LOGGERHEAD SHRIKE - LANIUS LUDOVICIANUS

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Passeriformes Family: Laniidae Genus: Lanius Species: L. ludovicianus

Habitat:

Biomes: Loggerhead Shrikes inhabit open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. They frequent agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, and cemeteries. Loggerhead Shrikes are often seen along mowed roadsides with access to fence lines and utility poles.

Distribution:

In US: Loggerhead shrikes were once widely distributed across southern Canada, the contiguous USA and Mexico. However, their populations have heavily declined since the 1960s. Four subspecies reside in southern coastal California: mearnsi, gambeli, grinnelli and anthonyi. L. l. mearnsi is only found on San Clemente Island in California, whereas L. l. gambeli breeds on the mainland and L. l. anthonyi breeds on the Channel Islands. L. l. excubitorides is found in central North America, whereas the non-migrating L. l. ludovicianus resides in southeastern North America. The distribution of L. l. migrans ranges from north to eastern North America; however, its range has been diminishing since the 1940s.

In Other Countries: NONE

Holistic Description: The Loggerhead Shrike is a songbird with a raptor's habits. A denizen of grasslands and other open habitats throughout much of North America, this masked black, white, and gray predator hunts from utility poles, fence posts and other conspicuous perches, preying on insects, birds, lizards, and small mammals. Lacking a raptor's talons, Loggerhead Shrikes skewer their kills on thorns or barbed wire or wedge them into tight places for easy eating. Their numbers have dropped sharply in the last half-century.

Species Richness: 7 SUBSPECIES

Population Dynamic: CHECK THREATS

Evolution and Systematics:

Evolution: Species identified from several late Pleistocene (Rancholabrean North American Land Mammal Age 400,000 years before present [ybp]) and prehistoric sites (<13,000 ybp) from Arizona, California, Florida, New Mexico, and Wyoming

Systematics: Exhibits variation in plumage coloration and morphometrics. Most work on this done by Miller and more recently Phillips and Rea. Dorsal coloration ranges from dark gray to pale gray. Amount of white in rump and uppertail coverts, scapulars, and flanks roughly parallels dorsal coloration, with darkest birds generally having these areas more extensively gray; palest subspecies generally have noticeably white rump and scapulars. **A detailed study by Miller recognized 11 subspecies and provided the basis for most later treatments of the species. More recently, Phillips recognized only 7 subspecies.**

Number of Species: 7 SUBSPECIES

Number of Genera: 7 SUBSPECIES

Physical Characteristics:

Size and Length: Length: 7.9-9.1 in (20-23 cm) Weight: 1.2-1.8 oz (35-50 g)

Wingspan: 11.0-12.6 in (28-32 cm)

Coloration: The Loggerhead Shrike is a gray bird with a black mask and white flashes in the black wings. The gray head contrasts with the wide, black mask, black bill, and white throat. The tail is black with white corners; the wings are black with white at the base of the primaries that form a small "handkerchief" spot when the wing is closed and larger white patches in flight. Juveniles have darker barring above and below.

General Body Features: Loggerhead Shrikes are thick-bodied songbirds. They have large, blocky heads and a thick bill with a small hook. The tail is fairly long and rounded.

Special Features of the Body: Shrikes are the only songbirds (passerines) that hunt like a bird of prey. Seeking vertebrates; L. l. migrans perches solitarily on a branch, fence, or utility wire that provides a wide view of an open field. It swoops down and inflicts a sharp blow to a victims head.

Special Features of the Head and Sensory Organs: Its strong beak can carry prey almost its own weight to an impaling site such as a thorn or barbed wire. Impaling is energy efficient, allowing for easy tearing. The eastern loggerhead shrikes black mask absorbs light, lessening reflection that distorts sight. The eyes protrude slightly to improve binocular vision.

