JOURNAL OF FIELD ORNITHOLOGY
Formerly BIRD-BANDING
A Journal of Ornithological Investigation

VOL. 54, NO. 3 SUMMER 1983 PAGES 225–352

J. Field Ornithol., 54(3):225–236

MOVEMENT OF MARKED ROSEATE SPOONBILLS IN FLORIDA WITH A REVIEW OF PRESENT DISTRIBUTION

BY WILLIAM B. ROBERTSON, JR., LORRAINE L. BREEN, AND BARBARA W. PATTY

At the time of Robert P. Allen's classic study of the species (Allen 1942), the known breeding population of Roseate Spoonbills (*Ajaia ajaja*) in Florida numbered fewer than 30 pairs and little could be determined concerning movement of juveniles fledged in Florida. As of the 1978–1979 nesting season, the breeding population of the Florida Bay-southern mainland region of Everglades National Park had increased to approximately 1400 pairs (this study) and color-marking for study of movement and population biology was judged to be an acceptable risk. Here we report on movement of marked Roseate Spoonbills, wear of patagial markers, and changes in the distribution and seasonal occurrence of the species in Florida and the southeastern United States that have become evident since the subject was last reviewed (Palmer 1962).

METHODS

Markers used in the study were: a 5 × 12.5 cm rectangle of heavy, dark-green plastic (Herculite, Herculite Protective Fabrics Corp., Newark, New Jersey) attached through the right patagium by means of a pin assembly (All-flex polyurethane ear buttons, Delta Plastics, Palmerston North, New Zealand, obtained from National Band and Tag Co., Newport, Kentucky); two colored plastic bands (yellow indicating the 1978–1979 year-class and purple, red, or green indicating natal colony) placed above the tarsal joint on the right leg; and a U.S. Fish and Wildlife Service metal band placed above the tarsal joint on the left leg. We cut down the ear buttons used to attach the patagial markers from the original 2.9-cm diameter to 1.9 cm, because we had noted that the larger buttons tended to irritate an area on the underside of the wing. Use of the smaller size seemed to eliminate this problem. We marked 202 Roseate Spoonbills in late January and February 1979 at three nesting colonies in Florida Bay (Fig. 1). Most were nestlings 4 to 5 weeks old caught by hand in or near nests, but the sample included about 15 older

fledglings captured at large in the colonies and 33 smaller nestlings approximately 3 weeks old. The latter group was marked with leg bands only. Numbers banded in each colony and (in parentheses) the number also marked with patagial tags were: Big Tern Key, northeastern Florida Bay, 136 (125); West Oyster Key, northwestern Florida Bay, 35 (15); and Buchanan Keys, extreme southern Florida Bay, 31 (29). The colony on Big Tern Key, by far the largest known in Florida, contained 591 nests in the 1978–1979 season, West Oyster Key had 64 nests and Buchanan Keys, 148 nests. In April 1979, after most spoonbills had left Big Tern Key, we searched the colony and found the remains of 5 nestlings marked with patagial tags. From this mortality (4%, 5 of 125), we estimate that a maximum of 162 juveniles carrying patagial tags survived to leave their natal colonies. We have no later information on the younger nestlings marked with leg bands only.

The Roseate Spoonbill marking project was not extensively publicized. We sent notices soliciting reports of the marked birds to state and federal land management agencies with holdings in peninsular Florida, to local conservation groups, and to biologists whom we knew were conducting field studies of wading birds.

RESULTS

Movement patterns.—Up to 1 July 1982, when they were approximately 42 months old, we had received 15 reports of marked Roseate Spoonbills (Table 1, Fig. 1), all from mainland localities north of Florida Bay. One was found dead; the other records were of live birds supplemented in 3 instances by color photographs. Dispersal of fledgling spoonbills begins as early as the first half of March, but our first record of a marked bird away from the nesting colonies was in mid-April. Thereafter, 3 reports in May 1979 indicated fairly rapid northward movement and the most distant occurrences—400 km north on the Atlantic coast and 320 km north on the Gulf coast—were reported in mid-summer of the first year. The 5 sightings from which the natal colony could be identified all involved nestlings marked on Big Tern Key and reported from the southwestern mainland or the Gulf coast. Except for 3 reports of first-year birds (2 in early May and 1 in July), all observations of marked spoonbills were from localities at or very near the coast. Reports in early November 1979 from coastal Dade County and in February 1980 from the Ten Thousand Islands region of Collier County indicated that the first-year birds wintered along the coasts of southern peninsular Florida. We have too few observations of marked individuals in their second and later years to show seasonal patterns of movement clearly. However, the records suggest that Roseate Spoonbills of these age classes also tend to move north along the coasts in summer and return to southern Florida in winter.

