HARRIS'S SPARROW - ZONOTRICHIA QUERULA

The common name of this species commemorates the American amateur ornithologist Edward Harris.

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Passeriformes Family: Passerellidae Genus: Zonotrichia Species: Z. querula

Habitat:

Biomes: Harris's Sparrows breed in semiforested tundra areas in northern Canada. Here the open tundra is broken up by patches of white pine, black spruce, larch, alder, and willow mixed with dwarf shrubs, sedges, and dense patches of lichens. In the winter, they use hedgerows, agricultural fields, shrubby pastures, backyards, and shrubby areas near streams. They generally do not use dense woods or dry shortgrass prairies.

Distribution:

In US: Their breeding habitat is the north part of central Canada. In fact, this bird is Canada's only endemic breeder. In the winter they migrate to the Great Plains states of the United States, from lower South Dakota to upper Texas.

In Other Countries: ^^^^^

Holistic Description: It's not often that a sparrow takes center stage, but the Harris's Sparrow is a showstopper with its handsome black bib and pink bill. It's North America's largest sparrow and the only songbird that breeds in Canada and nowhere else in the world. In winter it settles in the south-central Great Plains, where it is a backyard favorite. Unfortunately, Harris's Sparrow populations are declining; its restricted range make it vulnerable to habitat loss on the wintering and breeding grounds.

Species Richness: NO SUBSPECIES

Population Dynamic: CHECK THREATS

Evolution and Systematics:

Evolution: Fossil Zonotrichia described from late Pleistocene of North America and middle Pleistocene of South America, but no specimens referable to querula.

Systematics: No geographic variation has been described, which is not surprising given the species' relatively small breeding range in north-central Canada. Among the passerines with nine primaries, the Emberizidae is closely related to the Cardinalidae, Thraupidae, and Icteridae.

Number of Species: NO SUBSPECIES

Number of Genera: NO SUBSPECIES

Physical Characteristics:

Size and Length: Length: 6.7-7.9 in (17-20 cm) Weight: 0.9-1.7 oz (26-49 g)

Wingspan: 10.6 in (27 cm)

Coloration: Harris's Sparrows are streaky brown and black overall with a black bib, face, and crown. As they get older, the black areas around the face change from patchy black in juveniles to fully black in adults. Breeding adults have a gray cheek and nape while these areas are brown in nonbreeding birds. Juveniles and adults in all seasons have a pink bill, a white belly, and black streaks down the back.

General Body Features: Harris's Sparrows are large and chunky sparrows. Their big barrel-shaped chest makes their round head look a little small for their body. They have a long tail and a medium-sized conical bill.

Special Features of the Body: NONE

Special Features of the Head and Sensory Organs: NONE

Dentition: BEAK/LAMELLAE/GIZZARD

Special Features of the Limbs and Digits: NONE

Any Special Internal Anatomy: NONE

Sexual Dimorphisms: Considered sexually monochromatic; adult males average more black on chin and throat than do adult females during fall and winter. Males average larger and heavier than females on both wintering and breeding grounds. Wing chord and tarsus average longer in males than in females on breeding and wintering grounds.

