CLIFF SWALLOW - PETROCHELIDON PYRRHONOTA

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Passeriformes Family: Hirundinidae Genus: Petrochelidon Species: P. pyrrhonota

Habitat:

Biomes: Formerly restricted to canyons, foothills, and river valleys with natural cliff faces and overhangs, Cliff Swallows have spread into a wide variety of habitats by nesting on buildings, bridges, and other human-made structures. They now live in grasslands, towns, broken forest, and river edges, but avoid heavy forest and deserts. In the south-central and northeastern states they are rare and localized breeders. Most colony sites are close to a water source, open fields or pastures for foraging, and a source of mud for nest building. Cliff Swallows spend the winter in grasslands, farmland, marshes, and the outskirts of towns in southern South America.

Distribution:

In US: Thus, the American cliff swallow's breeding range includes a large areas across Canada and the United States of America, excluding some Southern and Northern areas. The cliff swallows' wintering grounds have been recorded as South American countries, such as Southern Brazil, Uruguay, and parts of Argentina.

In Other Countries: [CHECK DISTRIBUTION MAPS]

Holistic Description: Busy flocks of Cliff Swallows often swarm around bridges and overpasses in summer, offering passers-by a chance to admire avian architecture and family life at once. Clusters of their intricate mud nests cling to vertical walls, and when a Cliff Swallow is home you can see its bright forehead glowing from the dim entrance. These common, sociable swallows are nearly always found in large groups, whether they're chasing insects high above the ground, preening on perches, or dipping into a river for a bath.

Species Richness: 4 SUBSPECIES

Population Dynamic: CHECK THREATS

Evolution and Systematics:

Evolution: The only information is from excavations of caves where this species presumably bred, although distinguishing fossil Cliff Swallows from Cave Swallows may be problematic. Reported from California during the late Pleistocene 38,000 years before present (ybp).

Systematics: Body size varies clinally, with birds in the north larger than those in the south. Wing and tail length vary the most among populations, whereas bill size and tarsus length vary little. Southern birds have the forehead patch darker. Throat color varies from dark chestnut in the north to pale tawny in the south. Rump patches and underparts tend to be whiter in the north, whereas to the south birds often have the flanks tinged with rust or rufous.

Number of Species: 4 SUBSPECIES

Number of Genera: 4 SUBSPECIES

Physical Characteristics:

Size and Length: Length: 5.1 in (13 cm) Weight: 0.7-1.2 oz (19-34 g)

Wingspan: 11.0-11.8 in (28-30 cm)

Coloration: In poor light, Cliff Swallows look brownish with dark throats and white underparts. In good light you'll see their metallic, dark-blue backs and pale, pumpkin-colored rumps. They have rich, brick-red faces and a bright buff-white forehead patch like a headlamp. Some juveniles show whitish throats in summer and fall.

General Body Features: These compact swallows have rounded, broad-based wings, a small head, and a medium-length, squared tail.

Special Features of the Body: NONE

Special Features of the Head and Sensory Organs: Their streamlined body and long wings allow maneuverability in the air and greater endurance and efficiency when gliding.

Dentition: BEAK/LAMELLAE/GIZZARD

Special Features of the Limbs and Digits: Their legs are short with feet just about large enough for perching.

Any Special Internal Anatomy: NONE

Sexual Dimorphisms: The male and females have identical plumage, therefore sexing them must be done through palpation of the cloaca. No sexual dimorphism; sexes can be reliably distinguished only by the presence or absence of a brood patch or cloacal protuberance, although males generally have a larger patch of dark blue at the base of the throat.

