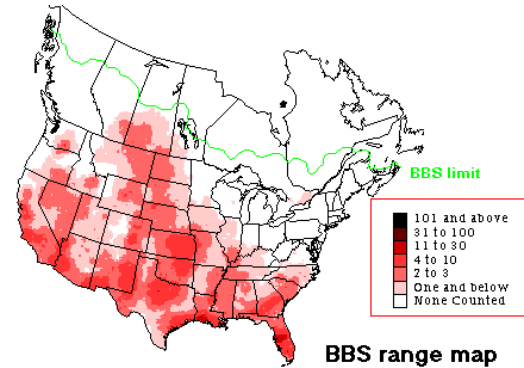


Loggerhead Shrike (*Lanius ludovicianus*)

By Jeff Esely, Conservation Science Specialist
Mecklenburg County Division of Natural Resources



photo: Steve Holt/Vireo



BBS range map

The Loggerhead Shrike (*Lanius ludovicianus*) belongs to the Order Passeriformes, Family Laniidae. The family is comprised of over 70 species, two of which (Loggerhead and Northern) occur in North America. The genus name is Latin for “butcher”, in connotation with this bird’s habit of impaling prey items on thorns or barbed wire. The species name *ludovicianus* is in reference to the Louisiana Territory, the type locality of the species. “Loggerhead” is thought to refer to the bird’s relatively large head, compared to its body, and the name “shrike,” derived from “shriek,” refers to its rather unmusical vocalizations.

Description

Approximately Robin sized, Loggerhead Shrikes have coloration similar to Northern Mockingbirds, but shrikes have a larger head, hooked bill, and a black “mask.” In flight, they may be identified by a distinct white wing patch, rapid wing beat, and low to the ground undulating flight pattern. Adult males and females are similar in appearance and cannot be reliably sexed in the field.

Range

A native of North America, the Loggerhead Shrike ranges from southern Canada to northern Mexico. It occurs throughout most of the United States, yet like many grassland species, it has been extirpated from much of the northeast. In North Carolina, it occurs statewide with the highest densities found in the Piedmont, Sandhill, and Coastal Plain regions of the state.

Status

Habitat loss and fragmentation have resulted in significant population declines throughout much of the Loggerhead Shrike’s range. East of the Mississippi River, numbers are declining at a rate of about 4% annually. The USFWS designated the Loggerhead Shrike as a Migratory Nongame Bird of Management Concern in the United States in 1987, and the species is state listed as threatened or endangered in 14 states (all within the range of the subspecies *L.l. migrans*). The only Federally-listed subspecies of Loggerhead Shrike in the U.S. is the San Clemente Loggerhead Shrike (*L.l. mearnsi*), which only occurs on San Clemente Island, California. In North Carolina, two subspecies occur (*L.l. ludovicianus* and *L.l. migrans*), and both are state listed as Species of Special Concern.

Habits

Except during breeding, the Loggerhead Shrike is a solitary species with a territory usually ranging from 5-15 hectares in size. A “sit-and-wait” predator, shrikes typically search for prey from exposed perches including small trees, power lines, and fence posts. Their diet is largely composed of insects and other arthropods, but also includes various small vertebrate taxa including mammals, snakes, frogs, and birds.

Impaling is probably the shrike’s most well known, yet often least understood, attribute. A behavior shared by all “true shrikes” (subfamily Laniinae), impaling is believed to serve three primary functions. It serves as a means of food storage, as part of mate selection behavior, and as a feeding adaptation. Shrikes don’t possess large talons and strong feet like birds of prey, thus they cannot immobilize larger prey such as mice or snakes. By anchoring these larger prey to thorns or barbed-wire, they are able to overcome this dilemma.

Habitat

Loggerhead Shrike is a species of open country. While they may be found in many types of grassland habitats, those containing shorter grasses interspersed with small trees and shrubs are generally preferred. These areas provide suitable nest sites, hunting perches, and access to a wide variety of prey species. Consequently, grasslands devoid of adequate perches are not suitable for this species.

While the natural habitat of shrikes includes such communities as prairies, savannas, and scrublands, this species is now largely dependent on human-created landscapes including agricultural pastures and hayfields, mowed roadways, and powerline right-of-ways. In many cases, the adoption of these artificial habitats has been to the extent that the habitat requirements of shrikes in natural ecosystems are now somewhat obscure.