Differences Between Juvenile Stage and Adult: Immatures in first Basic plumage similar to dullest winter adults but with throat mainly white, very little black on face or crown. All birds with varying degrees and patterning of dark spotting on breast.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: Like other sparrows, Harris's Sparrows hop along the ground scratching at the surface or jump to pick food off a low branch. Although they spend a lot of time foraging on the ground, they hop into small shrubs and trees to rest or to sing. If they feel threatened they also tend to fly into a tree or shrub rather than run along the ground to seek cover. Males and females arrive on the breeding grounds at about the same time and start forming pairs within a week. Males sing from exposed perches in trees and shrubs to establish territory boundaries. Males and females form monogamous bonds during the breeding season, but they find new mates each year. Males tend to return to the same territory year after year especially if they succeeded in raising young. Though pairs are solitary during the breeding season, they forage with other Harris's Sparrows as well as other sparrow species on the wintering grounds. Foraging flocks may look friendly, but these flocks have a pecking order; older individuals with darker throat patches dominate the younger, lighter colored birds within the flock and may chase or push them out of the way.
Locomotion: Hops, both on ground and on branches. Foraging bouts on ground consist of hopping about and gleaning, probing, and scratching. Usually perch near tops of trees when otherwise inactive. Direct, with rapid wingbeats. Flies up into trees when alarmed, rather than down into undergrowth.
Communication and Perception: The song of the Harris's Sparrow is a simple plaintive whistle made up of 1–3 evenly spaced notes. This is one song that is easy to imitate because each note is on the same pitch. Its song lasts for about 2 seconds, but it will continue to sing about 10 songs per minute, often singing for nearly an hour. Sometimes it will mix in a few buzzy, hoarse notes into its song. The male sings from exposed perches within its territory, singing more frequently in the morning and in the evening than during midday.
Home Range: Territory size approximately 2 ha. Birds may forage up to 500 m away from defended territory. Territory defended by singing and chasing intruding males. Not territorial on wintering grounds. May feed in flocks or singly. Wintering individuals show linear dominance hierarchies with older birds generally dominating younger, and males dominating females; an experimental approach using a grid of millet hidden in small caches demonstrated that dominant birds exploit subordinates as food finders in winter.
Degree of Sociality: Generally solitary during breeding season. Form flocks in late summer before migration, sometimes with other species. Loosely gregarious at feeding stations on the wintering grounds, relatively high site fidelity to wintering area.
Level of Aggression: Individuals maintain linear dominance hierarchies in flocks; presumably for priority of access to feeding habitat and roosting sites by dominants. Dominant birds may rush towards and supplant subordinates, subordinate birds may avoid interacting with dominants by moving away from them as they are approached, or two birds may face-off over a resource. In “jump fights,” birds face off, then leap at each other pecking, clawing and beating each other with wings; however, these fights are very rare. Role of calls and song in settling agonistic interactions unknown, but winter singing by testosterone implanted birds attracts aggression from dominant adults.
Migration: Medium-distance migrant.

Predators:

Predators: Predators on the nest can including varied terrestrial mammals, including Arctic ground squirrels (Spermophilus parryii) and stoats (Mustela erminea). Harris's sparrows provide an easy target for these predators due to the location of their nests on the ground. Canada jays (Perisoreus canadensis), northern shrikes (Lanius excubitor) and merlins (Falco columbarius) can be a serious predators at the nest. Shrikes, sharp-shinned hawks (Accipiter striatus) and great horned owls (Bubo virginianus) are known predators of wintering Harris's sparrows.
Anti-Predator Defenses: As an anti-predator adaptation, Harris's sparrows fly up into trees when startled by other animals, usually issuing an alarm call in the process (weenk). They duck down to the ground when threatened by other birds. They also produce alarm calls when threatened to alert others.

Diet and Nutrition:

Adult Diet: Seeds, fruits, plant material, and insects are all part of the Harris's Sparrow diet. During the nonbreeding season they eat mainly seeds from ragweed, knotweed, and goosefoot, but they also visit bird feeders. Early in the breeding season when insects are less abundant they eat a lot of crowberries (a relative of the blueberry), bearberries, and other berries that are still on shrubs from the previous growing season. Once the tundra warms up they eat flies, beetles, butterflies, and other insects. They also eat plant buds, sedges, grasses, and young spruce needles.
Juvenile Diet: Tipulidae (15.3%), lepidopteran larvae (13.7%), adult crane flies (Tipulidae, 12.6%), bilberry flowers (12.6%), adult Coleoptera (13.1%), adult Hymenoptera (9.0%), Arachnida (7.4%), and seeds (5.8%)
Special Adaptations for Getting Prey: Primarily a ground feeder, both during breeding and nonbreeding seasons. During breeding season individuals typically forage alone or with a mate. In the Northwest Territories, most often ground-gleans. Food items plucked directly from vegetation or bare ground, sometimes after bird disturbs litter by kicking vigorously

backwards with feet. Also gleans foliage for arthropods low in trees or shrubs, plucks fresh spruce needles from trees, and pursues flying arthropods by either chasing them along the ground, or sallying into the air from ground level.

Reproduction:

Mode of Reproduction: Monogamous

Mating System: Mating system observed to be monogamous. Extra-pair copulations not reported, but no genetic paternity studies have been performed. Sex ratio 1:1 on established territories.

Mating Season: May to June

Courtship: Male and female forage together. Male generally follows female, particularly prior to incubation, but mate guarding not studied extensively. No courtship displays reported.

Territoriality: HOME RANGE

Mating: Pre-copulatory displays, similar to those of White-crowned Sparrows, peak between 6–12 June in Northwest Territories. Pair bond contingent on breeding season, birds not in pairs when nonbreeding.

