A simple unattached nest-box trapping device

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A variety of manual and automatic nest-box trapping methods have been described, all involving temporary or permanent attachment of a trapping device to the box (Fisher 1944, Gartshore 1978, Gutzke 1981, Lombardo and Kemly 1983). We describe here an inexpensive, efficient manual trapping method that does not involve attaching any device to the inside or outside of the nest box. This method was developed by one of us (Cohen) in 1976, for selective capture of individual adult Tree Swallows (*Tachycineta bicolor*), for a banding and recapture study on that species in Colorado.

Our study areas in Colorado have about 500 nest boxes, which are used each year by about 250 pairs of Tree Swallows, 75 pairs of Mountain Bluebirds (*Sialia currucoides*), and other cavity-nesting species. The boxes are of several dimensional designs, but all have entrance-hole diameters of about 38 mm. Many of the boxes are along public roads and are subject to human investigation and vandalism, while others, in pastures, are subject to disturbance by horses and cattle. Any device permanently attached to the box was ruled out due to the risk of destruction, theft, or blockage of the hole by the trapping device during such disturbances. Any large or conspicuous trapping device attached to the box immediately before a capture attempt was also ruled out, because of the time required for installation or for the adults to become habituated to the device before they would enter the box (see Pinkowski 1978).

In response to these considerations, a small, relatively inconspicuous device was developed which could be inserted through the hole before a capture attempt and then pulled with a hand line to block the hole immediately after the bird enters. From 1976 through 1983 the first author used this method to capture several hundred Tree Swallows and small numbers of Violet-green Swallows (*Tachycineta thalassina*). During 1982 and 1983 the second author used it to capture Mountain Bluebirds, Violet-green Swallows, and Western Bluebirds (*Sialia mexicana*).

The prototype hole-blocking device (Figure 1A) was developed from a standard wooden clothespin, and we refer to it as the "clothespin rig." The front, clasping portion of the clothespin was shortened by 13 mm and tapered to a blunt point. A wooden wedge was glued to the outside surface of each side to increase the width at the rear to 45 mm, to exceed the hole diameter of the boxes by several mm. A 7-cm length of woven fishing line was threaded through the metal spring of the rig and tied in a loop. A 100-m length of 12-lb-test colorless monofilament nylon fishing line, wound on a casting reel, was attached to that loop.

Prior to the 1982 breeding season, an improved Plexiglas version of the clothespin rig was developed (Figure 1B). The plastic halves of the rig were cut from a sheet of 9-mm-thick colorless Plexiglas with a jig saw and further shaped, eliminating all sharp edges, with a file. The legs of this rig have feet that prevent it from being pulled out of the box when the line is pulled. The spring was taken from a standard clothespin. As an alternative to Plexiglas, a hardwood could be used for the two sides.

Twelve-pound-test Garcia Royal Bonnyl II monofilament line was chosen for this trapping system on the basis of its low visibility, high strength-to-diameter ratio, limpness, knot strength, and resistance to abrasion and stretching. The line was attached directly to the rig, in a loop through a 1-mm hole drilled through the front of the rig (see Figure 1B). A bowline knot was used so that the loop will not close when the line is pulled.

Several of these Plexiglas rigs were constructed so that trapping could be conducted simultaneously at two or more nest boxes. Inexpensive closed-face spining reels with a capacity of 50 or 100 m of this line were purchased for the rigs. The reel seats were removed so that the reels could be held more securely and comfortably in one hand.

To set this system for a capture attempt, the legs of the rig are squeezed together to insert the rig through the hole of the box. (When the wooden prototype rig was used, the woven line loop was clamped by the front of the rig at this time so that the rig would be pulled front-first to the hole.) By reaching through the hole with a finger, the rig is positioned upright against the inside surface of the box below the hole, with its feet resting on the nest (Figure 2A). Care should be taken so that the rig does not fall onto eggs or young nestlings. To minimize its conspicuousness, the nylon line is pulled down taught and pinned to the ground directly below the box

with a stone, piece of wood, or handful of soil. Line is then stripped off the reel as the investigator retreats to a location that will not alarm the birds. With practice, the system can be set in less than 15 sec.

As the bird enters the box, and specifically when its tail disappears, the line is pulled as rapidly as possible to free it from the ground below the box and to pull the rig up to block the hole (Figure 2B).

