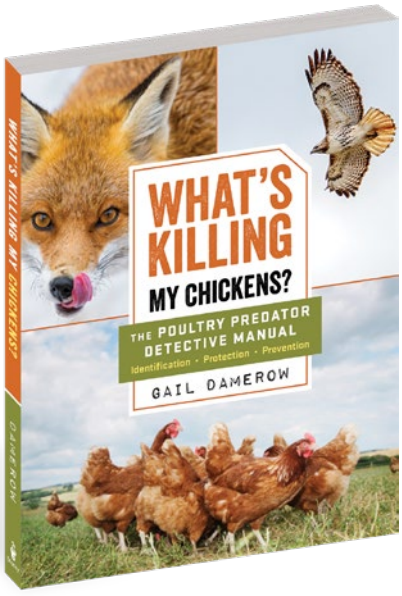
A CLOSER LOOK AT THE LIVES OF SELECTED PREDATORS

A DOWNLOADABLE SUPPLEMENT TO
WHAT'S KILLING MY CHICKENS?



GAIL DAMEROW

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HAWKS AND EAGLES

Accipiters

Sharp-Shinned Hawk

Sharpshins (*Accipiter striatus*) are named for the cross-sectional shape of their legs, which isn't round as in other birds. Rather the front is compressed into a sharp edge. They have long middle toes, which they use to skewer prey. The size difference between the smaller male and larger female is much greater than for other raptors — the male sharpie is about the size of a blue jay; the female is about the size of a male Cooper's hawk. Sharpies look and act so much like Cooper's hawks that sometimes even experienced bird watchers have trouble telling which is which.

Like the Cooper's hawk, sharpies are gray on the back, sport red barring on the chest, and have banded tails. They are more secretive than Cooper's hawks, their nesting range extends farther north, and they are more migratory. During winter months, the northernmost populations spread throughout most of the continental United States, where they may be spotted in public parks and private backyards wherever songbirds congregate.

Eagles

Although eagles are members of the same family (Accipitridae) as hawks, the two eagle species resident in continental North America are not closely related to each other. The bald eagle is classified as a sea eagle and is of the genus *Haliaeetus*. The golden eagle is classified as a land eagle and is of the genus *Aquila*.

Bald Eagle

This raptor is exceeded in size only by the spectacular, and rare, California Condor. A female bald eagle (*Haliaeetus leucocephalus*) — 25 percent larger than the male, which is typical for raptors — can weigh as much as 14 pounds and have a wingspan in excess of 8 feet. However, size varies widely from the larger eagles of Alaska and Canada to the smaller specimens residing in the southern United States.

A bald eagle takes about five years to mature, during which time it goes through gradual color changes. A young bald eagle can be difficult to distinguish from a golden eagle or a vulture, but a mature bald eagle is easy to identify by its dark brown body with a pure white head and tail.

The scientific name for this bird means "white-headed sea eagle." The common name *bald* also refers to the white head, but experts are in disagreement as to why. Some say the white plumage gives this eagle a bald look from a distance. Others say that *bald*, in this case, derives from the Celtic word *bal*, meaning "white patch on an animal's head." Still others maintain that *bald* is short for "piebald," describing an animal of two different colors (in this case, dark brown and white).

A bald eagle hunts both by soaring and by the sit-and-wait method. It can catch prey many times its own size but can't carry more than a few pounds while flying. The preferred diet is fish, and the eagle isn't fussy whether the fish is alive or dead (carrion). A bald eagle can eat a large amount in a short time, then not eat again for several days. During the breeding season, eagles nest near an abundant supply of fish. But during winter migration an eagle will eat whatever is easiest to find, which may well be a chicken or a duck.

Golden Eagle

Golden eagles (*Aquila chrysaetos*) prefer open terrain — such as desert, plains, rangeland, or tundra — and avoid both highly developed areas and continuous tracts of forest. Where the topography is broken, they hunt by contour hugging, like a Cooper's hawk. In open habitats, they hunt by soaring on sunny or

windy days. On calm overcast or rainy days, they use the sit-and-wait technique, like a red-tailed hawk. Sometimes a pair hunts together, with one distracting the prey while the other grabs it.

They prefer rabbits, ground squirrels, and other small mammals up to about the size of a fox, but they will also take down mammals as large as a deer, bobcat, coyote, or even a wolf. Although the majority of the golden eagles' diet consists of mammals, they also like large birds, including pheasant-size poultry as well as turkeys and geese.

Falcons

Small to medium-sized raptors, falcons have long tails and long, narrow, pointed wings that make them fast and acrobatic fliers. The word *falcon* derives from the Latin *falx*, meaning "curved blade or sickle," which may refer to the shape of the wings in flight, to the talons, or to the beak.

On the cutting edge of a falcon's upper beak are triangular tooth-like projections, one on each side near the hooked point. These protrusions are called *mandibular tomia*, or more commonly, *tomial teeth*. On the lower beak are a pair of matching notches. Acting like scissors, the lever action provided by these tomial teeth swiftly kills prey by snapping the neck or crushing the head.

The largest falcon species, the gyrfalcon (*Falco rusticolus*) is commonly gray in North America but also may be either white or brown. The name *gyrfalcon* (pronounced JER-falcon) derives from the old Germanic word *gir*, meaning "vulture."

Resembling pigeons in flight, merlins (*Falco columbarius*) are sometimes called pigeon hawks, and in fact, the scientific name *coumbarius* is Latin for "pigeon." The word *merlin* is a shortened form of the French word *émerillon*, meaning "small hawk."

For more information on raptors, see pages 131–151 in *What's Killing My Chickens?*.

OWLS

Snowy Owl

Away from the tundra, snowy owls (*Bubo scandiacus*) don't vocalize much. The only way to know they are in your area is by seeing one. At www.ebird.org, you can sign up to receive an email alert whenever snowy owls are spotted anywhere in the lower 48 states.

Coming from a region of 24 hours of daylight during summer and 24 hours of dark during winter, snowy owls are adapted to hunting at any time of day or night. Because they make their home in the treeless tundra, they nest on the ground and typically fly close to the ground. They hunt by either hovering in the air or standing on a rise to watch for movement of prey. Away from the tundra they look for rolling terrain that offers vantage points for hunting, or they will make use of such vantage points as hay bales, fence posts, telephone poles, and barn roofs.

During an irruption, the owl version of migration, they settle in treeless, rolling terrain that reminds them of home. They prefer open fields and farmland where rodents are numerous. When rodents are scarce, they look for other easy prey in abundance. They are powerful birds, capable of taking poultry as large as geese. Still, if I ever see a snowy owl, I will feel greatly privileged.

Great Gray Owl

Although great gray owls (*Strix nebulosa*) are the largest North American owls in size, they weigh less than either the snowy or the great horned and have smaller feet and talons. Most of the massive bulk consists of feathers that keep this owl warm in its boreal forest habitat. Its home territory extends from Alaska through western Canada and into the northern Sierra Nevada and Rocky Mountains, where it favors a combination of dense forest for nesting and open areas for hunting. Like snowy owls, great gray owls are nonmigratory, but periodically they irrupt southward.

Also like the snowy owl, the great gray may be active at any time of the day or night. It hunts by watching from a high perch or by flying low and slow over meadows so effortlessly it appears to float. Aside from its larger size, it looks much like its relative, the more common barred owl, but has small yellow eyes, is smudgy gray rather than brown, and sports a distinctive white bow tie. Despite being extremely secretive, the great gray is rather calm and readily approachable by humans.

Although capable of killing sharp-shinned hawks, great grays rarely prey on birds of any kind, much preferring voles and other small mammals, including weasels. For a chicken keeper, making a choice between great gray owls and weasels should be a no-brainer. If I were I lucky enough to live within this owl's home range, I'd try to attract a breeding pair by constructing a nest platform according to the great gray owl nest structure plan available at www.nestwatch.org.

For more about owls, see pages 152–159 in *What's Killing My Chickens?*.

RACCOON FAMILY

The raccoon family (Procyonidae) originated in the American tropics. Of the 18 species, only raccoons have spread as far north as southern Canada. Two others, coatis and ringtails, make their home in limited areas of the United States.

Coati

The coati (*Nasua narica*) may be found in the United States only in the southernmost parts of Arizona, New Mexico, and Texas. Its taxonomic name, *Nasua*, refers to its impressive snout, deriving from the Latin word *nasus*, meaning "nose." Coatis have long, flexible, pig-like snouts, giving them one of their many common names, hog-nosed raccoon. Because their muzzle is white, another common name for the creature is white-nosed coati.

The body fur may be buff, reddish, light to dark brown, or nearly black, and the long tail has half a dozen dark rings. The nongrasping tail is used for balance while climbing. Unlike other procyonids, coatis are active during the day, although when they live near humans they adapt to making food raids during the safety of night.

The name *coati* comes from their habit of curling up to sleep, usually in a tree. The term derives from the Tupian Indian words *cua*, meaning "belt," and *tim*, meaning "nose," referring to the coati's sleep position with its nose tucked to its belly.

Female coatis and their offspring travel in sometimes sizable groups. Except during breeding season, males — which are nearly twice the size of a female — live alone. The coati is sometimes called a coatimundi, which technically is a Brazilian term for a solitary male.

As well as enjoying fruit, coatis dine on insects and other invertebrates, which they dig up using their snouts and long claws. After rooting through an area, they can leave the soil looking like it's been rototilled. They also eat carrion, small rodents, lizards and frogs, eggs, and free-range poultry, which they kill by biting off the head.

Ringtails

In the United States, ringtails (*Bassariscus astutus*) have a stronger presence than coatis but are not as widespread as raccoons. They range throughout the Southwest to the West Coast, northward into southern Oregon, and eastward into Louisiana. They are equally at home in rocky cliffs and forests, as well as in rural and urban areas, provided the habitat has a reliable source of drinking water.

Like coatis, ringtails go by many different names. The term *ringtail* refers to the raccoon-like bands of colored fur gracing the tail. The taxonomic name refers to this animal's foxlike appearance, deriving from the Greek words *bassár,* meaning "fox," plus *iskos*, meaning "little," and the Latin word *astuta*, meaning "cunning," or "cunning little fox."

Although it is not a member of the cat family, the cat-size ringtail is also called a ringtail cat, bandtailed cat, and civet cat. The latter appellation refers to its habit, when confronted, of releasing a foul odor from anal glands. It is also called a miner's cat, because during the gold rush it was popularly kept in mining camps to control rodents and insects.

Ringtails are nocturnal, solitary, and highly territorial. They sport buff to dark brown body fur, a small head with large eyes emphasized by rings of contrasting fur, a pointed muzzle, and oversize ears.

Like raccoons, ringtails eat just about anything — insects, carrion, small mammals, birds, lizards, snakes, frogs, fruits and berries, nuts, and eggs. They especially like chickens and ducks, which they kill by biting the neck before eating the head.

