New Techniques to Capture Pileated Woodpeckers and Vaux's Swifts

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ABSTRACT

Four new techniques are presented on capturing Pileated Woodpeckers *(Dryocopus pileatus)* and Vaux's Swifts (*Chaetura vauxi*) at nest and roost trees. Three of the techniques require climbing to the cavity to place traps or mist nets over the entrance hole, while the fourth is a mist net procedure that can be raised from the ground. All techniques were very successful in capturing woodpeckers and swifts.

INTRODUCTION

Avian research studies involving population dynamics, radio-telemetry, or diet often require the capture and banding of birds. Species that nest or roost in cavities, often in dead trees, are particularly challenging to capture. Various methods of capturing cavity-nesting birds have been reported in the literature including the use of nylon nooses (Cooper et al. 1995) and of nets, boards, and cages placed over the cavity entrance (Jackson 1977, Jackson et al. 1979, Jackson and Parris 1991, Bull and Pedersen 1978). This paper presents four new techniques for capturing Pileated Woodpeckers and Vaux's Swifts, although these techniques are suitable for other cavity-nesting birds as well.

METHODS

Bark and Lichen Traps - The bark and lichen traps (Fig. 1) can be used at either nest or roost trees, although they are better suited to roost trees where camouflaging the traps is more critical. We used both these traps to capture more than 25 Pileated Woodpeckers (25 roost trees) and more than 500 swifts (five roost trees). The trees must be safe to climb to use both these traps. The selection of which trap to use depends on the shape of the trunk, location of branches, and proximity of other holes.

The bark trap (Fig. 1A) is spring-loaded and is set above the entrance hole. It is covered with bark that matches the tree's bark. A string holds the trap open and when it is released, the trap slides down over the hole trapping the bird inside the cavity.

The bark trap is made from two steel rods 52 cm long and 9 mm in diameter. The rods are parallel (16.4 cm apart) and welded in place with two pieces of angle iron at the top of the rods and 7 cm below the top (Fig. 1A). The angle iron has three holes drilled in it to attach the trap to the tree with long (7 cm) deck screws. Each rod has a spring on it below the angle iron but above the brackets that slides up and down the rod. The brackets which slide up and down the two rods, hold the board in place at four points: at the top corners of the board and 17 cm below the top. The board is 36 x 14 x 2 cm. The rods and springs allow the board to be shoved almost up to the angle iron when set, but the board will fall and cover the hole when released. The board is set so that it slides close to the bole of the tree but does not touch it. The bark on the bole can be flattened with a hatchet where the trap will slide so the trap will not catch on the bark.

All the metal is painted black, and a piece of bark is screwed over the board. Another piece of bark is screwed over the angle iron after the trap is set so bark covers most of the trap and camouflages it.

This trap is set by placing two staples in the tree bole: one above and another to the side of the trap (Fig. 1A). A line is run from the ground through both staples and attached to a staple in the top of the board. The taut line is tied off on the tree near the ground. The person who triggers the trap must

be careful to release the trap as soon as the bird goes in. Waiting until the bird has a chance to enter, turn around, and peer out increases the chance of injury when the board slides down.

If large branches occur above the hole or if the hole is just below where the tree top has broken off or if two holes are close together, it is not possible to attach the bark trap. In this case, a lichen trap (Fig. 1B) that opens to the side can be used. The trap has a door that swings shut over the hole on a spring-loaded hinge. The door is made of 3 mm steel bent into a 20 x 20 cm square and curved to fit the curvature of the bole. The door is covered with plastic netting taped over the open frame. The hinge plate is 18 cm long, 5 cm wide, and 3 mm thick and has two springs that close the door. The hinge plate is screwed into the tree, and the door is swung open. A line from the door feeds through a staple on the side of the tree and is tied off on the ground. After the trap is set, lichens from nearby trees are placed over the trap to disguise it.

