CHIMNEY SWIFT - CHAETURA PELAGICA

Recorded at speeds up to 150 miles per hour.

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Family: Apodidae Genus: Chaetura Species: C. pelagica

Habitat:

Biomes: Chimney Swifts breed in urban and suburban habitats across the eastern half of the United States and southern Canada. They are most common in areas with a large concentration of chimneys for nest sites and roosts. In rural areas they may still nest in hollow trees, tree cavities, or caves. Chimney Swifts forage mostly over open terrain but also over forests, ponds, and residential areas. During migration they forage in flocks over forests and open areas and roost in chimneys at night. They spend the winter in the upper Amazon basin of Peru, Ecuador, Chile, and Brazil, where they are found in open terrain and on roosts in chimneys, churches, and caves.

Distribution:

In US: A widespread breeding visitor to much of the eastern half of the United States and the southern reaches of eastern Canada, the chimney swift migrates to South America for the winter. It is a rare summer visitor to the western U.S, and has been recorded as a vagrant in Anguilla, Barbados, Greenland, Jamaica, Portugal, the United Kingdom and the U.S. Virgin Islands. It is found over open country, savanna, wooded slopes and humid forests.

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

Holistic Description: A bird best identified by silhouette, the smudge-gray Chimney Swift nimbly maneuvers over rooftops, fields, and rivers to catch insects. Its tiny body, curving wings, and stiff, shallow wingbeats give it a flight style as distinctive as its fluid, chattering call. This enigmatic little bird spends almost its entire life airborne. When it lands, it can't perch—it clings to vertical walls inside chimneys or in hollow trees or caves. This species has suffered sharp declines as chimneys fall into disuse across the continent.

Species Richness: NO SUBSPECIES

Population Dynamic: In 2010, the International Union for the Conservation of Nature changed the chimney swift's status from least concern to near threatened. In 2018, the IUCN changed the chimney swift's status from near threatened to vulnerable. Although the global population is estimated at 15 million, it has declined precipitously across the majority of its range.

Evolution and Systematics:

Evolution: NONE

Systematics: Three avian families constitute the order Apodiformes: Trochilidae (the hummingbirds), Hemiprocnidae (the treeswifts), and Apodidae (the swifts). This order is closely related to the traditional order Caprimulgiformes, which may be paraphyletic and, hence, may not be separate from Apodiformes.

Number of Species: NO SUBSPECIES

Number of Genera: NO SUBSPECIES

Physical Characteristics:

Size and Length: Length: 4.7-5.9 in (12-15 cm) Weight: 0.6-1.1 oz (17-30 g)

Wingspan: 10.6-11.8 in (27-30 cm)

Coloration: They are dark gray-brown all over, slightly paler on the throat. At distance and when backlit against they sky they can appear to be all black.

General Body Features: Chimney Swifts are very small birds with slender bodies and very long, narrow, curved wings. They have round heads, short necks, and short, tapered tails. The wide bill is so short that it is hard to see.

Special Features of the Body: Commonly referred to as a flying cigar with its elongated body and long wings, these swifts have been clocked at speeds of 150 miles per hour in pursuit of catching insects on the wing.

Special Features of the Head and Sensory Organs: NONE

Dentition: BEAK/LAMELLAE/GIZZARD

Special Features of the Limbs and Digits: In fact these swifts are so specialized and adapted to clinging to vertical surfaces that they cannot perch or even stand on their extremely short legs. Their tiny feet have four hook shaped toes they use to hold on to rough vertical surfaces. Further support is provided by the stiff tail feathers which have ¼ inch exposed spiny tips. ANISODACTYL

Any Special Internal Anatomy: Chimneys with brick interiors create rough vertical surfaces that allows these birds to rest against with a "fork" on their tail. Additionally, nesting birds will use chimneys for breeding, using their glue- like saliva to create half-cup nests within the chimney, with one pair of birds per structure

Sexual Dimorphisms: The sexes are identical in plumage, though males average slightly heavier than females.

Differences Between Juvenile Stage and Adult: Juvenal plumage (that held by juvenile birds) is very similar to that of adults, but with whitish tips to the outer webs of the secondaries and tertials.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: Chimney Swifts spend their lives airborne, except when they are roosting or on the nest. They perform aerial courtship displays within 2 weeks of arriving on their North American breeding grounds, forming monogamous pairs for the season. In one of the best known displays, two birds fly close together, calling; first the rear bird and then the leader snaps its wings into a V-shape and the two glide together in a downward curve. Unmated birds roost together in large flocks, sometimes even in a chimney occupied by a nesting pair. Often an unmated helper may assist a breeding pair with rearing the young. After the young fledge, small groups of parents and young from several chimneys join larger staging flocks in bigger chimneys nearby. At the end of summer they gather into large groups to migrate to South America. During migration, as many as 10,000 swifts may circle in a tornado-like flock at dusk and funnel into a roosting chimney to spend the night. The lives of these widespread urban birds are surprisingly unstudied, because of their inaccessible nesting and roosting sites and their aerial lifestyle.

