

NETTING BIRDS ON THE SOUTH SHORE OF LONG ISLAND, NEW YORK

TIANA STATION 1958-1964

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For centuries man has been fascinated by the uncanny ability of birds to migrate great distances twice a year, mainly north and south, even birds of the year that have never been over the route before. I believe the Creator has placed within each individual bird a highly developed instinct known as a "sense of direction" enabling them to cover thousands of miles over land and water and return to the approximate spot where they nested or were hatched the previous summer. Banding has been the best means of research in the study of bird migration. Banding has shown that birds can also return to specific areas east to west across the United States. In the winter of 1962-63, 660 Golden-crowned and White-crowned Sparrows were trapped on their wintering grounds at San Jose, California, transported 3860 miles by plane to the headquarters of bird banding in the United States at Laurel, Maryland, and released. A year later 15 of these birds were recaptured at San Jose. On Long Island there is an east-west migration in the fall, not only of birds but also Monarch Butterflies and dragonflies. The amazing thing is that these small creatures know that to reach New Jersey where they turn south they must fly west, not only along the outer beaches and the bays which are a natural migration route but also out in the center of Long Island with no noticeable landmarks. It has also been observed that a few species, mostly shorebirds, instead of following the coastline fly southwest from Democrat Point at the west end of Fire Island apparently heading directly for the New Jersey coast between Sea Girt and Beach Haven (Darrow, H. N., *Kingbird* XIII:4, 1963).

Various types of traps have been used to capture birds for banding. In September 1951, 1952 and 1953, capture of birds by using Japanese mist nets was tried at Cape May, New Jersey. These very fine nets were strung along narrow lanes in low trees or shrubs across the path of migration. This preliminary trial was so successful, yielding large numbers of individuals and species almost impossible to capture by any other means known at present, that in September 1955 the first concerted effort was made to band birds during fall migration at strategic points along the Atlantic Coast. This project, capturing birds by mist nets, was named "Operation Recovery" and in 1955 at 7 coastal stations from Massachusetts to Virginia 1500 birds were banded. In 1956 at 15 stations

5400 birds were banded, in 1957 at 22 stations 11613 birds were banded and in 1958 over 20000 (Baird, Robbins, Bagg and Dennis, *Bird Banding* XXIX:137, 1958 and Baird, Bagg, Nisbet and Robbins, *Bird Banding* XXX:143, 1959). In 1960 over 35,000 birds were banded along the coast (*EBBA*, 24:129, 1961).

Tiana Bird Banding Station

There was no station in New York prior to 1958, when I was urged by Chandler Robbins of the Bird Banding Office and Mrs. Stanley Dickerson, leader of the largest station along the coast at Island Beach, New Jersey, to start a station on the south shore of Long Island. Although I had been banding birds on Long Island since 1927, I had never used mist nets. At Mrs. Dickerson's invitation, my wife and I spent four days at Island Beach studying this system of capturing birds.

After searching the outer beach at Shinnecock Bay, I decided that the most promising site appeared to be from one-half mile west to one-quarter mile east of the former Tiana Coast Guard Station. This is about 7 miles west of Southampton. My first attempt at netting there was in the late afternoon of September 19, 1958. It became a full-scale operation the following morning when Walter Terry of Blue Point started as my assistant. For six years during the months of September and October, we started netting and banding operations each morning by daylight except on Sundays and windy and rainy days. In 1964 I operated the nets alone as Mr. Terry had his own station at Brookhaven.

At Tiana Station the barrier beach is only 180 yards wide from bay to ocean. The best location is "West Pines" about 2000 feet west of the Tiana Station in a clump of low pines (maximum height 10 feet) covering an area about 90 by 100 feet, where the nets are 225 yards from the ocean. The rest of the dunes between the pines and the ocean is covered only by short beach grass and widely scattered clumps of low beach plums. The easternmost area used for netting was a small clump of pines, "East Pines," about 1000 feet east of the Tiana Station, with an area of about 50 by 75 feet. This was entirely destroyed on September 5, 1962 when a large parking lot for cars was built. Other lanes were cut through low bushes and the westernmost lane was an old road running south from dune road to the ocean. The distance between the easternmost and westernmost nets was about 3960 feet. All net lanes ran north and south because, as mentioned before, the birds migrate west along this outer beach. Due to flooding of "West Pines" with salt water by very high tides, more than half of these pines were dead by the fall of 1964. Probably in a few years this entire area will no longer be an effective banding station.