For more information on raccoons and their cousins, see pages 160–164 in *What's Killing My Chickens?*.

DOG FAMILY

Foxes

Foxes are the smallest members of the dog family, Canidae, which in North America includes coyotes and wolves, as well as domestic dogs. As a group, canids typically have long muzzles, with jaws and teeth designed for tearing flesh and breaking bones. Although they are primarily meat eaters, they tend to be more omnivorous than other carnivores.

Gray Fox

Compared to a red fox (see pages 165–168 in *What's Killing My Chickens?*), the gray fox (*Urocyon cinereoargenteus*) is smaller but stouter, with a broader head, a less pointed muzzle, shorter legs, and daintier feet. Unlike other canids, the gray fox can lift its claws off the ground while running, leaving tracks with no visible claw marks.

Like red foxes, gray foxes may be either gray or red. The best way to tell a gray fox from a red fox is to look at the tail. The gray lacks the white-tipped tail of a red fox but has a feature not seen in any other North American fox — along the top of the tail is a stripe of black hair, which raises up when the fox is alarmed.

Island Fox

A descendant of the gray fox, the island fox (*Urocyon littoralis*) is the smallest fox species in North America, being about one-third the size of a gray. Like the gray fox, it is an excellent climber. Unlike the gray fox, the island fox is not afraid of humans and tends to be more active during daylight hours. However, the rare island fox inhabits only six of California's eight Channel Islands, where it poses little threat to domestic poultry.

Kit Fox

Kit foxes (*Vulpes macrotis*) are primarily nocturnal and occasionally crepuscular. As with red foxes, their eyes have catlike vertical pupils for superior night vision. Unlike most other foxes, which use dens only during breeding season, kit foxes use their multiple dens all year round. They sleep in them during the day to avoid both the hot sun and their many predators, which include coyotes, red foxes, domestic dogs, bobcats, eagles, and hawks.

Debate rages as to whether the kit fox and the more easterly swift fox are the same species. In western Texas, where their ranges overlap, the two are often mistaken for one another, although the kit is slightly smaller than the swift fox and has bigger ears that are closer together, a wider face with a shorter muzzle, and a longer tail relative to body size. Adding to the confusion, both foxes have been called swift foxes because of their amazing bursts of speed over short distances.

Swift Fox

The swift fox (*Vulpes velox*) is pale gray with reddish flanks and legs, a white underside, black patches on both sides of the muzzle, and a black tip at the end of the tail. It is primarily nocturnal, and, like the red fox and kit fox, its eyes have vertical pupils to enhance night vision. Also like the kit fox, the swift fox uses its many dens year-round to avoid both competition with red foxes and predation by coyotes. When a swift fox is out and about, its speed helps it both evade predators and catch prey.

Arctic Fox

Arctic foxes (*Vulpes lagopus*) are nomadic within their home range, following the availability of food. Families travel together during the summer, when surplus food is cached in dens or in holes dug in permafrost. In winter they are mostly solitary hunters. Kits are born at the beginning of summer so they can grow enough to become independent by winter.

The southern range of the arctic fox is limited to areas where tundra meets the tree line and where the larger red fox both competes with it for food and preys on it. Despite its many other predators — which include golden eagles, snowy owls, wolves, wolverines, and polar bears — the arctic fox maintains a stable population.

Coyote

Coyotes (*Canis latrans*) make their home throughout most of Canada and the United States, including Alaska. The word *coyote* derives from the Aztec word *cóyotl*, meaning "trickster." The scientific name translates as "barking dog," derived from Latin words *canis*, meaning "dog," and *lātrō,* meaning "bark."

Coyotes are among the most vocal mammals, giving them one of their common names — song dog. You'll know why, if you ever hear a coyote duet in the dark of night. The male howls while the female barks, yaps, and yips. On a clear night, the sound may carry for a couple of miles, and a pair of coyotes can sound like half a dozen or more.

Most coyotes in North America are western coyotes, also known as prairie wolves or brush wolves. Their coat is typically grizzled and can range in color from nearly black to (rarely) nearly white. Eastern coyotes, by contrast, come in more varied coat colors, having interbred with wolves and, to some extent, with domestic dogs. Compared to western coyotes, these so-called coywolves are larger, can weigh nearly twice as much, and have longer, bushier tails and longer legs with bigger paws, leaving tracks that can be an inch longer than those of a western coyote.

Coyotes travel widely while hunting and use a den only for breeding. They may move into a den formerly occupied by a fox or other animal, or they may den under a rock ledge or in a hollow log or culvert. In April, a female gives birth to six pups, on average. Both parents, but mostly the male, bring food for the pups. By 2 months of age, the pups start learning to hunt. They remain with their parents until they are 6 to 9 months old, at which time they may disperse; female offspring may remain with their parents until their second year.

Wolves

The gray wolf (*Canis lupis*), or timber wolf, is by far the most numerous North American species and is the largest wild member of the dog family.

Other North American wolf species include Eastern wolves (*Canis lycoan*), which are smaller than gray wolves and inhabit a limited area along the eastern half of the border between the United States and Canada, and reclusive red wolves (*Canis rufus*), the smallest North American wolf species that are often mistaken for coyotes in their restricted home range in and around North Carolina's Alligator River National Wildlife Refuge.

Wolves generally live in family packs of 6 to 12 members, although a pack may have as many as three dozen individuals, not all of which are related. Pups are born from March through June and are cared for by all members of the pack. During their first year, pups remain with the pack while they learn to hunt. When they reach maturity at 2 to 3 years of age, they may leave the pack to find mates and establish new territories.

For more information on the canine family, see pages 165–177 in *What's Killing My Chickens?*.

WEASEL FAMILY

Weasels

Short-Tailed Weasel

Like most predators, short-tailed weasels (*Mustela erminea*) tend to concentrate on whatever is abundant and easy to catch. Because they have a dietary preference for small mammals up to rabbit size, the species was introduced into New Zealand in an effort to control the rabbit population, but in a disastrous twist of fate the short-tailed weasels find native bird species and their eggs much easier prey.

Least Weasel

Least weasels (*Mustela nivalis*) act and look like short-tailed weasels, but they are smaller, have shorter tails, and lack a black tip at the end of the tail. Like long-tailed weasels (see pages 178–180 in *What's Killing My Chickens?*), least weasels living in northernmost areas turn white in winter, while those in warmer climates remain brown year-round.

More Mustelids

The weasel family (Mustelidae) includes not only true weasels but also badgers, fishers, martens, minks, river otters, and wolverines.

Like true weasels, minks are strictly carnivorous, while martens are mostly, but not entirely, so. Badgers and wolverines, on the other hand, are omnivores, and these two differ from the others in additional ways. Both are stockier and have shorter tails than other members of the weasel family. Another contrast is the huge size difference between the smallest mustelid, the least weasel weighing little more than 1 ounce (28 g), and the wolverine, which can reach as much as 70 pounds (32 kg).

Behavior differences vary as well. Martens and fishers are largely arboreal. Minks and river otters are semiaquatic. True weasels hunt in the burrows of prey, and badgers dig prey out of their burrows. The larger mustelids prey on true weasels with a vengeance.

Differences aside, North American mustelids have many things in common. They are all small to medium-size mammals. Males are considerably larger than females of the same species, sometimes weighing one-third more than their mates. All have short legs; five-toed feet; a small head on a large neck; small, round ears; a short muzzle; teeth adapted for eating flesh; a medium to long tail; and thick fur. All have enlarged anal glands that produce a highly odoriferous secretion used for territorial marking, for sexual signaling, as a defense measure, and for relocating cached food.

Mink

Minks (*Neovison vison*) may be found throughout the United States and Canada, with the exception of arid areas of the Southwest and extreme northern Canada. Compared to true weasels, which favor upland habitat, minks are more closely associated with aquatic habitats — rivers, streams, lakes, ponds, or wetlands — offering large concentrations and varieties of prey. Between the toes of their hind feet is a webbing of stiff hairs that enables them to swim fast and to dive as deep as 16 feet (5 m) to catch prey.

Marten

American martens (*Martes americana*) are primarily solitary animals, but sometimes a pair will hunt together or with young offspring. The two to four kits, born in March or April, reach full size at about 3 months of age and soon strike out on their own. Martens are extremely territorial — neither sex will tolerate another marten of the same sex within its home territory.

Fisher

Found only in North America, fishers (*Martes pennanti*) are sometimes called fisher cats, although they aren't cats and they rarely eat fish. In his book *Sea of Slaughter,* Farley Mowat explains that early settlers mistook the fisher for the similar-looking, but now extinct, sea mink, which went by the alternative names water marten and fisher cat. Others argue the animals were named by French fur trappers who sold the luxuriant pelts as *fichet,* French for the similar pelt of a European polecat (a type of wild ferret).

As one of few predators that regularly prey on porcupines, fishers are being introduced into forests to control damage caused by the prickly bark-eating rodents. Scat that includes porcupine quills may readily be identified as that of a fisher. Fishers also prey on bobcat kittens, as well as on foxes, minks, otters, and martens — making it rare for fishers and martens to share the same territory. Like martens, reclusive fishers are seldom seen and are identified primarily by the size of their tracks. If you spot a fisher, you can distinguish it from a marten by its size.

A female fisher typically dens high in a hollow tree, where in March or April she gives birth to three kits on average, which she alone is responsible for raising. By the time the kits are 4 months old, they can hunt for themselves and — having become intolerant of siblings — disperse soon thereafter. Although a fisher achieves adult length in about six months, it takes several more years to reach full weight.

Otter

The word *otter* derives from the old German word *otraz,* meaning "water creature." Like minks, river otters (*Lontra canadensis*) may be found in nonpolluted fresh water rivers, streams, lakes, ponds, and marshes throughout the United States and Canada, and they are absent in the arid Southwest and extreme northern Canada. Although they may take up residence near a city, they generally prefer less populated areas. They are active all year and at any time of day, but they tend to be more nocturnal around people.

River otters are far more social than either fishers or minks. Although male otters tend to remain solitary except during breeding season, a mother and her maturing offspring often play and forage together. They hunt both in water and on land.

Badger

Badgers (*Taxidea taxus*) are solitary and primarily nocturnal and crepuscular, preferring to snooze in an underground den during daylight, especially in hot weather. Since badgers avoid populated areas and are mainly active after dark, their presence is more often detected by spotting a burrow than a badger.

In March or April, a female selects a burrow where she gives birth to two or three kits, which she alone protects and feeds. Hunting becomes intense during the summer, when kits wait at the burrow for Mom to bring home lunch. By August, the young ones rapidly go from dependence to independence and begin to disperse, sometimes traveling great distances to establish their own home ranges. At the same time, mature male and female badgers travel widely looking for mates. Late summer and fall is the time to watch for fresh badger activity in the form of new burrows. During the cold of winter, however, badger activity slows down while the animals nap underground for as long as a month at a time.

