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An improved, simple nest-box trap

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ABSTRACT. The success of ornithological studies often hinges on a researcher's ability to capture individuals quickly and efficiently. Sometimes it is necessary to capture the same individual multiple times, as is the case in many metabolic, ecotoxicological, and immunocompetence studies. Several methods of capturing cavity-nesting birds at their nest boxes have been described. However, these methods proved inefficient when attempting to catch wary individuals that had already been captured previously. Here we describe a simple and inexpensive method for capturing cavity-nesting birds using a square plate of sheet metal (5.8 × 5.8 × 0.2 cm), a drinking straw, a piece of duct tape, and a monofilament line. This method has the advantages of allowing selective capture of one, but not both members of a pair and being nearly invisible to trap-shy birds.

SINOPSIS. **Una caja mejorada para atrapar aves**

El éxito de estudios ornitológicos está atado, muchas veces, a la habilidad del investigador para atrapar aves de forma rápida y eficiente. En ocasiones es necesario capturar el mismo individuo multiples veces, como es en el caso de estudios metabólicos, ecotoxicológicos o de inmunocompetencia. Se han descrito varios métodos para atrapar aves que anidan en cajas. Sin embargo, estos métodos han provado ser ineficientes cuando se intenta capturar aves que han sido alertadas por haberse capturado anteriormente. Describimos un método, simple y de bajo costo, para capturar aves que anidan en cajas, utilizando una plancha cuadrada de metal (5.8 × 5.8 × 0.2 cm), un sorbeto y un pedazo de cinta adhesiva plástica (duck tape) y un monofilamento. Este método tiene ventajas, y permite la captura selectiva de uno de los miembros de la pareja. El mismo es virtualmente invisible para las aves.

Key words: capture, capture technique, cavity-nesting, improved trap, nest box, trapping

Secondary cavity-nesting birds that use nest boxes are favored as study species because large populations can be created and monitored easily. For many types of studies, individuals must be captured multiple times, and often at certain times. However, recapturing an individual or targeting a specific individual may be difficult with available trapping methods. Several traps for capturing birds in nest boxes have been described (Lombardo and Kemly 1983, Cohen and Hayes 1984, Stutchbury and Robertson 1986, Mock et al. 1999). All rely on some variation of a trap door placed above the entrance hole of a nest box, and vary in complexity and cost. The simplest design relies on a square metal plate propped up by a stick or a piece of stiff grass (Stutchbury and Robertson 1986), and the most complex relies on the radio-controlled release of a trap door (Lombardo and Kemly 1983, Mock et al. 1999).

Previously described traps are all effective for certain applications, but have shortcomings. For example, sticks used to prop a trap door open may be seen by birds, and birds trapped previously, or those that managed to escape a falling trap door, may become wary and more difficult to capture or re-capture. In addition, traps triggered by the birds (e.g., with a trap door propped open by a stick or grass) rather than investigators make it more difficult to catch specific individuals. In addition, nestlings or the wind may move the prop and the resulting closed door will prevent parents from entering the box and increase their wariness. Our trap design makes the trap door nearly invisible, allows investigators to select the individual they wish to capture, and avoids the problem of premature or inadvertent door closures.

METHODS AND RESULTS

We used a standard eastern/western bluebird nest box (North American Bluebird Society 2007). The sides of these boxes did not reach the roof, leaving a gap for ventilation, a common design feature that made our improvements possible (Fig. 1).

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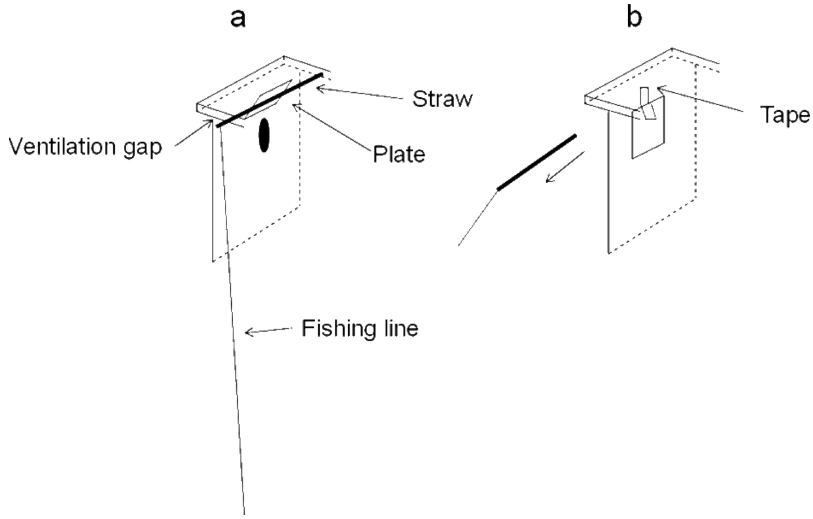

Fig. 1. (a) Detail of the front of a nest box with trap set. View is from inside the box. (b) Detail of the front of a nest box with trap closed, and the straw removed through ventilation gap. Arrow indicates movement of straw.

