

RETURN OF NORTHERN MIGRANTS TO TROPICAL WINTER QUARTERS AND BANDED BIRDS RECOVERED IN THE UNITED STATES

By Walter P. Nickell

There are many records of long-distance migrants returning one or more years to the same nesting locality and even to identical nest sites in the north. Further, there are within the last fifty years, numerous records in the literature of farther-north migrants such as the Tree Sparrow (*Spizella arborea*) and Slate-colored Junco (*Junco hyemalis*) which have returned to the same winter quarters at lower latitudes but not into the sub-tropics or tropics. Records of the return of northern migrants to identical tropical winter quarters are not common, probably because only within recent years have researchers in the tropics done extensive banding through the use of mist nets, to continue banding in the same net sets in successive years. As early as 1915 Baldwin, running a trapping station at Thomasville, Georgia, began to record such species as the White-throated Sparrow (*Zonotrichia albicollis*), White-crowned Sparrow (*Zonotrichia leucophrys*), Chipping Sparrow (*Spizella passerina*), Song Sparrow (*Melospiza melodia*), Hermit Thrush (*Hylocichla guttata*), and Myrtle Warbler (*Dendroica coronata*) (all undoubted migrants) as returning for several successive years to the same trapping station.

Apparently the first proof that migrants to the tropics often return to the same winter grounds was obtained by the late J. Van Tyne and A. Ledyard Smith (p. 110). Van Tyne banded 99 Indigo Buntings (*Passerina cyanea*) at Uaxactun, Guatemala during April 1931. In April 1932, at the same spot, Smith trapped six of the Buntings banded the year before.

Meinertzhagen (pp. 39 and 588) cites a record of a Ringed Gray Wagtail (*Motacilla cinerea*) reported by Salim Ali in 1947. This bird returned five years in succession to Dr. Ali's garden in Bombay. Also, he cited Egging's record of the return of the same Temmnick's Stint (*Calidris temmnickii*) on Lake Victoria, Nyanza, near the equator in successive winters. Further, Meinertzhagen states that Mr. Mavrogordato of Khartoum, in 1948, reported an adult female Peregrine Falcon (*Falco peregrinus*). The same bird was re-trapped on 7 November 1951 and was released in February 1952. The same belled bird was identified at Khartoum in November 1952 and was re-trapped at the same place on 24 February 1953.

D. W. Snow and B. K. Snow (pp. 351-352) reported the return of a Northern Waterthrush (*Seiurus noveboracensis*) to the same net set in two successive winters (10 and 23 December 1958 and 1959) in the northern range of Trinidad.

Paul Schwartz (pp. 481-484) reported the returns to winter homes on four Northern Waterthrushes near Caracas, Venezuela, in 1960 and 1962. The above returns to the same winter places represent 14 individuals of 5 species on 4 continents.

Dr. Pedro Galindo and Eustorgio Mendez reported returns to the same winter quarters on the Catbird (*Dumetella carolinensis*) and the Wood Thrush (*Hylocichla mustelina*) (pp. 233-239).

Loftin and others reported eight species of migrants which returned to identical winter quarters in Panama in 1963-1964 (pp. 35-43). These were the Broad-winged Hawk (*Buteo platypterus*), Ovenbird (*Seiurus aurocapillus*), Northern Waterthrush, Kentucky Warbler (*Oporornis formosus*), Mourning Warbler (*Oporornis philadelphia*), Yellow-breasted Chat (*Icteria virens*), Summer Tanager (*Piranga rubra*), and Rose-breasted Grosbeak (*Pheucticus ludovicianus*).