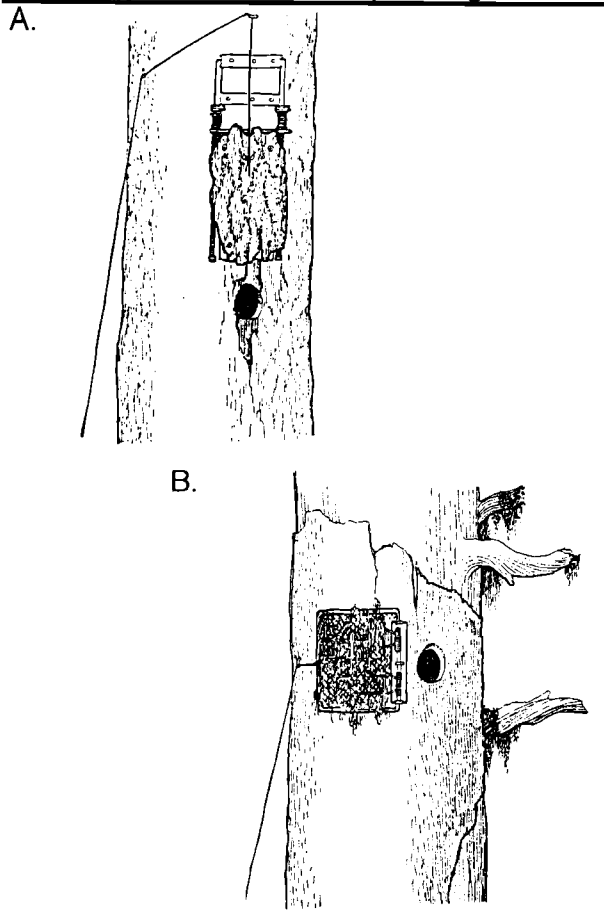


Fig. 1. The bark trap (A) and lichen trap (B) set at the entrance holes to nests and roosts of Pileated Woodpeckers and Vaux's Swifts.

Both the bark and lichen traps capture the bird inside hollow roost trees. Therefore, all other holes, cracks, and broken-off tops must be covered (with bark or plastic netting) to prevent the bird from escaping.

Once the bird is trapped inside the hollow tree, the tree is reclimbed. The climber opens the trap and places a net (mist net material) and frame (35 cm in diameter) over the cavity entrance. The net gives the impression of allowing the bird to escape, so the bird usually flies out into the net. To allow the bird to fly out of the cavity and get tangled in the net, a wire 50 cm long is attached to both sides of the metal frame and bent away from the frame which makes the net hang about 10 cm away from the tree bole. Once the bird is in the net, the climber puts the bird and the net into a cloth bag that is lowered to a person on the ground.

We use the bark trap at roost trees of Vaux's Swifts when the swifts enter the roost tree through a Pileated Woodpecker cavity. Once the swifts are inside the tree at dusk, we trigger the trap. In the morning, a person climbs to the cavity and staples the net frame and net over the hole. The mist net bag is replaced with a net made of sturdy mesh because 100-200 swifts roost in these trees, and the mist net material is not strong enough to hold their weight. To encourage the swifts to leave, the climber descends 3-10 m (depending on depth of hollow chamber), drills a hole through the tree to access the hollow interior, and inserts a tape measure to rattle inside the tree. This activity usually results in the swifts leaving the roost cavity.

