

- Wild turkeys can fly at speeds of up to 55 miles per hour and run at speeds of up to 25 miles per hour. Their natural life expectancy is up to 10 years, but on industrial farms they're slaughtered when they're just 5 months old.
- When not forced to live on filthy factory farms, turkeys spend their days caring for their young, building nests, foraging for food, taking dust baths, preening themselves, and roosting high in trees.
- People who care for turkeys at sanctuaries call them "natural detectives." They are naturally curious, always checking out new sights and smells, and they enjoy greeting visitors.
- Male turkeys (aka "toms") are bigger and have more colorful plumage than female turkeys (aka "hens"). The males attract females with their wattles (colorful flaps of skin around their necks) and tufts of bristles or beards that hang from their chests.
- Turkeys are born with full-color vision just like that of humans, and in nature they stay with their mothers for up to the first five months of their lives. These gentle birds are by nature very bonded to their young—mother turkeys courageously defend their family against predators.
- Erik Marcus, author of *Vegan: The New Ethics of Eating*, has spent a considerable amount of time with turkeys at farm sanctuaries. He reports, "Turkeys remember your face and they will sit closer to you with each day you revisit. Come back day after day and, before long, a few birds will pick you out as their favorite and they will come running up to you whenever you arrive. It's definitely a matter of the birds choosing you rather than of you choosing the birds. Different birds choose different people."