Because of the narrow width of this barrier beach and the very low vegetation, this station proved to be one of the best along the coast. At Tiana 26055 birds were caught in 17953 net hours. The average for Tiana for the 7 years was 1.45 birds per net hour. The average for all stations during 1957 and 1958 was 0.38 bird per net hour. Net hours are computed by multiplying the number of nets by the number of hours in use.

Nearly all the species of land birds that migrate westerly through the mainland of Long Island also migrate along the outer coastal strip, although some like the Blue Jay and Chickadee are very scarce. Shinnecock Bay is about 1.5 miles wide at Tiana and very few birds fly across it, nearly all continue west along this outer strip. Three miles west of the Tiana banding station the mainland of Long Island extends down to the outer beach at Quogue, as it does also at Southampton 7 miles to the east. When the birds reach Quogue some tend to go inland. For example, a male Flicker netted at Tiana October 15, 1959 at 8:40 AM was caught stunned after hitting a large window the next morning at 11:30 at Riverhead more than 8 miles north of Quogue. A Swamp Sparrow netted at Tiana October 13, 1961 at 10:45 AM was trapped and released at 7:00 AM the next morning by Gilbert Raynor at Manorville, 9 miles north of the outer beach and 16 miles northwest of Tiana.

A greater percentage of birds are flying west in the first few hours of daylight than are moving east. Average flying west for all 7 years by hours is as follows: 6-7, 66%; 7-8, 63%; 8-9, 62%; 9-10, 60%; 10-11, 56%. By afternoon about as many are moving east as west. However, on large flight days a greater percentage are moving westward, as can be seen from the average for the three highest days of each of the 7 years: 6-7, 75%; 7-8, 80%; 8-9, 77%; 9-10, 68%; 10-11, 58%.

Table 1 is a composite weekly summary of all bandings for the 7 years from 1958 to 1964 inclusive. The total number of days of banding was 327, with the actual number of days for each weekly period as follows: Aug. 25-Sept. 2, 17 days; Sept. 3-9, 35 days; Sept. 10-16, 32 days; Sept. 17-23, 36 days; Sept. 24-30, 39 days; Oct. 1-7, 37 days; Oct. 8-14, 41 days; Oct. 15-21, 34 days; Oct. 22-28, 37 days; Oct. 29-31, 19 days.

For the 7 years there were 1209 repeats out of 26055 birds banded (see Table 1). These repeats are the number of individuals that remained one or more days after banding. Of all birds banded 4.6% remained one or more days. It is noteworthy that of the 262 Goldfinches banded none repeated but all moved westward after being released. Some warblers remained up to 19 days, but of course the local nesting birds remained much longer, such as Song Sparrow for 53 days, Catbird for 31 days, Brown Thrasher for 22 days and Yellow-throat which are about the only nesting birds there.

