

AMERICAN KESTREL - FALCO SPARVERIUS

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Falconiformes Family: Falconidae Genus: Falco
Species: F. sparverius

Habitat:

Biomes: American Kestrels favor open areas with short ground vegetation and sparse trees. You'll find them in meadows, grasslands, deserts, parks, farm fields, cities, and suburbs. The southeastern U.S. form breeds in unusual longleaf pine sandhill habitat. When breeding, kestrels need access to at least a few trees or structures that provide appropriate nesting cavities. American Kestrels are attracted to many habitats modified by humans, including pastures and parkland, and are often found near areas of human activity including towns and cities.

Distribution:

In US: Its breeding range extends from central and western Alaska across northern Canada to Nova Scotia, and south throughout North America, into central Mexico and the Caribbean. It is a local breeder in Central America and is widely distributed throughout South America. Most birds breeding in Canada and the northern United States migrate south in the winter. It is an occasional vagrant to western Europe.

In Other Countries: ^^^^^

Holistic Description: North America's littlest falcon, the American Kestrel packs a predator's fierce intensity into its small body. It's one of the most colorful of all raptors: the male's slate-blue head and wings contrast elegantly with his rusty-red back and tail; the female has the same warm reddish on her wings, back, and tail. Hunting for insects and other small prey in open territory, kestrels perch on wires or poles, or hover facing into the wind, flapping and adjusting their long tails to stay in place. Kestrels are declining in parts of their range; you can help them by putting up nest boxes.

Species Richness: 17 SUBSPECIES

Population Dynamic: Undoubtedly increased greatly during eighteenth and nineteenth centuries in e. North America in response to widespread deforestation and conversion to horse-powered agriculture (pastures provide ideal foraging habitat). Subsequent urban- and suburbanization and successional reforestation have rendered many locations unsuitable for kestrels. Similar pattern appears to be occurring in the Tropics, as American Kestrels recently have become established in large patches of deforested Amazonia. Drainage of wetlands for cattle in se. U.S. provides extensive foraging habitat, and probably has reduced winter mortality.

Evolution and Systematics:

Evolution: In ne. Mexico, fossils of carpometacarpus, tarso-metatarsus, and tibiotarsus found in samples from 11,000 to 27,000 yr before present (ybp), but not in samples 27,000-45,000 ybp.

Systematics: Based on appearance and behavior it was for many years considered a member of the primarily European and African kestrel clade within the genus falco, but DNA analysis shows the American kestrel to actually be genetically more closely related to the larger American falcons such as the aplomado, peregrine, and prairie falcons. Though the species has not been renamed as a result of these genetic analyses, it is not actually a kestrel in the phylogenetic sense. Instead, a process of convergent evolution to fit a similar small prey niche in the ecosystem as the true kestrels has left it with similar physical characteristics and hunting methods.

Number of Species: 17 SUBSPECIES

Number of Genera: 17 SUBSPECIES

Physical Characteristics:

Size and Length: Length: 8.7-12.2 in (22-31 cm) Weight: 2.8-5.8 oz (80-165 g)

Wingspan: 20.1-24.0 in (51-61 cm)

Coloration: American Kestrels are pale when seen from below and warm, rusty brown spotted with black above, with a black band near the tip of the tail. Males have slate-blue wings; females' wings are reddish brown. Both sexes have pairs of black vertical slashes on the sides of their pale faces—sometimes called a “mustache” and a “sideburn.”

General Body Features: The slender American Kestrel is roughly the size and shape of a Mourning Dove, although it has a larger head; longer, narrow wings; and long, square-tipped tail. In flight, the wings are often bent and the wingtips swept back.

Special Features of the Body: CHECK OTHER FALCONS

Special Features of the Head and Sensory Organs: As birds of prey, kestrels are well equipped for hunting with their sharp talons and hooked beaks. Kestrels have keen eyesight that enables them to locate their prey easily.

Dentition: BEAK/LAMELLAE/GIZZARD

Special Features of the Limbs and Digits: The long, narrow wings of kestrels enable them to fly quickly.

Any Special Internal Anatomy: CHECK OTHER FALCONS

Sexual Dimorphisms: It exhibits sexual dimorphism in size (females being moderately larger) and plumage, although both sexes have a reddish-brown back with noticeable barring. Male has blue-gray wings, tail mostly unbarred except for a black subterminal band and white to rufous tip. Underparts pale buff to pinkish or orange; amount of streaking and spotting highly variable. Female has rufous wings barred with black; tail also rufous with black bands along entire length. Underparts creamy to buff, heavily streaked with brown.