Locomotion: Among the most aerial of landbirds. Flies almost constantly except when at the nest or roosting. Flight is fast and erratic. Impression of non-synchronous wing beats, also characteristic of other small swifts. Stroboscopic examination shows wing beats are always synchronous; illusion of alternate beats is partially due to frequent banking and turning. Flies at all heights, from close to ground or water to high over treetops, but daily elevation profile is not known. Not known to walk or hop on horizontal surfaces.

Communication and Perception: Chimney Swifts give a fast, twittering series of high-pitched chip notes, about 3 seconds long. In flight the chips can be so close together that they become a buzzy, insect-like twitter. In other situations the chips can be spaced nearly a half-second apart.

Home Range: Weakly territorial. Nesting pairs used separate air shafts on roofs in Kent, OH. Primarily used shafts on opposite ends of linear blocks of 2–9 shafts. A breeding pair tolerates other non-nesting individuals in airshafts or chimneys, with few signs of overt aggression.

Degree of Sociality: Communal roosting is typical, particularly during migration. Nesting pairs use separate chimneys or buildings and where several chimneys or air shafts are on the same building, seem to maintain some minimum distance between them.

Level of Aggression: Individuals generally tolerant of other Chimney Swifts. No reported chases of rivals from nesting chimneys or nest sites inside chimneys, even though fighting over nest sites might be expected, and additional adults may be roosting in a chimney. A mated pair in Kansas was observed giving persistent ”chipper calls” and defensive wing-clapping behavior near a nest with eggs when other swifts attempted to roost in their chimney, subsequently resulting in the roosting birds leaving. This occurred 7 d after observing 12 roosting birds in the chimney and no defensive behavior from the pair that were nest-building.

Migration: Long-distance migrant. Chimney Swifts migrate to South America each winter flying across the Gulf of Mexico or skirting it along the Texas coast (a route they’re more likely to take in spring than fall). Many swifts use one of three distinct flyways: the Atlantic coast, the east side of the Appalachians, and the Mississippi River. They fly high in the sky during the day and roost in chimneys at night.

Predators:

Predators: Black Rat Snake, Squirrels, Raccoons, Eastern Screech Owl.

Anti-Predator Defenses: Adults “boom” (flap wings) while on a vertical surface by arching their back slowly, raising wings to the horizontal, springing backward into flight and snapping wings together loudly several times before coming to rest. Done in response to human disturbance.

Diet and Nutrition:

Adult Diet: Chimney Swifts eat airborne insects. Feeding on the wing, they capture flies, bugs, bees, wasps, ants, mayflies, stoneflies, beetles, caddisflies, fleas, craneflies, and other insects. They grab large insects with their bills; small ones go right down the throat. Chimney Swifts feed over urban and residential neighborhoods, fields, grasslands, shrublands, orchards, forests, and marshes, usually some distance away from nest sites. They can also pick insects from branch tips and “helicopter” down through the foliage to flush out prey. Normally diurnal foragers, they sometimes hunt for insects at night around streetlights or lit windows. They have been reported taking berries from elderberry bushes.

Juvenile Diet: ^^^^^^

Special Adaptations for Getting Prey: Aerial insectivore; feeds in flocks (3 or more individuals) or singly during breeding season. Pursues insects on the wing and captures larger ones in the beak. Smaller items caught in large gape. Even individuals with deformed mandibles can catch enough food items in their gapes to maintain normal body weight.

Reproduction:

Mode of Reproduction: Monogamous

Mating System: Apparently monogamous; i.e., 2 swifts typically occupy a nest, but occasionally 3 or 4 feed young. No genetic studies of paternity. May be young from a previous brood.

Mating Season: Mid-March to Mid-May

Courtship: Aerial courtship displays begin within 2 wk of return to breeding area; often weather dependent; not evident on cold, rainy, windy days. Much chasing in loose associations of 4–7 individuals and frequent separation of pairs of birds flying together, one following the other, and then rejoining other swifts. This is followed by Trio-flying, characterized by 3 swifts following each other as they thread their way among buildings and trees, with incessant, louder-than-normal chipper calls broken up into single notes, and one bird giving a call that sounds like a chip and whistle superimposed.

