

# SWAINSON'S HAWK - BUTEO SWAINSONI

**Taxonomy:** Kingdom: Animalia Phylum: Chordata Class: Aves Order: Accipitriformes Family: Accipitridae Genus: Buteo  
Species: B. swainsoni

## **Habitat:**

**Biomes:** Swainson's Hawks favor open habitats for foraging. Although much of their native prairie and grassland habitat has been converted to crop and grazing land, these hawks have adjusted well to agricultural settings. You'll find them searching for prey in hay and alfalfa fields, pastures, grain crops, and row crops, or perched atop adjacent fence posts and overhead sprinkler systems. They rely on scattered stands of trees near agricultural fields and grasslands for nesting sites.

## **Distribution:**

**In US:** Swainson's hawk inhabits North America mainly in the spring and summer and winters in South America. Breeding areas include south-central Alberta, central Saskatchewan, southwestern Manitoba, and west and southern Minnesota. They will breed as far north as east-central Alaska, and southwestern Yukon. Breeding continues south through the eastern parts of Washington and Oregon, locally to the central valley of California, Arizona, New Mexico, Colorado, and most of Texas. The eastern part of its range includes Minnesota, northwestern Iowa, most of Nebraska, Kansas, and Oklahoma, and all but eastern Texas. It periodically occurs in Iowa and rarely in northwestern Missouri, northern Illinois, and southwestern Wisconsin. Small populations winter in southeastern Florida and along the Texas coast, probably having failed to find the way south around the Gulf of Mexico. Individuals reported north of these areas in winter (for example, on Christmas Bird Counts) are almost invariably misidentified buteos of other species. Immature Swainson's hawks winter on the pampas of South America in Argentina, Uruguay, and southern Brazil. It is not known with certainty where most of the adults spend the winter.

**In Other Countries:** ^^^^^

**Holistic Description:** A classic species of the open country of the Great Plains and the West, Swainson's Hawks soar on narrow wings or perch on fence posts and irrigation spouts. These elegant gray, white, and brown hawks hunt rodents in flight, wings held in a shallow V, or even run after insects on the ground. In fall, they take off for Argentine wintering grounds—one of the longest migrations of any American raptor—forming flocks of hundreds or thousands as they travel.

**Species Richness:** NO SUBSPECIES

**Population Dynamic:** Swainson's hawk has suffered population declines since the first half of the twentieth century and was Blue-listed in the United States from 1972 to 1982. It has since been placed on the National Audubon's List of Special Concern in 1986. It is now listed by the United States Fish and Wildlife Service as a Category 3C candidate. Swainson's hawk was removed from the active federal list because it was found to be more abundant than previously thought; it is not considered a threatened species by the IUCN. It remains listed as a threatened species by the California Department of Fish and Game as it has been since 1983.

## **Evolution and Systematics:**

**Evolution:** Remains of 82 individuals reported from Pleistocene asphalt traps at Rancho La Brea, Los Angeles Co., CA; recently extirpated at this location. Miller identified 53 bones from Pleistocene asphalt traps at McKittrick, Kern Co., CA, a site at extreme edge of current distribution in Central Valley, CA. A fragmentary tarsometatarsus likely from a Swainson's Hawk was reported from Pleistocene deposits in Samwel Cave, Shasta Co., CA.

**Systematics:** NONE

**Number of Species:** NO SUBSPECIES

**Number of Genera:** NO SUBSPECIES

## **Physical Characteristics:**

**Size and Length:** Length: 18.9-22.1 in (48-56 cm) Weight: 24.4-48.2 oz (693-1367 g)

**Wingspan:** 117-137 cm (46-54 in)

**Coloration:** Though they can be quite variable, most Swainson's Hawks are light-bellied birds with a dark or reddish-brown chest and brown or gray upperparts. They have distinctive underwings with white wing linings that contrast strongly with blackish flight feathers. Most males have gray heads; females tend to have brown heads. Dark individuals also occur; these vary from reddish to nearly all black, with reduced contrast on the underwings.

**General Body Features:** Swainson's Hawks are buteos, meaning they are large hawks with fairly broad wings and short tails. However, Swainson's Hawks are less hefty than many other buteos. They are slimmer and longer-winged, with their wings typically held in a shallow V when soaring.

*Special Features of the Body:* These birds are among the largest raptors in the world. They have a wingspan of about 4 feet and can weigh up to 4 lbs. This large size gives them the strength and bulk necessary to catch prey that smaller raptors could not handle.

