

# DARK-EYED JUNCO - JUNCO HYEMALIS

**Taxonomy:** Kingdom: Animalia Phylum: Chordata Class: Aves Order: Passeriformes Family: Passerellidae Genus: Junco  
Species: J. hyemalis

## **Habitat:**

**Biomes:** Dark-eyed Juncos breed in forests across much of North America and at elevations ranging from sea level to more than 11,000 feet. They are often found in coniferous forests including pine, Douglas-fir, spruce, and fir, but also in deciduous forests such as aspen, cottonwood, oak, maple, and hickory. During winter and on migration they use a wider variety of habitats including open woodlands, fields, roadsides, parks, and gardens.

## **Distribution:**

**In US:** This bird is common across much of temperate North America and in summer ranges far into the Arctic.

**In Other Countries:** Vagrant to Iceland, British Isles, and continental Europe (Netherlands, Norway, Poland, Gibraltar) and e. Siberia.

**Holistic Description:** Dark-eyed Juncos are neat, even flashy little sparrows that flit about forest floors of the western mountains and Canada, then flood the rest of North America for winter. They're easy to recognize by their crisp (though extremely variable) markings and the bright white tail feathers they habitually flash in flight. One of the most abundant forest birds of North America, you'll see juncos on woodland walks as well as in flocks at your feeders or on the ground beneath them.

**Species Richness:** 15 SUBSPECIES

**Population Dynamic:** CHECK THREATS

## **Evolution and Systematics:**

**Evolution:** Earliest North American record is from Alachua Co., FL: latest Pliocene, 2 million years before present.

**Systematics:** Breeding populations in montane areas and at higher latitudes generally larger in body size than other populations. Plumage generally darker, especially head; less white in tail; upperparts more reddish in regions of higher relative humidity; but notable exceptions to these trends occur. Trends in plumage most pronounced in w. North America, where extremes of environmental regimes are greater than in e. and n. North America.

**Number of Species:** 15 SUBSPECIES

**Number of Genera:** 15 SUBSPECIES

## **Physical Characteristics:**

**Size and Length:** Length: 5.5-6.3 in (14-16 cm) Weight: 0.6-1.1 oz (18-30 g)

**Wingspan:** 7.1-9.8 in (18-25 cm)

**Coloration:** Juncos vary across the country (see Regional Differences), but in general they're dark gray or brown birds brightened up by a pink bill and white outer tail feathers that periodically flash open, particularly in flight.

**General Body Features:** The Dark-eyed Junco is a medium-sized sparrow with a rounded head, a short, stout bill and a fairly long, conspicuous tail.

**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:** One amazing adaptation in these birds is the extremely rapid tarsal (long bones of the feet) development of the nestlings. Before they are able to fly, this adaptation enables nestlings to flee from danger on foot!

**Any Special Internal Anatomy:** NONE

**Sexual Dimorphisms:** Sexes similar but females in some subspecies average paler and browner (feathers tipped with buff, especially on head) than males; little change throughout year.

**Differences Between Juvenile Stage and Adult:** Juveniles generally resemble adult plumage pattern but are browner in color, often with buffy undertone on breast and adult pattern largely obscured by coarse streaking on head, back, and underparts; eye grayish, becoming brown in immatures. Some juveniles have pale wing-bars.

## **Behavior:**

**Diurnal, Nocturnal, or Crepuscular:** Diurnal

**Activity:** When foraging, Dark-eyed Juncos typically hop (rather than walk) on the ground, pecking or scratching at the leaf litter, or flit very low in underbrush gleaning food from twigs and leaves. They sometimes fly up from the ground to catch insects from tree trunks. In flight, they flap continuously and pump their tails so the white outer tail feathers flash; flight is very agile as the bird maneuvers through its tangled environs. Male juncos are very territorial in summer, chasing off

intruders in rapid flights accompanied by excited call notes. When males court females, they fan or flick open their wings and tail, hop up and down, and pick up pieces of nest material or moss; females seem to prefer males that show more white in the tail. During winter, Dark-eyed Juncos form fairly large flocks, and where wintering ranges overlap you may find several subspecies in a single flock. Juncos also forage with other sparrows and bluebirds. Junco flocks typically have a hierarchy or pecking order, and earlier arrivals tend to rank higher in the group than later arrivals.