Various authors cited above have reported 11 species as returning to the same winter quarters in the American tropics. Seven of these species duplicate seven of my species returning to winter quarters, and four are species on which I have no returns. The four apparently new species are: Broad-winged Hawk, Kentucky Warbler, Mourning Warbler, and Wood Thrush. The seven that duplicate seven of my species are: Rose-breasted Grosbeak, Indigo Bunting, Summer Tanager, Ovenbird, Northern Waterthrush, Yellow-breasted Chat, and Catbird. From my total of 22 species returning to Tropical winter quarters, 15 species apparently are new to the literature. These are: Yellow-bellied Sapsucker (*Spyrapicus varius*), Great Crested Flycatcher (*Myiarchus crinitus*), Olive-sided Flycatcher (*Nuttallornis borealis*), Orchard Oriole (*Icterus spurius*), Blue Grosbeak (*Guiraca caerulea*), Painted Bunting (*Passerina ciris*), Rough-winged Swallow (*Stelgidopteryx ruficollis*), Yellow-throated Vireo (*Vireo flavifrons*), Yellow Warbler (*Dendroica petechia*), Magnolia Warbler (*Dendroica magnolia*), Yellow-throated Warbler (*Dendroica dominica*), Yellowthroat (*Geothlypis trichas*), Hooded Warbler (*Wilsonia citrina*), Wilson's Warbler (*Wilsonia pusilla*), and American Redstart (*Setophaga ruticilla*). Undoubtedly, there are other duplicates or new species either reported in the literature not available to me or as yet unpublished.

Acknowledgements

This paper is based on six expeditions to the Stann Creek Valley of British Honduras from 1960 through 1965, extending over a total period of 141 days of field work. Cranbrook Institute of Science financed the first trip; the following three were privately financed with considerable assistance from Stephen M. Stackpole of Grosse Pointe, Michigan. The final two were financed by the Virology Section of the Communicable Diseases Center at Atlanta. On the 1964 expedition I was a member of a six-man team comprised of Dr. Telford H. Work, Dr. Rexford Lord, Mr. Herbert Maxfield of the Virology Section, and Mr. Tom Rogers and Mr. David Hicks, then graduate students from the University of Georgia. In 1965 our party consisted of Dr. Lord, Mr. Maxfield, and myself. During this year we ran our nets in the Stann Creek Valley from 5 March through 17 March, then flew to La Lima,

TABLE 1. BIRDS BANDED IN STANN CREEK VALLEY, BRITISH HONDURAS 1960-1965

| Year | Month | Nets | Number of Species | | Number of Individuals | |
|------|---|------|-------------------|----------------|-----------------------|----------------|
| | | | <i>Migrant</i> | <i>Endemic</i> | <i>Migrant</i> | <i>Endemic</i> |
| 1960 | March 9-25 (17 days) | 6 | 21 (30%) | 49 (70%) | 435 (63.8%) | 247 (36.20%) |
| | | | TOTAL — 70 | | TOTAL — 682 | |
| 1961 | March 4-28 (25 days) | 12 | 26 (32.5%) | 54 (67.5%) | 1368 (74%) | 480 (26%) |
| | | | TOTAL — 80 | | TOTAL — 1848 | |
| 1962 | March 8- April 4 (28 days) | 20 | 33 (37.9%) | 54 (62.1%) | 2068 (67.10%) | 1011 (32.9%) |
| | | | TOTAL — 87 | | TOTAL — 3079 | |
| 1963 | March 21- April 21 (32 days) | 20 | 51 (46.78%) | 58 (53.22%) | 1241 (63.22%) | 722 (36.78%) |
| | | | TOTAL — 109 | | TOTAL — 1963 | |
| 1964 | March 12- April 1 (21 days) | 20 | 42 (39.62%) | 64 (60.38%) | 1236 (59.45%) | 843 (40.55%) |
| | | | TOTAL — 106 | | TOTAL — 2079 | |
| 1965 | March 5-14 and March 24-31 (18 days) | 16 | 42 (38.88%) | 66 (61.12%) | 830 (57.47%) | 614 (42.53%) |
| | | | TOTAL — 108 | | TOTAL — 1444 | |

Republic of Honduras, where we netted for six days (18 March through 23 March), then returned to operate our nets in the Stann Creek Valley from 24 March through 31 March.

