

# KILLDEER - CHARADRIUS VOCIFERUS

**Taxonomy:** Kingdom: Animalia Phylum: Chordata Class: Aves Order: Charadriiformes Family: Charadriidae Genus: Charadrius Species: C. vociferus

## **Habitat:**

**Biomes:** Killdeer inhabit open areas such as sandbars, mudflats, and grazed fields. They are probably most familiar around towns, where they live on lawns, driveways, athletic fields, parking lots, airports, and golf courses. Generally the vegetation in fields inhabited by Killdeer is no taller than one inch. You can find Killdeer near water, but unlike many other shorebirds, they are also common in dry areas.

## **Distribution:**

**In US:** The nominate (or originally described) subspecies breeds from southeastern Alaska and southern Canada to Mexico. It is seen year-round in the southern half of its breeding range; the subspecies C. v. ternominatus is probably resident in the West Indies and C. v. peruvianus inhabits Peru and areas of the surrounding countries throughout the year. North American breeders winter from their resident range south to Central America, the West Indies, and the northernmost portions of South America.

**In Other Countries:** Canada, Mexico, Colombia, Ecuador, Venezuela, Hawaiian Islands, Russia, Greenland, Iceland, Switzerland, Hungary, Romania, Spain, Azores.

**Holistic Description:** A shorebird you can see without going to the beach, Killdeer are graceful plovers common to lawns, golf courses, athletic fields, and parking lots. These tawny birds run across the ground in spurts, stopping with a jolt every so often to check their progress, or to see if they've startled up any insect prey. Their voice, a far-carrying, excited kill-deer, is a common sound even after dark, often given in flight as the bird circles overhead on slender wings.

**Species Richness:** 3 SUBSPECIES

**Population Dynamic:** The killdeer is considered a least-concern species by the IUCN. This is due to its large range of about 26.3 million square kilometers (10.2 million sq mi) and population, estimated by the IUCN to be about one million birds, or about two million, according to the Handbook of the Birds of the World Alive. Even though the population is declining, it is not decreasing fast enough to be considered a vulnerable species. It is protected in the US by the Migratory Bird Treaty Act of 1918, and in Canada by the Migratory Birds Convention Act.

## **Evolution and Systematics:**

**Evolution:** Known from the Blancan of San Diego Co., CA; from late-Pleistocene asphalt pits at La Brea and McKittrick, CA

**Systematics:** Only slight geographic variation in size and coloration: Larger birds to the north; plumage grayer in West Indies resident birds than in other populations. Identification based on measurements and slight differences in coloration and pattern of rufous edgings on upperparts (back and wing coverts). Close similarity and occurrence of nonbreeding migratory populations in areas with resident populations suggest that modern appraisal of these taxa is needed.

**Number of Species:** 3 SUBSPECIES

**Number of Genera:** 3 SUBSPECIES

## **Physical Characteristics:**

**Size and Length:** Length: 7.9-11.0 in (20-28 cm) Weight: 2.6-4.5 oz (75-128 g)

**Wingspan:** 18.1-18.9 in (46-48 cm)

**Coloration:** Brownish-tan on top and white below. The white chest is barred with two black bands, and the brown face is marked with black and white patches. The bright orange-buff rump is conspicuous in flight.

**General Body Features:** Killdeer have the characteristic large, round head, large eye, and short bill of all plovers. They are especially slender and lanky, with a long, pointed tail and long wings.

**Special Features of the Body:** The killdeers often spend time on gravels and stones, and hence, the combination of colors on the body of the killdeer is such that, they can't easily be spotted.

**Special Features of the Head and Sensory Organs:** During nesting, the killdeers may make more than one scrapes (nests) that are not far away from each other before the pair choose one to lay the eggs in. This duplication may help to confuse predators.

**Dentition:** BEAK/LAMELLAE/GIZZARD

**Special Features of the Limbs and Digits:** As discussed above, the killdeer has developed behavioral adaptations by their "broken-wing act".