**Locomotion:** When on ground, hops, usually forward but also sideways when circling insect prey. Rarely walks few steps one foot after another, or runs chasing prey or approaching male rival. When nearing potential rival, territorial male may crouch, erect body feathers, and creep one foot at a time. Normally lacks unusual distinguishing characteristics; wings beat steadily, quickly. Sometimes flycatches and returns to perch; readily flies up and takes insects from vertical tree trunk, hovering briefly, tail somewhat fanned. Very maneuverable in pursuit of evading flying insects, makes quick turns; slow-motion video of startled junco taking flight reveals turning head as though scanning surroundings, sudden changes in speed and angle of wingstroke.

**Communication and Perception:** Male Dark-eyed Juncos sing an even, musical trill of 7-23 notes that lasts up to 2 seconds. It's similar to the songs of both the Chipping Sparrow and the Pine Warbler, and is loud enough to be heard from several hundred feet away. Both sexes sing a much quieter song as well, a series of whistles, trills, and warbles that may sound like an American Goldfinch. This song typically doesn't carry any farther than about 40 feet.

**Home Range:** Males highly territorial in breeding season, beginning in Jan.

**Degree of Sociality:** Except during breeding season, solitary juncos rarely encountered. Social relations in flocks are blend of gregariousness and intolerance. Chasing and supplanting fairly common among newly independent juveniles and in migrating flocks.

**Level of Aggression:** During territorial establishment, males frequently chase any nearby junco; throughout season, chase trespassing males. Nonbreeding season: Aerial chases rare. During flock feeding in nonbreeding season, tail-flicking and calling very frequent; bill-jabbing rare. Dominance ranks are established quickly after introduction into cage. Supplanting attack usually consists of dominant's hopping forward, subordinate's retreat.

**Migration:** Resident to medium-distance migrant. Juncos that breed in Canada and Alaska migrate to the southern United States in winter. Some populations in the Rocky Mountains are only short-distance migrants, and some individuals in the West and in the Appalachian Mountains of the East don't migrate at all.

#### **Predators:**

**Predators:** Mammals, Mice, Weasels, Rodents, Hawks, Shrikes, Roadrunners, Cats.

**Anti-Predator Defenses:** When attacked, juncos flee into shrubs, brush piles, or similar shelter; not uncommonly slam into buildings. For probable effects that risk of predation has on junco foraging behavior, see Spacing, above. Although juncos in both the head-up or head-down positions are able to detect experimental model hawk, detection rate is higher when head is up; when some flockmates, especially those on edge of flock, fly up, other members also then depart.

#### **Diet and Nutrition:**

**Adult Diet:** Dark-eyed Juncos are primarily seed-eaters, with seeds of chickweed, buckwheat, lamb's quarters, sorrel, and the like making up about 75% of their year-round diet. At feeders they seem to prefer millet over sunflower seeds. During the breeding season, Dark-eyed Juncos also eat insects including beetles, moths, butterflies, caterpillars, ants, wasps, and flies.

**Juvenile Diet:** ^^^^^^

**Special Adaptations for Getting Prey:** Most food obtained from ground and leaf litter. Among 14 types of maneuvers by breeding juncos, twig-gleaning made up 22%, litter-pecking 20%, twig-pecking 20%, leaf-gleaning 17%. Juncos also scratch for food, hopping forward and, as feet touch ground, kicking backward. As litter increased during experimental field trials, scratching for food increased.

#### **Reproduction:**

**Mode of Reproduction:** Monogamous

**Mating System:** Mating system is social monogamy. Among  $\geq 200$  color-banded male J. h. carolinensis, only 2 had 2 females simultaneously.

**Mating Season:** January to April

**Courtship:** Male courtship, almost always performed  $\leq 5$  m from female, may include pulsatile fanning of wings and tail, repeated hopping, piloerection, picking up nest material or other vegetation. Females prefer males with experimentally enhanced white in tail and also testosterone-implanted males.