TABLE 1. COMPOSITE SUMMARY OF BIRDS BANDED AT TIANA 1958-1964

	August-September					October					Total	Repeats	Maximum Days Remained	Recoveries	
	25-2	3-9	10-16	17-23	24-30	1-7	8-14	15-21	22-28	29-31					
Least Sandpiper.....	3	10	9	1	-	-	-	-	-	-	23	-	-	-	-
Yellow-billed cuckoo.....	-	-	1	2	1	3	5	2	-	-	12	-	-	-	-
Black-billed Cuckoo.....	-	2	4	8	10	-	4	-	-	-	12	-	-	-	-
Ruby-throated Hummingbird Flicker.....	4	4	53	97	187	133	115	55	18	5	671	31	-	25	7
Yellow-bellied Sapsucker.....	-	-	1	2	9	5	14	2	1	-	34	-	-	-	-
Hairy Woodpecker.....	-	-	-	-	1	4	4	13	8	6	36	4	-	8	1
Downy Woodpecker.....	2	4	6	11	17	18	28	12	12	4	114	22	-	15	-
Phoebe.....	-	-	1	12	26	67	44	23	6	1	180	2	-	4	-
Empidonax Flycatcher.....	13	18	24	15	16	9	2	-	-	-	97	3	-	2	-
Wood Pewee.....	2	1	4	3	6	2	1	-	-	-	19	-	-	-	-
Tree Swallow.....	-	-	3	59	3	3	2	-	-	-	70	-	-	-	1
Barn Swallow.....	-	15	15	5	2	-	-	-	-	-	37	-	-	-	-
Black-capped Chickadee.....	-	-	-	-	-	1	4	11	-	-	16	3	-	6	1
White-breasted Nuthatch.....	-	-	1	-	4	1	2	1	1	-	10	-	-	-	-
Red-breasted Nuthatch.....	3	5	12	6	17	30	28	21	11	4	137	14	-	6	1
Brown Creeper.....	-	1	3	4	23	66	91	49	17	13	267	10	-	3	-
House Wren.....	-	-	1	2	5	3	5	2	-	-	18	-	-	-	-
Winter Wren.....	-	-	1	-	4	6	9	6	2	-	28	-	-	-	-
Long-billed Marsh Wren.....	-	-	-	-	-	2	1	3	2	1	9	1	-	1	-
Mockingbird.....	-	-	1	1	2	-	3	-	1	1	9	-	-	-	1
Catbird.....	4	12	7	15	27	16	35	14	2	1	133	23	-	31	1
Brown Thrasher.....	14	12	20	46	102	56	39	6	3	1	299	29	-	22	4
Robin.....	2	11	10	3	10	18	76	78	71	49	328	1	-	6	3
Wood Thrush.....	-	-	1	-	-	1	3	2	-	-	7	-	-	-	-
Hermit Thrush.....	-	-	-	-	2	22	89	101	65	42	321	14	-	9	-
Swainsons Thrush.....	-	1	31	35	94	22	24	3	3	-	214	3	-	13	1
Gray-cheeked Thrush.....	-	1	4	2	33	14	11	1	-	-	66	4	-	2	1
Veery.....	3	3	6	3	1	1	-	-	-	-	17	-	-	-	-
Golden-crowned Kinglet.....	-	-	1	-	10	182	354	195	126	15	883	20	-	5	-
Ruby-crowned Kinglet.....	-	2	8	7	50	80	271	113	58	14	603	15	-	10	-
Cedar Waxwing.....	1	11	16	14	32	37	59	22	10	5	207	3	-	1	1
Starling.....	-	2	-	3	1	2	4	-	5	3	20	-	-	-	-

