Techniques for Feral Pigeon Trapping, Tagging and Nest Monitoring

J. Edward Kautz and *Thomas W. Seamans*[1]
New York Cooperative Fish and Wildlife Research Unit, USFWS
Fernow Hall
Cornell University
Ithaca NY 14853

Abstract

We describe here techniques used to capture, tag, and check nests of feral Rock Doves (or pigeons, *Columba livia*) on upstate New York farms. Included are designs for patagium tags, drop-window covers, catch windows, and pigeon stuffers. Climbing on structures and technical climbing were the most efficient methods to get to pigeons and their nests, and we describe the methods used. We caught most pigeons at night at roost sites in barns and silos, flashing our head lamps to see where to move. To prevent pigeons from escaping while we trapped, we closed off the roosting structures with burlap, netting, drop-window covers, catch windows or mist nets. Noose poles were used to chase pigeons around in barns and to catch them in silos. We placed trapped pigeons in burlap bags using a pigeon stuffer and held them in bags until we processed them. We got to nests primarily by climbing, candled eggs using a tube and a head lamp, and tagged nestlings just before they fledged.

INTRODUCTION

This paper describes methods we used to study feral pigeons *(Columba livia)* on upstate New York farms (Kautz and Malecki 1990). We caught and marked birds with patagial tags to make mark-recapture estimates of population parameters, monitor movements, and identify adults on nests. We monitored nesting to estimate production. These techniques were used to trap and mark over 1,600 adults and nestlings and to monitor over 1,000 active nests between March 1980 and September 1983.

TAGS

Tag Design, Fabrication and Attachment

Our tags (Figure 1) were similar to those of Murton et al. (1971), but we made modifications. We used a 16 oz (0.5 mm) vinyl laminated polyester fabric ("Pro-tec", John Boyle & Co., Inc., New York) instead of Darvic. We painted the letters and numbers with bodied vinyl adhesive mixed with fiberglass pigments. This paint was thinned and cleaned with unbodied vinyl cement and became a part of the tag plastic when dry. We used black paint on light colored plastic and white paint on dark plastic. Characters 0-9,A,E,H,J,L,M,N,P,T,V,W,X and Z were used and were easily distinguished.

The tag upper washer was a 1 cm square of 0.76 mm vinyl sheet. We glued the washer to the tag with vinyl adhesive and made the hole with a hot teasing needle. We cut the lower washer from 0.76 mm polyethylene sheet using a 1 cm punch. We bent stainless steel wire into a "pin" and then pushed it through the lower washer to make a unit. We bent a 45 degree angle in the tags by heating them to about 130 degrees C in an oven on a sheet metal form (Figure 1), and then cooling them in water. This bend allowed the tags to rest tightly against the pigeon's wings instead of sticking out like an epaulet.

[1]Current addresses: New York State Department of Environmental Conservation, 700 Troy-Schenectady Road, Latham, NY 12110 and U.S.D.A., Denver Wildlife Research Center, 6100 Columbus Ave., Sandusky, OH 44870

Tags were attached by pushing the pin through the patagium of the pigeon's wing from the lower side. We then pushed the tag onto the pin and used needle-nose pliers to bend the projecting portion of the pin into a triangle (Figure 1). We located the pin about half way between the anterior patagium edge and the wing bones, slightly distal to the humerus-radius joint. More distal tag placement increased tag flapping (and probably wear), but more proximal placement increased chances of the tag being preened under the scapulars.