Colored leg bands seemingly contributed nothing to the likelihood of observation of marked Roseate Spoonbills. We received no reports of the nestlings marked with leg bands only and only 3 reports of the birds marked with patagial tags (1 found dead, 2 seen by observers who

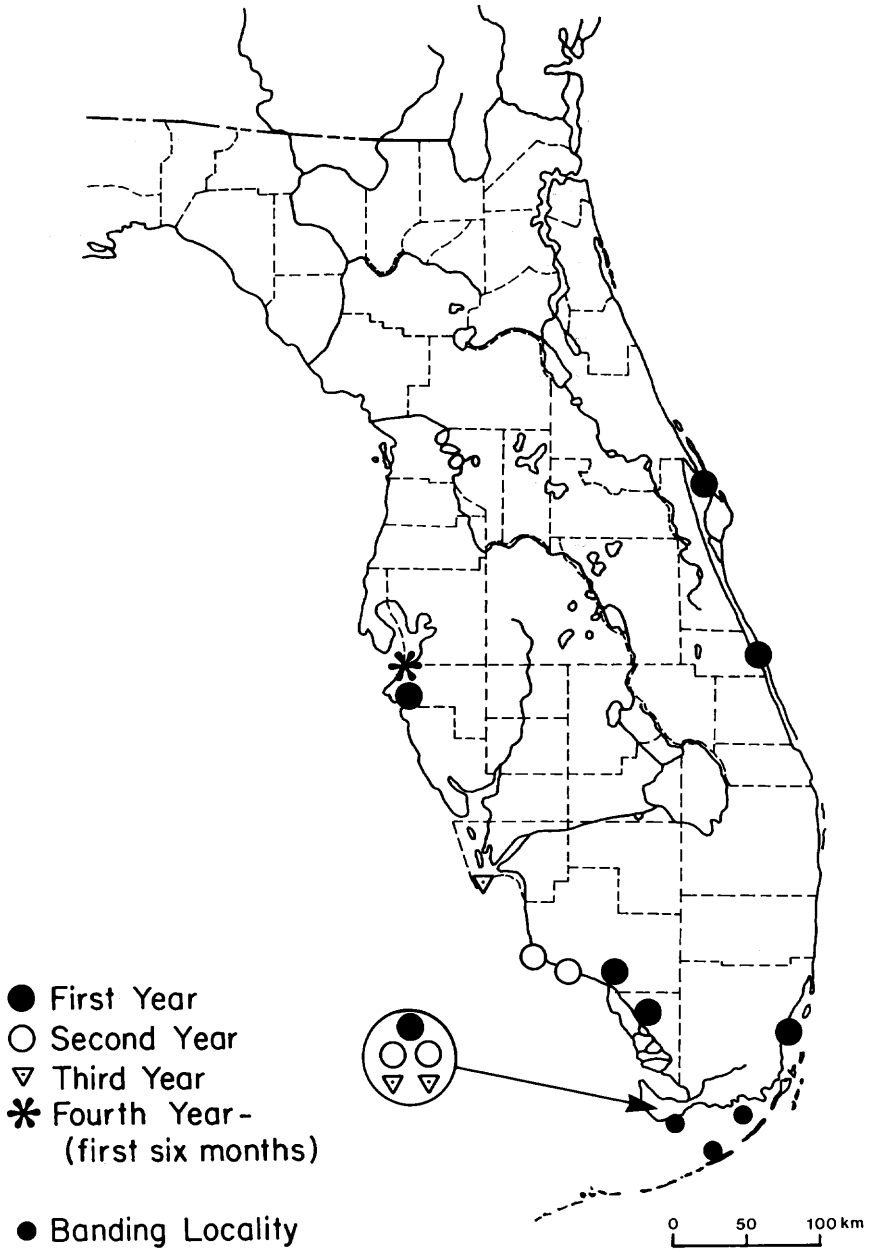

FIGURE 1. Sightings to 1 July 1982 of Roseate Spoonbills marked as nestlings in January–February 1979, at 3 nesting colonies in Florida Bay (smaller solid circles). Solid circles indicate observations during the birds' first year (1 January 1979 is taken to be the approximate hatching date for all birds marked); open circles, observations during the second year; open triangles, observations during the third year; and asterisk, the one observation during the first six months of the fourth year.

TABLE 1. Observations of marked Roseate Spoonbills.

Location	Date	Natal colony	Comment
Flamingo, Everglades National Park, Monroe Co.	14 April 1979	?	
Turner River at Tamiami Trail (U.S. Rt. 41), Big Cypress National Preserve, Collier Co.	3 May 1979	Big Tern Key	
Gatorhook Strand, Big Cypress National Preserve, Monroe Co.	4 May 1979	Big Tern Key	Found dead
5 km south of Vero Beach, Indian River Co.	14 May 1979	?	
Merritt Island National Wildlife Refuge, Brevard Co.	18 June 1979	?	
16 km east of Bradenton, Manatee Co.	27 July 1979	?	
Tahiti Beach, Coral Gables, Dade Co.	6 November 1979	?	
Mud Bay, Collier-Seminole State Park, Collier Co.	? February 1980	?	
Flamingo, Everglades National Park, Monroe Co.	14 June 1980	Big Tern Key	Photographed
Flamingo, Everglades National Park, Monroe Co.	24 June 1980	?	
Near Hurricane Pass, Marco Island, Collier Co.	27 September 1980	Big Tern Key	Photographed
Near Coot Bay, Everglades National Park, Monroe Co.	16 February 1981	?	