	August-September					October					Total	Repeats	Maximum Days Remained	Recoveries
	25-2	3-9	10-16	17-23	24-30	1-7	8-14	15-21	22-28	29-31				
White-eyed Vireo.....	-	-	-	-	-	1	-	1	1	-	3	1	2	-
Solitary Vireo.....	-	-	-	3	7	3	7	1	-	-	21	-	-	-
Red-eyed Vireo.....	2	7	10	34	46	18	4	3	1	-	125	1	2	-
Philadelphia Vireo.....	-	2	-	3	5	-	-	-	-	-	10	-	-	-
Black-&-white Warbler.....	4	3	8	12	9	8	4	2	-	-	50	1	1	-
Tennessee Warbler.....	-	2	2	3	11	5	3	3	-	-	29	-	-	-
Orange-crowned Warbler.....	-	-	-	-	-	3	6	1	1	-	11	1	1	-
Nashville Warbler.....	-	-	9	6	8	12	4	9	1	-	49	2	2	-
Parula Warbler.....	-	-	1	5	8	8	1	9	-	-	32	2	1	-
Yellow Warbler.....	4	14	11	7	3	3	-	-	-	-	42	2	3	-
Magnolia Warbler.....	2	2	16	15	30	10	5	1	-	-	81	4	1	-
Cape May Warbler.....	3	9	35	29	67	25	20	2	-	1	191	10	11	1
Black-throated Blue Warbler..	1	2	4	9	10	19	8	3	-	-	56	1	2	-
Myrtle Warbler.....	-	-	2	17	92	673	2192	1633	937	280	5826	335	19	8
Black-throated Green Warbler..	-	1	3	2	7	16	17	3	4	1	54	-	-	-
Blackburnian Warbler.....	2	1	2	3	1	-	-	-	-	-	10	-	-	-
Chestnut-sided Warbler.....	1	4	-	2	6	-	-	-	-	-	13	-	-	-
Bay-breasted Warbler.....	-	3	10	7	10	6	1	2	-	-	39	1	2	-
Blackpoll Warbler.....	-	1	13	61	107	67	56	21	4	-	330	5	1	-
Prairie Warbler.....	6	7	3	8	6	2	-	1	-	-	33	1	1	-
Palm Warbler.....	-	9	59	132	256	224	144	77	52	10	963	26	10	-
Ovenbird.....	3	3	7	4	5	4	3	3	-	-	32	1	1	-
Northern Waterthrush.....	7	11	18	8	8	6	5	1	-	-	64	8	11	1
Connecticut Warbler.....	-	-	2	2	3	2	-	-	-	-	9	-	-	-
Mourning Warbler.....	1	3	2	1	-	-	-	-	-	-	7	-	-	-
Yellowthroat.....	31	43	36	41	76	37	26	8	4	-	302	24	13	9
Yellow-breasted Chat.....	3	13	8	24	18	11	10	2	3	1	93	3	9	-
Wilson's Warbler.....	1	4	1	4	6	-	1	-	-	1	18	-	-	-
Canada Warbler.....	2	1	3	2	1	-	-	-	-	-	9	-	-	-
Redstart.....	11	48	55	85	59	30	11	1	3	-	303	8	6	-
House Sparrow.....	-	-	1	-	-	2	4	2	9	1	19	-	-	-
Boblink.....	-	1	2	3	1	2	4	1	-	-	14	-	-	-
Red-winged Blackbird.....	-	-	-	-	-	-	1	7	1	1	10	-	-	-
Baltimore Oriole.....	12	22	20	19	6	1	7	1	1	-	89	6	3	-

	August-September					October					Total	Repeats	Maximum Days Remained	Recoveries
	25-2	3-9	10-16	17-23	24-30	1-7	8-14	15-21	22-28	29-31				
Rusty Blackbird.....	-	-	-	-	-	1	3	-	3	-	7	-	-	-
Cowbird.....	-	-	2	-	-	3	1	1	1	-	8	-	-	-
Scarlet Tanager.....	2	1	10	3	8	4	10	-	-	-	38	-	-	-
Rose-breasted Grosbeak.....	-	-	4	4	2	1	-	-	-	-	11	-	-	-
Indigo Bunting.....	-	-	1	1	13	10	13	1	1	1	41	1	1	-
Dickcissel.....	-	-	2	-	-	3	3	1	1	1	11	-	-	-
Purple Finch.....	-	1	2	6	6	7	12	33	13	8	88	5	8	-
House Finch.....	-	-	-	-	-	-	-	1	16	6	23	1	15	3
Goldfinch.....	-	-	-	1	-	33	63	46	62	57	262	-	-	-
Towhee.....	2	2	8	10	22	49	142	52	12	3	302	22	14	4
Savannah Sparrow.....	-	21	73	96	179	213	307	122	70	20	1101	24	8	3
Grasshopper Sparrow.....	-	-	1	1	1	3	13	5	7	-	31	1	1	-
Sharp-tailed sparrow.....	-	2	6	1	9	3	11	1	1	-	34	-	-	-
Vesper Sparrow.....	-	-	2	-	-	1	6	15	12	4	40	-	-	-
Slate-colored Junco.....	-	-	-	6	43	396	1075	1554	1024	584	4682	137	12	5
Tree Sparrow.....	-	-	-	-	-	-	-	-	2	8	10	-	-	-
Chipping Sparrow.....	-	1	3	1	11	17	35	35	20	13	136	1	1	-
Field Sparrow.....	-	-	-	-	2	14	77	67	58	21	239	7	6	-
White-crowned Sparrow.....	-	-	-	-	1	3	51	45	8	5	113	7	5	1
White-throated Sparrow.....	-	-	1	9	76	294	608	342	157	144	1631	71	16	5
Fox Sparrow.....	-	-	-	-	-	1	1	-	11	7	20	-	-	-
Lincoln's Sparrow.....	-	-	3	2	11	17	10	-	-	-	43	2	17	-
Swamp Sparrow.....	-	-	1	5	18	75	181	95	65	20	460	13	12	1
Song Sparrow.....	48	115	78	103	173	343	787	619	374	143	2783	272	53	53
Other Species (below).....	3	7	11	9	14	10	11	6	9	2	82	-	-	-
TOTALS (132 species).....	202	482	795	1167	2156	3507	7292	5575	3371	1508	26055	1209	-	116
NET HOURS.....	241	1080	1338	1921	2411	2496	2937	2329	2082	1118	17953			