Territoriality: HOME RANGE

Mating: Infrequently, some apparent copulations may take place in midair; 2 swifts come together while V-ing, with the male slightly above and behind the female, thrusting his body forward without moving the wings and making momentary contact. More often copulation occurs at the nest site, often during nest-building. Male crawls to a point just below and to one side of female. He gives a series of undulating chipper notes prior to crawling and fluttering onto the female's back, maintaining the copulatory position for 2–4 s before flying off to wall or nest. Male often grips female's rump feathers with his leg and female twists lower part of her body toward male

Nesting: Although they originally nested in natural sites such as caves and hollow trees of old-growth forests, Chimney Swifts now nest primarily in chimneys and other artificial sites with vertical surfaces and low light (including air vents, old wells, abandoned cisterns, outhouses, boathouses, garages, silos, barns, lighthouses, and firewood sheds). Both members of a breeding pair may fly toward several potential nest locations, then cling side by side at one particular site, with one member of the pair giving a rhythmic chipping call. The nest is a half-saucer of loosely woven twigs, stuck together and cemented to the chimney wall with the bird’s glue-like saliva. Both parents independently contribute to the nest: they break off small twigs with their feet while flying through branches, then return to the nest site with the twigs in their bills. The completed nest measures 2–3 inches from front to back, 4 inches wide, and 1 inch deep.

Egg-Laying: Clutch Size: 3-5 eggs Number of Broods: 1-2 broods Egg Length: 0.7-0.9 in (1.7-2.2 cm) Egg Width: 0.5-0.6 in (1.2-1.4 cm) Incubation Period: 16-21 days Nestling Period: 14-19 days Egg Description: Pure white.

Hatching and Incubation/Gestation: Helpless and naked.

Development: Altricial, naked, with egg tooth on dorsal surface of maxilla and hardened cap on tip of mandible. Skin flesh pink with slight gray color to claws and bill. No rictal flanges or bright mouth coloration.

Parental Care: Parents brood continuously during daytime from hatching to day 6. Parents usually brood after feeding. Brooding bird waits until mate returns with food, often appearing to be pushed off by incoming mate. Both parents feed nestlings. Parent lands on nest during first 3 d and places insect in mouth of first nestling. Parent extends its neck vertically and pumps it up and down several times, then feeds second nestling. Repeats regurgitation movements and feeds third nestling.

Lifespan: The average chimney swift's life span is 4.6 years, but one is known to have lived more than 14 years.

Conservation:

Official Federal Status: Vulnerable

Special Statuses in Individual States: NONE

Threats: Chimney Swifts have been in a long-term, rangewide decline of about 2.5% per year between 1966 and 2015, resulting in a cumulative decline of 72%, according to the North American Breeding Bird Survey. Partners in Flight estimates a global breeding population of 7.8 million, with 99% breeding in the U.S., and 1% in Canada. The 2014 State of the Birds Report listed the species as a Common Bird in Steep Decline. It rates a 12 out of 20 on the Continental Concern Score. Chimney Swift are not on the 2016 State of North America's Birds' Watch List. These birds probably became much more numerous with European settlement and the building of millions of chimneys. But traditional brick chimneys are now deteriorating and modern chimneys tend to be unsuitable for nest sites. Adding to the problem, some homeowners now cap their unused chimneys. Chimney cleaning during the nesting season can inadvertently destroy nests and kill swifts. Logging of old-growth forests can reduce the availability of natural nest sites.

Conservation Efforts: ^^^^^^^^

Extra Facts:

1. Before European settlement brought chimneys to North America, Chimney Swifts nested in caves, cliff faces, and hollow trees. Their numbers rose accordingly, but a recent shift in chimney designs toward covered, narrow flues are unsuitable for nesting and may be contributing to a decline in this species' numbers.
2. Chimney Swifts are among the most aerial of birds, flying almost constantly except when roosting overnight and nesting. When they do come to rest, they never sit on perches like most birds. Their long claws are suited only for clinging to the walls of chimneys and other vertical surfaces.
3. Swifts even bathe in flight: they glide down to the water, smack the surface with their bodies, and then bounce up and shake the water from their plumage as they fly away.
4. Large numbers of Chimney Swifts roost together in a single chimney during the nonbreeding season. There's warmth in numbers: during cold nights, the temperature inside a chimney roost can be 70°F warmer than outside.
5. Unmated swifts continue roosting together in the summer, sometimes in large groups. But the species does not nest colonially: you'll find only one breeding pair nesting in any one chimney. The pair may tolerate other nonbreeders roosting in their chimney.
6. The Chimney Swift uses glue-like saliva from a gland under its tongue to cement its nest to the chimney wall or rock face. Sometimes an unmated swift helps the breeding pair rear the young. The young outgrow the nest after about two weeks and have to cling to the nearby wall, in many cases even before their eyes are open.
7. The oldest recorded Chimney Swift was a male, and at least 14 years old when he was recaptured and released during banding operations in Ohio in 1970. He had been banded in the same state in 1957.

Notable Species: NONE