Like other mustelids, badgers are primarily carnivores, with a preference for ground squirrels, gophers, and mice. Unlike other mustelids, the badger is not a fast runner. Wily coyotes have learned to stand guard while a badger digs. The coyote can't dig as well as a badger, but it can run faster and stands ready to catch any fleeing rodent. The badger's digging efficiency is responsible for its nomadic lifestyle: it is so adept at eradicating rodents that it must constantly travel to find sufficient populations to satisfy its dietary needs.

Wolverine

Wolverines (*Gulo gulo*) have the reputation of being gluttons. Indeed, their scientific name *gulo* derives from the Latin word *gulosus*, meaning "gluttonous." However, wolverines inhabit a harsh environment where vittles are hard to come by. They therefore eat just about anything, including provisions stored in isolated cabins. And, like other mustelids, they cache excess food for lean times and for feeding their young. Since wolverines are rather large as mustelids go,

they understandably cache large amounts of food, which to a human may suggest gluttony.

Wolverines also have the reputation of being vicious, which, too, is a bit of an exaggeration. They are actually quite shy. But a hungry wolverine will not hesitate to snarl and growl at a wolf or bear until it convinces the much bigger predator to abandon its dinner — which is risky business, because wolves and bears occasionally prey on wolverines. When a wolverine menaces a predator larger than itself, it essentially bluffs by exaggerating fierceness and trying not to be the first to back down. In fact, the word *wolverine* most likely derives from *wolvering*, a diminutive form of *wolver*, a reference to the animal's wolf-like behavior.

One claim that's not an exaggeration is that wolverines stink. They are sometimes called skunk bears, because they look rather like small bears with skunk-like white patches of fur. And, when threatened, they spray like a skunk does.

North American wolverines live primarily in Alaska and northern Canada. In the lower 48 states, they are seen mainly in the Rocky Mountains and Northern Cascades, where sightings are so rare that if you spot a wolverine, The Wolverine Foundation (www.wolverinefoundation.org) would love to hear from you.

Wolverines rely on deep snow to freeze and preserve surplus food for lean times and for feeding their young. Snow also protects wolverine kits, which are born in snow dens, until late spring, when their white fur coat turns brown and they grow big enough to venture out and learn to hunt.

For more information on weasels and other mustelids, see pages 178–191 in *What's Killing My Chickens?*.

CAT FAMILY

Cougars

Cougars (*Puma concolor*) are solitary, secretive, and primarily nocturnal and crepuscular, although they may be active during the day in a remote area, when feeding kits, or if they become habituated to humans. If you live in cougar country, you are less likely to see a cougar than its signs — claw raking, tracks, scat, and partially buried remains of prey. Given the cougar's large territory, claw rakings on standing trees or fallen logs would be a rare find.

A cougar's tracks are round, 3 to 4 inches long (76–102 mm), and 3 to 4½ inches wide (76–114 mm). The size and shape is similar to a wolf or large domestic dog track. Each cougar track shows four teardrop-shaped toes arranged asymmetrically so that, unlike a symmetrical canid track, the spacing doesn't allow for an *X* to be drawn between the toes and foot pad. The pad takes up nearly half the print. Cougar tracks look like those of a bobcat but are much larger. A cougar kitten old enough to walk leaves a track bigger than that a full-grown bobcat.

A male cougar will scratch together a mound of grass, leaves, pine needles, dirt, or snow as high as 8 inches and as wide as 12 inches (20 by 30 cm), then urinate and sometimes defecate on top. A female cougar with kittens will generally cover her scat to reduce the odor and minimize detection by male cougars, which kill and eat kittens.

If you find a carcass partially buried in leaves, soil, or snow, don't spend time looking for scat. A cougar typically returns to snack on a kill three or four times and may consider you a competitor for the meal. If the carcass has been left uncovered, however, the cougar won't be back. And if the carcass is torn apart, rather than largely in one piece, a coyote or bear has likely feasted on it.

For more on the cat family, see pages 192–201.

BEAR FAMILY

The bear family (Ursidae) in North America includes three species: black bear, brown bear, and polar bear. While black bears and brown bears occasionally dine on poultry, polar bears live on Arctic sea ice and have a dietary preference for seals, so they are not likely to be much of a threat to domestic poultry.

GRIZZLY BEARS (*Ursus arctos*) are simply brown bears that live inland, as opposed to along the coast. One hundred years ago, brown bears in North America were classified into 86 subspecies. Over the years, biologists have whittled down the number.

THE KODIAK BEAR (*Ursus arctos middendorffi*) is still recognized as a subspecies. Kodiak bears are found only along the Kodiak archipelago in southern Alaska, where for thousands of years they have remained isolated. Other brown bear populations, on the other hand, freely intermingle. Most biologists now put all these other brown bears into a single subspecies (*Ursus arctos horribilis*), leaving us with two brown bear subspecies.

For more on the bear family, see pages 202–211 in *What's Killing My Chickens?*.

OPOSSUMS

One of the world's oldest surviving mammal species, opossums (*Didelphis virginiana*) once lived alongside dinosaurs. Today, they are the only marsupials inhabiting North America.

The taxonomic name *Didelphis* refers to the mother's pouch. Deriving from the Greek word *di*, meaning "double," and *delphys*, meaning "womb," *Didelphis* is double womb, referring to the pouch where babies develop as an auxiliary to the womb where the babies are conceived. *Virginiana* refers to Virginia, where colonists first encountered the opossum, sometimes referred to as the Virginia possum.

The word *opossum* derives from the Algonquin word *apasum*, meaning "white beast," "white animal," or "white face," depending on whom you ask. Since most 'possums are pale gray with a white face, I vote for the latter.

The 'possum's long, tapered tail is about half the length of its body. The hairless tail gives the creature a decidedly rat-like appearance, but 'possums are in no way related to rats. The tail is prehensile, used for grasping and carrying objects and for balance when climbing. The 'possum can even hang from its tail, which young ones enjoy doing, but adults are too heavy to hang for long.

All four hairless, pink paws have five toes, most of which have nails. The nails are used for grasping and climbing but are not strong enough for digging. A long opposable toe on each rear foot is clawless and is used, like a human thumb, for grasping things. It also enhances the 'possums' incredible dexterity at climbing trees and fences. Primates (including humans) are the only other animals with opposable thumbs.

Because they will eat almost anything, 'possums readily adapt to any environment that offers dry and safe shelters for sleeping and giving birth. Den sites are typically reused burrows abandoned by other animals, but they may also be hollow trees or logs, brush or wood piles, and unused spaces in or beneath buildings where a 'possum feels safe sleeping during the day.

Dens are padded with grass and dry leaves, which the 'possum carries wrapped in its tail, then arranges with its paws. When the weather is warm, the den looks like a big bird nest. When the weather is cool, the nest takes on the shape of a more protective hollow ball, like a squirrel nest or an oversize mouse nest.

The nomadic 'possum usually spends only a few days in each den before moving on. During really cold weather, an opossum may remain longer in one den. A female with babies, too, may use a den as long as she feels safe and can find nearby food and water.

Where food is abundant, an opossum may travel around the same general area. Where food is scarce, it wanders farther seeking things to eat and a new den. It prefers a wooded area with a nearby stream or other water source. Trees are handy both as a source of food (fruits and nuts) and as a place to escape potential predators. However, opossums adapt well to urban and suburban environments, where hiding places, as well as yummy garbage and roadkill, are plentiful.

For more on the opossum family, see pages 212–215 in *What's Killing My Chickens?*.

SKUNKS

Spotted Skunk

Compared to striped skunks, spotted skunks (*Spilogale* spp.) are less common, less tolerant of humans, and almost completely nocturnal and therefore seen less often. They rarely come out during the day or even in bright moonlight. In nearly four decades living on our Tennessee farm, my husband and I have seen plenty of striped skunks, but only once did we have the privilege of seeing a spotted skunk.

THE EASTERN SPOTTED SKUNK (*S. putorius*) lives in farmlands, brushy woodlands, and tallgrass prairies of the central and southeastern United States. The scientific name *putorius* derives from Latin *putēre*, meaning "to stink." Weighing about 2 pounds (900 g), these critters are twice the size of western spotted skunks, and their white spots and stripes are less prominent, making the eastern skunk more black than white. The eastern female may give birth twice in the same year, first in March or April and sometimes again in July or August.

THE WESTERN SPOTTED SKUNK (*S. gracilis*) inhabits arid scrublands and rocky desert areas of the western states and into southwestern British Columbia. The scientific name *gracilis* is Latin, meaning "slender." Because it lives in food-scarce areas, the western spotted skunk has a larger home range than other skunk species, is more nomadic, and spends days wherever it finds a safe place to sleep. Mature western spotted skunks are about half the size of their eastern cousins, with an average weight of only about a pound (450 g). Their white spots and stripes are more prominent than those of the eastern skunk, making them more white than black. The western female gives birth once a year.

Hooded Skunks

Closely related to striped skunks, hooded skunks (*Mephitis macroura*) look quite similar, with pointed faces and small clawed feet. Hooded skunks, however, are smaller and slimmer and have longer, finer fur, especially on the back of the head and neck — creating the appearance of a hood.

These skunks come in two distinct color patterns. The white backed pattern is mostly white on top, from the forehead to the tip of the tail. The black-backed pattern is black on top with a thin white stripe running along each side. The latter might be mistaken for a striped skunk, except the hooded skunk's bushy tail is the same length as its head and body combined, or twice the typical length of a striped skunk's tail. The scientific name *macroura* derives from the Greek words *macr*, meaning "large," and *oura*, meaning "tail."

Hog-Nosed Skunks

Hog-nosed skunks (*Conepatus leuconotus*) are the rarest skunk species inhabiting North America. In the United States they are found in limited and less arid areas of Arizona, New Mexico, and Texas and may venture as far north as Colorado and the Oklahoma panhandle. Although their geographic range is greater than that of hooded skunks, hog-nosed skunks are much less abundant.

No one actually knows for certain how many are in the US and what specific habitats they prefer. The hog-nosed skunk's unsocial nature, sparse distribution, and extreme secretiveness make them nearly impossible to census. Their presence is largely detected by finding one as roadkill or seeing evidence of rooting.

For more on the skunk family, see pages 216–223 in *What's Killing My Chickens?*.

RODENTS

Ground Squirrels

Ground squirrels are a varied group of rodents in the Marmotini tribe of the squirrel family (Sciuridae) that live in underground burrows rather than in trees. Those most likely to pester poultry are the larger species: California ground squirrels (*Otospermophilus beecheyi*), Columbian ground squirrels (*Urocitellus columbianus*), Franklin's ground squirrels (*Poliocitellus franklinii*), and rock squirrels (*Otospermophilus variegatus*).

During hot, dry weather, ground squirrels estivate, or become temporarily dormant in their burrows. Between periods of hibernation and estivation, ground squirrels may have as little as four months of the year to eat and mate.