We noted differences in birds' responses to the trapping system, depending upon sex and species. Most female Tree Swallows, including those previously captured by this method, showed little or no fear of the monofilament line and entered the box readily, usually within 5 min after the system was set. Male Tree Swallows tended to be more wary, but most were captured within 15 min. Some unusually wary Tree Swallows looked into the box and saw the rig before entering. They then became sufficiently alarmed that they did not enter the box until 5 or 15 min later (females) or 15 to 60 min later (males). Bluebirds and Violet-green Swallows generally were more wary than Tree Swallows, and capture-times for them typically were 15 to 30 min.

In about 750 capture attempts there were only three known injuries, including one fatality, when a bird was struck or caught by the rig as it attempted to leave the box just as the rig was being pulled to the hole. Eggs were dented by the rig on three occasions, and these eggs failed to hatch.

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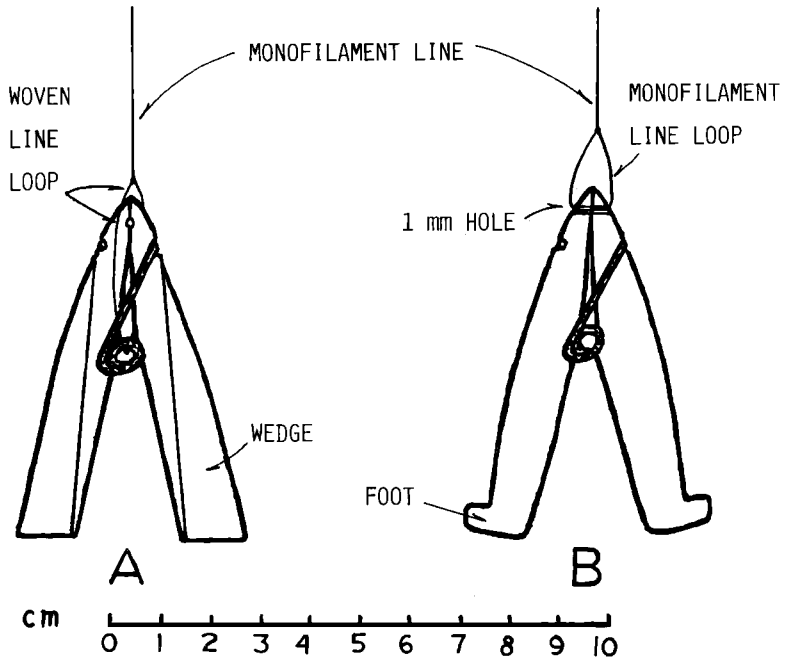

Figure 1. Clothespin rig hole-blocking device. A: wooden prototype rig; B: Plexiglas rig. (See text for further description.)

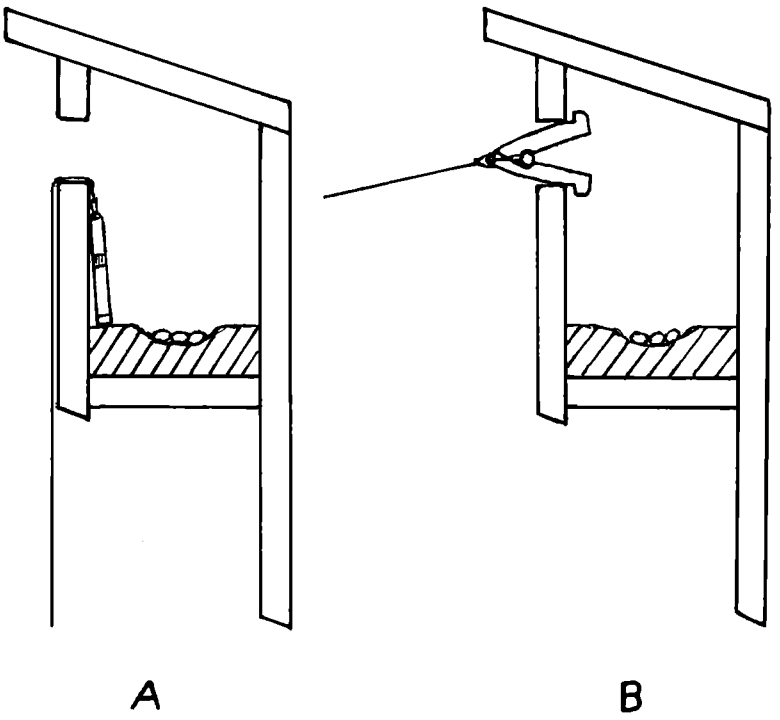

Figure 2. Cut-away side view of nest box showing initial position of clothespin rig and monofilament line (A) and clothespin rig blocking hole after line is pulled (B). (See text for further description.)