Differences Between Juvenile Stage and Adult: Juveniles (hatching-year birds) are highly variable in color and the degree of white speckling on the throat and forehead; this individual variation is among the highest seen in the juvenile plumage of any North American bird.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: Cliff Swallows are the most colonial swallow in the world, regularly forming colonies of 200-1,000 nests, with a maximum of 3,700 nests in one Nebraska site. They preen, feed, drink, and bathe in groups, and they continue sticking together in large flocks during migration and on their wintering grounds. Cliff Swallows sleep in trees for most of the year, but a breeding bird will start sleeping in the nest as soon as the structure is partially finished. They fight for nest sites by grappling in half-built nests or on the bare wall. Fighting birds sometimes fall into the water and manage to row with their wings to reach the shore. Nest owners defend their completed nests by sitting in the entrances, puffing up their head and neck feathers to look larger, and lunging at intruders. Each bird has one mate with whom it raises young, but the pair does not associate away from the nest, and both members frequently mate outside the pair bond. Cliff Swallow predators include Sharp-shinned Hawks, American Kestrels, Prairie Falcons, Peregrine Falcons, Barn Owls, Great Horned Owls, Mississippi Kites, Black-billed Magpies, Loggerhead Shrikes, Common Grackles, Acorn Woodpeckers, Red-headed Woodpeckers, bull snakes, rat snakes, coachwhip snakes, rattlesnakes, fire ants, mink, and domestic cats.

Locomotion: When on the ground, walks exclusively. Goes to the ground only to collect mud or grass, to attempt forced copulations, to pick up bits of gravel, to sunbathe, or occasionally to eat insects. Sidles along a wire, tree branch, or cliff face using a sideways walk, usually to fight with another Cliff Swallow for unknown reasons. Flies at various heights, from just above the ground to 60 m or more. Typical flight speed is estimated at 8.7 m/s, although some birds commuting from mud holes to colony sites were clocked at 15.5 m/s. Not known to swim or dive, but fighting birds sometimes fall out of nests over water.

Communication and Perception: While courting and nesting, Cliff Swallows sing a series of guttural grating sounds and squeaks, usually lasting up to 6 seconds. Their most common call is a soft chur. They also give a squeak when foraging and a purr-like alarm call when predators approach the colony.

Home Range: The only defended area is the nest or (early in the breeding season) a region on a vertical wall where a nest is to be built. Space defended is the interior of the nest and that area within a bird's reach when sitting in a partial nest or clinging to a substrate. Once a nest is complete, the outside of the nest is not defended; other birds may sit atop a nest while an owner is inside peering out. Nest owners attack other birds that try to build a nest within 8–12 cm directly below a nest's entrance; this usually prevents later-nesting birds from blocking the entrance of existing nests.

Degree of Sociality: The Cliff Swallow shows the highest degree of coloniality of any swallow in the world. Colonies often number 200–400 nests and routinely range up to 1,000 nests, with ones as large as 6,000 nests in Nebraska and 5,000 nests in Kansas. Solitary nesting does occur, however, sometimes only a few kilometers from the largest colonies. Colonies are smallest in eastern North America, especially in areas where the species has been breeding only a short time, and in parts of the southwestern U.S.

Level of Aggression: Birds fight for nest sites by grappling and falling out of a partially built nest or off the substrate wall. Physical contact is common among birds fighting for nests. In fights, they peck with their bills and strike with their wings, and they often pull out feathers. Some birds fight repeatedly with each other for 15 min or more. When fighting birds separate after falling out of a nest, one often chases the other for several meters. Birds have been known to fall into the water below nests while fighting and drown. Once nests are built, owners defend the nest by sitting in the tubular entrance and lunging at intruders. Intruders usually retreat without a fight, but sometimes an intruder forces its way into a nest, leading to a fight in the nest. The owner ousts the intruder from the nest by using its bill to hold the intruder's back and shoves it out the entrance.

Migration: Long-distance migrant. Cliff Swallows spend several months migrating at a leisurely pace through Mexico, Central America, and eastern South America to reach their wintering grounds. They migrate during daytime in groups of up to several hundred, foraging as they move.

Predators:

Predators: Great Blue Heron, Sharp-shinned Hawks, Cooper's Hawks, Peregrine Falcon, American Kestrel, Barn Owl, Great Horned Owl, Blue Jays, Black-billed Magpies, Loggerhead Shrikes, Common Grackles, Bull Snakes, American Kestrels, Acorn Woodpeckers, Prairie Falcons, Rat Snakes, Red-headed Woodpeckers.

