THE AUSTIN ORNITHOLOGICAL RESEARCH STATION[1]

By OLIVER L. AUSTIN, M. D.

EIGHTEEN miles from Provincetown on the tip of Cape Cod, at the southern end of the oyster-famed town of Wellfleet, where the Cape is less than two miles in width from the ocean-edging dunes to the sedge-bordered Massachusetts Bay, are the six hundred acres which comprise the Austin Ornithological Research Station. The Cape-bisecting King's Highway bounds this land on the east, but the Station has guardianship control of the upland extending from the other side of this road to the ocean itself. This area affords an example of every type of land characteristic of the Cape. Two hundred acres of salt meadow, threaded by creeks, allure waterfowl and shore-birds. Undisturbed by shooting and attracted by free grain, ducks and geese are congregating here in greater numbers than formerly when it was one of the Cape's choice gunning grounds. Last spring shore-birds in flocks of hundreds were to be seen feeding and resting on its sand-bars. Salt ponds contrived by damming creeks in this meadow are the favored resorts of waterbirds. Extending from the inside edge of this marsh to the State highway, a fresh-water lake, bordered by brush-fringed woods and dotted with azaleas, rose-bushes and water growths not only affords nesting sites for Black and Wood Ducks, Blackbirds and Sandpipers, but also affords a stop-over place for Grebes and Golden-eye Ducks. Extensive open upland meadows in the center of the Station's territory are tenanted by nesting Vesper Sparrows and Quail. A partly weed-overgrown asparagus field attracts migrating sparrows. In stands of tall pitch pines Great Horned Owls, Crows, and Hawks are known to nest. The dead and decaying trees in a smaller section of woods burned over years ago afford haven and sustenance to Downy Woodpeckers, Flickers, Chickadees, and Bluebirds. Groves of locust and scrub oak in which are scattered apple and cherry trees shelter transient Warblers. Berry bushes and wild grapes invite successfully the lingering of Robins and Thrushes. Nesting-boxes in suitable locations encourage the progeny of resident Tree Swallows to demonstrate they will breed by choice as close to their birthplace as essential conditions afford opportunity.

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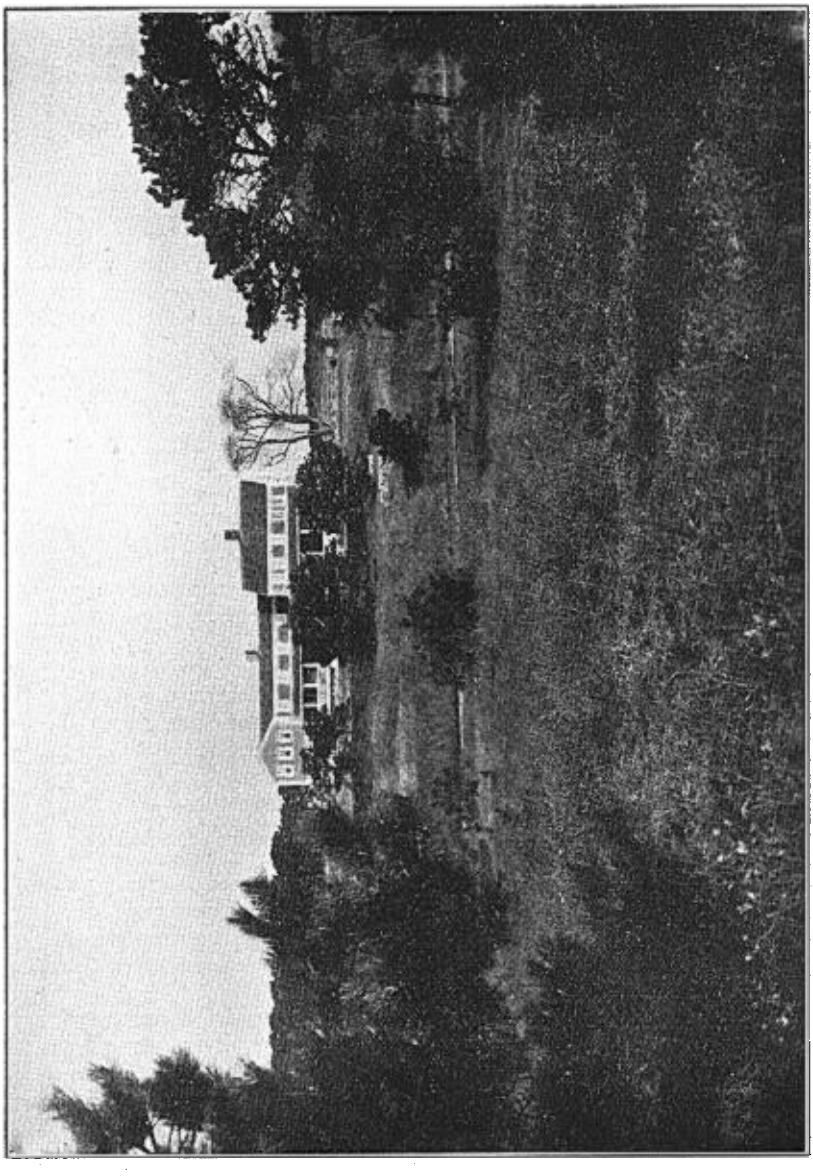
[1]Contribution No. 7 from the Austin Ornithological Research Station.