Females within a given area typically give birth within about three weeks of one another. The time of year depends on the climate, which in turn determines when they come out of hibernation, since they typically breed soon after emerging from hibernation. The gestation period is about a month. Birthing could occur as early as January in sunny Southern California; in the cooler north, they give birth in April or even later.

Most ground squirrels give birth to one litter a year, averaging about half a dozen young. In a temperate climate, however, a female may give birth twice in the same year, in which case both litters will be smaller.

Young are raised by the female alone. Growing ground squirrels first emerge from their burrow between the ages of 5 and 8 weeks. By fall they are nearly full size, and by the following spring they are ready to breed. Female offspring may remain with their mother, while the males strike out on their own. Population densities vary from 2 to 20 ground squirrels per acre.

Ground squirrels are sometimes mistaken for pocket gophers (Geomyidae family). To add to the confusion, in some areas ground squirrels are actually called gophers. True gophers, however, are considerably smaller. They also feed on underground roots and bulbs, while ground squirrels feed above ground, typically in open grassland areas, including meadows, pastures, and hay and grain fields. Further, pocket gophers tightly plug their tunnel entries with soil, while ground squirrels leave their entrances open.

A ground squirrel burrow is about 4 inches (10 cm) in diameter and may be as long as 30 feet (9 m). It may consist of a single tunnel or a system of branching tunnels, typically 2 to 3 feet (60–90 cm) deep, but it may go as deep as 6 feet (1.8 m). A ground squirrel burrow may be distinguished from that of other ground dwellers by its 4-inch-diameter opening clear of loose soil. Entrances may be found by following a trail of squirrel tracks, which will begin or end at an opening.

CALIFORNIA GROUND SQUIRRELS range in length from 14 to 20 inches (36–51 cm), including a 6- to 9-inch (15–23 cm) tail, and weigh between 20 ounces and 2 pounds (567–907 g). Males are somewhat larger than females. Both have semi-bushy tails and tall, conspicuous ears fringed with long hairs. The coat — darker on top and lighter underneath — is brownish gray mottled with cream-colored spots and flecks.

This species inhabits open areas of California, western Oregon, parts of southwestern Washington, and the western tip of Nevada. They prefer grasslands and avoid desert, wetlands, heavy forests, and dense brush. They become particularly numerous where land has been disturbed by humans — such as for irrigation ditches, crops, or fencerows — and will readily excavate tunnels beneath rural or suburban buildings.

Unlike some other ground squirrel species, California ground squirrels are not particularly social. Although they may live communally, they don't interact with other colony members. If one member of the group pilfers eggs, others won't necessarily follow suit.

COLUMBIAN GROUND SQUIRRELS range in length between 13 to 17 inches (33–43 cm), including a 3- to 5-inch (7.6–12.7 cm) tail, and weigh about 1 pound (454 g). The slender tail is only one-third the total length. The ears are small and lie close to the head. These squirrels differ from other species in having rust-colored fur extending from the nose down the chest and front legs.

Columbian squirrels are at home in eastern Oregon, Washington, and British Columbia. They also inhabit northern Idaho and parts of western Montana and Alberta. They prefer brushy habitats, open woodlands, dry grasslands, and mountain meadows.

FRANKLIN'S GROUND SQUIRRELS are 14 to 16 inches (36–41 cm) long, including a 5- to 6-inch (13–15 cm) tail, and weigh between 12 ounces and 2 pounds (240–907 g). They have longer claws than other species and semi-bushy tails that are about one-third the total body length. The coat is a drab grayish brown with black speckling and slightly yellowish on the rump.

Franklin's ground squirrels live in south central Canada, and to some extent the upper Midwest. They avoid areas of short or sparse vegetation, preferring habitats with shrubs or tall, dense grasses, and often make their homes along the edges of woodlands. Because much of their native habitat has been cultivated for agriculture, Franklin's ground squirrels have become rare in the United States.

ROCK SQUIRRELS are 18 to 20 inches (46–51 cm) long, including an 8-inch (20 cm) tail, and weigh between 1 and 2 pounds (454-907 g). They have erect, pointed ears and semi-bushy tails. The coat is mottled grayish brown, sometimes darker on the back, and buff on the tail and belly.

Rock squirrels range from southern Nevada, Utah, and Colorado southward into Mexico. True to their name, they inhabit arid environments on boulder-strewn hillsides or in rocky canyons. Like other ground squirrels, they are adaptable to human environments and may take up residence in a rock wall or other stone masonry. Although they are rather shy, they are bold enough to feel comfortable living in peoples' backyards. Unlike other ground squirrels, rock squirrels can climb trees nearly as well as tree squirrels and may nest in a tree or may den within a hollow tree.

Rats

A MATURE NORWAY RAT (*Rattus norvegicus*) may grow to a total length of 18 inches (45 cm) and weigh about a pound (450 g). It is a stout-looking animal with a blunt snout, relatively small eyes, and a shaggy coat that is typically brown but may also be gray or black.

Norway rats are widespread throughout the United States and sub-Arctic Canada, with the exception of Alberta, which proactively keeps them out. They are particularly numerous in cities, attracted by garbage, although they also favor agricultural areas because of the ready availability of livestock feed and stored crops. They thrive in sewers, along creeks, in thickets, and under wood piles.

They live in social groups that can number in the hundreds. Their multilevel underground burrows often have an entrance next to a protective wall or foundation, plus one or more escape exits.

ROOF RATS (*Rattus rattus*) have a much less extensive geographic range than Norway rats, preferring the warmer climates of the Southeast, west coasts of the United States and Canada, and the Hawaiian islands. Unlike Norway rats, roof rats do not live in social groups and rarely burrow underground. The females build spherical nests of shredded paper, cloth, leaves, and sticks in such places as trees, cliffs, wood piles, climbing vines, barn lofts, and warm attics.

The two species, however, may coexist in the same area, with the Norway rat living underground, while the roof rat lives higher up. But the two species do not interbreed. In fact, they don't even get along. In a conflict, the bigger Norway rat will kill a roof rat.

For more on the rodent family, see pages 224–233 in *What's Killing My Chickens?*.

CORVIDS AND GULLS

AMERICAN CROWS (*Corvus brachyrhynchos*) are alert, observant, inquisitive, and smart. They have keen senses of sight and hearing. Like chickens, they are highly vocal and have a wide range of calls. The most common sound is the *caw*, which has several variations that convey such things as near or distant danger and territorial boundaries. Like a caught chicken, a crow snatched by a predator will let out a high-pitched squall, prompting other crows to come to assistance. Also like chickens, crows sing and make other happy sounds that promote social bonding.

Communal roosting helps protect individual crows from their greatest enemy — the great horned owl. Like chickens, crows don't see well in the dark, so a sleeping crow makes an easy meal for a night owl. Around sunset, the crows assemble to socialize, during which time they can make a frightful racket. As night falls, the congregation moves together to their designated roost. Since owls are waking up at the same time crows are turning in, individual crows achieve anonymity by joining the gang before moving to the roosting site and sleeping tucked in among buddies.

At dawn, crows in small groups leave the roost, each group flying in a different direction to separate feeding areas. These groups usually leave the roosting area and return along the same flight path each day, cawing as they go. One such gang passes over our house, waking us in the early morning hours. They are most likely resident crows, on their way to forage in their home territory, where they will nest come spring.

Communal roosting decreases as the breeding season approaches and mates start thinking about raising a family. Nesting begins between February (in southern areas) and May (up north). Each year a crow pair builds a new nest consisting of a large basket some two feet (60 cm) across — woven of twigs, sticks, and vines, packed with a stucco of mud and grass, and lined with shredded bark, moss, fur, feathers, and sometimes twine and cloth. A preferred site is in the crotch of a tree, at least 25 feet (7.6 m) up, but where trees are scarce a pair may nest on a telephone pole or even on the ground.

Each successful brood produces three to four young. Those that survive become independent approximately 4 months after the process of nest building, egg laying, and incubation began. The male guards and feeds the female during incubation, and together they spend the summer raising the young, which, starting at 5 weeks of age, learn by following and imitating their parents.

The family unit may stay together until the following spring, when the young may disperse while the parents return from roosting to again nest in their home territory. Some of the offspring may become nest associates, remaining with the family to help build the new nest, guard the nest, and feed the mother and her new brood.

In an ironic twist, previously abandoned crow nests may be appropriated for nesting by a great horned owl or some other crow enemy — broad-winged hawk, Cooper's hawk, red-shouldered hawk, or merlin. Even a raccoon may curl up for a nap in the safety of a cozy basket provided by crows.

An American crow is black from the tip of its beak to the end of its tail, with glossy feathers that flash iridescent highlights of blue, green, and purple. It has a short, squared-off tail, broad wings, long legs, a short, thick neck, and a stout beak. Its scientific name, *brachyrhynchos,* is Latin for "short-beaked." The crow's beak is actually relatively long — about 2½ inches (64 mm) — but is shorter and thinner in comparison to the beak of its much-studied cousin, the raven.

About the size of a pigeon, a crow at maturity is 15 to 18 inches (38–46 cm) long from beak to tail, has a wingspan of about 32 inches (81 cm), and has an average weight of about a pound (454 g). Males are slightly larger than females.

A crow usually flies in a straight line, using regular wing beats and staying closer to the ground when flying against the wind, but higher when flying with the wind. Its tail feathers are essentially all the same length, so in flight the tail spreads like a fan. On the ground, the crow is somewhat pigeon-toed and walks with a waddle. When it's in a hurry it hops, with one foot hitting the ground slightly before and in front of the other.

American crows inhabit most of the United States and Canada, with these exceptions: far northern Canada, Alaska, Hawaii, the Pacific Northwest, and the Southwestern United States. They are found in a wide variety of habitats but favor open landscapes (where they can feed on the ground) with scattered trees or small woodlots (for night-time roosting, nesting, and general safety). They typically avoid grasslands with no trees and the reverse, large tracts of forest.

More Corvids

Fish Crow

Nearly identical to American crows, only a tad smaller, fish crows (*Corvus ossifragus*) live primarily along the Atlantic seaboard and in the southeastern United States, and sometimes inland along the larger rivers. They share habitats with American crows near water, and the two species may feed and roost together, although in general the fish crow tends to be more suburbanized and approachable by humans.

Fish crows are difficult to distinguish from American crows unless you listen for their nasal, more high-pitched caw, compared to the American crow's harsher sounding caw. Given the opportunity to compare a fish crow to an American crow side by side, you'd notice that the fish crow's legs are slightly shorter and its feathers are somewhat smoother and glossier. A fish crow calling from the ground puffs out its throat feathers, making its neck look short and ruffled.

A fish crow's diet focuses on foods associated with water, such as fish, crabs, and small reptiles. But like other crows, it will eat anything from garbage and carrion to fruit and grain, plus the eggs and hatchlings of shorebirds, songbirds, and poultry.