Anti-Predator Defenses: Typical response to most predators consists of colony residents milling above the predator and alarm-calling heavily. When a falcon or hawk approaches, colony residents exit the colony, fly in a very coordinated, tight flock to the altitude of the predator, then spread out above the predator in a loose group and follow it as it moves, alarm-calling continuously. This seems to signal to the predator that it has been detected. Birds mill above predators that approach from ground level.

Diet and Nutrition:

Adult Diet: Cliff Swallows eat flying insects all year round, foraging during the day in groups of 2 to more than 1,000 birds. They feed on the wing above grassy pastures, plowed fields, and other open areas, but also over floodplain forests, canyons, and towns—often taking advantage of thermal air currents that bring together dense swarms of insects. In cool or rainy weather when insects are scarcer and thermals weaker, they may also feed over lakes, ponds, and rivers. Cliff Swallow colonies serve as foraging information centers as parents make trips back and forth to feed nestlings: unsuccessful foragers follow their successful neighbors to food sources. Their diet consists of many types of flying insects (particularly swarming species), including bugs, flies, bees, wasp, ants, beetles, lacewings, mayflies, butterflies, moths, grasshoppers, crickets, dragonflies, and damselflies.
Juvenile Diet: Large Single Insect
Special Adaptations for Getting Prey: Exclusively a diurnal forager, usually feeding in groups on aggregations of insects. In Nebraska, foraging groups during the breeding season vary from 2 to over 1,000 birds. Birds often rely on local enhancement to discover insect swarms, watching nearby foragers and converging on a spot where the prey-capture behavior of other birds indicates a food source. THERMAL SIGHTING OF INSECTS.

Reproduction:

Mode of Reproduction: Monogamous
Mating System: Socially monogamous; only 1 male and 1 female tend a nest, and neither sex is known to establish ownership of more than a single nest. Genetically polygamous, as both sexes routinely mate with multiple members of the other sex.
Mating Season: March to August
Courtship: NONE
Territoriality: HOME RANGE
Mating: The male often repeats copulatory invitations by going to the back of the nest several times in succession; female may ignore him and remain at the entrance. The male also frequently attacks his mate just after her return from a mud hole and copulates in a forced way. This may reflect sperm competition; a male's probable defense against extra-pair copulations experienced by his mate at mud holes is frequent intrapair copulation. Copulation begins 4–6 d before the first egg is laid and continues frequently until the afternoon preceding the laying of the last egg.
Nest Placement: Each Cliff Swallow pair first chooses a colony, then takes over an existing nest or selects a space on the colony to build a new nest. Colonies may be located on cliffsides, caves, building eaves, bridges, highway culverts, dams, or large trees, and each nest is built at the juncture between a vertical wall and a horizontal overhang. The female spends more time than the male scoping out colony sites before they settle on one. An unmated male may choose a site on his own and later attract a mate.
Nest Description: Both sexes help build the nest, though the male may begin building before he attracts a mate. They gather mud in their bills along streambanks, lakesides, or puddles, usually near the colony but sometimes up to a few miles distant. They bring mud pellets back in their bills and mold them into place with a shaking motion. The finished nest is gourd shaped and contains 900–1,200 individual mud pellets. It measures about 8 inches long, 6 inches wide and 4.5 inches high, with walls 0.2–0.7 inches thick. The entrance, which is sometimes elongated into a tube, is about 1.7 inches high and 2 inches wide. The pair lines their nest with dried grass and continues patching it up with mud throughout the breeding season.
Egg-Laying: Clutch Size: 1-6 eggs Number of Broods: 1-2 broods Egg Length: 0.7-0.9 in (1.8-2.4 cm) Egg Width: 0.5-0.6 in (1.3-1.5 cm) Incubation Period: 10-19 days Nestling Period: 20-26 days Egg Description: White, creamy, or pinkish, with brown speckles or blotches.
Hatching and Incubation/Gestation: Helpless, with bare pink skin, weighing less than a tenth of an ounce each.
Development: Young are naked, bright reddish pink, and weigh 1.6–2.2 g. They begin to gape for food immediately upon hatching. Mean tarsal length is 3.0 mm, mean ulnar length 5.1 mm, mean humeral length 4.5 mm, mean body temperature 35.3°C. ALTRICIAL.
Parental Care: Begins at hatching and continues until 3–5 d (occasionally more) after fledging. Both sexes feed about equally. Parent compresses multiple insects into a tight bolus before giving it to the young. The bolus is placed directly into nestlings' mouths with a quick jab of the adult's bill; large single insects (e.g., grasshoppers) are not easily compressed into a bolus and sometimes escape during transfer. After fledging, parents feed the young in flight, by flying together for direct transfer between bills or by the parent dropping an insect and the young catching it.
Lifespan: Up to 11.87 years.