Flamingo, Everglades National Park, Monroe Co.	27 May 1981	Big Tern Key	Photographed
Ding Darling National Wildlife Refuge, Sanibel Island, Lee Co.	? June 1981	?	
Redfish Creek, near Port Manatee, Manatee Co.	24 May 1982	?	

knew the marking scheme) also mentioned the color bands. For 2 additional reports, where observers sent us photographs of marked birds, we determined color-band combinations by examining 35-mm color transparencies under a microscope.

Wear of patagial markers.—Three photographs (Flamingo, Monroe County, 14 June 1980, J. Alverez-Diaz; loc. cit., 27 May 1981, C. Laabs; near Marco Island, Collier County, 27 September 1980, T. H. Below) afforded a basis for studying wear of patagial tags of known age (Table

TABLE 2. Wear of known-age Herculite patagial tags on Roseate Spoonbills.

Date	Tag age (months)	Condition of tag
14 June 1980	16.5	Plastic coating gone from ca. .65 cm strip entirely across tag ca. 2.5 cm behind attachment and from ca. .3 cm area all around eroded margins; distal corners of tag frayed.[1]
27 September 1980	20	Similar to above, but areas without plastic appear larger; distal edges ragged with dangling shreds of white matrix material.
27 May 1981	28	Distal two-thirds of tag missing, only the portion around the attachment remains; edges of remaining tag frayed.[2]

[1] A sketch of a tag on the marked bird seen loc. cit., 24 June 1980 (P. Matzner), also indicates a white strip across the tag just behind the point of attachment. This may have been the same individual, but many Roseate Spoonbills frequent the area.

[2] Tags apparently wear much more slowly after reaching this state, as one on the bird seen 24 May 1982 (R. T. Paul, in litt.) was in approximately the same condition.