Netting Habitats

Habitats in which our netting was done were somewhat varied, representing stream banks, margins of marshes, and drier situations. Very little virgin timber or tall jungles remain in Stann Creek Valley, which for many years was largely occupied by banana and cacao plantations but is now occupied by citrus groves. Our best netting locations were along the margins of citrus groves where second-growth jungles of native trees and shrubs fringed these cultivated areas. These jungles were very thick and mostly 8 to 15 feet in height. Experimental nets set up along taller jungle growth caught comparatively few birds.

Time of Day of Best Catches

From dawn (6:15 sun time) until 8 a.m. there was a much greater movement of birds than from the latter time until at least 4 p.m., when bird movement accelerated again, running until dark at 6:30 p.m. The interval between the early morning and late after-

TABLE 2. BIRDS BANDED IN STANN CREEK VALLEY, BRITISH HONDURAS
1960 - 1965 — SUMMARIES AND RETURNS

| | | | |
|---------------------------|------------------------------|---------------------------|------------------------------|
| Number of Migrants Banded | | Number of Endemics Banded | |
| 7178 | (64.7%) | 3917 | (35.3%) |
| Number of Migrant Species | | Number of Endemic Species | |
| 73 | (40.1%) | 109 | (59.9%) |
| Number of Orchard Orioles | | Number Returning 1961-65 | |
| 4476 | (62.4% 30.3% of total) | 108 | (2.5% of 1960-64 Banding) |
| Number of Indigo Buntings | | Number Returning 1961-65 | |
| 860 | (12.0% 7.8% of total) | 27 | (3.1% of 1960-64 Banding) |
| Number of Catbirds | | Number Returning 1961-65 | |
| 408 | (5.7% 3.7% of total) | 5 | (1.5% of 1960-64 Banding) |
| Orchard Oriole | 62.4% of all migrants banded | | |
| Indigo Bunting | 12.0% of all migrants banded | | |
| Catbird | 5.7% of all migrants banded | | |
| TOTAL | 80.1% of all migrants banded | | |

noon movements of many species, both migrants and individuals, was one in which the birds largely fed quietly in the shade of the deepest foliage, protected from the fierce rays of the tropical sun. We learned on our first expedition that almost any species of bird captured in a net in the open sunlight did not normally survive more than five minutes; hence, from that time on we either ran our nets continuously or furled them until the last two hours of sunlight before dark. We never left our nets open at night because of the abundance of many species of bats that became greatly entangled and chewed large holes in the mesh. Our daily schedule was to arise at 4 a.m., drive 10 or 12 miles from our lodging to the netting station, opening the nets just before dawn. We were back at our lodging usually by 9 a.m. with gathering cages containing sufficient birds to keep us occupied for about three hours. During the hottest part of the day (about 12 to 3 p.m.) we made up lost sleep before driving back and opening the nets for the evening catch.

Roosting and Feeding Areas

Early in our netting in Stann Creek Valley we learned that, by studying the early morning and late afternoon movements of