Management Recommendations

General

When managing for Loggerhead Shrikes, six primary considerations should be addressed. These include (1) adequate patch size or area, (2) short grasses, (3) adequate hunting perches, and (4) adequate nest sites, (5) sufficient prey supply, and (6) impaling substrate. These are addressed below.

Specific Guidelines

- This species is area sensitive, thus small (<10 acres), isolated patches of grassland habitat are generally not suitable. Therefore, management efforts should be directed towards the maintenance or restoration of larger grassland stands. These stands should be at least 10-20 acres and ideally >50 acres in size.
- Agricultural pastures provide suitable habitat for shrikes and other grassland birds such as Eastern Meadowlark (*Sturnella magna*) and Grasshopper Sparrow (*Ammodramus savannarum*), because grazing maintains a desirable low vegetation height. However, pastures should not be overgrazed to the point of “stubble,” because this reduces prey densities, and eliminates cover for other grassland birds. A grass height of 4-18” is preferred.
- The maintenance or establishment of isolated small trees or shrubs throughout grassland fields will greatly increase the habitat suitability by providing both hunting perches and nest sites. Dense or thorny species such as eastern red cedar (*Juniperus virginiana*), wild plum (*Prunus* sp.), or honeylocust (*Gleditsia triacanthos*) are preferred. The ideal density of hunting perches varies and is largely dependent on perch height, vegetation height, and vegetation density. However, a minimum of 2-3 perches per acre should be available. Keep in mind, a high density of perches maximizes the

amount of “usable area” for the shrike. Thus individual territory sizes and overall shrike densities are largely dependent on perch density.

- Mowing or haying may be beneficial for shrikes, especially in areas not grazed or burned. However, a minimum grass height of 4-6” should be left to provide adequate prey cover. Furthermore, mowing should not be conducted during the breeding season (April-July), as it will destroy the nests of other ground-nesting species. In addition, some areas should be left unmown to provide adequate winter cover for prey.
- In natural areas managed by fire, burns should not be conducted too frequently or shrubs and trees will be eliminated. The installation of artificial perches or fire resistant tree species should be considered for use in these areas.
- In cool-season grass fields, the establishment of warm-season grass strips or patches will be beneficial by providing additional cover and higher prey densities.
- On agricultural grasslands, avoid insecticide applications as this will greatly reduce the shrike’s food supply.
- In grassland restorations, consider planting some areas with mixes of shorter grasses such as little bluestem (*Schizachyrium scoparium*) and deertongue (*Dichanthelium clandestinum*).
- Loggerhead Shrikes frequently inhabit areas along fence lines, hedgerows, and roadways. They are often drawn to these areas because they provide the only hunting perches/nest sites available. However, these linear habitats act as travel lanes for predators, which results in low reproductive success. Effort should be made to reduce or eliminate these linear habitat strips and provide nesting sites (trees) away from habitat edges and predator travel lanes.

SOURCES OF TECHNICAL INFORMATION ON: LOGGERHEAD SHRIKE AND OTHER GRASSLAND BIRDS FOR LANDOWNERS AND NATURAL RESOURCE MANAGERS

Askins, R.A. 1999. History of grassland birds in eastern North America. *In* P. Vickery and J. Herkert (editors) Ecology and conservation of grassland birds of the Western Hemisphere. Studies in Avian Biology No. 19: 60-71.

Bollinger, E.K. 1995. Successional changes and habitat selection in hayfield bird communities. *Auk* 112: 720-730.

Bohall-Wood, P. 1987. Abundance, habitat use, and perch use of Loggerhead Shrikes in north-central Florida. *Wilson Bull.* 99: 82-86.

Brooks, B.L. and S.A. Temple. 1990. Habitat availability and suitability for Loggerhead Shrikes in the upper Midwest. *Am. Midl. Nat.* 123: 75-83.

Burger, L.D., L.W. Burger, and J. Faaborg. 1994. Effects of prairie fragmentation on predation on artificial nests. *J. Wildl. Manage.* 58: 249-254.

Cade, T.J. and C.P. Woods. 1997. Changes in distribution and abundance of the Loggerhead Shrike. *Conserv. Biol.* 11: 21-31.