2). The pattern of wear of Herculite was generally similar to that described by Nesbitt (1979) and Platt (1980). Deterioration seemed to occur by loss of the colored plastic coating followed by fraying of the nylon mesh which makes up the body of the material. The coating was lost first around the edges of the tag and in an area crossing it about 2.5 cm distal to the point of attachment. The latter may be the region of greatest stress on the tag when the bird is flying, and, ultimately, tags probably tend to break there leaving about 20 cm^2 of marker material around the attachment. In the present set of conditions, wear substantially reduced the visibility of Herculite patagial tags after about 2 years. A more durable marker would be needed in order to follow movement of Roseate Spoonbills for their entire period of immaturity (estimated to be at least 4 years, Patty et al. unpublished data). Nesbitt (1979) suggested a possible alternative material.

From the above photographs and specific comments in observers' accounts of 4 additional birds, it appeared that the patagial tags had no obvious adverse effects on the marked spoonbills. Tagged individuals were said to have behaved normally, and no displaced, roughened, or unmolted feathers were evident around the tags.

DISCUSSION

Observed movement.—To the extent that negative data are indicative, all of the marked spoonbills left southern Florida within about 2 months after they fledged, and their dispersal was directional to the north, rather than explosive. From April through October 1979, we carried out air and boat surveys of wading birds in Florida Bay and the southern main-

land at least monthly and saw no marked spoonbills. Also, none was reported in the Lower Florida Keys by observers who had been alerted about the marking project. While the chance of receiving information from areas south of Florida (Bahamas, Cuba) was almost nil, we believe that surveillance of the Florida Keys was adequate to detect southerly movement.

The first-year observations in southwest Florida of marked spoonbills from Big Tern Key suggested that juveniles from colonies in eastern Florida Bay do not necessarily take the more direct coastal route northward and that the principal dispersal may follow the Gulf coast. Flocks of newly fledged juveniles occur in the interior of southern Florida as they disperse from nesting colonies, but the extent of occurrence varies widely from year to year apparently in relation to water levels and feeding conditions in interior marshes. The few inland records in 1979 probably reflected the extreme, unseasonal rainfall of 22–25 April (South Florida Water Management Dist. 1979) which resulted in deep flooding of interior wetlands throughout southern Florida. Observations of atypical feeding behavior by juvenile spoonbills in the southern interior at this time (Russell 1982) suggested poor feeding conditions.

The seasonal movement of second-year and older sub-adults may be even more opportunistic in relation to feeding conditions than seems to be the case with the dispersal of first-year birds. Thus, aggregations that included marked birds persisted into late June 1980 and late May 1981 (C. Laabs, pers. comm.) at ponds near Flamingo, Monroe County, and then dispersed as onset of the rainy season (1980) or prolonged drought (1981) changed local water levels in ways that probably reduced food availability. The 27 September 1980 record from the coast of Collier County followed a three-month hiatus in reports of marked birds from southern Florida and coincided with the appearance of more than 100 spoonbills at a wading bird roost near Marco Island. Because spoonbills seldom occur in numbers at this roost, the observer suggested (T. H. Below, in litt.) that the birds in question probably were migrants, presumably southbound.

Few occurrence data based on band recoveries were available previously for Roseate Spoonbills in Florida. Through August 1981, the records of the Bird Banding Laboratory, U.S. Fish and Wildlife Service (M. K. Klimkiewicz, in litt.), indicated that 30 (other than those in this study) had been banded in Florida, none banded in Florida had been recovered and none banded elsewhere had been recovered in Florida. The Bird Banding Laboratory apparently has no record of the spoonbills (presumably summering sub-adults and doubtless only a few individuals) said to have been captured by night-lighting and banded near Duck Rock, Monroe County, in the late 1930's (Reimann 1940:39–40). Allen (1942:43) referred to ". . . an immature Spoonbill marked in the Florida Bay colony with a colored celluloid band and observed in Duck Rock Cove a year and a half later." And (*in* Palmer 1962:536), he also noted, "Color-banded young have been recovered in Dade Co. (Florida City)

and near Duck Rock on sw. coast." No other information about this early color-banding seems to be available, as we could find no mention of it in Allen's notebooks and correspondence concerning spoonbills. The record of a color-banded bird near Duck Rock somewhat extends the area in which second-year spoonbills reared in Florida are known to occur in summer. Without knowing the recovery date, no comment on the Florida City record is possible.