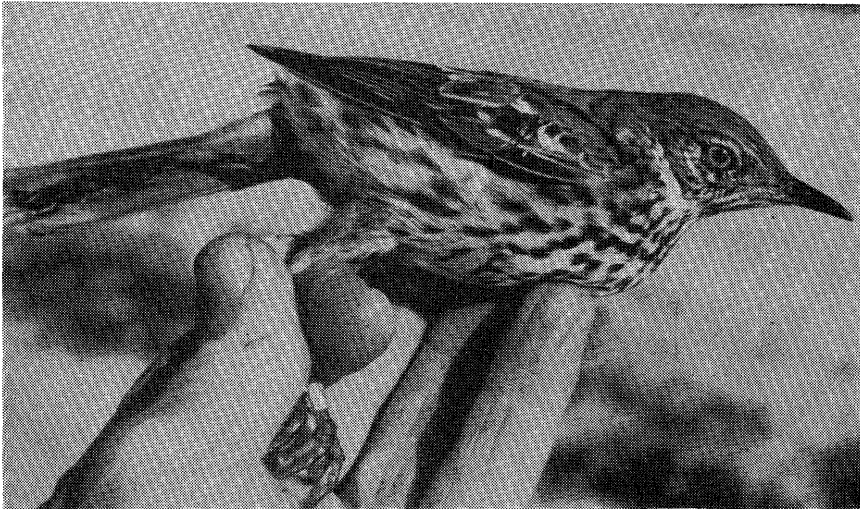
Green Heron (1), Pigeon Hawk (5), Sparrow Hawk (4), Clapper Rail (2), Black-bellied Plover (1), Common Snipe (1), Greater Yellowlegs (1), Dunlin (1), Semipalmated Sandpiper (1), Mourning Dove (5), Night-hawk (1), Kingfisher (5), Red-headed Woodpecker (4), Kingbird (3), Crested Flycatcher (2), Yellow-bellied Flycatcher (1), Cliff Swallow (1), Blue Jay (6), Sage Thrasher (1), Blue-Gray Gnatcatcher (1), North. Shrike (3), Loggerhead Shrike (1), Bells Vireo (1), Yellow-throated

Vireo (1), Warbling Vireo (2), Prothonotary Warbler (1), Yellow-throated Warbler (1), Pine Warbler (2), Hooded Warbler (1), Meadow-lark (2), Cardinal (1), Blue Grosbeak (1), Pine Siskin (4), Ipswich Sparrow (4), Henslow Sparrow (1), Seaside Sparrow (4), Lark Sparrow (1), Clay-colored Sparrow (1), Lapland Longspur (1), Show Bunting (1), Hybrid Sparrow (1).

Rarities

I believe more rare and unusual birds follow the outer barrier beach than migrate through the mainland of Long Island. As Table 1 does not show the date of banding rare birds captured, the following are listed more or less in order of rarity with measurements and weights:

	BANDED	WING (mm.)	TAIL (mm.)	WEIGHT (grams)
Sage Thrasher.....	Oct. 18, 1958	96	86	—
Bell's Vireo.....	Sept. 25, 1959	56	44	—
Yellow-throated Warbler.....	Oct. 6, 1962	65	48	8.2
Prothonotary Warbler.....	Sept. 13, 1962	—	—	—
Clay-colored Sparrow.....	Sept. 10, 1963	60	61	10.5
Blue Grosbeak.....	Oct. 22, 1962	86	67	30.3
Lark Sparrow.....	Sept. 19, 1962	86	62	26.7
Cliff Swallow.....	Sept. 12, 1962	—	—	—
Blue-gray Gnatcatcher.....	Oct. 3, 1964	51	47	6.4
Lapland Longspur.....	Oct. 4, 1960	91	59	—
Henslow's Sparrow.....	Oct. 9, 1963	51	47	10.8
Red-headed Woodpecker.....	Sept. 27, 1958	—	—	—
" " ".....	Sept. 20, 1963	141	81	69.0
" " ".....	" " "	138	82	69.5
" " ".....	Oct. 28, 1964	132	74	71.0
Ipswich Sparrow.....	Oct. 16, 1963	75	54	21.5
" " ".....	Oct. 23, 1963	74	58	24.3
" " ".....	Oct. 25, 1963	76	58	25.0
" " ".....	Oct. 19, 1964	76	52	24.2