**Territoriality:** HOME RANGE

**Mating:** In most, male flew approximately 1 m to female and mounted, retreated approximately 1 m, returned and mounted again; usually 3 to 5 copulations in rapid succession. Two females solicited; 6 bouts were silent; 1 female squawked while

copulating. At conclusion, males perched nearby, singing and “displaying,” and females preened. All copulations were between social mates and on their home ranges. Once female rejected mounting male, and once male ignored soliciting female.

**Nest Placement:** The female chooses the nest site, typically in a depression or niche on sloping ground, rock face, or amid the tangled roots of an upturned tree. Around people, juncos may nest in or underneath buildings. Occasionally, juncos nest above the ground on horizontal branches (rarely as high as 45 feet), window ledges, and in hanging flower pots or light fixtures.

**Nest Description:** Females build the nests, using her beak to weave together materials and her body to give the nest its shape. Nests can be quite variable depending on where they are built. Sometimes ground nests get just a fine lining of grasses or pine needles. Other nests may be built on a foundation of twigs, leaves and moss, then lined with grasses, ferns, rootlets, hair, and fine pieces of moss. The nests usually take 3-7 days to build, and when finished they are 3-5.5 inches across, with an inner diameter of 2.4-2.8 inches and depth of 1.6-2.8 inches. It's rare for a junco to reuse a nest.

**Egg-Laying:** Clutch Size: 3-6 eggs Number of Broods: 1-3 broods Egg Length: 0.8-0.8 in (1.9-2.1 cm) Egg Width: 0.6-0.6 in (1.5-1.6 cm) Incubation Period: 12-13 days Nestling Period: 10-13 days Egg Description: White, gray, pale bluish white, or pale-greenish white speckled with brown, gray and green. Occasionally unmarked.

**Hatching and Incubation/Gestation:** Naked except for dark gray down on the back, eyes closed, clumsy.

**Development:** Immediately able to gape for few seconds, accept food. Can maintain upright position 3 d later; unsuccessfully attempts to right self when on back. ALTRICIAL.

**Parental Care:** Food inserted directly into nestling's gape. Very young nestlings sometimes fed by regurgitation. Large insects prepared by removal of wings and legs, sometimes after arrival at nest, then carried away before feeding.

**Lifespan:** Up to 11.28 years.

#### **Conservation:**

**Official Federal Status:** Least Concern

**Special Statuses in Individual States:** NONE

**Threats:** Dark-eyed Juncos are numerous and widespread, though the North American Breeding Bird Survey reports that populations declined by about 1.4% per year between 1966 and 2015, resulting in a cumulative decline of 50%. Partners in Flight estimates a global breeding population of 200 million with 81% spending some part of the year in the U.S., 65% in Canada, and 7% in Mexico. The species rates an 8 out of 20 on the Continental Concern Score. Dark-eyed Junco is not on the 2016 State of North America's Birds' Watch List.

**Conservation Efforts:** ^^^^^

#### **Extra Facts:**

1. Juncos are the "snowbirds" of the middle latitudes. Over most of the eastern United States, they appear as winter sets in, and then retreat northward each spring. Other juncos are year-round residents, retreating into woodlands during the breeding season, or, like those of the Appalachian Mountains, moving to higher elevations during the warmer months.
2. The Dark-eyed Junco is one of the most common birds in North America and can be found across the continent, from Alaska to Mexico, from California to New York. A recent estimate set the junco's total population at approximately 630 million individuals.
3. The oldest recorded Dark-eyed Junco was at least 11 years, 4 months old when it was recaptured and rereleased during banding operations in West Virginia in 2001. It had been banded in the same state in 1991.

#### **Notable Species:**

1. SLATE COLORED JUNCO (3)
2. WHITE-WINGED JUNCO (1)
3. OREGON JUNCO (7)
4. PINK-SIDED JUNCO (1)
5. GRAY-HEADED JUNCO (1)
6. RED-BACKED JUNCO (1)