Rate of return.—The 9% rate of return over 42 months (15 reports from a dispersing marked sample of 162) was far less than that commonly attained in marking programs using plastic wing-tags on waterbird species that frequent beaches and marinas (e.g., Southern 1971, Schreiber 1976), but it compared reasonably well with similar marking studies of other wading birds in the Southeast. Thus, 1077 nestling Wood Storks (*Mycteria americana*) marked with patagial tags in Florida in 1975–1979 (J. C. Ogden pers. comm.) had yielded 209 reports (19%) as of June 1982; and 285 nestling White Ibis (*Eudocimus albus*) marked in South Carolina in the summer of 1980 (P. Frederick pers. comm.) had yielded 10 reports (3.5%) after one year.

Distributional changes.—As of the early 1940's (Allen 1942), the Roseate Spoonbill population of Florida consisted of: 40 to 50 adults that nested in winter in Florida Bay; a few adults thought to nest in summer somewhere on the southern mainland; and some 500 non-breeders, ranging in age (approximately) from 13 to 28 months, that summered along the Gulf coast from Tampa Bay south. Adults after breeding in Florida and sub-adults after summering in Florida disappeared for parts unknown. As Allen (1942:43) noted, ". . . the relatively small numbers of birds comprising the Florida Bay population and the few breeding pairs encountered on the mainland cannot possibly account for the numbers that appear on the southwest coast in May." To explain these occurrence data, Allen (1942, *in* Palmer 1962) suggested that the Florida population was the extension of larger populations farther south from which a few breeders and many sub-adults regularly migrated to Florida in fall and spring, respectively. Cuba was considered the most likely source of spoonbills seen in Florida (but see Barbour 1943:18–19) and Allen cited several observations that seemed to indicate movement between Florida and Cuba. Except for these inconclusive records, the proposed migrations were (and remain) hypothetical.

Increase in the number of Roseate Spoonbills breeding in Florida (approximately 50× over the past 40 yrs) has been accompanied by extension of the breeding range in southern Florida, northward expansion of the area regularly reached by spoonbills in summer dispersal, and increasing numbers of non-breeders wintering in Florida. Below, we discuss these changes especially as they bear upon overall concepts of seasonal movement of the Florida population.

The breeding range apparently expanded from nucleus colonies in northeastern Florida Bay (Bottle Key, Stake Key, possibly Manatee Key) which were the only nesting localities definitely known in Florida in

1940. Increase at the original sites was followed by establishment of new colonies on nearby islands ultimately involving most of the ecologically suitable nesting areas in eastern Florida Bay. As of the 1951–1952 season, Allen (*in* Brookfield and Bennett 1952) reported more than 250 pairs nesting at 9 locations. During the late 1950's and the 1960's, colonies appeared on islands scattered throughout southern and western Florida Bay. In all, spoonbills are known to have nested at approximately 25 locations in Florida Bay, but not all sites are occupied every year. By the early 1970's, Roseate Spoonbills had begun to frequent colonies of herons, White Ibis, and Wood Storks on the southern mainland where the species had nested in diminishing numbers into the 1930's. Successful nesting in a mainland colony was confirmed at Lane River Rookery in 1975 (Ogden 1975), and, in the same year, spoonbills also nested in the Alafia Banks area of Tampa Bay (Dunstan 1976), near the northern limit of their historical breeding range on the Gulf coast of Florida. Nesting in the mixed-species colonies of wading birds on the southern mainland and in Tampa Bay has persisted and nesting was suspected, but not confirmed, at several localities on the southern Gulf coast, and in Brevard County on the central Atlantic coast (Cruickshank 1980).