A commodious dwelling affords quarters for as large a staff of resident, seasonal, and casual workers as can be kept employed. This is equipped with the implements essential to the vocation. It has a library comprehensive in the literature of North American birds and allied zoölogical subjects. A second building provides both a workshop and storage-room for traps and grain, cages and tools.

Attracted, after considerable observation, by the extent, variety, and anomalies of Cape Cod bird-life, Dr. O. L. Austin, Jr., in the summer of 1929 conceived the idea of establishing here a sanctuary and a banding and research station with broad vision of its possibilities. A preliminary purchase of one hundred acres was made, and early in the summer of 1930 the first ornithological work was done. This work has been carried on continuously ever since except during the first few months of 1931. Subsequently, additional land was acquired sufficient to provide the requisite variety of ecological types and to insure sanctuary. So far as circumstances have permitted, the work has been increased in amount and broadened in comprehension.

Until September, 1931, the work was carried on by college men and others having more or less adequate ornithological enthusiasm, training, and knowledge, especially during vacation times, with continuous high-pressure effort from early May until late October. Visitors interested in bird work have given willing and valuable assistance. Most of all have the accomplishments of the undertaking been enhanced by the coöperation, encouragement, and advice of several of the experienced ornithologists of the East. Continuous, everyday observations being considered essential to real achievement, in October, 1931, Maurice Broun was engaged for permanent residence at the Station. During the seasons of migration and nesting, the staff will be increased to a size equal to the accomplishment of all projected undertakings. A pathologist and microscopist will be in residence this next and subsequent summers to carry out special investigations. Additional permanent workers will be engaged as the work broadens.

Up to the present time it has been deemed advisable to concentrate our greatest effort on determining by the banding method the variety and numbers of resident and transient birds within approximately five miles of the Station, since banding as many individuals as possible provides the best foundation for future investigations. Sufficient has been accomplished already to render a continuation of this policy unnecessary. Further, this acquisition can be increased adequately by workers engaged in special investigations who can visit traps and affix