Northwestern Crow

Northwestern crows (*Corvus caurinus*) are more difficult than fish crows to distinguish from American crows; even ornithologists can't decide whether they are, in fact, American crows. They are slightly smaller than American crows but larger than fish crows. Luckily, you wouldn't need to tell a Northwestern crow from a fish crow, since their ranges are far apart.

Like the fish crow, the northwestern crow lives in coastal areas, but its habitat is on the other side of the continent, ranging from the state of Washington through British Columbia (where they are most abundant) and into southern Alaska. They do not inhabit forested areas, although their range is expanding as coastal trees are cleared for development.

Compared to American crows, northwestern crows are about 10 percent smaller and have smaller feet, shorter legs, faster wing beats, less glossy feathers, and a lower-pitched caw. Ranges of the two species overlap mainly in Washington State, where the two interbreed.

Northwestern crows scavenge along beaches, bays, reefs, tide pools, and river deltas. They also raid picnic baskets at campgrounds and forage in coastal suburbs and cities. Like other crows, they eat just about anything including fish, clams, amphibians, snakes, small mammals, grain, fruit, carrion, garbage, and, of course, bird eggs and hatchlings.

Common Raven

Ravens (*Corvus corax*) are not as social as crows, not as fond of frequenting areas populated by humans, and absent from the Great Plains and most of the eastern United States. Their range extends throughout most of Canada and the western states, including Alaska. They favor hilly country where they can take advantage of natural thermals (upward currents of warm air) for flight. Although they don't migrate, northernmost individuals may wander southward to avoid cold winter weather.

Ravens prefer heavily forested, remote habitats where they make their nests on cliffs or high in trees, usually at least a mile from the next nearest pair. They adapt to a wide range of environments, however, including cities, where they may nest on billboards, bridges, or utility poles. Pairs use the same site year after year, building a new nest on top of the old one.

Nesting once a year, the male guards and feeds the female while she incubates the eggs, and then helps

feed the hatchlings. On average, half a dozen offspring appear in early April to mid-May. By July or August, they are ready to leave their parents to join other young ravens for nighttime roosting, although some offspring may stay with the family over winter.

Chihuahuan Raven

This raven's taxonomic name (*Corvus cryptoleucus*) derives from the Greek words *kruptos*, meaning "hidden," and *leukos*, meaning "white." While the bases of the feathers of other North American crows and ravens are silvery-gray, the bases of the Chihuahuan raven's black feathers are white, but they are visible only when ruffled by the wind or deliberately fluffed up by the bird itself. If you catch a glimpse of the white underfluff, you have proof positive of the raven's identification.

Chihuahuan ravens inhabit dry grassland areas of Arizona, New Mexico, Texas, Colorado, Kansas, and Oklahoma. Where their range overlaps that of common ravens, the Chihuahua raven generally sticks to low elevation desert areas, while the common raven takes to forests at higher elevations. Sometimes, though, both are seen together with American crows in mixed flocks.

Magpies

Like crows and ravens, magpies (*Pica* spp.) are inquisitive and intelligent. In his book *My Family and Other Animals*, zoologist Gerald Durrell describes a pair of pet magpies he kept as a boy. The birds learned to call each member of his family by name, which they particularly enjoyed doing at inopportune moments. They were fond of confusing the family dogs by shouting "Go away!" and "Come here!" in rapid succession. Another trick, from which they derived endless pleasure, was to delude the chickens by imitating the maid calling the flock to come for food. The magpies would stare down at the assembled and expectant hens "and chuckle, like a pair of city slickers that have successfully duped a crowd of bumbling and earnest villagers."

Magpies do not migrate but may seasonally move to lower elevations to escape cold weather. Enemies include their near relatives, American crows and common ravens, as well as hawks and great horned owls. Of twelve magpie subspecies identified worldwide, two inhabit western parts of North America and look much alike, except for beak color. Black-billed magpies are far more numerous than yellow-billed magpies.

Black-Billed Magpie

Black-billed magpies (*Pica hudsonia*) inhabit the western half of North America, from southern coastal Alaska to central California and eastward to the middle of Kansas and Nebraska. The genus name *Pica* is Latin for "magpie"; the species name *hudsonia* refers to Canada's Hudson Bay, the northernmost boundary of the magpies' historical range.

These birds are associated with sage brush plains and other open landscapes near water for drinking and bathing, with scattered trees and thickets for protective cover. They avoid dense forests and, conversely, treeless grassland.

They frequent farm country and suburban areas where food is plentiful and are not afraid of people. Lewis and Clark first encountered black-billed magpies in 1804 and reported that the birds boldly entered their tents to steal meat and took food right out of their hands.

Black-bills are about the size of a pigeon, with males slightly larger than females. Like crows and ravens, they strut when they walk, and they hop when in a hurry. They make a lot of different sounds, the two most common being a squeaky high-pitched call and a repeated raspy, chattering sound. They are fond of noisily perching on treetops, fence posts, or road signs to make themselves conspicuous.

From about the middle of summer into the next spring, magpies roost communally, like crows. During this time they become more numerous in such environments as landfills, grain elevators, livestock feedlots, and barnyards, where they may discover the ready availability of poultry rations and eggs.

Breeding season is from late March to early July. A pair builds a huge, loose twig nest with a dome and

a side entrance, at the top of a tree or tall shrub. Old, abandoned nests may be occupied by hawks or owls. Young magpies learn to fly by the time they are a month old and feed with their parents for another two months before striking out on their own.

Although eggs and hatchlings make up only a small percentage of a magpie's overall diet, food demand is highest while the young are growing. At this time, poultry residing near a magpie nest may attract their attention. Usually only one magpie is involved, but sometimes two or three work together. Like a crow, a magpie usually carries eggs away from the nest.

Free-range chickens and ducks, and their eggs and hatchlings, are especially vulnerable unless provided with ample escape cover. Protectively house hatchlings until they are at least two weeks old, and collect eggs often. Fly curtain strips hung in pophole openings can discourage magpies from entering a coop to steal eggs. Better protection is provided by a sturdy, completely enclosed coop and run.

Yellow-Billed Magpie

Although similar to the black-bill in habits, sound, and appearance, the yellow-billed magpie (*Pica nuttalli*) is smaller, with a shorter tail and a yellow beak. It lives in a limited area consisting of open oak woodlands of California's central valleys. The species was named after naturalist Thomas Nuttall, who in 1836 collected specimens near Santa Barbara.

Yellow-bills typically nest in tall trees, in loose colonies of from 3 to 30 pairs. During breeding season they forage in small flocks, which become larger in nonbreeding season. To avoid the intense heat of summer, they forage in the cooler hours of early morning and late afternoon.

Like black-bills, the yellow-bills' diet consists mainly of a variety of ground-dwelling invertebrates, although they focus on acorns in season, cracking them open by holding them between their feet and pounding on the shells with their beaks. Their foraging activities focus on pastures, agricultural areas, and barnyards, where they may find an opportunity to dine on poultry eggs and nestlings.

Jays

Most, but not all, jays are blue, yet only one species is a blue jay. Those with blue plumage include the true blue jay of the eastern United States, and Steller's and scrub-jays of the West. Canada's gray jay is, well, gray. Some jays have distinctive crests on top of their heads; others are crestless. Blue jays and Steller's jays have crests; scrub-jays and gray jays do not.

Blue Jay

Familiar to anyone who lives in the eastern half of the United States and lower Canada, blue jays (*Cyanocitta cristata*) are small, crested birds with plumage in various shades of blue, black, and white on top and white or pale gray underneath. Each wears a unique black bridle across its face. These jays live wherever they find oak or beech trees, whether at the edge of a rural forest, in a wooded suburb, or in a city park — where they fill the air with their raucous calls.

The genus name derives from the Greek words *kuanos*, meaning "dark blue," and *kitta*, meaning "chattering bird"; the species name *cristata* is Latin for "crested." The name *jay* also derives from their chatter, or more specifically their harsh "Jay! Jay!" cry. They make a lot of other sounds, including one that imitates the screaming call of their enemy, the red-shouldered hawk.

Blue jays have a fondness for acorns, beechnuts, and bird seed, but they'll eat whatever is available from caterpillars to carrion, from elderberries to eggs, and from beetles to baby birds. A jay holds an egg with one or both feet while pecking into the shell. It may leave empty shells in or near the nest, or carry away the shell as a take-out source of calcium. Given the opportunity, a jay will eat poultry hatchlings up to about age two weeks. The baby bird may be carried away (simply disappear) or may be found mutilated, minus eyes and brain.

Steller's Jay

Slightly larger than a blue jay, Steller's jay (*Cyanocitta stelleri*) is the only other jay in North America with blue plumage and a crest. It inhabits primarily coniferous and mixed forests along the Pacific Coast foothills from Alaska to northern California, and down the Rocky Mountain range into Arizona and New Mexico. In the few areas where they overlap with blue jays, Steller's jays may be identified by their darker blue-and-black color and lack of white feathers on the belly, wings, and tail. Their common and taxonomic names are in honor of naturalist Georg Steller, who first described the birds in 1741.

Steller's jays can uncannily imitate the sounds of other birds, including chickens, as well as those of cats, dogs, squirrels, and even some machinery. They are familiar visitors to western backyards, parks, picnic areas, and campgrounds, where they keep an eye out for unguarded meals and discarded scraps, or simply beg for handouts. They are partial to pine nuts and acorns, but like other jays will eat just about anything including eggs and hatchlings of poultry and other birds species.

Scrub-Jays

Scrub-jays (*Aphelocoma* spp.) are about the same size as blue jays and are often mistaken for them although they lack the blue jay's distinctive crest. The genus name *Aphelocoma* derives from the Greek words *aphelēs*, meaning "simple," and *komē*, meaning "hair," which may refer either to their lack of a crest or lack of the flashy color bands of other jays.

Their common name *scrub-jay* derives from their preference for vegetation dominated by low, woody plants, such as shrubs and scrub oaks, in contrast to grassland or high forests. They are commonly seen in residential shade trees and dense shrubbery. They do not typically migrate, but they may seek lower elevations during cold weather.

The scrub-jay usually feeds alone, enjoying a diet that consists of about 70 percent plant matter, in the form of fruit, berries, grains, acorns, and nuts (often caching acorns and nuts), and 30 percent animal matter in the form of insects, spiders, caterpillars, snails, reptiles, and rodents and other small vertebrates, as well as the eggs and hatchlings of other bird species, including poultry.

Scrub-jays are energetic birds that move on the ground by hopping and are constantly looking this way and that. Three scrub-jay species inhabit the United States: California scrub-jays, Woodhouse's scrub-jays, and Florida scrub-jays.

CALIFORNIA SCRUB-JAYS (*A. californica*) live in oak woodlands, dense chaparral, parks, and residential yards along the West coast from southern British Columbia down to Baja California. They are usually seen in pairs, squabbling with other pairs while defending their year-round territories. These colorful birds are bright blue on top with a gray back and white underparts. They are long and slender with a long tail that flops when they fly. Their preferred diet is acorns. When acorns are scarce is when they are most likely to target poultry eggs and hatchlings.