Chavez-Ramirez, F., D. Gawlik, F. Prieto, and R. Slack. 1994. Effects of habitat structure on patch use by Loggerhead Shrikes wintering in a natural grassland. *Condor* 96: 228-231.

- Degeus, D. 1990 Productivity and habitat preferences of Loggerhead Shrikes inhabiting roadsides in a midwestern agroenvironment. M.S. thesis, Iowa State Univ., Ames.
- Esely, J.D. and E.K. Bollinger. 2001. Habitat selection and reproductive success of Loggerhead Shrikes in northwest Missouri: a hierarchical approach. *Wilson Bull.* 113(3): 290-296.
- Gates, J. and L. Gysel. 1978. Avian nest dispersion and fledging success in field-forest ecotones. *Ecology* 59(5):871-883.
- Gawlik, D.E. and K.L. Bildstein. 1990. Reproductive success and nesting habitat of Loggerhead Shrikes in north-central South Carolina. *Wilson Bull.* 102: 37-48.
- Helzer, C. and D. Jelinski. 1999. The relative importance of patch area and perimeter-area ratio to grassland breeding birds. *Ecological Applications* 9(4): 1448-1458.
- Johnson, R.G. and S.A. Temple. 1990. Nest predation and brood parasitism of tallgrass prairie birds. *J. Wildl. Manage.* 54: 106-111.
- Luukonen, D.R. 1987. Status and breeding ecology of the Loggerhead Shrike in Virginia. M.S. thesis, Virginia Polytechnic Institute and State Univ., Blacksburg.
- Michaels, H. and J. Cully, Jr. 1998. Landscape and fine scale habitat associations of the Loggerhead Shrike. *Wilson Bull.* 110: 474-482.
- Novak, P.G. 1995. Habitat selection by breeding Loggerhead Shrikes in northern New York. *Proc. West. Found. Vertebr. Zool.* 6: 176-181.
- Samson, F. and F. Knopf. 1994. Prairie conservation in North America. *Bioscience* 44: 418-421.
- Sloane, S. 1991. The shrike's display advertising. *Nat. Hist.* June 91: 32-39.
- Smith, S. 1972. The ontogeny of impaling behavior in the Loggerhead Shrike, *Lanius ludovicianus* L. *Behaviour* 42: 232-247.
- Temple, S. A. 1995. Priorities for shrike research and conservation. *Proc. West. Found. Vertebr. Zool.* 6: 296-298.
- Vickery, P., P. Tubaro, J.M. Cardoso da Silva, B. Peterjohn, J. Herkert, and R. Cavalcanti., 1999. Conservation of grassland birds in the Western Hemisphere. *In* P. Vickery and J. Herkert (editors) *Ecology and conservation of grassland birds of the Western Hemisphere. Studies in Avian Biology* 19: 2-26.
- Walk, J. and R. Warner. 1999. Effects of habitat area on the occurrence of grassland birds in Illinois. *Am. Midl. Nat.* 141: 339-344.
- Winter, M., D. Johnson, and J. Faaborg. 2000. Evidence for edge effects on multiple levels in tallgrass prairie. *Condor* 102: 256-266.
- Yosef, R., and B. Pinshow. 1989. Cache size in shrikes influences female mate choice and reproductive success. *Auk* 106: 418-421.
- Yosef, R. and T. Grubb. 1994. Resource dependence and territory size in Loggerhead Shrikes (*Lanius ludovicianus*). *Auk* 111(2): 465-469.
- Yosef, R. 1993. Influence of observation posts on territory size of Northern Shrikes. *Wilson Bull.* 105(1): 180-183.

Yosef, R. 1994. The effects of fencelines on the reproductive success of Loggerhead Shrikes. *Conserv. Biol.* 8: 281-285.

Yosef, R. 1994. Songbird-sized predators. *Wildbird Nov.* 40-43.

Yosef, R. 2001. Nesting ecology of resident Loggerhead Shrikes in southcentral Florida. *Wilson Bull.* 113(3): 279-284.

WEBSITES OF INTEREST

<http://www.npwrc.usgs.gov/>

<http://birds.cornell.edu/pifcapemay/vickery.htm>

<http://www.mbr-pwrc.usgs.gov/id/framlst/i6220id.html>

<http://home.bluemarble.net/~pqn/ch81-90/lhshrike.html>

<http://mbr-pwrc.usgs.gov/bbs/bbs.html>