

STONE, WITMER

- 1937 Bird studies at Old Cape May. An ornithology of coastal New Jersey. Delaware Valley Ornithological Club at Academy Natural Sciences. Philadelphia. Vol. 1. 520 pp.

SOPER, J. DEWEY

- 1946 Ornithological results of the Baffin Island expeditions of 1928-29 and 1930-31, together with more recent records. *Auk*, 63(1): 1-24.

TODD, W. E. CLYDE

- 1938 A new race of the Canada goose. *Auk*, 55(4): 661-2.

WILLIAMS, CECIL

- 1945 What about Canada geese? Unpublished MS. U. S. Fish and Wildlife Service.

Illinois Natural History Survey and U. S. Fish and Wildlife Service.

THIRTY YEARS OF BANDING AT NORRISTOWN, PENNSYLVANIA

BY RAYMOND J. MIDDLETON

Our banding station was established just thirty years ago this spring when a single government sparrow trap was set out. During the next seven years with one trap we banded over 800 birds. In August of 1928 five sparrow, eight chardonneret and five two-section potter traps were constructed and placed in use; with this addition the fall migration brought us over 1,000 birds in the traps.

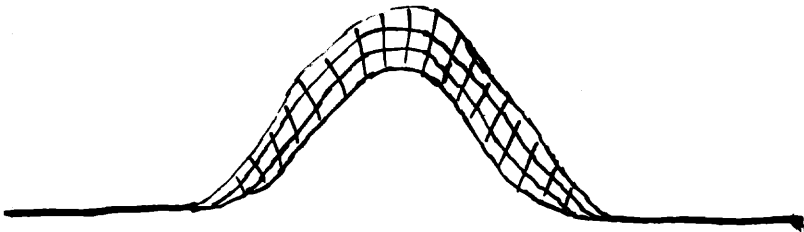
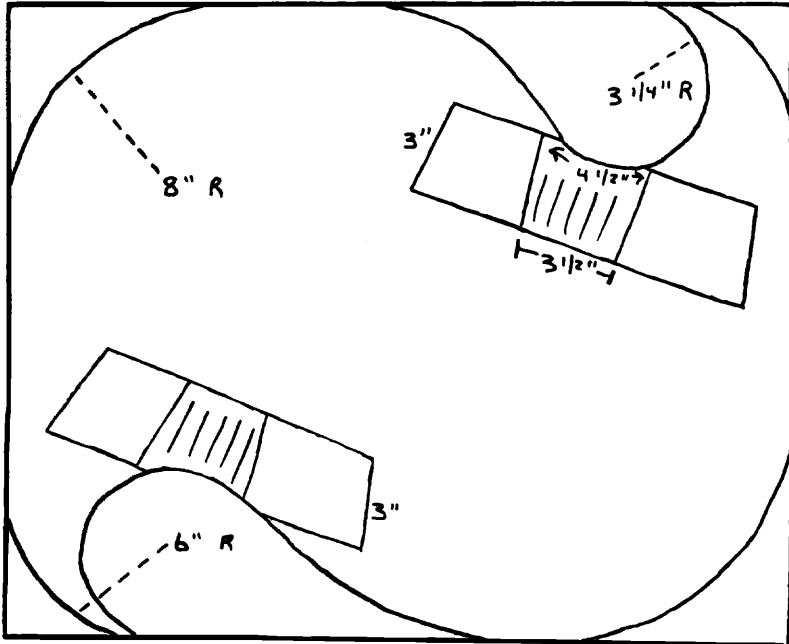
Several years later water drip traps came into use and four chardonneret traps were made to use with water as bait. Noting that robins and other thrushes would walk around this type of trap looking for a ground entrance we devised a new trap circular in shape and with two ground funnel-shaped entrances to meet this need, these being made of $\frac{3}{4}$ -inch poultry netting.

These traps were instantly a tremendous success but as some warblers and kinglets would enter and push right thru the mesh and escape as we reached in to remove them, we now made some with $\frac{1}{2}$ -inch hardware cloth and thus no small birds could go thru. Later on the multiple section chardonneret traps came out and two ten-cell Brenkle traps were made and have been in use since. Three years ago we saw a Modesto trap at one of our annual conventions and four were made; they have proved excellent for ground-feeding species.