Differences Between Juvenile Stage and Adult: Within each sex, juvenile strongly resembles adult. Its plumage is colorful and attractive, and juveniles are similar in plumage to adults.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: American Kestrels normally hunt by day. You may see a kestrel scanning for prey from the same perch all day long—or changing perches every few minutes. A kestrel pounces on its prey, seizing it with one or both feet; the bird may finish off a small meal right there on the ground, or carry larger prey back to a perch. During breeding season, males advertise their territory by repeatedly climbing and then diving, uttering a short series of klee! calls at the top of each ascent. Courting pairs may exchange gifts of food; usually the male feeds the female. Early in the pairing-up process, groups of four or five birds may congregate. You may see American Kestrels harassing larger hawks and eagles during migration, and attacking hawks in their territories during breeding season. Kestrels compete over the limited supply of nesting cavities with other cavity-nesters, and sometimes successfully fight off or evict bluebirds, Northern Flickers, small squirrels, and other competitors from their chosen sites.

Locomotion: Time spent on ground usually associated with prey capture, typically only a few seconds. Kestrels occasionally spend several minutes on ground when faced with difficult prey; e.g., those that hide under matted vegetation or are enclosed in a bal-chatri trap. In such cases, kestrels typically walk around object of interest, alternating peering motions and grasping. Unlike other raptors that breed in open nests, kestrels are cavity nesters, and pre-fledged young do not usually climb branches of nest tree. Flight typical of small falcons: deep “rowing” wing beats, with primaries pointed posteriorly at end of downstroke. Appears more buoyant than larger or heavier falcons. Flapping interspersed with gliding, producing “drawn bow” silhouette. Hovers by facing into wind with wings in glide posture, with or without interspersed flapping; wing and body posture adjusted continuously to wind turbulence while head remains remarkably fixed in space. Capable of stooping from high altitudes. Pouncing flight, either from perch, hover, or stoop, often interrupted by brief hover several meters above ground. Occasionally soars; outer 3 primaries notched. At end of a swift flight, typically flies toward a point below intended perch, then spreads wings and tail maximally while pitching up, rapidly reducing speed just before contacting perch.

Communication and Perception: American Kestrels have a fairly limited set of calls, but the most common one is a loud, excited series of 3-6 klee! or killy! notes lasting just over a second. It's distinctive and an excellent way to find these birds. You may also hear two other common calls: a long whine that can last 1–2 minutes, heard in birds that are courting or feeding fledglings, and a fast chitter, usually used by both sexes in friendly interactions.

Home Range: Tolerance of other pairs nesting in immediate vicinity highly variable, closest on record being 12.2 m apart. Generally males arrive 1–7 d before females. In some populations, males and females arrived more or less together. Courtship displays often start immediately, but can be delayed by adverse weather. Occasionally groups of 4 or 5 individuals of both sexes gather together while males set up their territories; promiscuity sometimes occurs between individuals on neighboring territories.

Degree of Sociality: During breeding season, pairs appear to be solitary, although in early stages of pairing, 4 or 5 birds will congregate and territorial neighbors engage in promiscuous behavior. Postfledglings from several broods sometimes form social hunting groups in late summer.

Level of Aggression: In the curtsy, individual indicates hostility by raising back feathers and presenting dorsum toward an adversary. When 2 hostile individuals are only 10–15 cm apart, they stand nearly erect with their body feathering compressed, tails sometimes spread, followed within 1 min either by fighting, curtsying, or cessation of hostility. Fighting, usually physically harmless, consists of grappling with feet and fencing with beaks. Subordinate bird may utter Klee Call. Tail-pumping by individual with compressed feathering sometimes suggests conflict or indecision just before an attack, but usually toward prey. Mantling, a pronounced spreading of wings and tail, generally seen in hungry birds holding food in their talons. More frequently seen in nestlings, but occasionally in adults protecting their food from a potential thief.

Migration: Resident to long-distance migrant. In North America, the tendency for kestrels to migrate decreases from north to south, with southernmost populations resident year-round. While some American Kestrels migrate to Central America, the great majority spend the winter in the southern United States. Kestrels can often be seen along mountain ridges and at hawk watches during fall migration.

Predators:

Predators: Fire ants, Yellow Rat Snakes, Corn Snakes, Northern Goshawk, Red-Tailed Hawk, Sharp-Shinned and Cooper's hawk, Peregrine Falcon, Barn Owl, and American Crow.

Anti-Predator Defenses: Tendency of females defending nest contents, especially nestlings, to strike human intruders with their feet highly variable. Cade suggested that urban-nesting kestrels acted "tamer" toward curious humans, but in other instances, they readily attacked people near their nests. Aggressiveness in captive-breeding kestrels highly variable, some females readily biting and grabbing with foot an investigator's hand reaching into the box for nestlings.