Dentition: BEAK/LAMELLAE/GIZZARD

Special Features of the Limbs and Digits: With feet and talons too small for killing, it uses the angle between the hooked bill and the tomial tooth on the upper mandible as a notch to snap the victims neck.
Any Special Internal Anatomy: The loggerhead shrikes are used to hunting even in cold mornings. This is because, it is this time that low temperatures immobilize most insects. In order to allow the poison of the toxic prey to degrade, they are habituated to leaving them impaled for a few days before consumption. The carcass can be left impaled until the family is ready to eat again. Sitting and waiting as a foraging technique also saves energy since a shrike perches for 80% of the day. Hawking and hovering to catch insects, takes much more energy.
Sexual Dimorphisms: It is difficult to sex an adult loggerhead shrike in the field, as they are sexually monochromatic. However, several studies have reported sexual dimorphism in plumage and size traits. Sexes generally similar, although male significantly larger than female and female tends to have browner primaries than male.
Differences Between Juvenile Stage and Adult: Juveniles possess a paler gray plumage that is subtly marked with sinuous or wavy lines..

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal
Activity: Loggerhead Shrikes hunt by scanning the ground from elevated perches, then diving onto prey. They also hover-hunt. Loggerhead Shrikes sometimes hunt from the ground, flashing their wing patches in a manner similar to the Northern Mockingbird, to startle prey out of hiding. To immobilize large prey items, the Loggerhead Shrike impales them on sharp objects such as thorns and barbed wire, or tucks them into forks between branches. Caches of prey thus lain away, also called “larders” or “pantries,” provide food stores during winter when prey is scarce, or in breeding season when energy demands are high. A well-provisioned larder may also help a male shrike attract a mate. Loggerhead Shrikes maintain territories largely through songs and displays. Males challenge intruders with a wing-fluttering bow, like an intensified version of their prey-stalking display. Displaying rivals usually face away from one another, but may whirl to face each other or stamp the ground. Before nesting, several neighboring shrikes may gather together and call or display for several minutes. This may help establish territories in the neighborhood, promote pair formation, and help new arrivals find territories near already-established birds. Courting males feed and sing to females, perform a ritual dance, and/or perform a flight display. They are mostly monogamous, although females occasionally raise one brood with one male and then take up with another mate for a second brood the same season.
Locomotion: Hops but does not walk. While hopping, body is held erect and head high unless bird is investigating objects close to the ground. When hopping in dense trees or bushes, lowers and thrusts head forward, with body held nearly horizontal. When stalking prey on ground or mobbing, frequently raises wings half open in a stereotyped manner, producing maximum exposure of white areas of primaries and exposing conspicuous white wing-patch; tips of primaries may touch ground as they are swept forward. Ruffling of dorsal feathers also occurs. This behavior is similar to that of Northern Mockingbird; function unknown, but perhaps to startle cryptically colored prey. Loggerhead Shrike is a sit-and-wait predator that uses high perches; upon seeing potential prey, it dives at it. Also hovers when foraging. Usually makes short flights between perches by dropping down to a low level and, with fast beating of short wings and big head held well up, ends by rising upward to alight on perch. Longer flights usually involve undulating flight.
Communication and Perception: Loggerhead Shrikes sing quiet songs composed of a rhythmic series of short trills, rasps, and buzzes mixed with clear, often descending notes. Both males and females perform a territory song, similar to the spring song but rougher and harsher.
Home Range: Highly territorial; pairs hold breeding territories within which all activities take place-foraging, mating, raising young. Maintains larger territories than other insectivorous passerines of similar size; probably a function of specialized foraging behavior.
Degree of Sociality: Migrants solitary during winter; residents remain paired year-round. Group Meeting is prenesting behavior in which several neighboring shrikes come together and engage in much calling and active displays for several minutes; described for Northern Shrike in Europe.
Level of Aggression: Rarely fights over territory boundaries once established; instead maintains boundaries and threatens neighbors via vocalizations. Alternatively, bowing behavior is directed toward intruding individuals or during border disputes. Although sometimes only 1 bird gives the display, usually both birds perform it simultaneously; may be accompanied by loud stamping on flat surfaces. Displaying birds usually face away, except when they whirl to face each other, approach to within 0.5 m of each other, and take turns bowing. In the wild; sequence is repeated several times before 1 of the males retreats and flies off. Displaying bird holds its body horizontally, sometimes flexing its legs so extensively that the entire tarsi are flat on the ground. Wings droop slightly away from body, are fluttered rapidly; back feathers raised; head

lowered; bird forcefully pecks ground or perch; tail spread, with extent of spread varying with intensity of display. Crown feathers usually depressed. Displaying bird may be silent or give a note similar to that made by juveniles begging for food.
Migration: Migratory in the northern portion of its range, generally moving south of 40°N latitude to avoid significant snow cover. Loggerhead Shrikes apparently migrate individually and diurnally, moving short distances at a time and feeding en route.