We now have all of our thrush traps, which still carry their original name even though they now catch nearly every species we band (Fig. 1). These are made with $\frac{1}{2}$ -inch mesh hardware cloth. Each has a door in the top to remove birds, or a side door if the use of a gathering cage is preferred. The side door may be at ground level, or (particularly if many warblers are handled) near the top; the trap is sometimes made with doors at both levels. We use six of the traps all summer with a water drip, from a bucket hanging overhead into a six- or eight-inch flower pot saucer. We use five others in the summer with bread, crackers and small grain as bait; at other seasons all of these traps are used with grain as bait. Surprisingly, over half the warblers we take are caught in this, a ground entrance trap. It is definitely the best trap we have. Since using these and the four Modesto

FIGURE 1.

THE MIDDLETON THRUSH TRAP
TOP VIEW



DIMENSIONS: 30" LONG, 24" WIDE, 12" HIGH
DETAIL OF ENTRANCES: HARDWARE CLOTH
11" BY 3" BENT SO AS TO LEAVE AN OPENING
2 3/4" HIGH AT ENTRANCE, 2" TOWARD MIDDLE

traps with grain and seeing the volume of birds taken in them we have discarded the five sparrow traps some years ago. Our traps are scattered over about four acres in six groups, some on our lawn, some near thickets and some in woodland areas. We believe the practice of grouping one each of the various types and using numerous baits in each area will catch more birds than single traps scattered all over.

The total number of birds taken to date is as follows:

BANDED	35,005
RETURNS	1,229
REPEATS	35,151
RECOVERIES	267

(The latter being trapped or found dead in sixteen states and one Province of Canada.)

CAPTURES	71,380
----------------	--------

The number of species banded has been 130 and we normally catch from 60 to 70 species each year. Our station is essentially a land bird setup, we do no colony banding. Rarely do we band young in the nest other than those in our bird boxes and a few nests of Barn Swallows each year at a nearby dairy farm. With this exception plus one Chimney Swift experience when 180 were taken and also a few birds of prey banded in the nest nearly all of the entire total were actually taken in the traps.

Just about half of the birds banded are of species that are only migratory in south-eastern Pennsylvania; from these we have had one return, other returns came from summer and winter residents.

Now as to some of the species of which fairly large numbers have been taken and of their returns and recovery records:

Warblers banded: 4,043 of thirty-four species, only one (the Cerulean) has been noted once and not been trapped, six are breeding species. Two warblers have been found in South Carolina, a Myrtle one year and a Northern Waterthrush two years later.

Seven species have had over two hundred banded: Redstart 763; Myrtle 414; Magnolia 205; Black and White 319; Black-throated Blue 233; Ovenbird 380 and Northern Yellowthroat 842. From the Ovenbirds we had two returns, one being taken four and one five years after being banded as adults. From the Yellowthroats we had 21 returns, eight being from immatures which came back the following year and one a second time, while two adults returned two summers. There were five species in which only two have been caught: Brewster's, Orange-crowned, Prairie, Pine and Western Palm.

Vireos: 108 banded (of four species, 85 being Red-eyed) and two returned; one being found dead a mile from the station six years later.

Orioles: Orchard 27 banded and Baltimore 104 banded, from the Baltimore five returned, three being adults and two immatures, the latter were taken three and five years later.

Thrushes: 2,306 banded of six species, only the Wood Thrush being a nesting species. Hermit: 856 banded, and one was recovered in North Carolina 27 months later. Veery: 122 banded: Olive-backed, 396; Gray-cheeked, 129 and Bicknell's 24. Wood Thrush: 743 banded and 52 returned. seven being immatures and the balance adults when banded.

Of these six were here three summers, five were here four, two were here five while one came back six years later, not being taken during the five intervening years.

There were 400 Kinglets banded, 310 being Ruby-crowned and 90 being Golden-crowned. Of Barn Swallows we banded 121, all nestlings; one was found dead two miles away two years later. 75 Indigo Buntings were taken; three returned, one immature coming back two years. We caught 755 Starlings, nearly all young of the year taken during July and August; four returned and 20 were recovered elsewhere, one in Florida two years later, one in each of Delaware and Virginia, also one found dead in Philadelphia six years after.

152 Flickers were taken; four returned, one being four and one five years old, one nestling found in North Carolina three months after having repeated in the traps. 36 Cowbirds were taken, and one adult shot in Florida the following November.

Purple Grackle: 1,341 banded, 100 returned and 62 were recovered; of the returns we had some fine age records, 11 lived to four years and one being back each year; 12 reached five years, eight reached six years, three seven and two eight years. One returned the second and seventh year after banding and then was found dead the following fall 12 miles away. Of the recoveries one was banded in May (apparently a breeding bird) and the following May was found dead in southern Delaware, seven were found dead in Virginia, one being eight years later, one was found in North Carolina and three each in New Jersey and Maryland.