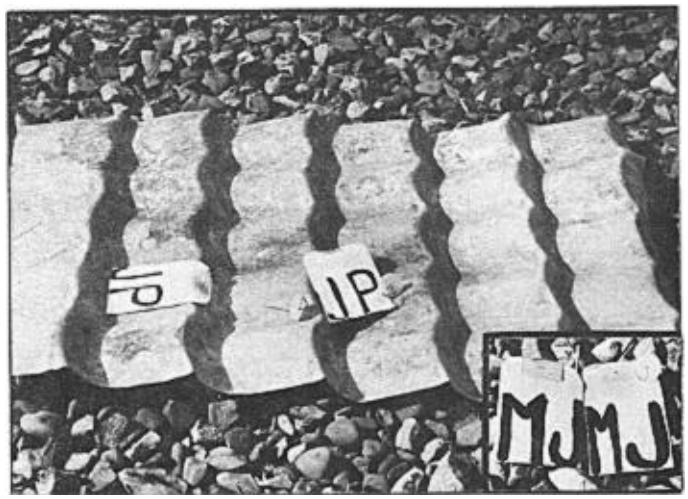

Figure 1. Sheet metal form used for bending tags and sample tag and tag wires. The inset shows tag and tag wire details.

Tag Retention

The characters on these tags did not fade after three years, but the edges began to fray after two years. To measure tag loss, we periodically examined both wings of pigeons during monthly counts (Kautz and Malecki 1990). Early in the study, we just noted pigeons which had lost tags. Starting in November 1982, we recorded whether tags were present on the right, left, or both wings of all birds checked. Twelve individuals lost one tag (7 left, 5 right). There was no evidence of a difference between wings ($X^2 = 0.056$, 1 df, $P = 0.81$; Cox and Snell 1989:54). Both wings were checked in 29% of the 1423 tagged bird resightings starting November 1982. Four individuals lost one tag of 263 tagged individuals checked. We estimated the portion of tags which were lost since being attached to pigeons. To do so, we tallied the number of individuals observed with one or both tags in five-month time intervals since tagging and used the equations of Seber (1973:281-2) to calculate loss rates. Binomial confidence limits were calculated according to Brownlee (1965:149). Using logistic regression (Cox and Snell 1989:36-8), we found no significant change in tag loss with time since tagging (Figure 2, $log(o/b) = 5.21 - 0.017m$, $P(B=0) = 0.77$, and where: o = number of pigeons seen with one tag, b = twice the number seen with both tags, and m = months since tagging). Loss rates should have increased or been constant with time since tagging. For example, after ten months, the portion of pigeons which had lost one tag should have been higher than (or the same as) after five months. Since we found no increase, we ignored time since tagging and estimated that 0.77% (95% CI = 0.21% - 2.0%) of the tags were lost. We never recorded an individual in the counts with both tags which later lost one tag. Apparently, these tags were lost soon after tagging or not at all. Perhaps the cause for loss was faulty attachment (too close to the patagium edge, or the stainless steel pin wasn't bent properly).

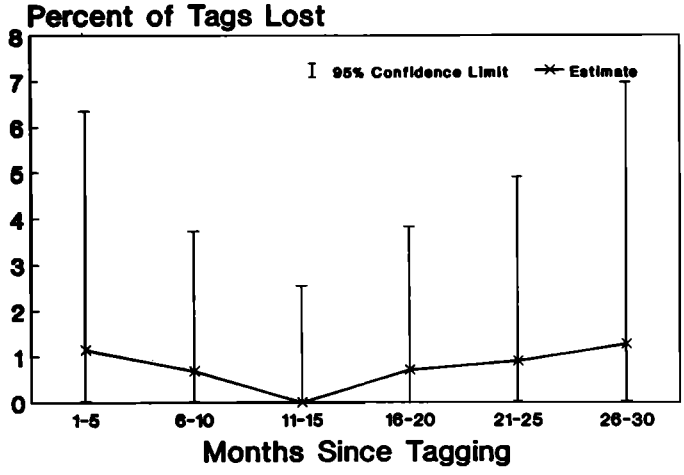

Figure 2. Percent of patagial tags lost from feral pigeons vs. time since tagging.

TRAP DESIGN AND FABRICATION

We caught most pigeons by hand, and we constructed three devices to assist with or supplement our catch: drop-window covers, catch windows, and pigeon stuffers.

Drop-window covers (Figure 3) were used to close windows in barns or silos and prevent pigeons from escaping. We made them from burlap, scraps of wood, nails and staples. While outside the structure, we could pull the burlap down and tie it off. If the window was the main exit used by pigeons, we usually stapled the burlap around the edges after the window was down.