**Any Special Internal Anatomy:** These birds lay their eggs in a simple depression on open ground and areas with sparse vegetation, and because their eggs are spotted and speckled, they remain easily camouflaged and blend into the surroundings.

**Sexual Dimorphisms:** The female's mask and breast bands tend to be browner than those of the male. Although males may average more rufous on upperparts and more black on head than females, these differences are slight and usually not discernible except when contrasted in mated pairs. Sexes otherwise are alike in appearance.

**Differences Between Juvenile Stage and Adult:** Juvenile plumage is similar to Definitive Alternate plumage, except contour feathers are looser-webbed, and nape, mantle, wing coverts, scapulars, and tertials of juveniles tend to have buffy to amber-brown to pale-rufous margins. Bare skin around eye is yellowish gray in young chicks, gradually changing to gray-green, yellow-green, gold, and finally red by the time chick has attained Juvenile plumage and independence. In adults, typically Flame Scarlet and Scarlet.

**Behavior:**

**Diurnal, Nocturnal, or Crepuscular:** Diurnal, however some NOCTURNAL feeding occurs.

**Activity:** Often seen in dry, flat landscapes, running and halting on the ground in search of insects and earthworms. Although the Killdeer is common around human habitation it is often shy, at first running away rather than flying. When a Killdeer stops to look at an intruder, it has a habit of bobbing up and down almost as if it had hiccupped. Near the nest, Killdeer distract predators by calling loudly, bobbing, and running away. Killdeer are some of the best-known practitioners of the broken-wing display, an attempt to lure predators away from a nest by feigning injury. Pairs of Killdeer tend to stay together for one to a few years.

**Locomotion:** Characteristically runs short distance, stops, bobs head, and runs again. Flight is rapid and strong. Birds in flocks generally are well dispersed. Adults swim well in swift-flowing water, and chicks can swim across small streams.

**Communication and Perception:** Most noticeable among the Killdeer's many calls is the high, plaintive kill-deer the bird is named for. Displaying males give this 0.5-second call over and over while in flight. Birds in distress or sounding an alarm make a sharp dee that can intensify into a nervous, bubbling trill. This trill may also be used in courtship displays.

**Home Range:** Territorial defense encounters are most common during courtship and nest-building early in breeding season; some pairs remain territorial year-round in Mississippi. Mean distance to nearest neighboring nest at time of nest initiation was 244 m.

**Degree of Sociality:** Regularly associates in small flocks during migration and in wintering areas. Pairs maintain territories, and confrontations are frequent at territorial boundaries. Decoys are effective in attracting Killdeer to mist-nets. The only consistent associations among wintering residents and winter visitors in N. Carolina occurred between mates. In winter, residents are aggressive toward resident neighbors and relatively tolerant toward wintering migrants and transients.

**Level of Aggression:** Fighting is rare, but includes crouching and lunging toward opponent with fluttering wings, followed by crouching. Courtship behavior in 1 pair often elicits aggressive behavior from neighboring pairs. An interaction in Mississippi in Mar between 2 pairs resulted in 1 attacking bird pulling large billful of feathers from breast of a scraping bird and chasing the displaying pair from the area. Several physical encounters between Mississippi pairs were seen during fall. Males from these pairs occasionally struck one another, and numerous breast- and back feathers were pulled out, leaving obvious gaps in plumage. Both pairs had nested on same territory, albeit at different times during the previous spring.

**Migration:** Resident or medium-distance migrant. Some northern birds spend the winter in Mexico. In the southern United States and Pacific coast, Killdeer are year-round residents.

**Predators:**

**Predators:** Gray rat snake, opossum, raccoon, mustelids, coyote, domestic dogs, gulls, Great Horned Owl, Black-billed Magpie, Crow, Common Raven, American Kestrel, Loggerhead Shrike, Red fox, Merlin, Red-tailed Hawk, Burrowing Owl, and crayfish.