Nest Placement: The female builds a nest on the ground usually below a short alder, spruce, dwarf birch, or dwarf Labrador tea. She tends to build the nest on the side of the shrub that is out of the prevailing winds.

Nest Description: Over a period of 2–3 days, the female builds a cup-shaped nest of mosses, small twigs, and lichens. She lines the nest with dried sedges and grasses. The inside of the nest is about 2.5 inches in diameter and 2 inches deep.

Egg-Laying: Clutch Size: 3-5 eggs Egg Length: 0.7-1.0 in (1.8-2.5 cm) Egg Width: 0.6-0.7 in (1.5-1.8 cm) Incubation Period: 12-14 days Nestling Period: 8-10 days Egg Description: Pale green with irregular spots and blotches.

Hatching and Incubation/Gestation: Helpless and naked with sparse gray down.

Development: Sparse gray down about 10 mm long in humeral, femoral, alar, capital, and spinal feather tracts. Eyes closed, nestlings gape silently. Nestlings lie in bottom of nest cup; body movements feeble and uncoordinated. Mouth lining red and surrounded by yellow rim on beak. Skin color pink. ALTRICIAL

Parental Care: Both parents feed nestlings. Female begins feeding young shortly after hatching; average nestling feeding rates greater for females than for males during early (days 0–2) and middle (days 3–5) stages of nestling period.

Lifespan: The Harris's sparrow has lived for up to 11 years and 8 months in the wild.

Conservation:

Official Federal Status: Near Threatened

Special Statuses in Individual States: NONE

Threats: Harris’s Sparrows breed in remote areas of northern Canada, outside the area covered by the North American Breeding Bird Survey. The best long-term data on their overall population comes from the Christmas Bird Count, conducted on their wintering grounds in the United States. This survey suggests that the species declined by 1.8% per year between 1965 and 2003, resulting in a cumulative decline of 49% during that time. Additional surveys conducted since then indicate a cumulative decline of 63% from 1970–2014. Partners in Flight estimates the global breeding population at 2 million, all of which breed in northern Canada and winter in the United States. Harris's Sparrow is on the 2016 State of North America's Birds' Watch List, which includes bird species that are most at risk of extinction without significant conservation actions to reverse declines and reduce threats. The species rates a 13 out of 20 on the Continental Concern Score. The causes of decline are not known but this bird's restricted range increases its vulnerability to habitat loss. In the U.S. for example, changing agricultural practices that encourage removal of hedgerows reduces the amount of available habitat for Harris's Sparrows. On the breeding grounds, logging and resource extraction may also reduce breeding habitat. Climate change, which has stronger effects at higher latitudes, may also alter the forest-tundra margins where this species breeds.

Conservation Efforts: ^^^^^^^

Extra Facts:

1. Just like siblings fighting over candy, older Harris's Sparrows often win the best access to food and roost sites. To determine why older sparrows dominated foraging flocks, researchers came up with a clever test. They noticed that older males have larger bibs, and dyed the feathers of young birds to create an artificially large bib. These younger birds with their new black bibs rose within the dominance hierarchy just like their older flock mates.
2. The Harris's Sparrow was named after Edward Harris, a friend of John J. Audubon, who collected a specimen in 1843. Audubon eagerly named the specimen thinking he was the first person to do so. Little did he know that Thomas Nuttall collected the bird first in 1834 and named it "Mourning Finch."
3. Harris's Sparrows return to breed in the tundra when it's still pretty cold up there and not many insects are out and about. With fewer insects to eat, they turn to crowberries. Although not as protein rich as an insect, berries can satisfy an egg-laying female’s energy needs. Researchers calculated that she would need to eat around 675 fruits to meet her needs for the day.

4. The oldest recorded Harris's Sparrow was at least 11 years, 8 months old, when it was recaptured and rereleased during banding operations in Kansas in 1983. It had been banded in the same state n 1972.
5. The Harris's Sparrow is the only North American songbird that breeds in Canada and nowhere else in the world.
6. Because of its remote and restricted breeding grounds, the Harris's Sparrow was one of the last North American species to have its nest described. The first nest was found in 1931 in Churchill, Manitoba, by George M. Sutton, who went on to attend Cornell University and became an influential ornithologist and artist.

Notable Species: NONE