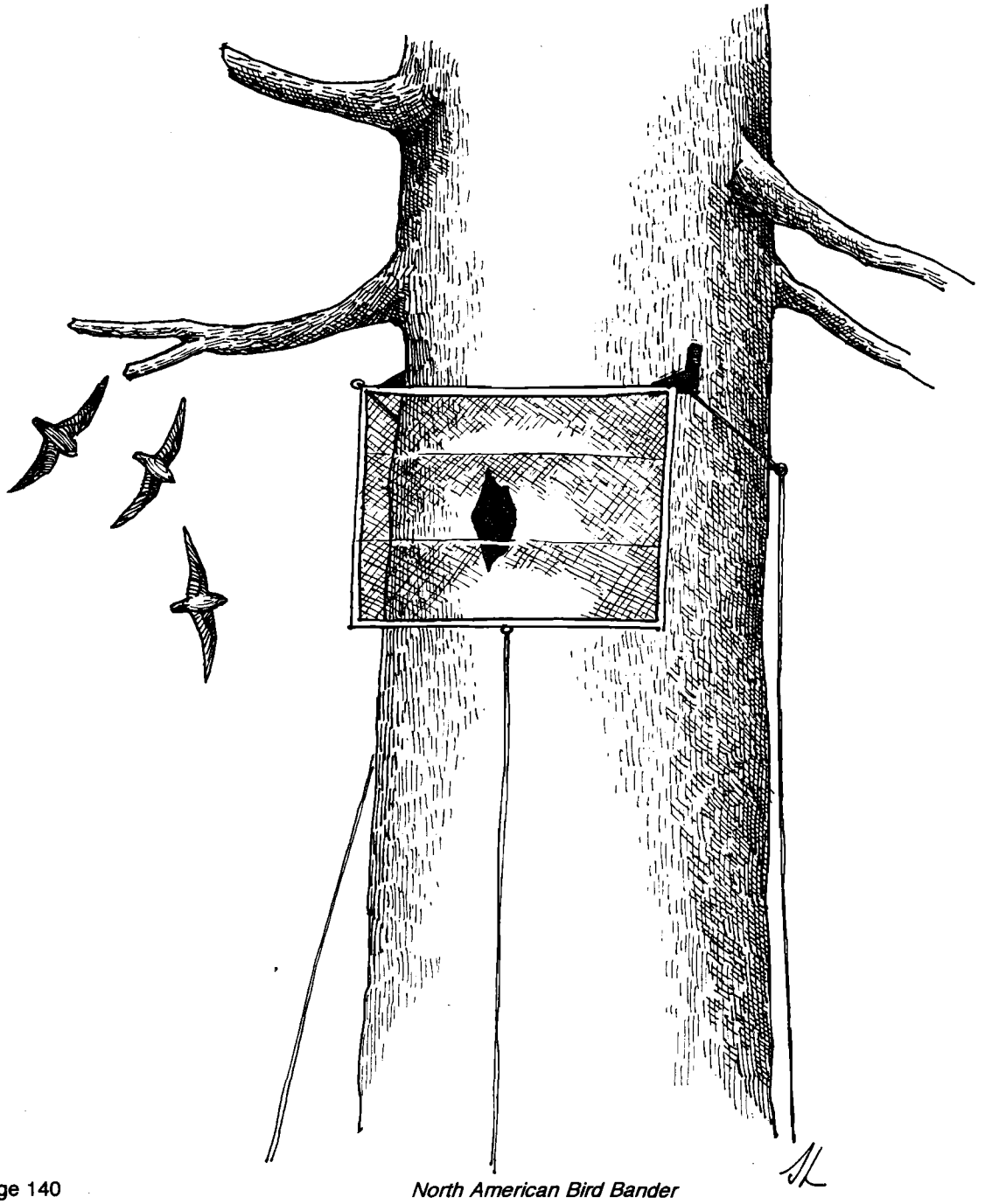
Mist Net on a Square Frame: We capture Vaux's Swifts at nest trees with a miniature mist net in front of the entrance hole. We have used this technique at 15 nest trees and collected more than 200 diet samples from pairs using these nests over a three-year period.

We hang an empty frame (60 x 60 cm) made of 1/4 inch stainless steel (solid rod) in front of the nest entrance. The frame is suspended 30 cm out from the bole using shelf brackets screwed into the tree about 30 cm above the hole and 40 cm apart (with the hole in the middle). A 2 cm key chain ring is put through the end of each shelf bracket and a line strung through the ring so both ends of the line

reach the ground. Using these strings, we can raise and lower the frame. To accustom the swifts to the presence of the frame, we position a frame with no netting in front of the hole.

When it comes time to trap, we lower the empty frame and replace it with an identical frame that has a miniature mist net attached (Fig. 2). A safety line is attached to the bottom of the frame to help pull it back down if it becomes tangled. The mist net has three tiers with bags in it, and the net is taped with electrical tape to the frame at 5 cm intervals. Because the swifts are used to flying through the empty frame, they readily fly into the net. Because we trap several times a week at each nest, some of the birds can detect when a net is present and refuse to fly into it. Trapping when the net is in the shade and when the wind is not blowing prevents the net from being detected as easily.

Fig. 2. Mist net on a frame placed in front of a Vaux's Swift nest cavity for capturing.



