

## Unusual Loggerhead Shrike and Cooper's Hawk Captures in Funnel Traps

Walk-in funnel traps (Stoddard 1931) are commonly used for capturing Northern Bobwhite (*Colinus virginianus*) for banding and research. Funnel traps are effective for capturing Northern Bobwhite but are non-selective and will often catch other bird and mammal species. We report on the capture of Loggerhead Shrikes (*Lanius ludovicianus*) and Cooper's Hawks (*Accipiter cooperii*) in funnel traps set to capture Northern Bobwhite and their implications for using walk-in type funnel traps to capture wild avian species.

During a study investigating Northern Bobwhite response to habitat manipulation in Bourbon County, Kansas, we trapped Bobwhites during the fall and winter of 2003-2004 to fit them with radio-transmitters. We used 0.90 m x 0.90 m x 0.23 m funnel traps made of 2.5 cm x 2.5 cm mesh welded wire. Each trap had two funnels inside opposite sides of the trap and a hinged lid on the top of the trap to allow access to trapped birds. We set the majority of traps in areas where bobwhite coveys were regularly observed; however, a few locations were pre-baited in good bobwhite habitat with a mixture of milo (*Sorghum bicolor*) and corn (*Zea mays*) prior to setting out traps. Trap sites were nearly always located in woody cover where coveys loafed during the day when not feeding. Typical trap sites included fencerows consisting of large trees and/or small shrubs usually bordering grass fields enrolled in the Conservation Reserve Program (CRP), harvested crop fields, green winter wheat (*Triticum aestivum*) fields, and fescue (*Festuca arundinacea*) pastures, or along edges where brushy woodland bordered CRP and harvested crop fields. Traps were occasionally set in waterways with shrubs and forbs. We baited traps with the grain mixture and covered them loosely with tree limbs, shrubs, and grass. We checked traps for captured birds twice each day, once in the early afternoon and again just before sunset to reduce stress and mortality.

On 26 Nov 2003, we caught a Cooper's Hawk in a trap set under an Osage Orange (*Maclura pomifera*) tree in a waterway consisting of shrubs and forbs. Inside the trap with the Cooper's Hawk was a Blue Jay (*Cyanocitta cristata*) carcass that had been partially eaten. After examination, we released the hawk and flipped the trap over. Time spent in the trap had stressed the hawk as it flew only a few meters from the trap after its release and perched in a tree. Only after we approached the bird in the tree did it fly out of sight.

One week later, on 3 Dec 2003, we caught another Cooper's Hawk in a trap set in a woody fence row bordering a green winter wheat field. We captured this bird approximately 3.0 km from the previously mentioned Cooper's Hawk. Many feathers from an unidentified songbird were found in the trap with the hawk. The hawk was released without injury and flew immediately out of sight.

On 12 Feb 2004, we captured a Loggerhead Shrike in a trap located in a woody fencerow separating a CRP field and a harvested milo field. We also discovered the carcass of an unidentified sparrow in the trap with the shrike. The head of the sparrow had been removed and the neck and upper back of the bird had been eaten. The shrike was freed from the trap and the sparrow carcass was removed. We then reset the trap in the same location. We checked the same trap again 45 min later and found what may have been the same shrike in the trap with a dead American Tree Sparrow (*Spizelloides arborea*). The sparrow was fully intact and had not been fed upon. The shrike was again released, the sparrow carcass removed, and the trap reset. Approximately 2.5 hr later we checked the trap and found the shrike in the trap along with another dead American Tree Sparrow. The sparrow was again fully intact and had not been eaten. After the shrike was released, we did not reset the trap for another four days. After 4 days we trapped the site again for two weeks and did not catch another shrike, though we trapped several small passerines.