**Anti-Predator Defenses:** Antipredator behavior in Killdeer includes quietly running from nest and, if potential predator continues to approach nest, performing distraction displays. These include False Brooding, Injury-Feigning Display, Ungulate Display, and Upright Attack Display, which may end in physical attack.

**False Brooding.** Performed in presence of potential nest or chick predator; consists of bird's settling down as if to brood or incubate at a site where there are no eggs or chicks, sometimes an unused nest scrape.

**Injury-Feigning Display.** Performed by either sex, usually by only 1 member of pair at a time. If both members of pair are present, one usually gives alarm calls from a distance. In response to potential predator, bird crouches, head low, breast-bands minimally showing, wings drooping and partially extended, sometimes flapping to beat against the ground, tail fanned and dragging the ground to display rufous rump-patch. Displaying bird's body is usually oriented away from potential predator, but its head is turned to the side such that the bird looks over its shoulder at potential predator. Tail may be twisted to one side to maximize exposure of rufous to potential predator.

**Ungulate Display.** Killdeer on its nest remains motionless until nest seems threatened by approaching animal; then bird rushes toward offender while giving loud screams. This usually turns animal from nest, but if it persists, Killdeer stands its ground, usually between intruder and nest.

**Diet and Nutrition:**

Adult Diet: Feeds primarily on invertebrates, such as earthworms, snails, crayfish, grasshoppers, beetles, and aquatic insect larvae. Follows farmers' plows in hopes of retrieving any unearthed worms or insect larvae. Will also eat seeds left in agricultural lands. An opportunistic forager, Killdeer have been observed hunting frogs and eating dead minnows.

Juvenile Diet: Terrestrial invertebrates, especially earthworms, grasshoppers, beetles, and snails; infrequently small vertebrates and seeds.

Special Adaptations for Getting Prey: Commonly pats the ground or bottom in shallow water with one foot with quivering motion. Audubon believed this behavior was intended "to force out its inhabitants." Probes into mud; chases moving prey. Readily follows a farmer's plow to retrieve earthworms. Blanchan suggested nocturnal feeding on earthworms. A characteristic search behavior employed in more terrestrial environments is to run quickly, stop, wait, and then run again.

**Reproduction:**

Mode of Reproduction: Monogamous

Mating System: Monogamous

Mating Season: June to March

Courtship: Pairs appear to form on breeding ground in northern areas, but are often maintained year-round in s. U.S. Some Killdeer in northern regions have been found with same mate in successive seasons.

Territoriality: HOME RANGE

Mating: Female stands with her legs bent in slight crouch and her body tipped slightly forward and held more or less parallel to the ground. Male approaches her from the side, either in casual walk or running. His movement becomes deliberate as he nears the female, raising and lowering his legs as if marking time. Then he hops onto female's back, assumes half-crouched position, at times with entire length of tarsus appearing to touch female's back feathers, and begins to tread up and down. His feet seem to slide down gradually between female's drooping wings and her body. Female rhythmically pumps her tail and body against those of male, eventually bringing dorsal surface of her tail and body against ventral surface of male's tail and body. Male then slips off to side of female, twisting his tail and fluttering briefly to bring his cloaca into momentary contact with her cloaca. Pairs often copulated  $\geq 2$  times in succession. One pair copulated 4 times in 44 min.

Nesting: Killdeer nests are simple scrapes often placed on slight rises in their open habitats. Killdeer may make several scrapes not far away from each other before choosing one to lay in. The duplication may help to confuse predators. Nest is a shallow depression scratched into the bare ground, typically 3-3.5 inches across. After egg-laying begins, Killdeer often add rocks, bits of shell, sticks, and trash to the nest. Curiously, these items tend to be light colored, and this tendency was confirmed in one experiment that gave Killdeer the choice between light and dark sticks.

Egg-Laying: Clutch Size: 4-6 eggs Number of Broods: 1-3 broods Egg Length: 1.5 in (3.8 cm) Egg Width: 1.1 in (2.7 cm) Incubation Period: 22-28 days Egg Description: Buff-colored, heavily marked with blackish-brown.