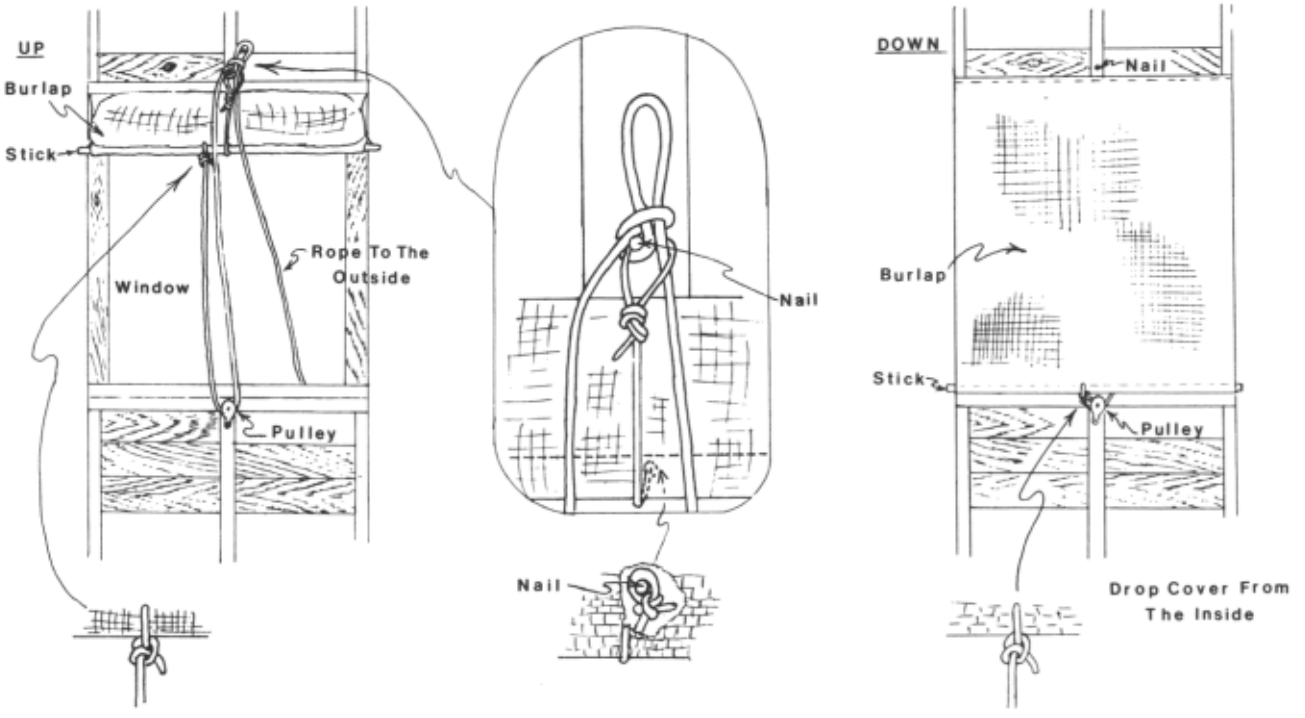

Figure 3. Drop-window cover.

The catch window (Figure 4A) was used to catch pigeons as they tried to fly out of a structure at night. It could sometimes be nailed in place from the outside of a structure without allowing pigeons to escape. Otherwise, we had to place the window in advance, prop it open, and leave it for one to two weeks to let pigeons habituate to it. It was pulled closed on the trap night using the mechanism illustrated (Figure 4B). We then frightened the birds in the building until they flew into the catch window. Pigeons were removed from the catch window's net bag as we pulled it up from the window opening. This trap was made from a sock of 2.5 x 2.5 cm mesh nylon gill netting, 2.5 x 10 cm wood, hinges, 4 mm diameter wire, nylon string, and nails.

Figure 4A. Catch window: Window in position for trapping, the outside dimensions of the wood frame are 114 x 86 cm, the wire net support extends 55 cm from the frame, and the net sock is 3.4 m long.