Diet and Nutrition:

Adult Diet: American Kestrels eat mostly insects and other invertebrates, as well as small rodents and birds. Common foods include grasshoppers, cicadas, beetles, and dragonflies; scorpions and spiders; butterflies and moths; voles, mice, shrews, bats, and small songbirds. American Kestrels also sometimes eat small snakes, lizards, and frogs. And some people have reported seeing American Kestrels take larger prey, including red squirrels and Northern Flickers.

Juvenile Diet: NONE

Special Adaptations for Getting Prey: CHECK FEATURES.

Reproduction:

Mode of Reproduction: NONE

Mating System: Monogamy prevails, but reported cases of trios have involved extraparental assistance or extra-pair copulation. Eggs producing sons were significantly larger than eggs producing daughters in a captive population. Decline in food supply and/or poorer physical condition of parents led to male-biased broods, and smaller females produced more sons

Mating Season: March to June

Courtship: Willoughby and Cade described a Flutter-glide where begging female flies slowly and buoyantly with quick, shallow beats of fully spread wings. To advertise territory, males engage in Dive displays consisting of a series of climbs and dives with powerful wing beats and a mean of 3.5 klee notes at peak of each ascent; variations seen. Food transfers, generally from male to female, begin 4–5 wk prior to laying and end 1–2 wk after hatching; somewhat variable, but apparently not correlated with copulation frequency.

Territoriality: Despite small size, successfully defends territory against larger raptors such as Red-tailed Hawks (*Buteo jamaicensis*), Northern Goshawks (*Accipiter gentilis*), Cooper's Hawks (*Accipiter cooperii*), and Barn Owls (*Tyto alba*). Passerine birds as small as hummingbirds commonly harass and/or mob nesting pairs. Conversely, often successful in evicting or out-competing nest competitors such as bluebirds, Northern Flickers and other woodpeckers, and small squirrels; less successful against European Starlings.

Mating: Copulations often spontaneous, and either sex may initiate them by flying to the other and posturing; of 306 copulations observed, 153 (50%) were solicited by female, 122 (40%) by male, and the rest not categorized. Of 39 copulations that failed, 64% were initiated by males and 30% by females. Copulation frequency peaked approximately 18 d before egg-laying began; i.e., when female not fertile, and ended 9 d after laying of first egg. Of 385 attempted copulations observed, 81% considered successful and 13% unsuccessful.

Nesting: American Kestrels nest in cavities, although they lack the ability to excavate their own. They rely on old woodpecker holes, natural tree hollows, rock crevices, and nooks in buildings and other human-built structures. The male searches for possible nest cavities. When he's found suitable candidates, he shows them to the female, who makes the final choice. Typically, nest sites are in trees along wood edges or in the middle of open ground. American Kestrels take readily to nest boxes. American Kestrels do not use nesting materials. If the cavity floor is composed of loose material, the female hollows out a shallow depression there.

Egg-Laying: Clutch Size: 4-5 eggs Number of Broods: 1-2 broods Egg Length: 1.2-1.5 in (3-3.8 cm) Egg Width: 0.9-1.1 in (2.4-2.8 cm) Incubation Period: 26-32 days Nestling Period: 28-31 days Egg Description: White to yellowish or light reddish-brown, mottled with violet-magenta, gray, or brown.

Hatching and Incubation/Gestation: Feeble, with sparse white down over pinkish skin; eyes partially open by first or second day. Nestlings may dry out within 1 h of hatching, depending on ambient humidity. Sparse white down covers pinkish skin. Cere, bill, and talons whitish pink; legs slightly yellowish. Prominently protruding belly nearly naked. Whitish egg tooth projecting 1–2 mm; bill lacking hook, but with prominent falcon "tooth". Hatchlings appear feeble, but can raise head, open bill, and utter peep vocalizations.

Development: SEMI-ALTRICIAL

Parental Care: All brooding by female; begins immediately at hatching and by 8–10 d posthatching, female terminates diurnal brooding, returning to cavity only at night to brood, or during cool and/or inclement weather. Chicks beg for food within first 24 h post-hatching. For first 7–10 d, male is sole provider; there-after, both parents bring food. Female accounts

for about 70% of feeding visits, but both parents feed young, sometimes even together. Food delivered from dawn to dusk. Feeding peaks occur between 09:00 and 12:00 and 16:00 and 17:00; about 2 or 3 items/h for up to 40 items/d with total biomass of 165 g/d for 5 young.