Predators:

Predators: Black-billed Magpies, Bull Snakes, Feral Cats, Long-tailed Weasels, Indigo Snakes, Rat Snakes, Corn Snake, Crested Caracara, American Crow, Northern Harrier, Merlin, Swainson's Hawk, Red-tailed Hawk, Red-shouldered Hawk, American Swallow Tailed Kite, Brewer's Blackbirds.
Anti-Predator Defenses: Potential nest predators are mobbed, physically attacked, or chased.

Diet and Nutrition:

Adult Diet: Loggerhead Shrikes eat insects and other arthropods, amphibians, reptiles, small mammals, and birds; they also sometimes feed on roadkill and carrion. Their staple foods include agricultural pests such as grasshoppers, beetles and rodents. Insects generally dominate the Loggerhead Shrike's diet during breeding season, while winter brings a greater reliance on vertebrate prey. These include lizards, snakes, frogs, turtles, sparrows, goldfinches, ground squirrels, voles, mice, and shrews, to name just a few.
Juvenile Diet: ^^^^^^
Special Adaptations for Getting Prey: Like other shrikes, kills its vertebrate prey by precisely attacking the nape and then severing the cerebral vertebrae in a series of grabs and bites. Tomial tooth in upper mandible probably serves as a device for penetrating quickly to the spinal cord through the space between the articulating vertebrae, thereby damaging the cord, producing partial paralysis, and rendering the quarry easier to kill. **Like other shrikes, has perching feet characteristic of passerines. Absence of heavy talons and strong feet cause 2 problems: (1) self-defense, and (2) hold-ing the prey once killed. First is overcome by avoiding dangerous prey through hovering, attacking from behind, and biting at base of prey's skull. Second is remedied by impaling prey on sharp spines.**

Reproduction:

Mode of Reproduction: Monogamous
Mating System: Primarily monogamous, but polygyny reported. Female may desert mates once young of the first brood have left the nest, raising a second brood in nearby area with another male.
Mating Season: April to July
Courtship: Female accepts prey from male when ready to form a pair bond; such feeding continues throughout incubation and nestling period. Female begs food by crouching, head pointed up, wings drooped and fluttering; silent at first, she gives begging notes as nesting progresses.
Territoriality: HOME RANGE AND LEVEL OF AGGRESSION
Mating: Female wing-flutters before allowing male to mount her. Female sings occasionally, but her song is not as loud or as prolonged as male's.
Nest Placement: Both sexes help find the nest site, inspecting many locations before choosing. Loggerhead Shrikes often build their nests in thorny vegetation, which may help keep predators away. In the absence of trees or shrubs, they sometimes nest in brush piles or tumbleweeds. Average height of nests above the ground ranges from about 2.5–4 feet.
Nest Description: Both sexes gather material. The female usually constructs the nest on her own, over a period of about 6–11 days. The bulky, well-insulated open cup is neatly woven of rootlets, twigs, forbs, and bark strips and lined inside with soft material such as flowers, lichen, grass, moss, feathers, fur, string, or cloth. The nest is about 6 inches in diameter on the outside, with an interior diameter of about 4 inches; the cup is about 3 inches deep.
Egg-Laying: Clutch Size: 5-6 eggs Number of Broods: 1-2 broods Egg Length: 0.9-1.1 in (2.3-2.7 cm) Egg Width: 0.7-0.8 in (1.8-2 cm) Incubation Period: 15-17 days Nestling Period: 16-20 days Egg Description: Eggs are grayish buff, marked with gray to yellowish-brown.
Hatching and Incubation/Gestation: Naked, blind, and helpless, with closed eyes.
Development: Altricial (naked, blind, helpless) and nidicolous (remain in nest until they can flutter out). Skin is dry and slightly wrinkled, particularly on head, neck, and shank. With few exceptions, all contour feather germs are visible as opaque white dots that appear as rows of minute papillae on the skin. Skin color generally pinkish orange, bill orange-yellow, rictus buffy yellow, egg tooth distinctly white with a pair of black spots on either side.
Parental Care: Parents show little or no defense of eggs. Degree of defense increases as young grow. When nest with young is approached, parents not only scream and bill-click, but also vigorously peck or strike intruder's nape. Occasionally, neighboring adults cross territory boundaries to join in attack on intruders. Female broods hatchlings for first 4–5 d. During