*Special Features of the Head and Sensory Organs:* In addition to eagles, birds such as hawks, falcons, and robins have extraordinary vision which enable them to gather their prey easily. Their eyes are stated to be larger in size than their brain, by weight. Color vision with resolution and clarity are the most prominent features of eagles' eyes, hence sharp-sighted people are sometimes referred to as "eagle-eyed". Eagles can identify five distinctly-colored squirrels and locate their prey even if hidden.

*Dentition:* BEAK/LAMELLAE/GIZZARD

*Special Features of the Limbs and Digits:* One of these adaptations are its sharp talons which are helpful to them because it makes it easier for them to catch their prey. Some birds, such as hawks and osprey, use warm air currents to soar through the air. As the sun's energy warms the earth's surface, warm air is created and rises. This uplifting of warm air is known as a thermal. Soaring birds use the lift (upward force that opposes the pull of gravity) from this warm air to soar. Sometimes people say these birds are "riding the thermal." Because soaring birds don't have to flap their wings very often, soaring flight takes very little energy.

*Any Special Internal Anatomy:* EXTREMELY SHARP AND CURVED BEAK

*Sexual Dimorphisms:* Female Swainson's hawks, at an average weight of 1.15 kg (2.5 lb), are somewhat larger and heavier than males, at an average of 0.81 kg (1.8 lb). CHECK COLORATION

*Differences Between Juvenile Stage and Adult:* Juveniles are similar but dark areas have pale mottling and light areas, especially the flanks, have dark mottling. The chest is pale with some darker marks. The subterminal band of the tail is less obvious. Birds in their first spring may have pale heads because of feather wear.

#### **Behavior:**

*Diurnal, Nocturnal, or Crepuscular:* Activity

*Activity:* Swainson's Hawks often forage on foot, running after insects and small mammals with wings partly outstretched. They also hover like White-tailed Kites as they scan hayfields and grasslands for prey, and soar low over prairies and pastures when hunting. The hawks have adjusted well to agricultural operations that scare up insects, often catching and eating them on the wing. They'll also perch on overhead sprinkler rigs or fence posts, and then pounce on rodents fleeing irrigation water. Courting partners perform a "sky dance": they soar in circles high above the nest site, with the male making steep dives and recoveries before rejoining the female. Breeding birds are aggressive around the nest site and chase off intruders, including Red-tailed Hawks, American Kestrels, Turkey Vultures, and Golden Eagles. Pairs will also dislodge other raptors, including Red-tailed Hawks and White-tailed Kites reusing Swainson's Hawk nests. In late summer as migration nears, Swainson's Hawks "flock up" by the thousands to move to their South American wintering grounds. A migrating bird waits for the air to warm, then soars on the rising air currents with wings and tail spread wide. At the top of the thermal the hawk folds its primary feathers back, closes its tails and soars south, using gravity to make distance as it searches for another thermal.

*Locomotion:* Adults and fledglings regularly observed on ground in pursuit of insects. Run quickly and smoothly, with head slightly lowered and often with wings slightly extended and raised. May also attempt to flush prey by jumping and leaping on ground while simultaneously flapping wings. May catch prey on ground using either beak or talons. Strong, buoyant, and graceful direct flapping flight with moderately deep wing beats when not transporting prey. Soaring flight with wingtips elevated above back in shallow dihedral similar to that of Turkey Vulture and Zone-tailed Hawk (*Buteo albonotatus*). Will hover or "kite" (hang motionless in air) when foraging, especially in moderate to strong winds.

*Communication and Perception:* Adults make a shrill kreeeeee alarm call when perched or in flight, often in response to intruders at the nest. The piercing call lasts 2–3 seconds, fading at the end. The female Swainson's Hawk also gives a shorter, lower-pitched version of the call when the male brings food to the nest. Females give a soft weeee call during copulation, and both male and female make a pi-tick, pi-tick pursuit call when defending territorial boundaries.

*Home Range:* Nests spaced typically at least 1.5–2.5 km apart. No information on size or characteristics of defended territories, but in central California, aggressively defends only small area around nest from conspecifics and other buteos. Returns to breeding grounds in North America when most other birds of prey are already nesting; strong interspecific territorial interactions reported.

*Degree of Sociality:* Most gregarious of North American raptors. Premigratory foraging flocks of >100 birds in breeding areas are common. Migratory flocks, foraging aggregations, and nocturnal roosts in South America may include thousands of individuals. During breeding season in central California, nonbreeding birds may form flocks of >100 birds that forage together and use communal nocturnal roosts. Breeding pairs are usually monogamous and solitary, but frequently forage with other individuals near or away from active nests, usually in response to farming activities.