WOODHOUSE'S SCRUB-JAYS (*A. woodhouseii*) are named after American naturalist Samuel Washington Woodhouse, who first described the species around 1850. These reclusive jays sometimes venture into suburban areas, but they primarily occupy dry lowlands from Nevada southward into Mexico. They look similar to California scrub-jays, but their plumage is not as bright and flashy. Also, their black beak is thinner and more pointed, better suited for picking nuts out of pinecones in their preferred interior pinyon-juniper habitat. Their two-syllable call is higher pitched than the harsh, raspy, single-syllable call of the California scrub-jay. The geographic ranges of the two species overlap at the western edge of the Woodhouse's range and the eastern edge of the California scrub-jay range, where the two species interbreed.

FLORIDA SCRUB-JAYS (*A. coerulescens*) are restricted to isolated oak scrub and flatwoods habitats in the sandy soils of central and coastal Florida. The name *coerulescens* is Latin for "bluish." These jays, which are slightly smaller than other scrub-jays, have dull blue plumage with a pale gray back and underparts. They are similar in size and shape to blue jays, with which their habitat overlaps, except

they have a longer tail and legs, shorter wings, and, of course, no crest.

Unlike their western scrub-jay cousins, which breed in pairs, Florida scrub-jays breed in cooperative family flocks, resulting in more offspring. That's a good thing, because their oak scrub habitat is maintained only by occasional fires, and the combination of fire prevention, housing developments, and encroaching agriculture in the form of citrus groves and improved pastures is gradually squeezing out the Florida scrub-jay population — found nowhere else on Earth. The jays remain close to their little patch of home all their lives and subsist mainly on acorns, which they cache for future consumption. Although they do eat, and cache, eggs, they are not as avid as other jays about raiding the nests of other birds.

Gray Jay

Gray jays (*Perisoreus canadensis*) are slightly smaller than blue jays. They have thick, fluffy feathers that are medium gray above and light gray below, a crestless round black head, a short black beak, a relatively long tail, and rounded wings. Like other jays, they have a wide range of calls, but on the whole they tend to be less noisy than other jays.

Gray jays are permanent, year-round residents in evergreen coniferous forests of Alaska, Canada, and the northern United States down into the Rocky Mountains and are seen nowhere else. They go by many names, including Canada jays, whiskey jacks, and camp robbers. They're called Canada jays (which is also the second part of their scientific name) because they are ubiquitous throughout Canada, inhabiting all 13 provinces, from coast to coast. Whiskey jack is the anglicized version of the bird's name in the various languages of the Algonquian nations. They're called camp robbers because they aren't shy about stealing food at cabins and camp sites, sometimes right off peoples' plates.

The first part of their scientific name derives from the Greek words *peri*, meaning "around," and *sōreúō*, meaning "to heap or pile up" — a reflection of their habit of hoarding food in summer so they'll have something to eat during severe winters. Using sticky saliva as glue, they stash vast quantities of food in numerous trees — in a fork or under bark or lichen — high enough to remain above the winter snow line. Gray jays are constantly seeking food and will eat or store anything they find, carrying lighter items in their beaks and heavier items with their feet.

In addition to visiting their scattered food caches, during winter gray jays regularly subsist on carrion, especially kills left by wolves and other predators. Warmer weather brings handouts from hikers and backpackers, as well as insects, berries, rodents and other small mammals and amphibians, fungi, and the eggs and hatchlings of other birds.

Gulls

Gulls can be difficult to identify by species, especially where their ranges overlap and they interbreed. The following species are described by their identifiable adult plumage.

CALIFORNIA GULLS (*Larus californicus*) are medium-size birds with a white head and chest, dark gray back, black tail, and long and pointed wings. Distinguishing them from other gulls are yellow-green legs and a slender beak with both a red spot on the lower half and a small black spot toward the tip. They are western states birds that nest far inland but spend summers all along the Pacific coast. They are particularly noisy and have a large vocabulary approaching that of chickens.

AVERAGE LENGTH: 20 inches (51 cm)

AVERAGE WEIGHT: 26 ounces (737 g)

AVERAGE WINGSPAN: 52 inches (132 cm)

FRANKLIN'S GULLS (*Leucophaeus pipixcan*) are small birds with a pigeonlike shape, black head, white neck and breast, dark gray back, reddish-black beak, and black legs. They nest in Canada's prairie marshes. In winter, they migrate southward through the interior United States, where large flocks are often seen following farmers plowing their fields and stirring up

yummy insects, mice, and worms. Their typical sound is a nasal squeal.

AVERAGE LENGTH: 13½ inches (34 cm)
AVERAGE WEIGHT: 10 ounces (284 g)
AVERAGE WINGSPAN: 35½ inches (90 cm)

GLAUCOUS GULLS (*Larus hyperboreus*) are hefty white birds with a pale gray (glaucous) back, pink legs, and a red spot on the lower half of the yellow beak. They are often described as ghost-like because of their pale plumage. Although they breed in the Arctic, some winter on the Great Lakes, while others (usually juveniles) travel down the Atlantic coast to Virginia or down the Pacific coast to northern California. Their typical sounds include an extended squeal and a sharp bark.

AVERAGE LENGTH: 26¾ inches (68 cm)
AVERAGE WEIGHT: 70 ounces (1948 g)
AVERAGE WINGSPAN: 65 inches (165 cm)

GLAUCOUS-WINGED GULLS (*Larus glaucescens*) are large white birds with a silvery gray back and wings, pink legs, and a red spot on the lower beak. They breed along the Pacific coast of Alaska and Canada, and during winter some migrate all the way down the coastline into Baja California. Their typically call is an extended squeal.

AVERAGE LENGTH: 21½ inches (55 cm)
AVERAGE WEIGHT: 37 ounces (1048 g)
AVERAGE WINGSPAN: 52 inches (132 cm)

GREAT BLACK-BACKED GULLS (*Larus marinus*) are North America's largest gulls and have been compared in appearance to bald eagles. They have a white head and chest, a black back, a red spot on the lower half of the beak, and gray legs. They are notorious for stealing food from other birds, including gulls, and for sometimes eating the birds themselves. They are seen primarily along the eastern seaboard. Typical sounds include a hoarse bark and long, howl-like trumpeting.

AVERAGE LENGTH: 30 inches (76 cm)
AVERAGE WEIGHT: 58 ounces (1644 g)
AVERAGE WINGSPAN: 60 inches (152 cm)

HERRING GULLS (*Larus argentatus*) are large, stout birds with white and pale gray plumage, pink legs, and a blood-red spot on the lower half of the yellow beak. They are the most familiar gulls along the East Coast, where some populations are permanent residents. Others, however, nest in Alaska and Canada and scatter all over the continent during winter. They are vociferous birds with a rich vocabulary.

AVERAGE LENGTH: 24 inches (61 cm)
AVERAGE WEIGHT: 36 ounces (1020 g)
AVERAGE WINGSPAN: 56 inches (142 cm)

ICELAND GULLS (*Larus glaucoides*) are medium size and mostly white with a pale gray back and wing tips that may be white, gray, or black. The yellow beak has red spot on lower half. The legs may be gray, green, brown, or pink, but not yellow. These gulls breed in Greenland and the remote Canadian Arctic, and during winter they may migrate along the northern shores of the east and west coasts and, rarely, interior into western states and the Great Plains. Their typical sound consists of a series of twitters, squeals, and chatters.

AVERAGE LENGTH: 21 inches (53 cm)
AVERAGE WEIGHT: 34 ounces (964 g)
AVERAGE WINGSPAN: 50 inches (127 cm)

LAUGHING GULLS (*Leucophaeus atricilla*) are midsize with a black head, white breast, dark gray back, red beak, and reddish-black legs. They are found all along the Atlantic and Gulf coasts, but they may forage as far inland as 25 miles (40 km). Normally diurnal, during breeding season these gulls seek food after dark as well. Their name derives from their typical high-pitched cackle, sounding much like a fairy tale witch.

AVERAGE LENGTH: 17 in (43 cm)
AVERAGE WEIGHT: 10 ounces (287 g)
AVERAGE WINGSPAN: 42 inches (106 cm)

MEW GULLS (*Larus canus*) are the smallest white-headed species in North America. They have a medium-gray back, white breast, round head, large eyes, short, yellow beak that's dark near the tip, and yellow legs. They inhabit primarily Alaska and

western Canada, but in winter they migrate all the way down the west coast to Baja California. They are unusual in nesting in trees, as well as on the ground, like most other gulls. The name *mew* imitates their short, high-pitched squeaks, which differ from the extended, nasal squeal of other gulls.

AVERAGE LENGTH: 17 inches (43 cm)

AVERAGE WEIGHT: 17 ounces (482 g)

AVERAGE WINGSPAN: 43 inches (109 cm)

RING-BILLED GULLS (*Larus delawarensis*) are common throughout North America. They have a white breast, medium-gray back, black tail, and yellow beak. They may be identified by their small size, yellow legs, and dark band circling the beak, as if the beak were wrapped with electrical tape. They are inland nesting gulls that breed in southern Canada and the northern United States, but during nonbreeding season they may be found anywhere in the US. This species is the one most likely to visit us here in Tennessee. Their typical sounds include a high-pitched squeal, like a child that's been pinched, and short, laughlike cackles.

AVERAGE LENGTH: 19 inches (48 cm)

AVERAGE WEIGHT: 18 ounces (500 g)

AVERAGE WINGSPAN: 44 inches (112 cm)

WESTERN GULLS (*Larus occidentalis*) are gray and white and have a heavy yellow beak with a red spot on the lower half. They may be identified by their large size, dark gray back, black wing tips, and pink legs. They are found along the Pacific coast, where they rarely travel farther inland than to nearby parking lots, picnic spots, or landfills. Their typical sounds consist of squawks and barks.

AVERAGE LENGTH: 24 inches (61 cm)

AVERAGE WEIGHT: 36 ounces (1 k)

AVERAGE WINGSPAN: 52 inches (132 cm)

For more on corvids and gulls, see pages 234–243 in *What's Killing My Chickens?*.

REPTILES AND AMPHIBIANS

Rat Snakes

Along with numerous common names, rat snakes have more regionally variable colors and patterns than any other North American snake species. They can be black or shades of red, brown, yellow, or gray. They can be plain, striped, or blotchy.

During spring and fall, rat snakes tend to be active in the daytime. In the warm summer months, they are likely to be more active at night. Their peak time for hunting is just after sunset, when rodents come out of hiding to snag their own meals.

Thanks to DNA technology, which of the rat snake variations belong to differing genera and species and which are a single species with numerous subspecies has become a matter of debate. Classification of rat snakes is in such a state of upheaval that herpetologists are vehemently disagreeing with one another. Rather than wading into that mess, I am choosing instead to stick to the traditional common names for the various rat snake populations. The following descriptions are of the basic rat snake populations.