Photograph by LeRoy Wilcox
Sage Thrasher Banded at Tiana Oct. 18, 1958

The Sage Thrasher, shown in the accompanying photograph, was the first to be banded east of the Mississippi River and I believe was only the second record for the East. The Bell's Vireo is the first definite record for the New York City-Long Island area. One was netted and collected at Island Beach, New Jersey, on September 15, 1959 which was the only definite record for New Jersey.

Recoveries

It would take too much space to list all 116 recoveries. The following are some of the more interesting recoveries of birds banded at Tiana.

BANDED	RECOVERED
Northern Waterthrush .. Sept. 27, 1958	Nov. 29, 1958, Caracas, Venezuela
Red-breasted Nuthatch... Oct. 13, 1959	Mar. 8, 1960, Hampton Bays, L.I., 3 Miles NE
Myrtle Warbler..... Oct. 17, 1959	Nov. 1959, Newfoundland
Myrtle Warbler..... Oct. 28, 1960	Oct. 2, 1961, St. Simeon, Quebec, Canada
Myrtle Warbler..... Oct. 24, 1963	Nov. 4, 1963, Riverhead, L.I., 11 Miles N
Slate-colored Junco Oct. 30, 1958	Feb. 27, 1959, Huntington, L.I., 44 Miles NW
Robin..... Oct. 30, 1959	Mar. 9, 1960, Tarboro, N.C.
Song Sparrow..... Oct. 31, 1959	Dec. 19, 1959, Speonk, L.I., 8 Miles W
White-crowned Sparrow. Oct. 10, 1960	May 10, 1961, West Coxsackie, N.Y., 130 Miles NW
Slate-colored Junco Oct. 27, 1960	Dec. 17, 1960, Arcadia, Mass., 97 Miles N
Slate-colored Junco Oct. 25, 1961	May 6, 1962, Castle Creek, N.Y. 175 Miles NW
Slate-colored Junco Oct. 28, 1963	Dec. 4, 1963, Greenwich, Conn., 58 Miles NW
White-throated Sparrow. Oct. 27, 1960	Oct. 30, 1960, Huntington, L.I., 46 Miles NW
Gray-cheeked Thrush .. Sept. 29, 1961	Oct. 6, 1961, Conn.
Flicker..... Sept. 25, 1962	Nov. 23, 1962, Hephzibah, Ga.
Cape May Warbler..... Oct. 2, 1963	Mar. 12, 1964, West Raleigh, N.C.
Cedar Waxwing..... Oct. 4, 1962	Mar. 9, 1964, Reavestown, Ala.
Hairy Woodpecker..... Oct. 21, 1963	Mar. 18-28, 1964, Speonk, L.I., 8 Miles W
Savannah Sparrow..... Sept. 26, 1964	May 1, 1965, Oakdale, L.I., 32 Miles W
House Finch..... Oct. 23, 1964	Mar. 6, 1965, Atlantic Beach, L.I., 65 Miles W
House Finch..... Oct. 28, 1964	Apr. 1, 1965, Blue Point, L.I., 27 Miles W

The above recovery of the Northern Waterthrush was only the second for the species and the first for South America. It was netted and released by Paul Schwartz, the tropical wildlife photographer. Reverse migration will be noted in two of the birds above; for example, the Myrtle Warbler that returned to Newfoundland a month later and the Junco that went back to Arcadia (Easthampton) Massachusetts 51 days later.

Only three birds caught at Tiana had been banded elsewhere.