Level of Aggression: HOME RANGE

Migration: Long-distance migrant. Starting in late August and September, nearly the whole population of Swainson's Hawks migrates from North America to Argentina, a roundtrip of more than 12,000 miles for the northernmost breeders. The migration path narrows as the birds move south and north, creating phenomenal hawk-watching opportunities at known migratory points in Texas, Mexico, and Central America.

**Predators:**

Predators: Coyote, Bobcat, Great Horned Owl, and Golden Eagle

Anti-Predator Defenses: NONE

**Diet and Nutrition:**

Adult Diet: Swainson's Hawks eat mainly mammals and insects. Mammals make up the bulk of the diet during breeding season, when adults prey on ground squirrels, gophers, mice, voles, and rabbits. These opportunistic feeders also eat bats, snakes, lizards, and birds. Regional diets can vary significantly: for instance, in one region near Alberta, Burrowing Owls were a major part of the diet; in Utah, rabbits accounted for more than half the prey taken. When they're not breeding, Swainson's Hawks rely almost exclusively on insect prey, especially crickets, grasshoppers, and dragonflies, often catching and eating them on the wing. They also eat butterflies, moths, and beetles.

Juvenile Diet: ^^^^

Special Adaptations for Getting Prey: CHECK FEATURES

**Reproduction:**

Mode of Reproduction: Monogamous

Mating System: Usually monogamous. Probable instances of polygyny observed near Calgary, Alberta, with 3 adults present at single nests throughout breeding seasons in 1987 and 1988, and near Kerrobert, Saskatchewan, where a distinctive erythristic male defended 2 females at active nests about 200 m apart. Low incidence of polyandry observed between 1984 and 1995 in ne. California.

Mating Season: March - June

Courtship: Described as vigorous and acrobatic. Begins with male and female soaring in circles 400–500 m in diameter 80–150 m above nest site, with wings and tail spread and little flapping. Smaller bird, presumably male, then closes its wings, breaks from soar, and begins rapid dive. Descent ends with open-wing, upward recovery that may be followed by regaining altitude and resuming soaring, rapid flying in tight circle, or series of dives and recoveries eventually ending with male perched at nest, in nearby tree, or on ground. Female may or may not join male at perch, and copulation may or may not ensue. Pattern of this "sky-dance" display is not strongly stereotyped, but the tight circling, displaying of underwing and light-colored feathers at base of tail, and steep dives are typical.

Territoriality: HOME RANGE

Mating: Female, usually on dead horizontal limb, sat quietly as male flew from another perch. Female assumed Solicitation Posture, squatting on limb with neck outstretched, head tilted downward, wings lowered, and tail raised near vertical. Male landed directly on her back, resting on tarsi with toes in a fist. Male held wings outstretched, fluttering lightly to keep balance. Male lowered partially fanned tail beneath tail of female and bent head down toward neck of female. Copulation averaged 7.2 s (range 4–22, n > 50). After copulation, male dismounted and remained with female for approximately 1 h; copulated whenever solicited by female. Between copulations, usually would meticulously preen feathers. Postcopulatory activities included nest-building, hunting, soaring, and harassment of other species of raptors. During copulation, one bird (presumably a female) would call.

Nesting: Male Swainson's Hawks choose the nest site, usually near the top of a solitary tree or in a small grove of trees along a stream. Pairs often build nests in shelterbelts or other trees located near agricultural fields and pastures where they feed. Nesting trees include willow, black locust, oak, aspen, cottonwood, and conifers. In the southern part of their range Swainson's Hawks will build nests as little as three feet off the ground in mesquite bushes. On occasion they'll nest on a power pole or transmission tower. Although both members of a Swainson's Hawk pair work on building a new nest, the male brings most of the materials to construct the loose bundle of sticks, twigs, and debris items such as rope and wire. Nest construction can take up to 2 weeks, with the finished nest reaching 2 feet in diameter and over a foot high. The inner bowl measures up to 8 inches around and 2.75 inches deep. Both partners line the bowl with fresh, leafy twigs, grass, hay, weed stalks, or bark; the lining can include cow dung or wool. Swainson's Hawks may reuse a nest from a previous year, or refurbish a crow, raven, or magpie nest.

Egg-Laying: Clutch Size: 1-5 eggs Egg Length: 2.0-2.4 in (5.1-6 cm) Egg Width: 1.6-1.9 in (4.2-4.7 cm) Incubation Period: 34-35 days Nestling Period: 17-22 days Egg Description: Off-white, often blotched with dark reddish brown or pale purple.