BLACK RAT SNAKES are the largest rat snakes, reaching a length of 8 feet or more and an average diameter of 1½ inches (3.8 cm) at the widest part of the body. As the name implies, the color is primarily black. Faint white may show between the scales, becoming more pronounced in a snake bulging with a recent meal. Sometimes in the stretched skin you can see a pale pattern in yellow, orange, or red. The chin is white, and the belly is usually white but may be yellow, gray, or brown.

These snakes are the most widespread type of rat snake. They are found in southeastern Ontario, and from western Vermont southward to Georgia, westward to northern Texas, and throughout much of the Midwest northward into southeastern Minnesota. They favor deciduous forest surrounded by grass but can thrive in a variety of habitats including rocky hillsides, forests, grasslands, marshes, and farms.

GRAY RAT SNAKES are smaller than black rat snakes — reaching lengths of only 6 to 7 feet — but are the largest snakes in Canada. They are light to dark gray, with blotches on their backs and bellies that are usually darker gray or brown, but they may be yellow or orange.

They are found in southern Ontario and throughout the central United States from Indiana southward to northern Florida and westward through Mississippi. They live in forests, slithering into grasslands in warm weather. Caution: They are among the more aggressive of the rat snakes.

TEXAS RAT SNAKES are similar to gray rat snakes, but with a less well-defined blotchy pattern. Toward the eastern side of their range, their main color is grayish, becoming more yellowish toward the westward side. The area between scales is reddish orange, the belly is white or gray, and the head is usually solid gray but may be black.

These snakes are found throughout most of Texas and into Louisiana, Arkansas, and Oklahoma. They live in a range of habitats from swamps and bayous to rocky canyons, forests, grasslands, and even suburban and urban areas. Caution: Texas rat snakes are known for being aggressive and quick to bite.

YELLOW RAT SNAKES are not quite as large as black rat snakes. Their color varies from bright yellow to dull orange, usually with four thin brown stripes running along the back, and the tongue is black. They may be seen searching for prey in trees and under rocks.

They live along the eastern coastline from North Carolina down through Florida and into parts of

Georgia. They prefer a wooded swampy habitat, but they are equally at home in fields, forests, and citrus groves or around abandoned buildings, barns, and suburban homes. They tend to be more docile than Texas or black rat snakes but will bite when threatened.

ORANGE RAT SNAKES are similar to yellow rat snakes — and, indeed, interbreed with yellow rat snakes — but are bright orange with less distinct grayish stripes and a red tongue. They are found only in Florida, where they are known as Everglades rat snakes or simply glades rat snakes. As their popular name implies, they make their home in Florida's Everglades and the Kissimmee Prairie. They are most often seen along waterways. When startled, they usually swim away.

RED RAT SNAKES are better known as red corn snakes, or simply corn snakes. Herpetologists disagree on how they came by that common name sometime in the 1760s. One theory is that they typically hang out in corn and other grain fields, where rodents abound. A second theory is that they frequent corn and grain storage areas looking for rodents. A third theory is that the markings on the underside resemble the kernel pattern on an ear of Indian corn.

Red rat snakes range from 18 to 44 inches (45–112 cm) long. They vary considerably in color and may be dark red, bright orange, or pale yellow with big red blotches and a V-shape pattern on top of the head. The flat underside looks something like a black and white checkerboard.

These colorful snakes are found throughout the southeastern United States, living in forests, pine flats, mangrove swamps, or around barns and homes. Except when shedding, they are extremely mild tempered, making them popular among pet snake enthusiasts, who over the years have selectively bred numerous impressive color variations.

GREAT PLAINS RAT SNAKES are 2 to 4 feet (60–120 cm) long and typically light to brownish gray with dark brown blotches rimmed in black, and two dark stripes starting on the neck and joining between the eyes to form a V. The underside is white and black checkered. Identification can be difficult where this snake interbreeds with the red rat snake.

Also known as corn snakes, the Great Plains rat snakes range from southwestern Illinois through Texas, westward to eastern New Mexico, and limited areas of eastern Utah and western Colorado. They favor deciduous forests and rocky areas where fallen trees and crevices provide nesting sites. They slither down rodent tunnels and climb trees looking for bird nests. When at rest, they like to bask on rocks.

FOX SNAKES are a type of rat snake found in the upper Midwest. They get their name from the musky foxlike odor they emit when threatened. Two populations are recognized as having similar appearances but differing geographic ranges and preferred habitats.

Eastern fox snakes and western fox snakes both live in the Great Lakes region, with the eastern fox snake remaining closer to coastlines, marshy areas, and wet meadows from Ontario to Ohio, while the western fox snake lives in woodlands, prairies, and pastures and ranges farther westward to South Dakota and northern Missouri, and southward into northern Illinois. Where western fox snakes inhabit pine barrens, they are often called pine snakes. Fox snakes are less arboreal and spend more time on the ground than other rat snakes.

Background colors can be tan, light gray, yellowish, or greenish brown with dark reddish-brown to black blotches on the back and smaller blotches on the sides. The eastern fox snake has larger, but fewer, blotches; the western fox snake has smaller, but more, blotches. You won't need to distinguish between them, however, because their ranges don't overlap. The fox snake head is often reddish-orange, and the belly typically has a yellow and black checkered pattern. Lengths range from 3 to 5 feet (90 to 150 cm).

More Colubrids

Colubrids are members of the Colubridae family of snakes, a large and diverse group that represents some two-thirds of all known snake species. After rat snakes, members most likely to relish poultry eggs or chicks are gopher snakes, bull snakes, and pine snakes (collectively members of the genus *Pituophis*), king snakes, and racers — all members of the large subfamily *Colubrinae*. The family and subfamily designations derive from the Latin word *coluber*, meaning "serpent" or "snake."

EASTERN KING SNAKES are found from southern New Jersey to north Florida and westward to the Appalachians and southeastern Alabama. Their shiny black scales have white or yellowish chain-like bands across the back and connecting at the sides, resembling links of a chain and giving them their nickname — chain snakes. Lengths range from 3 to 4 feet (0.9–1.2 m).

BLACK KING SNAKES may be seen from southern Ohio and western West Virginia to southeastern Illinois and southward to northeastern Mississippi and northwestern Georgia. They are nearly solid black, with traces of white to yellow spots or bands, and sometimes a white throat. Lengths range from 4 to 5 feet (1.2–1.5 m)

SPECKLED KING SNAKES range from Illinois to Iowa and southward to Alabama and Texas. They are black or dark brown with tiny yellow or white spots in the center of each scale, giving this snake its nickname: salt-and-pepper snake. Lengths range from 3 to 4 feet (0.9–1.2 m).

SCARLET KING SNAKES range from central Virginia southward through Florida and westward to the Mississippi River. They typically have alternating bands of red, black, and yellow, making them look like the venomous coral snake, with which their range overlaps. However, on the king snake the bands do not extend all the way across the underside, and the red bands touch black but not yellow. On the coral snake, the bands go all the way around, and the red and yellow bands touch. People who are likely to encounter both snakes are fond of reciting this verse: "Red on yellow, kill a fellow; red on black, venom lack." Lengths range from 1 to 2 feet (0.3 to 0.6 m).

MILK SNAKES are found in Quebec, Ontario, and everywhere in the United States except the West Coast. They are gray or tan with black-rimmed brown blotches on the back and a black-and-white checkerboard pattern underneath. They are often mistaken for copperheads, although their blotches are squarish or rounded, while the copperhead's blotches are shaped like an hour glass. They are called milk snakes because they are often seen hunting rodents in dairy barns. Unlike most other king snakes, milk snakes are nocturnal. Lengths range from 2 to 3 feet (0.6–0.9 m).

FLORIDA KING SNAKES are heavy-bodied snakes that inhabit Florida's pinelands, swamps, and Everglades. They are dark brown with orange and yellow bands across their backs and sides, but not extending around the underside. Lengths range from 3 to 4 feet (0.9–1.2 m).

DESERT KING SNAKES are found in central and south Texas westward through southern New Mexico and southeastern Arizona. They are black or dark brown with thin white to yellow speckled bands. These snakes are rarely seen because they are mainly nocturnal and spend most of their time under logs or rocks, or in underground burrows. Lengths range from 3 to 4 feet (0.9–1.2 m).

CALIFORNIA KING SNAKES inhabit California, spilling over into the neighboring states of Oregon, Nevada, and Arizona and are sometimes seen as far west as Colorado. These are shiny black snakes with bright white bands or longitudinal stripes. They prefer chicks over eggs, but they will eat anything small enough to swallow. Lengths range from 2½ to 4 feet (0.7–1.2 m).

NORTH AMERICAN RACERS have smooth scales and are therefore shiny, like king snakes, and also

have round bodies in cross section. They are long and slender, agile, and fast-moving. A racer, when startled, can speed away at 5 miles per hour or more. Many's the time I've startled a racer that, in turn, startled the bejeebers out of me.

Most racers are strictly diurnal, not minding — even enjoying — summer heat. They prefer open grasslands or open woodlands and rarely stray far from cover. Although they can climb well, they mostly hunt on the ground. Sometimes when I'm sitting at the kitchen table, I'll spot one poking its head above the grass to peer around, looking much like a periscope.

Racers, like rat snakes, sometimes rest in a kinked position. They are nervous and aggressive snakes, quick to repeatedly strike when cornered. Unlike the more laid-back rat snakes and king snakes, racers are rarely kept as pets.

Racers relish large insects, small mammals, frogs, lizards, eggs, birds, and other snakes. Even though their scientific name is *Coluber constrictor,* racers do not constrict. Instead they trap prey under body coils, crush it with their powerful jaws, or (for small prey) just swallow it live.

Young racers look so unlike adults you might think they are a different species. They start out light with dark blotches and gradually lose the pattern as they mature into their plain color. Racer populations differ in appearance, depending on geographic location, and interbreed where their ranges overlap. Average lengths range from 3 to 5 feet (0.9–1.5 m) unless otherwise specified below.

BLACK RACERS are uniformly black with a dark gray underside and a white chin. Two populations are recognized, based on geography. Northern black racers inhabit the northeastern states. Southern black racers inhabit the southeastern states and range in length from 2 to 5 feet (0.6–1.5 m). Black racers are usually the first active snakes in spring and are often seen in suburban and urban areas.

BLUE RACERS look similar to black racers, but they are gun-metal gray with a brownish-orange snout. They range from southwestern Ontario into Michigan, Wisconsin, Illinois, Indiana, and Iowa. Unlike black racers, blue racers favor less well-developed areas where humans are scarce.