We used the pigeon stuffer (Figure 5) to put pigeons into a burlap bag with one hand, a necessary accomplishment when holding on for dear life to the supporting structure. We placed our fingers over the bird's head and wings, stuffed the hand and bird into the bag, released the bird, and removed the hand. We made the stuffer of a 2.5 cm nylon strap with clips, 2.5 x 5 cm welded wire, 4 mm diameter bungie cord, nylon cloth, thread, hose clamps, a latch, and wire.

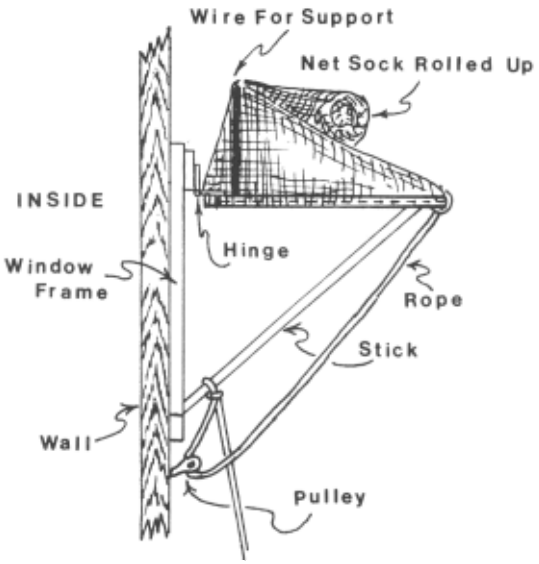

Figure 4B. Catch window: mechanism for releasing window if it is preset.

CLIMBING TECHNIQUES

Early in our work we found climbing on existing structures much faster than using extension ladders to get to pigeons and pigeon nests. Barns had exposed cross beams and rafters to climb on and on which to attach ropes or slings. Also, ladders were often present, attached to barn inside walls and to silos.

We wore a sit harness (Troll-Whillans, Great Britain) to free both hands for other work, to protect difficult climbing, and to provide attachment loops to carry equipment. We usually carried two rope slings (rope was less likely to catch on wood splinters than webbing) to attach to rafters or beams to support the sit harness. We also carried several carabiners (including a locking one on the sit harness front) for easy attachment to other equipment.

When the climbing was difficult, we protected ourselves in one of three ways. (1) We attached a long sling to the sit harness and a secure spot such as a beam, rafter, hay track, silo rung, or silo unloader tripod. (2) We attached a short climbing rope to the harness and a secure spot and kept it taut using an ascender (Robbins 1973:45) or prusik sling (Robbins 1971:21) attached to the harness. (3) We had another person belay us (Robbins 1971, 1973). We often got to otherwise inaccessible nests by climbing a rope (Robbins 1973:47-49) or using other aid climbing techniques (Robbins 1971, 1973).

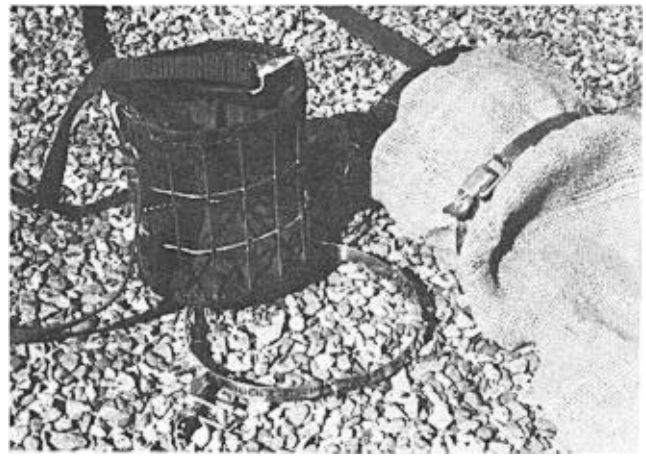

Figure 5. Left--Pigeon stuffer with clip removed, the stuffer is 15 cm tall and 14 cm in diameter. Right--Pigeon stuffer with burlap bag attached.