**Hatching and Incubation/Gestation:** Newly hatched chicks are naked and helpless, and cannot raise their heads. The tiny chicks weigh just under 1.5 ounces (39.4 g).

**Development:** Altricial and nidicolous. Hatchlings unable to raise head; lie limp for first few hours after hatching. Average weight at hatching is 39.4 g.

**Parental Care:** Mostly by female, who broods during daylight hours for about 9 d. On first day after hatching, broods 78% of daylight hours, <10% on day 9. Female broods at night until young are 17–22 d old. At this age, she continues nest attentiveness, but behavior shifts from brooding to shading nestlings, especially on hot, sunny days. Male provides most of the food for female and brood, but female hunts more frequently as nestlings grow. Adults pick apart prey brought to nest and present it piece by piece to young; each feeding takes about 10 min and seldom exceeds 15 min.

**Lifespan:** Up to 26 years.

**Conservation:**

**Official Federal Status:** Least Concern

**Special Statuses in Individual States:** NONE

**Threats:** Swainson's Hawk numbers have been stable overall, with a slight increase between 1966 and 2015, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population at 580,000, with 73% breeding in the U.S., 20% in Canada, and 6% in Mexico. The species rates a 12 out of 20 on the Conservation Concern Score. Swainson's Hawk is not on the 2016 State of North America's Birds' Watch List. Historic declines of this species occurred when farmers shot these and other hawks in the belief that they harmed livestock, but shooting hawks (and most other native bird species) is now illegal. More recent declines are due to a loss of prey and nesting sites. Continued consolidation of small farms (which offer shelterbelts of trees suitable for nest sites) into larger agribusiness operations eliminates nesting habitat and threatens breeding populations. The conversion of pastureland to soybean fields in Argentina has led to a loss of winter foraging habitat. Certain pesticides used in Argentina to control grasshoppers (known as monocrotophos and dimethoate) killed thousands of wintering Swainson's Hawks in the mid 1990s. Since then, an educational campaign and the banning of these pesticides have apparently been successful in reducing mortality, although other pesticides may pose a threat.

**Conservation Efforts:** ^^^^

**Extra Facts:**

1. The Swainson's Hawk initially suffered from a case of mistaken identity, when a specimen collected in Canada in 1827 and illustrated by William Swainson was confused with the common buzzard (*Buteo buteo*) of Europe. A nephew of Emperor Napoleon eventually corrected the error: in 1832, while working in Philadelphia, French biologist Charles Lucien Bonaparte identified the hawk as a new species and named it after the original illustrator—although he based his own description on a drawing by John James Audubon.
2. Swainson's Hawk feed their chicks the usual "three r's" of the North American *buteo* diet: rodents, rabbits, and reptiles. But when they're not breeding, the adults switch to a diet made up almost exclusively of insects, especially grasshoppers and dragonflies.
3. Groups of soaring or migrating hawks are called "kettles." When it comes to forming kettles, Swainson's Hawks are overachievers: they form flocks numbering in the tens of thousands, often mixing with Turkey Vultures, Broad-winged Hawks, and Mississippi Kites to create a virtual river of migrating birds. Their daytime migrations create a much-anticipated spectacle for birders who in fall and spring form their own flocks at well-known migratory points in the southern U.S., Mexico, and Central America to watch the birds stream by.
4. The oldest known Swainson's Hawk was at least 26 years, 1 month old. It was banded in 1986 in California, then recaptured and rereleased during banding operations, also in California, in 2012.
5. It is colloquially known as the grasshopper hawk or locust hawk, as it is very fond of *Acrididae* (locusts and grasshoppers) and will voraciously eat these insects whenever they are available.

**Notable Species:**

1. There are two main color variations. Over 90% of individuals are light-morph; the dark morph is most common in the far west of the range:
2. Light-morph adults are white on the underparts with a dark, reddish "bib" on the chest and a noticeable white throat and face patch. The underwings, seen as the bird soars, have light linings (leading edge) and dark flight feathers (trailing edge), a pattern unique among North American raptors. The tail is gray-brown with about six narrow dark bands and one wider subterminal band. The upperparts are brown. Juveniles are similar but dark areas have pale mottling and light areas, especially the flanks, have dark mottling. The chest is pale with some darker marks. The subterminal band of the tail is less obvious. Birds in their first spring may have pale heads because of feather wear.

3. Dark-morph birds are dark brown except for a light patch under the tail. There is a rufous variant that is lighter on the underparts with reddish bars. The tails of both these forms resemble those of the light morph.