YELLOW BELLY RACERS come in various uniform colors. Two populations are recognized. Eastern yellow belly racers range from southern Saskatchewan through the mid–United States. They are usually olive or grayish but sometimes green, blue, tan, brown, or nearly black. Lengths vary from 2½ to 4 feet (0.76–1.2 m). Western yellow belly racers are found west of the Rockies. They, too, may be green, olive, or bluish, but also yellowish or reddish brown. Lengths vary from 3 to 6 feet (0.9–1.8 m). Blue yellow bellies are sometimes mistaken for blue racers, but like all yellow bellies, they may be identified by their cream to yellow underside and bright yellow chin.

BUTTERMILK RACERS are usually black or gray but may be green or blue and are speckled with white or yellow. Some have so many speckles they appear to be white with dark spots. The underside is cream or white. They live in open habitat of south Arkansas, Louisiana, and east Texas. These relatively rare snakes have a dietary preference for frogs, lizards, and rodents.

TAN RACERS hide out in the pine flats of Louisiana and Texas. They are uniformly tan or brown, although some have pale speckles, especially where they interbreed with buttermilk racers.

BLACK-MASK RACERS reside in southeastern Louisiana and adjacent Arkansas and Mississippi, where they prefer bottomland forest habitats. They are slate gray to tan on top and pale grayish-blue on the underside, with a mask-like black stripe across each eye.

GOPHER SNAKES, BULL SNAKES, AND PINE SNAKES are members of the genus *Pituophis.* They are among the largest North American colubrids (ranging from 3 to 8 feet [0.9–2.4 m] in length), share many similarities in appearance, live in a wide range of habitats, and interbreed where their ranges overlap. As a group, they cover much of the United States and parts of southern Canada.

Gopher snakes inhabit the western states. Bull snakes live in the central states. Pine snakes are of the southeastern states and live as far north as the pine flats of New Jersey. Like other Colubrids, each group has specific regional variations.

Snakes in this group are heavily keeled and have an enlarged nose shield that allows them to dig into sand, soil, and gravel seeking a place to burrow and cool off in hot weather, a safe den to sleep in, or the next meal — which typically consists of rodents, young rabbits, squirrels, and, of course, birds and eggs. The nose shield of bull snakes and pine snakes is especially exaggerated for greater digging strength.

These powerful, muscular snakes are generally light in color — usually creamy-yellow, tan, or gray-green — with large black, brown, or reddish blotches on the back and smaller spots along the sides. Many individuals have paler blotches in the center of the body than at the two ends, giving them a three-part appearance. Some are striped, with or without blotches, while others are a single dark color. Variations in appearance often result in good camouflage that allows the snake to blend in with the local environment.

These snakes are mostly diurnal, except during hot summer months, when they hunt at night and spend mornings and late afternoons warming themselves stretched out on a rock, pavement, or railroad track to catch the sun. They are excellent swimmers and may dip into a river or stream when they want to cool off. They are solitary (except during summer mating season) and highly territorial, remaining all their lives within the same home territory, the size of which depends on the availability of plentiful prey, safe places to lay eggs, and suitable denning sites for sleeping and winter hibernation.

Like other Colubrids, when a *Pituophis* feels threatened it coils, vibrates its rattle-less tail, and emits raspy hisses. Unlike most other Colubrids, however, the neck of a *Pituophis* is narrower than its small, round head, and when alarmed it spreads and flattens its head into a triangular shape in further imitation of a rattler — a ruse enhanced by its rattler-like blotchy appearance, and one that too often gets harmless gopher snakes killed by frightened humans mistaking them for prairie rattlers or western diamond backs. If both *Pituophis* and rattlers inhabit the area where you live, learn to tell the difference.

Snapping Turtles

COMMON SNAPPING TURTLES (*Chelydra serpentina*) inhabit the eastern two-thirds of the United States, from the Rocky Mountains to the Atlantic shore, and parts of southern Canada. They have been introduced into some western states, including California and Nevada. They prefer slow-moving fresh water with a sandy or muddy bottom, where they bury themselves with only their eyes and nose exposed. They are abundant in southeastern fresh water swamps, marshes, creeks, streams, rivers, lakes, urban pools, and farm ponds, but they can also tolerate brackish water (fresh and sea water mixed).

In spring and summer, we sometimes spot a snapper wandering between our small farm ponds, perhaps seeking less crowded digs or looking for a place to lay eggs. A snapper may travel as much as 8 miles (5 km) to find a suitable place to lay its ping-pong ball–size eggs, in loose (often recently disturbed) soil. Egg laying typically occurs on a rainy evening, so rainwater will rinse away the turtle's scent to deter egg-eating predators, which include crows, skunks, raccoons, opossums, and dogs.

Interestingly, snapper eggs buried in cool soil hatch into males, while eggs in a warmer nest hatch all females (wouldn't it be great if poultry eggs did that!). Hatchlings and juveniles are typically dark — nearly black — and their soft shells look more wrinkled than an adult's relatively smooth shell. The inch-long hatchlings hightail it to water to avoid being eaten by a bird, fox, raccoon, opossum, dog, or other predator. Once they reach water, they still may fall prey to bullfrogs, fish, or bigger snapping turtles. Only a few live until their shells harden and they become more predator proof.

The upper shell of a mature snapper is typically olive green or dark brown. The genus name *Chelydra* derives from the Greek word *kheludros*, meaning "amphibious serpent or tortoise." The species name *serpentina* derives from the Latin word *serpentis*,

meaning "snake," and refers to the turtle's snakelike neck and lightning-fast strike. Although snappers on land feel vulnerable and are quick to bite, in water they are rather shy and are more likely to swim away.

ALLIGATOR SNAPPING TURTLES (*Macrochelys* spp.) are the largest North American turtles. The genus name *Macrochelys* derives from the Greek words *makros*, meaning "long or large," and *kheludros*, meaning "tortoise." Individuals can grow to a length of more than 30 inches (76 cm) and a weight exceeding 200 pounds (90 kg).

Three similar-looking species have been identified, according to the river systems they inhabit: *M. suwannensis,* of the Suwannee River system in Florida and Georgia; *M. apalachicolae,* of the Apalachicola River system in Florida, Georgia, and Alabama; and *M. temminckii* (named after Dutch zoologist Coenraad Jacob Temminck), of the Mississippi and Mobile River systems westward into eastern Texas and as far north as Illinois and Kansas. Alligator snappers inhabit only river systems that drain into the Gulf of Mexico. They generally favor the deepest waters, and, unlike common snappers, they do not move from one river to another.

The alligator snapper looks positively prehistoric, with three spiked ridges running parallel along the length of its brown shell. The turtle gets its common name from these bumpy ridges, which look like an alligator's skin. As viewed from above, the alligator snapper's head is triangular and comes to a point, and its eyes are at the sides of its head. By comparison, the common snapper has a smooth shell, oval head, and forward-facing eyes.

An alligator snapper is more carnivorous than a common snapper, eating mainly fish and other aquatic animals, including any young waterfowl that happen to swim by. As part of its predatory skills, an alligator snapper has a unique pink worm-like appendage in its gray mouth. The turtle uses this fishing lure to trap frogs and fish by lying on the river bottom with its jaws open, waiting for something to come along and take the bait. A curious duck or goose enticed by the "worm" is apt to lose its bill.

Snapping turtles won't climb over a fence or dig underneath, making a well-built poultry fence your best defense. They don't actively hunt poultry on land but may snag any poultry foraging near water or visiting the water's edge for a drink, or waterfowl swimming in the water.

Alligators and Crocodiles

Crocodilians are members of the order Crocodylia, Earth's largest living reptiles. Two species are native to the United States — American alligators and American crocodiles.

AMERICAN ALLIGATORS (*Alligator mississippiensis*) are native to the southeastern United States and are found only there. They are most abundant in Florida and Louisiana, but they also lurk in parts of Alabama, Arkansas, North and South Carolina, Georgia, Mississippi, Oklahoma, and Texas, where they live in freshwater swamps, marshes, canals, ponds, lakes, and slow-moving rivers, and they sometimes wander into backyard swimming pools. The ability of American alligators to withstand short-term freezing temperatures allows them to live farther north than any of the 23 crocodilian species worldwide.

The word *alligator* derives from the Spanish word *el lagarto*, meaning "lizard." The species name *mississippiensis* refers to the Mississippi River. The American alligator is also called Mississippi alligator, Florida alligator, Louisiana alligator, or simply gator.

The American alligator is dark olive brown to nearly black with a creamy white underside, a broad head, and a rounded U-shape snout. When its mouth is closed, all the upper teeth are visible, a feature that distinguishes it from the American crocodile. Depending on location, some gator populations are long and slim, while others are short and stout.

Gators are highly vocal and can be heard roaring at each other, or coughing during courtship. They also make inaudible underwater sounds that are visible as ripples and bubbles. Baby gators, like poultry hatchlings, start talking even before they hatch, in this case

whining for their mother to help extricate them from their shells.

Usually in July, a female gator creates a mud nest in or near water, in which she typically lays three to seven dozen eggs. She does not directly incubate the eggs but stands guard against predators. During this time any poultry, human, or other creature wandering close to a nest is in peril. In spite of mama's best efforts, predators get many of the eggs before they have a chance to hatch.

The 6- to 8-inch-long babies that emerge in September look much like adults except for bright yellow cross bands, which fade as the gators mature. Despite this attempt at camouflage, only about 20 percent of the hatchlings survive the gauntlet of predators, ranging from raccoons, bobcats, otters, snakes, large bass, and birds to bigger alligators.

As a protective measure, young gators tend to hang out in groups near where they hatched, becoming more solitary as they mature. Once they reach a length of about 4 feet (1.25 m), they are better able to avoid predation, but not until they grow to 6 feet (1.8 m) — which can take 10 years — are they sexually mature. In most places a mature gator's only enemy is a human coveting its skin or meat. In Florida's Everglades, however, gators are being challenged by invasive Burmese pythons, which not only eat gators but compete with them for food and living quarters. A gator that manages to survive in the wild can expect to live 35 to 50 years.

AMERICAN CROCODILES (*Crocodylus acutus*) live primarily in the Caribbean, Mexico, Central America, and South America. In the United States, they inhabit only south Florida, where they tend to be smaller than their southern brethren. They are far less numerous than alligators and are often mistaken for them.

The species name *acutus* is Latin for "sharp or pointed," a reference to the shape of the croc's snout. Compared to a gator, the croc has a narrower head with a longer, pointier V-shape snout. When its mouth is closed, only the two long teeth on the lower jaw are visible.

Further, crocs are lighter in color than gators. Mature crocs are olive-gray, gray-brown, or tannish-gray. Young ones are lighter yet, tan with dark cross bands. Although crocs may inhabit fresh water, they are more often found in salt or brackish water. They are also longer lived than gators, having a life expectancy of 60 to 70 years.

Like gators, crocs are solitary and primarily nocturnal. They are rather reclusive and therefore seldom seen. Although crocs tend to be more aggressive than gators in an encounter, they are more likely to flee at the approach of a human.

For more about reptiles and amphibians, see pages 244–259 in *What's Killing My Chickens?*.