Though unprotected climbing was fast and exciting, it was also dangerous. The consequences of a 15 m fall onto concrete are not pleasant to contemplate. We avoided long falls by never attempting any moves in high places without protection, unless we were positive we could do the move successfully. We also were always alert for rotten or weak wood and used protection the first time we climbed on surfaces that were potentially unsafe. A more detailed description of climbing techniques used is available from Kautz.

CAPTURE METHODS

Bait Trapping

At 18 different farms, we located feeding concentrations of pigeons and pre-baited there with whole corn *(Zea mays)* in the winters of 1979-80 and 1980-81. Few of the bait sites were used regularly by feral pigeons. We tried putting out silhouette decoys of pigeons to help attract birds, without success. These efforts led to successful trapping at only one location in each year using walk-in traps and rocket nets. To catch pigeons at other locations, we had to trap at night in structures the birds used for roosting.

Closing Off Structures

To prevent pigeons from escaping, we usually closed up the structures we trapped in (U.S. Fish and Wildlife Service 1976; Martin and Martin 1982). Often we could close doors and windows. Most other openings could be covered with burlap or netting, which we would staple to wood, tape to metal with duct tape, or stuff into smaller openings. If pigeons using a structure were flighty or it was necessary to get close to them to close an opening, we covered the opening from the outside or pre-placed a drop-window cover. Sometimes we successfully closed off very large openings by attaching a 6 x 6 cm mesh mist net at the top of the opening.

It was best to close structures the night of trapping to minimize avoidance of the structure by the pigeons. Partly closing structures during the day in advance of trapping often resulted in abandonment by pigeons. However, drop-window covers and catch windows often had to be set up in advance of the trap night. Drop-window covers were usually hidden from birds entering the structure by pre-setting them completely inside the structure. In this case, it was best to set them up in the middle of the day of trapping. If drop-window covers could not be hidden or trap windows required pre-setting, it was necessary to put them up and leave them from several days to 1½ weeks to let the birds get used to them.

Hand Capture Methods

We caught most pigeons by hand at night. Though personal communications indicate the method is commonly used, we find little description of its use in the literature (Miller 1980; U.S. Fish and Wildlife Service 1976). While trapping, we moved only when it was dark or the light was very dim. Using a head lamp with an on-off switch and a rheostat (Nite-Lite, Clarksville, AK), we flashed the light on to see where to move and then moved in the dark. In this way, we were able to get our hands within inches of the birds and make the final capture in the dark. We then put the birds in our pockets, inside our jacket, or in a burlap bag using the pigeon stuffer. Holding and catching birds by shining a bright light on them was tried with poor success.

Extension ladders were sometimes preset or set up at night in the dark to provide access to inaccessible roost sites. Pigeons in inaccessible sites were also pushed to accessible roosts by turning lights on and frightening them with noose poles. Birds in the tops of lighted silos could sometimes be frightened so they would fly. By turning off the light, we prevented flying birds from finding the rim of the silo. They fluttered to the bottom, where we caught them in the dark. Occasionally, a pigeon could be surprised into flight, drawn to a dim head lamp, and caught.

It was sometimes possible to catch birds which roosted on the outside of structures or on structures which could not be closed off. There could be no outside lights nearby, and we had to trap on dark nights. We were less successful because once a bird flushed, it usually left the structure.

Hand Nets and Noose Poles

We tried but had little success using hand nets to catch pigeons at night. Pigeons in barns and silos usually roost in places that are not accessible to a net, even one on the end of a long handle.

Noose poles (Zwickel and Bendell 1967) were used successfully in silos. We made ours from 6.4 m six-section telescoping poles (Shakespeare Wonderpoles). Nooses needed to be light in color to be seen, and the best material was 27 kg test, nylon coated stainless steel fishing leader (Herter's Mitchell, SD), but we also used 20 gauge electric wire with success. The poles did not work well for catching pigeons in barns because the pigeons were too mobile.