TABLE 3. RETURNS TO THE SAME WINTER QUARTERS — MIGRANTS

| | | | |
|---|------------|---|---------------|
| No. of Species Banded | 73 | No. of Species Returned | 22 (30.1%) |
| No. of Individuals Banded | 7178 | No. of Individ. Returned | 191 |
| *Russell's Migrant Warblers 37 species | | Nickell's Banding (72.9% of Russell's) | 27 species |
| Nickell's Warbler Returns (37% of Nickell's) | 10 species | Individ. Returning Twice | |
| | | Orchard Oriole | 1 |
| | | Magnolia Warbler | 1 |
| <hr/> | | | |
| Returned Next Year After Banding | | | |
| Yellow-bellied Sapsucker | 1 | Magnolia Warbler | 1 |
| Crested Flycatcher | 1 | Yellow-throated Warbler | 1 |
| Olive-sided Flycatcher | 1 | Ovenbird | 1 |
| Orchard Oriole | 72 | Northern Waterthrush | 3 |
| Rose-breasted Grosbeak | 1 | Yellowthroat | 10 |
| Blue Grosbeak | 1 | Yellow-breasted Chat | 5 |
| Indigo Bunting | 25 | Hooded Warbler | 2 |
| Painted Bunting | 4 | Wilson's Warbler | 1 |
| Rough-winged Swallow | 1 | Redstart | 6 |
| Yellow Warbler | 3 | Catbird | 5 |
| | TOTAL | 145 | |
| <hr/> | | | |
| *(pp. 150-161) | | | |
| <hr/> | | | |
| Individuals Returning Two Years Later | | | |
| Orchard Oriole | 16 | Bank Swallow | 1 |
| Rose-breasted Grosbeak | 1 | Yellowthroat | 2 |
| Indigo Bunting | 1 | Yellow-breasted Chat | 2 |
| | TOTAL | 23 | |
| <hr/> | | | |
| Individuals Returning Three Years Later | | | |
| Orchard Oriole | 18 | Magnolia Warbler | 1 |
| Yellow-throated Vireo | 1 | | |
| | TOTAL | 20 | |
| <hr/> | | | |
| Individuals Returning Four Years Later | | | |
| Orchard Oriole | 2 | Indigo Bunting | 1 |
| | TOTAL | 3 | |
| <hr/> | | | |

birds, we could determine the main lines of flight between the roosting grounds and feeding grounds of such flocking species as the Orchard Oriole and the Indigo Bunting. I observed that numbers of birds, in approaching a quarter-mile-wide open area represented by a young orange grove, alighted in the tops of the eight-foot high jungle growth and then, as if by pre-arrangement, left their perches and flew with great speed across the open area. Mist nets, set so that the top mesh were within a few inches above the level of the vegetation, caught large numbers of them. On one

TABLE 4. RECOVERIES OF ORCHARD ORIOLES BANDED IN STANN CREEK VALLEY, BRITISH HONDURAS, AND RECOVERED IN THE UNITED STATES OR ELSEWHERE.

| Band Number | Age-Sex | Date Banded | Date Recovered | Place Recovered |
|-------------|---------|-------------|----------------|---|
| 29-195531 | A ♂ | 3-25-61 | 6-26-61 | N. W. Georgia lat. 35° long. 85° 30' |
| 29-163487 | A ♂ | 3-20-61 | 5-26-61 | N.-Cent. Alabama lat. 35° long. 87° |
| 29-163435 | A ♂ | 3-19-61 | 7-17-62 | N.-West. Arkansas lat. 35° 25' long. 94° 25' |
| 32-142831 | A ♀ | 3-25-63 | 6-15-63 | N.-West Georgia lat. 34° 15' long. 85° |
| 30-191678 | A ♂ | 3-24-62 | 6-27-64 | N.-East Ohio lat. 41° 40' long. 81° |
| 33-157032 | I ♂ | 3-28-63 | 6-21-64 | Western N. Carolina lat. 35° 30' long. 83° 30' |
| 29-193262 | A ♂ | 3-17-65 | 5-1-65 | Western Mississippi lat. 33° long. 91° |
| 60-115636 | I ♂ | 4-1-62 | 12-0-66 | Famarindo Canton, Chalatenango N. El Salvador Cent. Amer. lat. 14° long. 89° |

catch in 1962 I netted a total of 270 Orchard Orioles in this type of situation.

Winter Residents and Migrants

Several species of northern migrants, as judged by numbers of individuals netted and the time of netting, were undoubtedly regular winter residents in the Stann Creek area and as far south as La Lima, Honduras (where netting was done for six days in 1965). Of the 7,178 migrants banded in six years in Stann Creek Valley, 4,476 (62.35 percent) were Orchard Orioles, placing this species as the most abundant winter resident. The second winter resident in numbers banded was the Indigo Bunting with 860 individuals (11.35 percent). Third was the Catbird with 408 individuals (5.68 percent of the total). These three totaled 80.1 percent of all migrants banded. Three percent of all migrants banded through 1964 returned to the same winter quarters within one to four years of the time of banding.

