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AN EFFECTIVE METHOD FOR TRAPPING TERRITORIAL MALE INDIGO BUNTINGS

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In the course of a long-range study of breeding and migratory Indigo Buntings (*Passerina cyanea*), I found it necessary to obtain males on their breeding territories so that these birds could be examined in the hand, color-banded, and released. It was desirable to devise a method whereby a specific individual could be trapped quickly at a specific time and place. The method ultimately devised, and the one proving to be the most effective, involved the simultaneous use of a Japanese mist net, a stuffed male in breeding plumage, and a recording of the species' song. The success of the trapping operations depended not only upon the correct use of this apparatus but also upon the strong defense of territories by male Indigos during the breeding season.

From the Laboratory of Ornithology at Cornell University a tape recording of this species' song was obtained through the courtesy of Dr. P. P. Kellogg. A "typical" song was then transferred to a nonbreakable 45 rpm record in such a way that the same song pattern was repeated at intervals over and over on the record. (Although song patterns of this species are highly variable according to Borror (1961), it seemed to make little difference afield as to which song pattern was used.) A portable, battery-operated phonograph was purchased from Herter's Inc., of Waseca, Minnesota (an "Electronic Game Caller" intended for use by crow-hunters), along with a loud speaker and 100 feet of cord. A stuffed male Indigo Bunting was prepared with wires so that it could be mounted atop a small pole in an upright and more or less life-like position behind the net. The whole apparatus—net, poles, phonograph, speaker, etc.—weighed about 20 pounds.

Once a singing, territorial male bunting was located afield, the apparatus was set up as shown in the accompanying illustration. Depending upon the amount of clearing that was necessary before the net could be strung, the entire apparatus could be set up in five to ten minutes. The mist net was placed at right angles to the plane



of distance to the singing male, 100-200 feet from the bird. The dummy, attached to a pole, was placed in plain view of the live bird, *behind* the net, and about three feet off the ground. Below the dummy the loud speaker was concealed as well as possible. The operator could then move away from the set-up and with the phonograph become hidden preferably in a thicket. After a few minutes' lapse to permit the wild bird to become somewhat accustomed to the intrusion into his territory, the recorded song was played at intervals of 6-7 seconds. Usually the wild bird would stop singing, and either fly directly at the dummy, or make a less direct approach by dropping from his singing perch into underbrush before attacking the dummy. Frequently the wild bird would be caught in the net on the first attack or at least before the recorded song had been played for five minutes or less.

Variations in this set-up were tried, depending upon the terrain and other conditions, both at Winston-Salem, North Carolina in the summer of 1963 and near Gainesville, Florida in 1964. In North Carolina out of 20 territorial males located, all but one was easily caught. In Florida, the set never failed, five males being caught. On several occasions I used a captive male or female in a cage in place of the dummy but without success. Also the song was tried without the dummy and no bird was caught. The dummy alone, however, did elicit some response on the part of an occasional male which would merely come and look at it from some distance. In the course of the Florida operations, one male attacked the dummy from the "wrong" side of the net, the result being virtual destruction of the dummy.

Care must be taken to make the set-up either *in* a territory or between concurrently occupied, contiguous territories. If it is too

far away from the male, and hence probably not actually in his defended territory or if the operator cannot be properly concealed, the success of the operation will be drastically reduced. Near Fannin Springs, Florida, Bill Colson and I located a dense "colony" of singing territorial males (at least 13 on a 71-acre plot). On July 14, 1964, we set up the mist net, dummy, and played the record in a spot that we thought was in the middle of one territory. In five minutes we were surprised to catch three males and one female, the latter evidently following her mate into the net. Returning to the same general area on July 25, we caught two more males about 100 feet from the first location, indicating that other males had appropriated the territories vacated by the males caught on July 14.

Many banders have used dummies or decoys to lure migratory and breeding passerines and nonpasserines into traps and nets. It is also well known that food and water can be used as lures as well as the fact that some birds can be attracted to recordings of their songs. For example, Neuville (1963) used the calls of a captive Pine Bunting in Belgium to attract and capture a feral individual quite rare to the region. The combination of these attractants (dummy and song) for the purpose of netting birds, however, seems not to have been reported previously to my knowledge. Dennis (1958) used mist nets alone to catch nesting Yellow-breasted Chats with limited success. Parmelee (1959) in his study of the Painted Bunting in Oklahoma stated (p. 30): "We succeeded in trapping adult males only by baiting a live trap with other adult males, either genuine or dummy . . . Our use of mist nets was not at all effective in catching buntings of either sex." I feel that both of these investigators, to take random examples, would have had far greater trapping success of adult males, at least, had they utilized the set-up described here.

This method is not highly recommended for females, though we did obtain one. Should one wish to capture female Indigos particularly at a nest, he could use the small net described by Nolan (1961) which has been employed successfully on this and other species.

The combination set-up described here would seem to have equal success on strongly territorial singing males of many other species. The investigator would simply have to experiment with variations in net position, song patterns and frequencies, and movements depending upon the individual species. For example, we quickly learned that male Indigos would be attracted more often and faster to a song interval of 6-7 seconds, rather than 2-3 seconds, and to a low or moderate volume of song. This method of obtaining specific singing males lends itself, furthermore, to a variety of investigations—determination of population density, territory size, homing experiments, questions of breeding ecology, multiple-broodness, and other phases of life history studies.

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**RELATIVE INCIDENCE OF DISTRESS CALLS OR
"SQUEALS" IN MIST-NETTED BIRDS***

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Among the many kinds of vocalization produced by birds, some, such as song, have been subjected to numerous studies, whereas others, such as call notes associated with anxiety, fear, or pain, have been given far less attention. Of the various notes that fall in the last-mentioned category or categories, such distress notes or fear calls as may be termed "squeals," "squalls," "screeches," or "screams" appear to have received remarkably scant notice. For example, Armstrong (1963), in a recent, comprehensive work on bird song and other utterances, includes but one reference centering on this subject. Other specific references known to us pertain to the use of distress calls to repel birds (e.g., Frings and Jumber, 1954, and others cited by Armour, 1963) or to attract and capture them (Ridpath, MS, as cited by Thorpe, 1961: 21). Although discussing avian distress calls at some length, Thorpe (*ibid.*: 17-20) opines that "the full squeal of fear does not need much comment. It often appears to be simply the expression of overwhelming emotion, but no doubt it has an important signal function in many instances . . ." Calls in the "snarl or screech" category as described by Ficken and Ficken (1962: 112) are not the same as those referred to here, for their breakdown of "audible displays" (in connection with wood-warbler ethology) relates to free-ranging birds and not to ones netted, restrained, or handled. Similarly, the high, thin *eeeeee*, or "predator

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