this time, male feeds female, who in turn reaches under herself to feed nestlings. Male abstains from feeding young during this period unless female is absent from the nest for long periods, but he participates in nest sanitation by removing fecal sacs and regurgitated pellets. These wastes are deposited several meters away from nests. About 4 d after eggs hatch, female spends more of her time foraging and less incubating.

Lifespan: 7 and 8 years

Conservation:

Official Federal Status: Near Threatened

Special Statuses in Individual States: NONE

Threats: Loggerhead Shrikes are still fairly numerous in some areas (particularly the South and West), but their populations have fallen sharply. Between 1966 and 2015, the species declined by almost 3% per year, resulting in a cumulative decline of 76%, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population is 5.8 million, with 82% spending some part of the year in the U.S., 30% in Mexico, and 3% breeding in Canada. The species rates an 11 out of 20 on the Continental Concern Score, and the 2014 State of the Birds Report lists them as a Common Bird in Steep Decline. Loggerhead Shrikes have been listed as endangered, threatened, or of special concern in several states and Canada, and have been proposed for federal listing (the subspecies that nests on San Clemente Island, California, is listed as endangered). The species' decline coincides with the introduction and increased use of chemical pesticides between the 1940s and the 1970s, and may result in part from the birds' ingestion of pesticide-laced prey from treated fields. Other likely causes of population decline include collision with vehicles, urban development, conversion of hayfields and pastureland, decimation of hedgerows, habitat destruction by surface-coal strip-mining, and altering of prey populations by livestock grazing. Given this bird's potentially high reproductive rate, and provided that adequate habitat continues to be available, Loggerhead Shrike populations may be able to recover if the causes of the bird's decline can be identified and eliminated.

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

Extra Facts:

1. A Loggerhead Shrike can kill and carry an animal as massive as itself. It transports large prey in its feet and smaller victims in its beak.
2. The upper cutting edge (tomium) of the Loggerhead Shrike's hooked bill features a pair of built-in pointy projections, aptly named "tomial teeth." Like a falcon, the shrike tackles vertebrate prey with a precise attack to the nape, probably using these tomial "teeth" to paralyze the animal with a jab to the spinal cord.
3. Loggerhead Shrikes impale noxious prey such as monarch butterflies and eastern narrow-mouthed toads—then wait for up to three days to eat them, which allows time for the poisons to break down. These shrikes also eat the heads and abdomens of toxic lubber grasshoppers, while discarding the insect's poisonous thorax.
4. Newly fledged Loggerhead Shrikes perform exaggerated, misdirected versions of adult hunting behavior. They peck at inanimate objects, fly about with leaves or sticks in their beaks, practice aerial chases without a target, or chase after their parents. They also perform rudimentary impaling gestures, grasping objects in the tip of their bill and repeatedly touching them to a branch or perch as if trying to get them to stick.
5. Loggerhead Shrikes sometimes go hunting on cold mornings, when insect prey are immobilized by low temperatures.
6. "Loggerhead," a synonym for "blockhead," refers to the unusually large size of this bird's head in relation to its body.
7. The longest-lived Loggerhead Shrike on record—a male—was at least 11 years, 9 months old when it was caught and released in 2010 by researchers in California.

Notable Species:

1. L. l. excubitorides Swainson, 1832 – central Canada, central and west USA
2. L. l. migrans Palmer, W, 1898 – east North America
3. L. l. ludovicianus Linnaeus, 1766 – coastal southeast USA
4. L. l. anthonyi Mearns, 1898 – Channel Islands (off south California, southwest USA)
5. L. l. mearnsi Ridgway, 1903 – San Clemente Island (off south California, southwest USA)
6. L. l. grinnelli Oberholser, 1919 – extreme south California and north Baja California (northwest Mexico)
7. L. l. mexicanus Brehm, CL, 1854 – west and central Mexico, south Baja California (northwest Mexico)