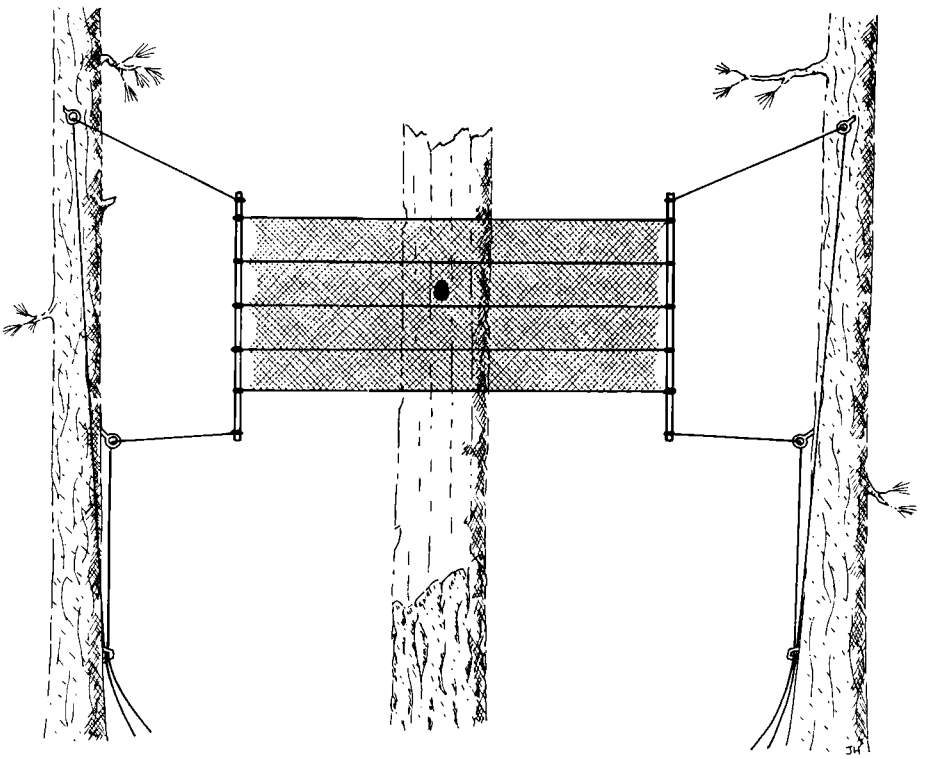
If we only need to capture and band the swift and not collect a diet sample, we trap the swift with the same mist net and frame when they leave (rather than enter) the nest. We modify the mist net by adding sides to the frame. Stiff wire is used to made 60 x 25 cm sides which are covered with plastic mesh (1.7 cm square) and taped to the wire so there are no holes the swifts can escape through. With the sides added to the frame, it is very difficult for swifts to escape through the space between the mist net and the trunk.

Suspended Mist Net: We use a mist net suspended off the ground to trap at nest or roost trees that are unsafe to climb or cannot be reached with a net on a pole. The mist net is supported between two trees so the net hangs about 3-5 m in front of the cavity. The net must be hung far enough in front of the tree so that the moving bird does not entangle the net on the tree. It is also helpful to know how the bird approaches the cavity in order to place the mist net in the bird's approach pattern.

To set up the net, the two trees supporting the mist net must be climbed; two eye screws (10-15 cm in length) are put into each tree 3 m apart; one goes about 1 m above the elevation of the top of the net, and one is placed at the same elevation as the bottom of the net (Fig. 3). A line is fed through each eye screw, so that both ends of the line reach the ground.

We erect the mist net on the ground using standard mist nets, poles, and procedures (Bub 1991). The smaller poles (1.5 cm diameter) weigh less and are easier to raise off the ground than those that are 2.5 cm in diameter. We tape (electrical tape) the poles together at the unions and tape the loops holding the net to the pole to hold them in place. We attach one end of the strings that thread through the top eye screws to the tops of the poles and tape them in place; the other end hangs through the eyescrew and is secured at the base of the tree. We attach one end of the strings that go through the bottom eye screws to the bottoms of the poles and tape them in place; the other ends of the strings are secured at the base of the tree. A person at the base of each tree can raise the net to rest horizontally in front of the cavity.

Fig. 3. Mist net erected between two live trees and positioned in front of a nest cavity.



RESULTS

Safe and effective methods of capturing cavity-nesting birds provide research, monitoring, and banding opportunities without risk to the birds or handlers. By modifying capture techniques to fit the situation, researchers can capture more birds safely than would otherwise be possible.

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