Hatching and Incubation/Gestation: Killdeer chicks hatch with a full coat of buffy down feathers and a single black breast band. They can walk out of the nest as soon as their feathers dry.

Development: Precocial and nidifugous: downy and active, capable of leaving nest soon after down dries. Mean hatching mass of chicks: in Massachusetts, 9.9 g.

Parental Care: Both parents brood. Brooding is nearly constant during hatching in cool weather; decreases with increasing ambient temperature; replaced by shading during very hot weather. Frequent between foraging bouts during first 3 d after hatching, decreasing with chick age and increased ambient temperatures. Killdeer are not known to feed their young. Soon after eggs hatch, parents lead chicks to feeding areas; e.g., in Mississippi, these included at least 1 wet area. One pair led a chick down a 4-m vertical bank, across a stream, and up the opposite bank. Anecdotal references suggest that similar sites are used elsewhere.

Lifespan: 3-5 years

**Conservation:**

Official Federal Status: Least Concern

Special Statuses in Individual States: NONE

Threats: Killdeer populations declined overall by about 47% between 1966 and 2014, with steeper declines in Canada and the West, according to the North American Breeding Bird Survey. A 2012 study estimates about 2 million breeding birds in North America, an increase over numbers reported in a 2006 study. Killdeer is not on the 2014 State of the Birds Watch List. These birds are found throughout the year in North America, Canada being host to mostly breeding birds. They can also be

found in Central America and parts of South America and Europe. The Killdeer is one of the most successful of all shorebirds because of its fondness for human modified habitats and its willingness to nest close to people. Because they live so close to people, however, Killdeer are vulnerable to pesticide poisoning and collisions with cars and buildings.

Conservation Efforts: ^^^^^

**Extra Facts:**

1. Killdeer get their name from the shrill, wailing kill-deer call they give so often. Eighteenth-century naturalists also noticed how noisy Killdeer are, giving them names such as the Chattering Plover and the Noisy Plover.
2. Gravel rooftops attract Killdeer for nesting, but can be dangerous places to raise a brood. Chicks may be unable to leave a roof because of high parapets and screened drain openings. Adults eventually lure chicks off the roof, which can be dangerous – although one set of chicks survived a leap from a seven-story building.
3. The Killdeer's broken-wing act leads predators away from a nest, but doesn't keep cows or horses from stepping on eggs. To guard against large hoofed animals, the Killdeer uses a quite different display, fluffing itself up, displaying its tail over its head, and running at the beast to attempt to make it change its path.
4. A well-known denizen of dry habitats, the Killdeer is actually a proficient swimmer. Adults swim well in swift-flowing water, and chicks can swim across small streams.
5. The male and female of a mated pair pick out a nesting site through a ritual known as a scrape ceremony. The male lowers his breast to the ground and scrapes a shallow depression with his feet. The female then approaches, head lowered, and takes his place. The male then stands with body tilted slightly forward, tail raised and spread, calling rapidly. Mating often follows.
6. Killdeer lay their eggs into an empty nest but add other materials later on. Some of these items they pick up as they are leaving and toss over their shoulder into the nest. In one nest in Oklahoma, people found more than 1,500 pebbles had accumulated this way.
7. The oldest recorded Killdeer was at least 10 years, 11 months old when it was recaptured and rereleased during banding operations in Kansas.

**Notable Species:**

1. *C. v. vociferus* Linnaeus, 1758 – The nominate subspecies (originally described subspecies), found in the US (including southeastern Alaska), southern Canada, Mexico, and with some less widespread grounds further south, to Panama. It winters to northwestern South America.
2. *C. v. ternominatus* Bangs & Kennard, 1920 – This subspecies is found on the Bahamas, the Greater Antilles, and Virgin Islands.
3. *C. v. peruvianus* (Chapman, 1920)[note 1] – This South American subspecies is found in west Ecuador, Peru, and extreme northwest Chile.