Expansion of the summer range of non-breeding or post-breeding Roseate Spoonbills coincided closely with the resurgence of the breeding population in southern Florida. The most notable expansion occurred along the Atlantic coast where the species had been known only as a rare vagrant for nearly a century prior to about 1950. In and around Brevard County, spoonbills began to be reported more frequently in the early 1950's, and they now occur regularly from late March into October in groups of as many as 100 (Cruickshank 1980). In northeastern Florida (St. Johns, Duval, and Nassau counties), the first modern record in 1958 was followed by at least 7 occurrences during the 1960's and 40 or more through the 1970's to date (R. W. Loftin, in litt.). A 1961 report from the Brunswick area (Chamberlain 1962) was considered to be only the second acceptable record in Georgia (Burleigh 1958), but spoonbills are now regarded as ". . . regular in summer and early fall in coastal Georgia" (Le Grand 1980). Southeastern Georgia appears to be the present limit of regular summer dispersal on the Atlantic coast, but at least 10 records are available for coastal South Carolina and North Carolina from the 1960's to date (H. E. Le Grand, Jr., in litt.; R. W. Loftin, in litt.). Although most of the northward occurrences have been in tidewater areas, reports from the interior of central and northern Florida (e.g., Ogden 1975) and from inland Georgia (Denton et al. 1977) also increased markedly in the 1970's. Extensive inland dispersal in the Southeast in the summer of 1972 reportedly reached extreme northwestern Georgia (Manns 1972, Hamilton 1975) and west-central Tennessee (Rauber and Dowdy 1972). Many of the spoonbills seen inland were reported as "immatures," and these records probably represent a geographical extension of the inland occurrence of first-year juveniles often noted in southern Florida.

Now, as previously, the summer population center of non-breeding Roseate Spoonbills is along the Gulf coast of Florida from Tampa Bay south. Summer concentrations in this area appear to have increased, but the extent and complexity of the habitat make accurate censusing difficult. Despite the increased numbers breeding in Florida, little expansion of the regular summer range seems to have occurred along the Gulf coast. Northward from Tampa Bay, scattered coastal records exist as far as the St. Marks region south of Tallahassee where a few spoonbills have been reported in about 1 year out of 3 with little evidence of increasing frequency of occurrence (H. M. Stevenson, in litt.). Westward from St. Marks to the mouth of the Mississippi River, fewer than 15 records of Roseate Spoonbills are known for all time (D. P. Scott, in litt.; R. A. Duncan, in litt.; Weston 1965; T. A. Imhof 1976, in litt.; J. A. Jackson, in litt.; Lowery 1974). Thus, although breeding populations in both areas have increased in recent decades, little or no overlap appears to occur between the Florida population and that of Louisiana and Texas.

Wintering of sub-adult spoonbills in Florida, uncommon at the time of Allen's studies, has become much more prevalent. Christmas Bird Count reports (American Birds) and other observations indicate that occasional individuals may be found in winter almost anywhere along the coasts of peninsular Florida. In extreme southern Florida, the records of the Coot Bay Christmas Bird Count show a trend of steady increase in winter with an average of 579 spoonbills, mostly sub-adults, reported for counts during the 1970's (Bolte and Bass 1980). It seems reasonable to suppose that increased wintering by sub-adults is related to the increased production of young from colonies in Florida. The reports of marked birds (Table 1) can be taken to indicate that spoonbills reared in Florida tend to winter in Florida.

With increase of the Florida population it has become somewhat uncertain to what extent the migrations visualized by Allen may still occur. If sub-adults migrate into Florida from the West Indies in summer, the influx now is largely masked by the number of sub-adults that can be accounted for from local production. The population of adults that breeds in Florida Bay still tends to appear at the nesting colonies in October and to leave the area by March or April. Adults are sometimes reported among the spoonbills dispersing north in summer, but the number of such reports seems far too few to account for the southern Florida breeding population. We also suspect that many reported "adults" are likely to have been brightly plumaged second-year to fourth-year sub-adults. Alternatively, it is conceivable that, in basic plumage acquired by molt after breeding, adults become largely indistinguishable from older sub-adults. Allen (1942:125, 127) concluded that there was little evidence of a more pallid "winter plumage" of adults, but that its possible existence could not be altogether discounted. Apparently, no recent information is available to alter this appraisal. Thus, on present data, the summer range of most of the Roseate Spoonbills that breed

in Florida remains unknown. From recent information, and as Allen suspected, Cuba appears to be the only likely summer resort of adults and the only presently credible source of additional sub-adults. Spoonbills are said to breed commonly in Cuba and the Isle of Pines (Garrido and Garcia Montana 1975), but they have become very scarce in Hispaniola (de Dod 1978) and are considered to be rare vagrants in the Bahamas except for a small breeding population on Great Inagua (Brudenell-Bruce 1975).