To noose pigeons roosting in the top of a silo, we worked from the top of the chute or outside ladder at night using a head lamp. We set the noose open, extended the pole to the pigeon to be trapped, put the noose over its head, tightened the noose by pulling slowly down and back (relative to the bird), and then pulled the pigeon to us by collapsing the pole. The bird was then grabbed and removed from the noose. It was even better to work in pairs, with one person at the top of the chute and the other a noose pole length below or on the ensilage. Once the pigeon was noosed, it was lowered to the second person. Care was necessary to avoid

hanging birds on cross pieces in the silo. We often used electrical wire for nooses because if a noosed bird became tangled onto the silo, the noose could be pulled on until it broke without doing serious injury to the bird. We also used noose poles to chase birds around the rim of the silo to where a person could catch them by hand in the dark.

Handling Pigeons

While processing pigeons, we held them in burlap bags. Care was needed when we released them to make sure they got to roost sites safe from predators, especially cats *(Felis domesticus)*. If there was plenty of light in the structure being trapped, the pigeons could be released as they were processed. Otherwise, we released them after processing, providing as much light as possible. It was best to release silo birds on the rim inside the silo. Adults caught on active nests could be returned to their nests after putting them to sleep by rocking them with their head under their wing (Miller 1980).

Mortality From Night Trapping

Of 794 pigeons caught at night, only eight (1.0%) died due to causes directly attributable to trapping. Three of these were strangled or had their necks broken when being noosed, and the other five were killed by domestic cats.

NEST CHECK METHODS

We got to most nests by unprotected climbing, but we used ladders and climbing aids to get to inaccessible ones (see above). Special care was needed to avoid stepping on nests while climbing. We used the sit harness extensively to free our hands for taking nest data. Some nests took so long to climb to that we used a mirror pole (Parker 1972) to check their contents. Our pole was constructed with a 9.1 m aluminum telescoping pole of five sections (Ben Meadows, Atlanta, GA) with a 14 x 21.5 cm automobile swivel-mount mirror attached (Figure 6). By using this pole, we avoided climbing to inaccessible nests except to tag nestlings, candle eggs, or age recently hatched nestlings. Lower sections of this pole could be removed easily if we needed to carry a short pole along while climbing to inspect an inaccessible nest.

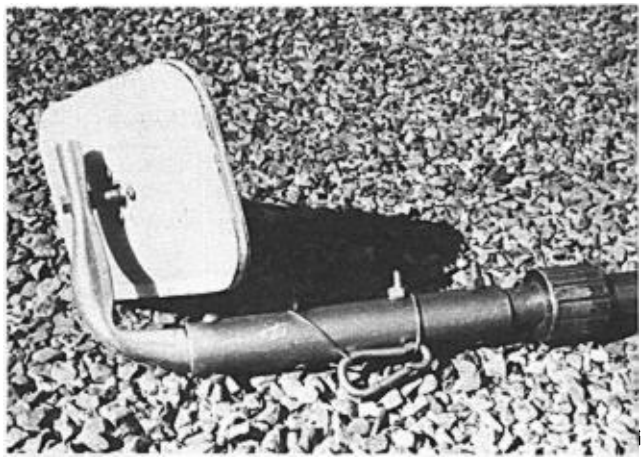

Figure 6. Mirror attachment to telescoping pole. Note the clip for attaching the pole to a sit harness for carrying.

We wore a belt with game and shell pouches to carry the following equipment while checking nests: a candling tube, bands, tags, tag wires, needle nose pliers, a 15 cm plastic ruler, a 500 g Pesola (Switzerland) scale, a weighing bag, a nasal speculum, and gloves. This equipment was used to candle eggs, and to band, tag, measure, weight, and sex pigeons. We used the gloves to protect our hands while climbing.

We used a 2.5 cm inner diameter by 15 cm long opaque plastic tube to candle eggs (Weller 1956) and age them (Kautz 1985). If we were inside a structure, we shined a head lamp on the egg rather than holding it to the sky to candle it. We banded and tagged nestlings when they were between three and four weeks old, unless their nest was so exposed that they were likely to jump out when approached. In that case, we tagged them when they were two to three weeks old. If the nest could not be reached, we could sometimes use the noose pole to catch nestlings at the time they were just starting to fly (four to five weeks of age).

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