TABLE 5. REPEATS, RETURNS AND RECOVERIES ON BIRDS BANDED AT LA LIMA, HONDURAS BY KENNETH HAMILTON AND GEORGE WILSON, 1963-1965

*Banded by Kenneth Hamilton
xBanded by George Wilson

| Species | Sex | Band No. | Date of Banding | | |
|------------------------|-----|-------------------|-----------------|-------------------------|---|
| | | <u>Repeats</u> | | <u>Date of Repeat</u> | |
| Orchard Oriole | ♀ | 104-104015* | 12-21-64 | 3-18-65 | |
| Orchard Oriole | I♂ | 103-129029x | 12-12-64 | 3-18-65 | |
| Orchard Oriole | I♂ | 104-104939x | 1-10-65 | 3-18-65 | |
| Orchard Oriole | ♂ | 104-104946x | 12- 4-64 | 3-20-65 | |
| Baltimore Oriole | I♂ | 68-111772x | 12- 7-64 | 3-19-65 | |
| Baltimore Oriole | ♂ | 65-192391* | 11-26-64 | 3-19-65 | |
| Baltimore Oriole | I♂ | 68-136612x | 12-20-64 | 3-21-65 | |
| | | <u>Returns</u> | | <u>Date of Return</u> | |
| Orchard Oriole | ♂ | 102-116204* | 1- 5-64 | 3-18-65 | |
| Orchard Oriole | ♂ | 33-174196* | 12-11-63 | 3-18-65 | |
| Rose-breasted Grosbeak | ♀ | 64-126130* | 10-26-63 | 3-18-65 | |
| Summer Tanager | ♀ | 33-174095* | 11- 9-63 | 3-21-65 | |
| | | <u>Recoveries</u> | | <u>Date of Recovery</u> | <u>Place Recovered</u> |
| Orchard Oriole | ♀ | 33-174235* | 4 -6-63 | 5- 9-63 | E. Cent. Ohio lat. 39° 50' long. 80° 50' |
| Orchard Oriole | ♂ | 33-174215* | 12-14-63 | 4- 7-64 | E. Cent. Miss. lat. 32° 50' long. 88° 50' |
| Baltimore Oriole | ♂ | 64-126200* | 12- 8-63 | 6-25-64 | S. W. Ontario lat. 44° 20' long. 80° 30' |

Percentages of Northern Migrants and Endemics Banded

The results from nine separate banding stations set up along a 21-mile-long area in Stann Creek Valley, running from Stann Creek on the Caribbean to Middlesex, during the six-year period, showed that by individuals 64.7 percent were northern migrants. By species, almost the reverse was true: 59.9 percent were endemics and 40.1 percent were northern migrants. Table 1 shows percentages of migrants and endemics by year and the number of 40-foot nets used at each major station. There is little doubt in my mind that the number of individual northern migrants wintering in the Stann Creek Valley is considerably greater than individuals of endemic

species, and that the northern migrants move out of the area to their own nesting grounds in more northern latitudes at about the time that the majority of the endemics are engaging in most of their nesting activities. Of course, there are a number of species that winter in the southern portion of mid-America and even in South America which are not normally found in Stann Creek Valley in any numbers or at all, and which are transients from more southern latitudes. Some species like the Ovenbird, the Catbird, and several others that may be found in winter quarters from Mexico to northern Panama show an increase in numbers in the last week in March and through the month of April because of migration from farther south. Those, like the Orchard Oriole and the Indigo Bunting, appear to reach their maximum wintering numbers south of Yucatan and well into the Republic of Honduras, hence are more abundant prior to the start of their migration northward. Most Orchard Orioles have left British Honduras by the end of March, while most Indigo Buntings may remain for almost another month. A total analysis of all species banded would show similar variation with several other species. A consensus of researchers working in the tropics from Mexico southward appears to be that such Thrushes as the Swainson's (*Hylocichla ustulata*), Gray-cheeked (*Hylocichla minima*), and Veery (*Hylocichla fuscescens*) winter largely in South America, hence appear in any appreciable numbers in Stann Creek Valley only in migration. This migration occurs largely from mid-April through the rest of the month. This is borne out by the time of arrival in greatest numbers of these thrushes at the first landfill in the lower Delta of the Mississippi River after trans-Gulf flights, from about the beginning of the third week in April into early May. Extensive netting by a team and myself during the last three years near Pilottown, Louisiana, substantiates this point.