BANDED	RECOVERED
White-throated Sparrow... Nov. 27, 1957, Ardmore, Pa.....	Oct. 30, 1958
Myrtle Warbler..... Sept. 17, 1959, Penobscot, Me.....	Oct. 13, 1959
Myrtle Warbler..... Sept. 19, 1959, Algonquin Park, Ontario, Canada.....	Oct. 15, 1959

Best Flight Days

It apparently takes good weather conditions to "trigger off" the large flights, such as clear skies, no wind or light wind (preferably north) and the passage of a cold front. Perhaps more important than the weather conditions at Tiana would be the weather at a point about 200 miles north of Tiana the evening before a big flight. The best flight days of each year are listed below along with weather conditions and temperature in degrees at daylight (about 6 AM) when netting operations began each day.

BIRDS NETS WEATHER TEMP.				BIRDS NETS WEATHER TEMP.			
1958				1962			
Oct. 31	344	9	Clear, Light NW	Oct. 11	651	13	Cloudy, No wind 52
Oct. 18	303	9	" " "	Oct. 12	464	16	Clear, " " 60
Oct. 30	296	7	" " "	Oct. 18	349	20	" " " 41
1959				Oct. 13	339	12	Cloudy, Mod. N 54
Oct. 5	391	14	Clear 63	Oct. 2	331	16	Clear 44
Oct. 16	313	12	" Light NE 38	1963			
Oct. 13	244	15	Pt. Cldy. " W 48	Oct. 17	416	18	Clear, Light N 55
Oct. 15	227	15	Cloudy, Mod. NE 46	Oct. 5	347	18	" " NE 40
Oct. 19	164	9	Clear, Strong N 37	Oct. 16	258	18	" No wind 48
1960				Oct. 9	232	19	" Mod. NE 50
Oct. 18	415	15	Clear, Mod. N 54	Oct. 1	222	20	" Light NE 40
Oct. 10	409	13	" Light S 49	1964			
Oct. 12	322	15	" Mod. N 44	Oct. 19	314	6	Clear, No wind 46
Oct. 13	311	15	" No wind 41	Oct. 12	301	10	" Light W 32
Oct. 27	266	15	Cloudy " " 42	Oct. 15	278	10	" No wind 44
1961				Oct. 28	266	10	" " " 42
Oct. 17	390	17	Clear, Light NW 39	Oct. 20	215	10	Cloudy, Light W 47
Oct. 10	355	11	" " " 53				
Oct. 13	320	17	Cloudy, " SW 60				
Oct. 7	271	15	Fog, No wind 49				
Oct. 9	236	16	Cloudy, No wind 61				

Weight Increase

By having the birds in hand one can measure wing and tail and obtain weights. I have hundreds of measurements and weights, too many to include in this paper, but I might mention that most birds take on weight after their flight to Tiana when they have remained there a few days. A few examples are given below.

BANDED WEIGHT		RECAP-	% IN-	
(grams)		TURED	CREASE	
		WEIGHT	(grams)	
Black-throated Blue Warbler.	Oct. 1, 1964	9.0	Oct. 3	10.3 14.5
Cape May Warbler.....	Sept. 25, 1964	9.1	Sept. 30	10.3 13.2
Yellowthroat.....	Aug. 29, 1964	10.6	Sept. 4	12.1 11.4
Lincoln's Sparrow.....	Oct. 5, 1963	16.4	Oct. 7	17.6 7.5
Swainson's Thrush.....	Sept. 28, 1962	28.1	Oct. 11	29.4 4.6

Subspecies

Also by having birds in hand, in some cases subspecies can be identified, such as Labrador Savannah Sparrow, Bicknell's Thrush, Acadian and Nelson's Sharp-tailed Sparrows and Western and Yellow Palm Warblers.

Out of 1101 Savannah Sparrows netted four were Labradors as follows: Oct. 27, 1959; Oct. 13, 1961; Oct. 28, 1963 wing 66, tail 50, weight 17.9 grams; Oct. 13, 1964 wing 66, tail 46, weight 17.5 grams.

Out of 66 Gray-cheeked Thrushes banded only 53 were measured. Of these I consider only six to be Bicknell's, netted as follows: Oct. 5, 1960 wing 88, tail 60; Sept. 30, 1961 wing 91, tail 68; Sept. 29, 1961 wing 95, tail 65; Oct. 9, 1961 wing 95, tail 64; Sept. 25, 1964 wing 96, tail 62, weight 28.1 grams; Sept. 28, 1963 wing 97, tail 62, weight 24.0 grams.