In a general sense, the past and present distribution of the Roseate Spoonbill in and around Florida is well-known. However, both in Allen's studies and today, the distributional data have proved difficult to interpret because of uncertainty about the origin and age of the birds observed. Considerable traffic of Roseate Spoonbills, perhaps more extensive in the past, may occur between Florida and Cuba, but these movements are poorly understood. Fledglings in their first summer; sub-adults in their second, third, and fourth years; and adult breeders appear to differ in distribution and seasonal movements, but most field records are too inexact to contribute to study of age-related differences in distribution. The present work provided a few facts on the occurrence of spoonbills of known origin and age. Many more data of this sort are required before occurrence can be described with enough accuracy to afford a basis for management of regional populations.

SUMMARY

Juvenile Roseate Spoonbills (162) marked with patagial tags at Florida Bay nesting colonies in January–February 1979 had yielded 15 reported sightings as of 1 July 1982. Observations indicated that the marked birds dispersed up to 400 km northward in their first summer and returned to southern Florida the following fall. On few data, the seasonal movements of older sub-adults appeared to be similar. Wear greatly reduced the visibility of Herculite patagial markers after about 2 years. The large increase of the Florida breeding population of Roseate Spoonbills since 1940 has been attended by extension of the breeding range to the southern mainland and Tampa Bay; northward expansion of the area regularly reached in summer dispersal as far as southeastern Georgia; and increased wintering by sub-adults in southern Florida. It remains uncertain whether there is extensive movement of spoonbills between Florida and Cuba as Allen (1942) postulated.

ACKNOWLEDGMENTS

J. C. Ogden, P. C. Patty, R. T. Paul, A. Sprunt, IV, and R. A. Wideman assisted with marking or gave other critical field support. J. Alverez-Diaz, T. H. Below, and C. Laabs provided photographs and information that permitted study of age-related plumage change and tag wear. R. A. Duncan, T. A. Imhof, J. A. Jackson, H. E. LeGrand, Jr., D. P. Scott, H. M. Stevenson, and particularly, R. W. Loftin supplied us with summaries of the occurrence of spoonbills in their areas of interest. J. A.

Kushlan, M. J. Robertson, J. A. Rodgers, A. Sprunt, IV, D. H. White, and the editor provided comments that improved the manuscript. To these individuals, and to those who reported observations of marked birds, our sincere thanks.

LITERATURE CITED

ALLEN, R. P. 1942. The Roseate Spoonbill. Research Report No. 2, National Audubon Society, New York.

BARBOUR, T. 1943. Cuban ornithology. Memoirs Nuttall Ornithol. Club No. 9.

BOLTE, W., AND O. L. BASS, JR. 1980. Twenty-nine year synopsis of the Coot Bay Christmas Bird Count, Everglades National Park. South Florida Research Center Report T-605, Everglades National Park.

BROOKFIELD, C. M., AND H. P. BENNETT. 1952. Florida region. Audubon Field Notes 6: 192–193.

BRUDENELL-BRUCE, P. G. C. 1975. The birds of New Providence and the Bahama Islands. Collins, London.

BURLEIGH, T. D. 1958. Georgia birds. Univ. Oklahoma Press, Norman.

CHAMBERLAIN, B. R. 1962. Southern Atlantic coast region. Audubon Field Notes 16: 18–20.

CRUICKSHANK, A. D. 1980. The birds of Brevard County, Florida. Florida Press, Inc., Orlando.

DE DOD, A. S. 1978. Aves de la Republica Dominicana. Museo Nac. de Hist. Nat., Santo Domingo.

DENTON, J. F. (chairman). 1977. Annotated checklist of Georgia birds. Ga. Ornithol. Soc. Occas. Publ. No. 6.

DUNSTAN, F. M. 1976. Roseate Spoonbill nesting in Tampa Bay, Florida. Fla. Field Nat. 4:25–27.

GARRIDO, O. H., AND F. GARCIA MONTANA. 1975. Catalogo de las aves de Cuba. Acad. Cien. de Cuba, La Habana.

HAMILTON, A. P. 1975. Roseate Spoonbills in Georgia and Tennessee in 1972. Oriole 40:3–5.