Five species of cavity-nesting birds, including Tree Swallows, Carolina Chickadees (*Poecile carolinensis*), Carolina Wrens (*Thryothorus ludovicianus*), House Wrens (*Troglodytes aedon*), and Eastern Bluebirds (*Sialia sialis*), used the boxes and all were captured in the boxes during the nestling stage. All capture attempts were made during the nestling stage to prevent nest abandonment. During initial capture attempts, we used a trap door propped up by a dried stalk of grass (Stutchbury and Robertson 1986). However, we were often unsuccessful because males were wary if their mate had already been captured. Such males often perched at the entrance hole to feed young, but would not enter the box. Females often did the same if they had been captured previously. Wary individuals quickly reentered nest boxes after the prop trap was removed, indicating that their reluctance was due to the visual cue of the prop. Our objective, therefore, was to design a more cryptic trap.

A trap door (5.8 × 5.8 × 0.2 cm; Stutchbury and Robertson 1986) was taped above the hole using duct tape. The trap door was colored black with a permanent marker to blend in with the ceiling of the box. Rather than propping the door open with a stick, a plastic drinking straw was placed in the ventilation gap between the side of the box and the roof. The trap door was then pushed all the way to the ceiling and the straw was used to hold it in place. The weight of the trap door (about 7 g) on the straw prevented it from moving, for example, when a bird perched on the box or when the wind blew. The straw was colored black with a permanent marker and cut so it did not extend beyond the edge of the roof. If placed properly, the straw and trap door were nearly invisible to observers and, presumably, the birds (Fig. 1).

Attached to the straw with a small piece of tape was a length of green or clear monofilament fishing line (4–6 lb-test). To make it less conspicuous, the monofilament was strung down the back of the box and along the pole to the ground, then loosely twisted around vegetation to prevent it from blowing in the wind. We walked 30–100 m away while unwinding the spool of monofilament, and then assumed an inconspicuous position (usually kneeling in the grass) where the entrance of the box and any approaching birds could be observed. It was not necessary to be in direct line with straw; standing at a different angle simply required placing the line around a tree or shrub to create a pulley-like system. Because the trap door and straw were nearly invisible, even wary birds readily entered, often within a few minutes of setting the trap. We used this trap to capture all target species, including many that had been captured 24 h

earlier, and no birds were injured because the trap door is light and does not fall with enough force to inflict injury (pers. observ.).

DISCUSSION

Our trap has several advantages over those described previously. It does not require an habituation period because the trap is nearly invisible. In addition, our trap is inexpensive and can be assembled in the field from items found in grocery or hardware stores at even the most remote field sites. If necessary, a trimmed credit card can be substituted for the sheet metal trap door and a thin stick for the straw. This method was effective at capturing wary individuals that had observed their mates being captured or had themselves been captured previously. A major advantage of this method over the traditional prop trap is that an investigator can allow nonfocal individuals to come and go and only trigger the trap when the targeted individual enters the nest box.

Our trapping method does require a patient observer who never takes his or her eyes off the nest box. In addition, our method may not work on all nest box designs; nest boxes without a ventilation gap must be modified by drilling a hole to utilize this trap design. It is not possible to use a prop trap to capture species like House Wrens that fill the box more than half way to the top with their nesting material because there is no space for an appropriate prop. Although we did not quantify capture success rates using our improved method compared to others, nearly all targeted individuals were captured. If the first capture attempt failed with more wary individuals, a second attempt several hours later resulted in a capture in most cases. With the removal of the visual cue and uncontrolled trigger of the prop trap, our improved nest-box trap allows the targeted individual to be captured quickly while allowing a nontargeted individual to come and go from the nest box freely, thus reducing the wariness of the pair.

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LITERATURE CITED

COHEN, R. R., AND D. J. HAYES. 1984. A simple unattached nest-box trapping device. North American Bird Bander 9: 10–11.

LOMBARDO, M. P., AND E. KEMLY. 1983. A radio-control method for trapping birds in nest boxes. Journal of Field Ornithology 54: 194–195.

MOCK, D. W., P. L. SCHWAGMEYER, AND J. A. GEIG. 1999. A trap design for capturing individual birds at the nest. Journal of Field Ornithology 70: 276–282.

NORTH AMERICAN BLUEBIRD SOCIETY. 2007. Nest boxes. Available at: www.nabluebirdsociety.org (21 October 2007).

STUTCHBURY, B. J., AND R. J. ROBERTSON. 1986. A simple trap for catching birds in nest boxes. Journal of Field Ornithology 57:64–65.