Out of 34 Sharp-tailed Sparrows netted one was Nelson's, Oct. 8, 1963 wing 55, tail 45, weight 11.4 grams. Three were Acadian: Oct. 27, 1959; Oct. 13, 1962; Oct. 9, 1962 wing 58, tail 47, weight 17.6 grams.

Out of 671 Yellow-shafted Flickers four appeared to be hybrids (cross between Yellow-shafted and Red-shafted) as follows: female Oct. 6, 1959, tail all red, fourth and fifth primaries in each wing red; female Sept. 27, 1961, tail all red, first four primaries in each wing red; female Sept. 21, 1962, sixth primary in each wing red; male Sept. 25, 1962, tail all red, second, third and fourth primaries in each wing red.

Other Observations

The Dickcissel a few years ago was a rarity on Long Island. One which I caught in a banding trap at Speonk on Oct. 16, 1929 was the first Long Island record since 1890. The bird has increased as a fall migrant in recent years; for example, eleven were caught at Tiana as follows: Oct. 24, 1958; Oct. 8, 1960; Oct. 7 and 13, 1961; Sept. 12, 1962 wing 76, tail 54, weight 24.2 grams; Sept. 10, 1962; Oct. 2 and 18, 1962; Oct. 5, 1963 wing 80, tail 55, weight 26.2 grams; Oct. 13, 1963; Oct. 29, 1964 wing 78, tail 50, weight 6.7 grams.

Three bats were netted in bright sunlight and possibly others that were not recorded. A Red Bat was caught Sept. 12, 1959 at 7:50 AM, a Red Bat on Sept. 6, 1961 at 8:10 AM and a Hoary Bat on Sept. 3, 1964 at 7:45 AM.

A hybrid (?) sparrow was netted on Oct. 10, 1961 with wing 75 and tail 59, forked tail but no white in tail. It bore a general resemblance to Vesper Sparrow and Savannah Sparrow and was possibly a hybrid of these two species. It was compared and photographed in hand with Song, Savannah and Vesper Sparrows and I have several close-up Kodachromes of the bird.

Many birds land on trawlers out in the ocean 10 to 30 miles offshore, mostly warblers but also others as Flickers and sparrows. Some are so exhausted they remain on board all the way back to shore. A Short-eared Owl was caught on a trawler at 12 noon on Oct. 13, 1961, ten miles offshore, was brought ashore and I banded it.

Spring Netting

The Tiana station was started as a fall project as part of "Operation Recovery" with the hope that some birds banded at other stations might be caught at Tiana or that some of the Tiana birds might be caught at other coastal stations. In the spring of 1964, while working on the Piping Plovers at the Shinnecock Bay area, I decided to do a little netting at Tiana to compare it with the fall netting. I netted for ten days from May 9 to 26 and banded 123 birds in 112 net hours for an average of 1.09 birds per net hour. The average for seven years in the fall was 1.45 birds per net hour. The surprising thing about this spring netting was the large number of recoveries (14) for so few birds handled, whereas in the fall there were only 116 recoveries out of 26055 birds banded in the seven years of operation.

Conclusions

The results of this netting at Tiana have been very surprising to me. Although I had birded on this outer strip for a great many years, I did not imagine there were so many birds present. Nets reveal in a much better way the numbers and species present than does observation just by eye. Of course, the nets only get a small segment of the actual number of birds present. Some birds were rarely seen before capture or after they were released; for example, although 43 Lincoln's Sparrows and 93 Yellow-breasted Chats were captured in the nets, I do not recall seeing any Lincoln's Sparrows and have seen only a couple of Chats. They stay secluded and close to the ground. Also, none of the leading rarities was seen before or after banding.

Much still remains unknown about the migration of birds along this outer beach. If there were several stations spaced about five to ten miles apart on the south shore of Long Island, we would obtain much more valuable data on their movements. For example, I would like to know how far individuals of each species move west along the beach during daylight hours and at what speed.

Oceanic Duck Farm, Speonk, Long Island, New York