Winter Wrens: 345 banded; House Wrens, 1,220 banded with 64 returning, of those returning two were nestlings when banded and one nested in our boxes the following year. There were five returning immatures and six were here three summers, two four summers, three five and one six summers. Only once did we find the same pair remaining mated for two broods and on two occasions a male had two mates at the same time.

There were 115 birds of prey banded of two species of owls and six species of hawks. 45 Sparrow Hawks led the list, mostly nestlings, and from them we had seven recoveries in the south. Two from one brood were found, one in Georgia in November and one in North Carolina the following January. A year later we banded four in this same nest cavity and one was killed in North Carolina in October and one in South Carolina in January. This species is common here the entire year and we had two adults which being banded in summer were found later in winter; possibly only the young birds migrate southward. We also had a Cooper's Hawk banded by Beecher Bowdish as a nestling and shot near us two and a half months later.

As to Robins there were 4,223 banded, only 40 returned and 71 were found elsewhere. Most of those caught are taken in the heat of summer as birds of the year with about two percent being adults. Few Robins enter the traps when they first arrive in numbers in spring and seldom go in until late June, consequently few returns are taken. One partial albino was here for nine summers and is our oldest record to date; one returned four summers and one was taken the fifth year later and one was found dead 20 miles away eight years

later. The recoveries came from the deep south: two from Mississippi, two from Alabama, ten from Florida, four from Georgia; six from North Carolina and one each from South Carolina and Virginia were found in late February and early March as they were moving northward.

Purple Finches: 290 banded, one returned and four were recovered; two being taken by Horace Groskin the same winter fifteen miles from us and one being taken here that had been banded two years previously by Wm. Wharton at Groton, Mass.

Bluejay: 542 banded, 35 returned and 20 were taken elsewhere. This species is abundant all year but we have one found dead in Virginia, one at Valhalla, New York, one in northern New Jersey six years later, one dead in Massachusetts in December six years later and one trapped on Long Island 12 days after being banded in May.

Flycatchers: 155 banded, 90 being Crested; 67 of these were nestlings, none of which were heard of again. From the nesting adults we had one using the boxes for eight years, one for six years and one for four years. On two occasions we had the same pair mated for three consecutive years. It required only 12 individual adults to keep us supplied with a nesting pair for 19 years and of the 11 adults nesting here prior to 1947 nine returned or an average of 82%.

Catbird: 2,593 banded, 132 returned and 15 were found elsewhere, one was found dead in Connecticut in February four years after and one dead in Miami, Florida, the following November. We had returns from immature birds: five being here the next four summers and one for five. As to adults, 15 came back the next four years, seven for five years and five for six years.

Mourning Dove: 35 banded, five returned and two were recovered, two adults returned four years later. One young fell from a nest during a severe storm while still unable to fly; we banded it and though it seemed ill it was noted for two weeks flying slowly for short distances and gaining strength. Three months later it was found dead in Virginia.

Brown Thrasher: 221 banded, 14 returned and one was found on Long Island a year and a half later. One lived to five and one to seven years.

Tufted Titmouse: 186 banded and we had 600 repeats. While this is strictly a resident species in our area and the same individuals are taken at any period of the year, we did catch one banded 25 miles away from us by John Gillespie. One bird nested in our boxes for seven consecutive summers and the seventh year had two broods of 12 young, rarely does this species have more than one brood. We had one bird that after being banded was taken often for three years and then not captured for five and one-third years when it was taken in December, 1950; constant repeats during the first three years make it doubtful that it was present the last five years.

Red-eyed Towhee: 424 banded, mostly taken during October though a few breed here; six returns were taken from these and two were of immatures. One banded in October was trapped on Long Island the following May.

Slate-colored Junco: 2,717 banded and 6,203 repeats, 176 returned

and four were recovered. One banded in April was taken five days later in northern New Jersey. One banded in Massachusetts was taken here. We had 18 here four winters, seven here five winters, five here six and one here seven winters, one lived to be $8\frac{3}{4}$ years of age.

Sparrows: ten species and 11,175 banded. Swamp Sparrow, 100 banded. Lincoln Sparrow, 19 banded and one wintered. Fox Sparrow, 435 banded, 500 repeats from them. White-crowned Sparrow, 79 banded. We had no returns from these four species.

Field Sparrow: 261 banded. This is a summer resident and eight returned, one immature three years later and one adult four years later.

Song Sparrow: 3,250 banded; 7,015 repeats, 275 returns, 12 recoveries.

This, a resident species, is abundant at all seasons except winter when they are here in fair numbers. We have four records of individuals being permanent residents, all remaining from winter right on thru the breeding season; one winter resident returned the following three summers. Two were trapped in Georgia in winter and two in Maryland (one being taken 25 days after banding), one was caught in northern New Jersey. We have many returns from immature birds of this species but the majority are from adults. We had 16 birds return here for four summers, six for five and three for six summers.