It has been well documented that birds comprise a major portion of the diet of Cooper's Hawks. Breeding season studies of Cooper Hawk's food habits have shown that between 51% and 86% of prey items were birds (Meng 1959, Toland 1985, Bielefeldt et al. 1992). Birds were the target of

143 of 144 observed Cooper's Hawk attacks in an urban area during winter (Roth and Lima 2003). While our findings occurred in a rural setting, it is likely that birds were a major portion of the diet of Cooper's Hawks in our study area during winter.

It was not unusual to catch small to medium-sized passerines in our traps during the study, as they were attracted to the bait inside the traps. Trapped passerines typically fluttered around the inside of the trap trying to find a place to escape. Accipiters are opportunistic and will prey on items that are most easily obtained (Meng 1959, Storer 1966). We speculate that the activity and high visibility of trapped birds, as in the case of the Blue Jay, attracted the attention of the Cooper's Hawks which then went into the trap after the birds. This is underscored by the fact that live, active birds have been used as lures to capture Cooper's Hawks (Meng 1959, Roth and Lima 2003). We found no instances in the literature where Cooper's Hawks entered traps to attack captured Northern Bobwhite. Bobwhite captured in funnel traps typically do not flutter but walk around the inside of the trap looking for a place to escape, and will often squat inside the trap and remain motionless (F. Loncarich, pers. obs.). These activities, coupled with the natural camouflage of bobwhites, probably reduce the likelihood of Cooper's Hawks discovering captured bobwhites in traps.

Loggerhead Shrikes are opportunistic predators that take a variety of prey including insects, amphibians, reptiles, small mammals, and birds (Chapman and Castro 1972, Craig 1978, Esely and Bollinger 2003). Birds, however, are not widely considered to be a major portion of the Loggerhead Shrike diet (Bent 1950). Just fewer than 10% of the prey items taken by Loggerhead Shrikes during the breeding season in Oklahoma were birds (Esely and Bollinger 2003). In California, prey whose size was at the upper limit of the Loggerhead Shrike's ability to capture, were not an important part of the diet (Craig 1978). While birds are not a major food for Loggerhead Shrikes, the species will attack birds when given an opportunity. A Loggerhead Shrike was observed killing a Mourning Dove (*Zenaida macroura*) that

was flushed from its nest and was fluttering on the ground while feigning injury (Balda 1965). It was speculated that the injury feigning stimulated killing behavior in the shrike. A Loggerhead Shrike was reported entering a banding trap and killing a Chipping Sparrow (*Spizella passerina*) caught in the trap (Bent 1950). Loggerhead Shrikes have also been reported attacking small pet birds kept in outdoor cages (Bent 1950). Apparently, the shrikes would land on the cage causing the birds to fly around the cage and poke their heads through the cage in an attempt to escape. The shrikes would then kill them by striking the birds on the head. These reports lend credence to our speculation that the fluttering actions of sparrows trying to escape the trap drew the attention of the shrike, which then went in after the birds. The fluttering actions may have also triggered a killing behavior in the shrike as described by Balda (1965).

Research has shown that when given an opportunity, Loggerhead Shrikes choose prey that are easier to catch and requires less energy to catch (Slack 1975). Moreover, in California the rate of successful Loggerhead Shrike attacks per attempt increased in December indicating that shrikes targeted their attacks to situations where the chance for success was high, thereby conserving energy (Craig 1978). It is likely that the shrike in our study recognized that the sparrows would be rather easy marks, which may explain why it returned to the trap on two occasions after it had been released.

Researchers should consider our findings when using baited funnel traps to capture Northern Bobwhite or other species. Traps should be checked at least twice per day reducing the time captured birds are in traps. This should reduce the chances of predatory species discovering trapped birds. Berger and Hamerstrom (1962) used bal-chatri traps baited with European Starlings (*Sturnus vulgaris*) to remove raptors from Greater Prairie-Chicken (*Tympanuchus cupido*) trap sites. If a shrike is discovered attacking birds in baited funnel traps, we recommend that trapping be halted for a period of 2 - 4 days to prevent further attacks on trapped birds and to prevent the shrike from habituating its hunting activity to the area.

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