IMHOF, T. A. 1976. Alabama birds (second ed.). Univ. Alabama Press, Tuscaloosa.

LEGRAND, H. E., JR. 1980. Southern Atlantic coast region. Am. Birds 34:149–152.

LOWERY, G. H., JR. 1974. Lousiana birds (third ed.). La. State Univ. Press, Baton Rouge.

MANNS, R. 1972. Roseate Spoonbills in northwest Georgia. Oriole 37:12.

NESBITT, S. A. 1979. An evaluation of four wildlife marking materials. Bird-Banding 50: 159.

OGDEN, J. C. 1975. Florida region. Am. Birds 29:960–963.

PALMER, R. S. 1962. Handbook of North American birds (vol. 1). Yale Univ. Press, New Haven.

PLATT, S. W. 1980. Longevity of herculite leg jess color markers on the Prairie Falcon (*Falco mexicanus*). J. Field Ornithol. 51:281–282.

RAUBER, E. L., AND D. DOWDY. 1972. Roseate Spoonbill identified at Tennessee N.W.R. Migrant 43:67.

REIMANN, E. J. 1940. The southwest coast patrol. Fla. Nat. 13:29–33, 39–40.

RUSSELL, R. P., JR. 1982. Roseate Spoonbills feed on vegetable material. Fla. Field Nat. 10:18.

SCHREIBER, R. W. 1976. Movements of color marked Brown Pelicans. Bird-Banding 47: 101–111.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT. 1979. Preliminary report on the severe storm of April 24–25, 1979. Typewritten ms, South Fla. Water Manage. Dist., West Palm Beach, May 17, 1979.

SOUTHERN, W. E. 1971. Evaluation of a plastic wing-marker for gull studies. Bird-Banding 42:88–91.

WESTON, F. M. 1965. A survey of the birdlife of northwestern Florida. Bull. Tall Timbers Research Sta. No. 5.

South Florida Research Center, Everglades National Park, P.O. Box 279, Homestead, Florida 33030. (WBR); *Canaveral National Seashore, Box 6447, Titusville, Florida 32780* (LLB); *Research Department, National Audubon Society, 115 Indian Mound Trail, Tavernier, Florida 33070* (BWP). Received 7 Oct. 1982; accepted 28 Mar. 1983.

NOTES AND NEWS

NEBBA 1983 Meeting.—The 1983 annual meeting was held 29 April–1 May at the Denison Pequotsepos Nature Center in Mystic, Connecticut. The NEBBA Council met on 29 April with 13 Councilors and Officers present. Reports were presented on the following matters (details of these reports are available from the Secretary): finances by President George Clark and Treasurer Anthony Lauro, membership (written report by Cindy Youngstrom), Editor of *J. Field Ornithol.* by Jerome A. Jackson, Bergstrom Research Committee by Susan R. Drennan, Investment Committee (written report by James O. Seamans), Mist Net Committee (written report by Brian Harrington), Audit Committee (written report by Linda Leddy), Location Committee by Scott Sutcliffe, Nominating Committee (written report by Linda Leddy). In view of unavoidably increased costs for journal publication and membership services, the Council reluctantly voted to increase the dues and subscription rates for 1984. The Council also voted to accept the invitation of Connecticut Audubon Society to hold the 1984 meeting 6–8 April in Fairfield.

At the NEBBA Annual Business meeting on 30 April, abbreviated reports were read by the President, Editor, Research, and Location Committees. The revision of the bylaws that had been distributed by mail to the Membership six weeks before the meeting was unanimously approved in a written ballot. The Nominating Committee's recommendations were accepted and the following elected:

President	George A. Clark, Jr.	*Councilors*
Vice-President	John Kricher	Milan Bull (until 1986)
Secretary	Sarah B. Laughlin	Susan Drennan (until 1987)
Treasurer	Anthony Lauro	Elissa Landre (until 1987)
		Thomas Litwin (until 1987)

Special thanks were given to Susan Drennan and Cindy Youngstrom for their outstanding efforts in behalf of NEBBA and to Robert Dewire and Susan Drennan for organizing the meeting.