White-throated Sparrow: 6,014 banded; 8,512 repeats; 41 returns and 12 recoveries.

We had one migrant return and 40 from birds wintering; two birds have been here four winters, two five and one six winters. This species is the most abundant fall migrant in this vicinity and 83% are taken then; a common spring migrant with ten percent taken then and a fairly common winter resident with seven percent taken at this period (they are wintering in much greater numbers the last five winters than previously). The recoveries are from a wide area: one trapped 15 miles southwest of here 11 days after banding in October; five found dead in South Carolina and two in North Carolina in winter; one trapped in Wisconsin seven years later; two trapped in New Hampshire and one on St. Paul's Island, midway between Nova Scotia and Newfoundland.

Tree Sparrow: 1,011 banded; 5,811 repeats; 147 returns; three recoveries, two of the latter were of birds banded in New York. This species is a common bird in severe winters but scarce during mild periods. Prior to 1945 we had one out of each five banded return and many building up a long series of continuous returns; since then we have had only one winter with much snow and now we are getting few returns, three out of the last 370 banded. The following series of return records all were secured before 1945: 12 being here four winters; six were here five winters; six were here seven and two eight winters. They are consistent repeaters if snow is deep and one winter with 182 banded we averaged over 11 repeats each or 2,057 in all.

Our annual total catch of birds has been less the last six or seven years than it was through the previous ten years. Since much of our catch during migration is in water traps a wet period while migration is at its height will lower the number taken; the Philadelphia area

has been on the wet side much of the last few years. A dry spell in May or October will double the number caught. Then also there is the scarcity of birds during many migrations. This has been in evidence much of the last five years; the fall of 1949 and the spring of 1950 were excellent with birds abundant but in the fall of 1950 birds were very scarce. Possibly unusual weather conditions slow up migration making birds seem more abundant at a given area and then when they take off again they may take longer hops and do not stop off at as many places as generally expected. This could explain some having greater numbers than usual while other areas find them scarce or many species almost entirely missing.

Now as to injured birds captured, we often catch birds with only one leg, others that have had broken legs and have healed crooked. We also catch an occasional bird with a wing injury; if the injury affects only the joint at the bend of the wing we have had them recover full flight in less than two weeks. None where the entire wing was broken recovered flight. A number have been taken with tail missing, these grow in full in a month.

131 N. Whitehall Road, Norristown, Pa.

GENERAL NOTES

High Return W. Percentage of Tree Sparrow.—On January 21, 1950, forty-three Tree Sparrows, *Spizella arborea arborea* (Wilson), were banded at Arcadia Wildlife Sanctuary, Northampton, Hampshire Co., Massachusetts. In the period Dec. 23, 1950, to March 22, 1951, the year following banding, nine returns W. were taken from the 43 birds banded on January 21, 1950. This is 21%, which seems to be an unusually high return figure.—Edwin A. Mason, Arcadia Wildlife Sanctuary, Northampton, Mass.

Banding Nestling Mourning Doves.—While associated with the State Natural History Survey investigation of the Mourning Dove in Illinois, a problem encountered was the number of nestling doves found that were too young to be banded and have the band remain on their leg. These birds were being left unbanded in nests in remote territories. In a number of such cases the investigators were travelling the state covering areas that did not warrant a revisit. In other cases they would not revisit the nesting territory containing these young (one to eight days old) frequently enough to band them when their legs were large enough to hold the bands on. In addition, some areas that were revisited at regular intervals occasionally harbored a few young that were classed as "doubtful."

A method which was thought of to overcome this situation involved using two, four, six, eight or ten day gut; piercing the fleshy part of the leg with a needle and drawing the gut through, then tying it onto the band, anticipating that the gut would dissolve in the prescribed time and that the band would remain on the leg. After discussing this method with a local physician, the opinion was that an infection might result in the leg at the points of broken skin. The idea was then discarded. The doctor suggested and furnished two rolls of elastic adhesive tape one-half and one inch wide, which were used experimentally as follows: After applying a band, a piece of tape was cut long enough to result in a long overlap when wrapped around the band. Only about one-half of the width was fastened onto the band, the other half was made secure to the upper part of the leg, mainly on the down or light hairs, which then prevented the band from sliding up above the heel or down and off of the tarsus. Another method was to place about half of the tape on the band and turn the remainder slightly in on the under side where it would adhere to the tarsus and prevent the band from slipping off. The first method of applying the tape appeared to be more satisfactory.