Recoveries and Returns of Birds Banded in British Honduras and Republic of Honduras

In addition to the various aspects of banding and return, recoveries and returns of birds banded by Mr. Kenneth S. Hamilton and Mr. George Wilson of the Division of Tropical Research, Tela Railroad Company, La Lima, Honduras, are included in Table 5. Lists of birds banded by Hamilton and Wilson from the fall of 1963 through early spring of 1965 prove very strongly that the La Lima area, which is in the middle of a 100,000-acre banana plantation, is wintering ground for large numbers of northern migrants, at least one species of which is not common in Stann Creek Valley during the winter season. This is the Baltimore Oriole (*Icterus galbula*). From 1 November 1964 to 18 April 1965 Wilson banded 175 Baltimore Orioles, 423 Orchard Orioles, and 62 Indigo Buntings from three 40-foot nets in his yard. Undoubtedly these birds had been in the La Lima area since their arrival in late October and early November. In six days, from 18 March through 23 March 1965, my banding team, consisting of Dr.

Rexford Lord, Mr. Herbert Maxfield, and myself, banded 179 Orchard Orioles, 40 Baltimore Orioles, and 289 Indigo Buntings. In addition, we captured by net 5 Orchard Orioles banded by Hamilton and Wilson in the latter part of 1964 and early 1965, showing that these birds were undoubtedly winter residents in the area (Table 5). Three Baltimore Orioles banded by Hamilton and Wilson during the same period were winter residents. Returns were obtained on one Orchard Oriole, one Rose-breasted Grosbeak, and one Summer Tanager, all banded by them in late 1963 (Table 5).

Hamilton banded at La Lima, and received recoveries on, two Orchard Orioles from the United States and one Baltimore Oriole from Canada. These are listed in Table 5.

SUMMARY

1. Eight netting stations were set up in Stann Creek Valley, British Honduras, during six successive expeditions in March and April 1960-1965. In 1965, from 18 March through 23 March, two netting stations were set up in the vicinity of La Lima, Honduras.

2. Forty-foot nylon nets of one and one half inch mesh were used. Table 1 summarizes the data by year, duration of use and of nets used.

3. Table 2 lists total numbers of species and individuals, and percentages of northern migrants and endemics banded during the six-year period. It also lists the three most abundant species banded.

4. Table 3 summarizes returns of northern migrants to the same winter quarters, and the period from banding to return. Of the 41 species of Parulidae in Russell's monograph (see reference), 37 species are northern migrants (Table 3). Of these 37 northern migrants species I banded 27, or 72.9 percent. I have had returns to winter quarters on 10 species, or 37 percent of those I banded.

5. Table 4 shows seven recoveries of Orchard Orioles banded in British Honduras by me and recovered from latitude 33° and longitude 91°, to latitude 41° 40'' and longitude 81°.

6. Table 5 lists repeats, returns, and recoveries on birds that were banded by Kenneth Hamilton and George Wilson at La Lima, Honduras, from the late fall of 1963 through the early spring of 1965. The repeats and returns were captured by me during my expedition and correlated with the banding data of Hamilton and Wilson. Recoveries were obtained from the Fish and Wildlife Service.

7. Most records of the return of northern migrants to identical tropical winter quarters anywhere in the world have been obtained within recent years since the use of mist nets in banding.

8. Studies of habitats; time of day of best catches; roosting and feeding areas; abundance of both northern migrants and endemics; and undoubted proof of winter residence of northern migrants have been obtained.



9. Apparently, recoveries and migrants banded in tropical winter quarters in migration from more southern areas and recaptured during migration or in northern nesting areas are even more uncommon than returns to tropical winter quarters. This, too, appears to be the result of more recent netting operations in tropical areas by a larger number of banders.

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