Conservation:

Official Federal Status: Least Concern
Special Statuses in Individual States: NONE

Threats: Cliff Swallows are numerous and their populations were stable between 1966 and 2015, according to the North American Breeding Bird Survey. Partners in Flight estimates a global breeding population of 40 million, with 79% breeding in the U.S., 12% in Canada, and 9% in Mexico. The species rates a 7 out of 20 on the Continental Concern Score. Cliff Swallow is not on the 2016 State of North America's Birds' Watch List. Cliff Swallow numbers probably increased dramatically beginning in the nineteenth century as they expanded into new breeding habitats such as bridges, buildings, and culverts. At the same time, their breeding has been impeded by the spread of invasive House Sparrows, which often take over their nests. In the northeastern United States, those conflicting influences caused Cliff Swallow numbers to drop during the 1900s. The northeastern population is currently low. Other regions that have seen declines include the Pacific Northwest, coastal California, and the Great Lakes, although these have been balanced by increases in other parts of the continent. Management officials have successfully increased local Cliff Swallow populations by trapping House Sparrows at colony sites. The species has expanded in the southeastern United States in recent decades.
Conservation Efforts: ^^^^^
Extra Facts:

1. When a Cliff Swallow has had a hard time finding food, it will watch its neighbors in the nesting colony and follow one to food when it leaves. Although sharing of information about food at the colony seems unintentional, when a swallow finds food away from the colony during poor weather conditions it may give a specific call that alerts other Cliff Swallows that food is available. By alerting other swallows to a large insect swarm an individual may ensure that the swarm is tracked and that it can follow the swarm effectively.
2. Although the Cliff Swallow can nest solitarily, it usually nests in colonies. Colonies tend to be small in the East, but further west they can number up to 3,700 nests in one spot.
3. Within a Cliff Swallow colony some swallows lay eggs in another swallow's nest. Sometimes the swallow may lay eggs in its own nest and then carry one of its eggs in its bill and put it in another female's nest.
4. When young Cliff Swallows leave their nests they congregate in large groups called creches. A pair of swallows can find its own young in the creche primarily by voice. Cliff Swallows have one of the most variable juvenal plumages, and the distinctive facial markings may help the parents recognize their chicks by sight too.
5. The oldest recorded Cliff Swallow was a male, and at least 11 years, 10 months old when he was recaptured and rereleased for scientific purposes in California in 2004. He had been banded in Nebraska in 1993.

Notable Species:

1. P. p. pyrrhonota Vieillot, 1807. - Breeds across northern North America, from Alaska east through central Canada to the Maritimes and northeastern U.S. and south, in the West, to northwestern Baja California, northern Nevada, and central Colorado and, in the East, the southern Great Lakes region and Chesapeake Bay; winters south to northern Chile and central Argentina.
2. P. p. ganieri Phillips, 1986. - Breeds west of the Appalachians from (probably) southern Oklahoma south through central Texas to southern Texas and east to west-central Tennessee.
3. P. p. tachina Oberholser, 1903. - Breeds from central California east through southern Nevada to southwestern Utah and south through the Lower Colorado River valley to northeastern Baja California east through central Arizona and New Mexico to southwestern Texas.
4. P. p. melanogaster Swainson, 1827. - Breeds from extreme southeastern Arizona and southwestern New Mexico south over the Mexican plateau to Oaxaca and the Pacific plains to Nayarit.