Lifespan: The American kestrel is not long-lived, with a lifespan of <5 years for wild birds. The oldest banded wild bird was 11 years and 7 months, while captive kestrels can live up to 14–17 years.

Conservation:

Official Federal Status: Least Concern

Special Statuses in Individual States: NONE

Threats: The American Kestrel is the continent's most common and widespread falcon but populations declined by about 50% between 1966 and 2015, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population at 4 million, with 39% spending some part of the year in the U.S., 10% in Mexico, and 13% breeding in Canada. They rate an 11 out of 20 on the Continental Concern Score and are not on the 2016 State of North America's Birds' Watch List. Current declines stem from continued clearing of land and felling of the standing dead trees these birds depend on for their nest sites. The American Kestrel is also losing prey sources and nesting cavities to so-called "clean" farming practices, which remove hedgerows, trees, and brush. An additional threat is exposure to pesticides and other pollutants, which can reduce clutch sizes and hatching success. For kestrels in North America, a larger problem with pesticides is that they destroy the insects, spiders, and other prey on which the birds depend.

Conservation Efforts: ^^^^^

Extra Facts:

1. Sports fans in some cities get an extra show during night games: kestrels perching on light standards or foul poles, tracking moths and other insects in the powerful stadium light beams and catching these snacks on the wing. Some of their hunting flights have even made it onto TV sports coverage.
2. When nature calls, nestling kestrels back up, raise their tails, and squirt feces onto the walls of the nest cavity. The feces dry on the cavity walls and stay off the nestlings. The nest gets to be a smelly place, with feces on the walls and uneaten parts of small animals on the floor.
3. It can be tough being one of the smallest birds of prey. Despite their fierce lifestyle, American Kestrels end up as prey for larger birds such as Northern Goshawks, Red-tailed Hawks, Barn Owls, American Crows, and Sharp-shinned and Cooper's Hawks, as well as rat snakes, corn snakes, and even fire ants.
4. In winter in many southern parts of the range, female and male American Kestrels use different habitats. Females use the typical open habitat, and males use areas with more trees. This situation appears to be the result of the females migrating south first and establishing winter territories, leaving males to the more wooded areas.
5. Unlike humans, birds can see ultraviolet light. This enables kestrels to make out the trails of urine that voles, a common prey mammal, leave as they run along the ground. Like neon diner signs, these bright paths may highlight the way to a meal—as has been observed in the Eurasian Kestrel, a close relative.
6. Kestrels hide surplus kills in grass clumps, tree roots, bushes, fence posts, tree limbs, and cavities, to save the food for lean times or to hide it from thieves.
7. The oldest American Kestrel was a male and at least 14 years, 8 months old when he was found in Utah in 2001. He had been banded in the same state in 1987.

Notable Species:

1. *F. s. sparverius*, described by Linnaeus in 1758, is the nominate subspecies. It is found in most of the United States, Canada, and Mexico.
2. *F. s. paulus*, described by Howe and King in 1902, is found in the southeastern United States from Louisiana to Florida.
3. *F. s. peninsularis*, described by Mearns in 1892, is found in southern Baja California.
4. *F. s. tropicalis*, described by Griscom in 1930, is found from southern Mexico to northern Honduras.
5. *F. s. nicaraguensis*, described by Howell in 1965, is found in Honduras and Nicaragua.
6. *F. s. sparveroides*, described by Vigors in 1827, is found in Cuba and the Isle of Youth, and southern to central Bahamas.
7. *F. s. dominicensis*, described by Gmelin in 1788, is found in Hispaniola and Jamaica.
8. *F. s. caribaeorum*, described by Gmelin in 1788, is found in Puerto Rico through the Lesser Antilles to Grenada.
9. *F. s. brevipennis*, described by Berlepsch in 1892, is found in the Netherlands Antilles.
10. *F. s. isabellinus*, described by Swainson in 1837, is found from Venezuela to northern Brazil.
11. *F. s. ochraceus*, described by Cory in 1915, is found in eastern Colombia and northwestern Venezuela.

12. *F. s. caueae*, described by Chapman in 1915, is found in western Colombia.
13. *F. s. aequatorialis*, described by Mearns in 1892, is found in northern Ecuador.
14. *F. s. peruvianus*, described by Cory in 1915, is found in southwestern Ecuador, Peru, and northern Chile.
15. *F. s. fernandensis*, described by Chapman in 1915, is found on the Juan Fernández Islands off Chile.
16. *F. s. cinnamominu*, described by Swainson in 1837, is found in Peru, Chile, and Argentina.
17. *F. s. cearae*, described by Cory in 1915, is found from northeastern Brazil south to eastern Bolivia.