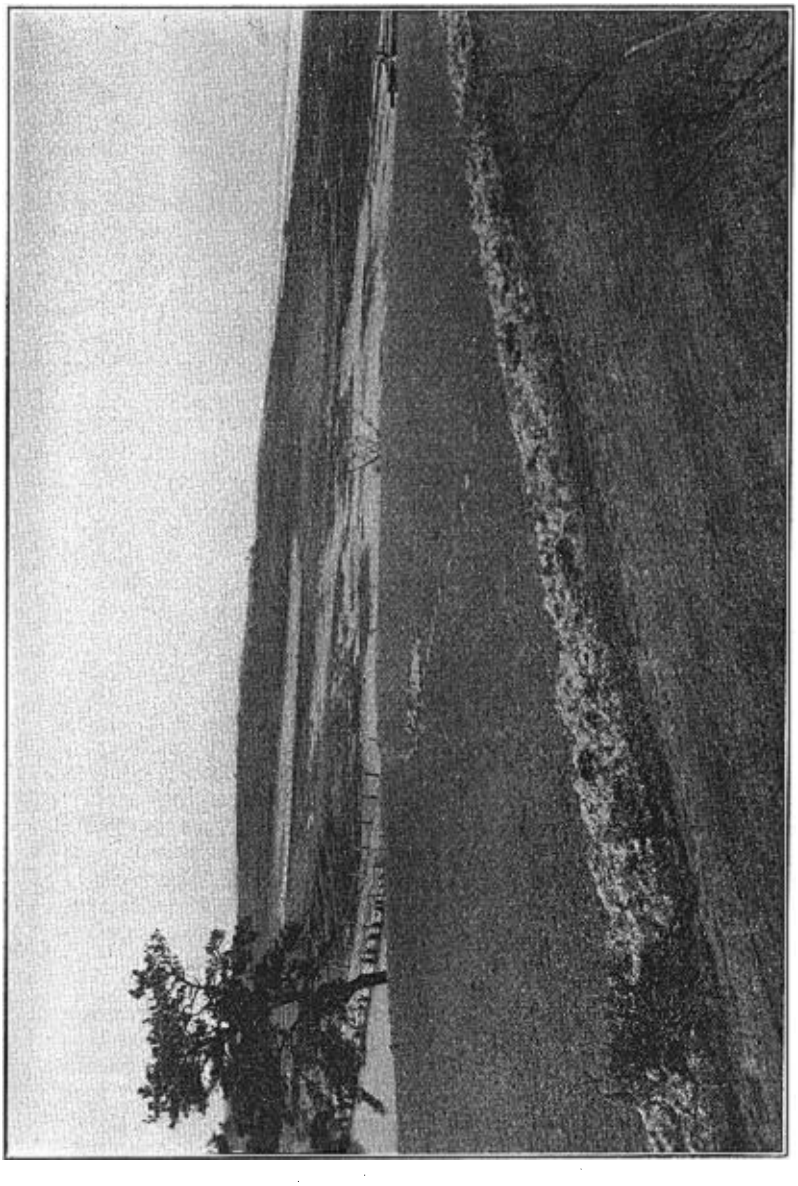


THE LABORATORY LOOKING NORTH FROM LOW HILL

bands without retarding greatly the pursuit of their major duties. Last summer each worker was assigned an individual research problem to carry on in addition to his share of the routine work. Among these were the nesting habits of the Vesper Sparrow, the life-histories of the Terns and of the Grasshopper Sparrow, the incubation, hatching, feeding, and growth of a young Great Horned Owl, the breeding of the Tree Swallow, the ecology of a small wooded island isolated in the middle of the salt meadow on which Night Herons roosted, Cuckoos nested, and deer kindergartened their fawns. This policy of specialization is to be pursued more scrupulously as time goes on, so that opinions may be formulated which are based on competent observations sufficiently limited in objective and comprehensive in numbers and details to be conclusive. To illustrate, five hundred specially designed and constructed nesting-boxes are being erected over the Station area and its vicinity for the continued study of the nesting and breeding of Tree Swallows. Daily observations of what occurs in these boxes will be recorded and should show, to mention only one thing, how many pairs of nesting birds a given area of a certain type can support under determined conditions of food-supply and protection. Since the Biological Survey, the work of which the Station desires to assist, is interested greatly in the waterfowl situation, efforts will be extended more actively in surveying, banding, and conserving these species.

To bird life the Station will afford increasing sanctuary, not only for the purpose of conservation, but also for the determination of how far unchanged present conditions are essential to the continued occupancy of resident individuals and what ecological alterations will increase avian population. To date only such changes have been made, other than those essential to the enhancing of living and working conditions, as had been determined by the preceding experimentation of others to be of actual value. It was observed that the conversion into level cropped lawns of the half-acre adjoining the Station residence in the spring of 1931 drove to other places the large number of sparrows which during the preceding summer had haunted the then weed-grown field.

Since local residents and even casual passers-by bring to us sick and injured birds in increasing numbers, it is becoming known that we provide for these unfortunates not only hospitalization and veterinary care, but also sympathetic and tender nursing. Fifteen out of sixteen Sanderlings and Turnstones completely paralyzed from eating infected meat were treated until they were able to fly away fully recovered. Those which our



LOOKING SOUTHWEST FROM LABORATORY ACROSS CORNER OF FRESH WATER POND, CAPE COD BAY IN RIGHT DISTANCE

efforts cannot save afford material for the post-mortem studies as essential to the knowledge of avian ills as similar work is to comprehension of the diseases which afflict humans.

Although the greater part of the Station's activities function within its boundaries, the custom of Night Herons to nest in the cedar swamps of Chatham, and of Terns, by reason of the closely available food-supply of salt-water small fish, to breed on the islands and beaches which dot and fringe the bay and ocean, make necessary many visits to these localities, the more so since it is anticipated that this coming summer will complete the locating and surveying of all the tern rookeries between Chatham and Provincetown. Nine miles from the Station toward Provincetown forty-five acres have been acquired where trapping will be done this coming summer. Among other things, this will afford opportunity for beginning the study of the post-nuptial wandering which so decidedly changes the population comprising our daily takes. It is projected, as time goes on, to establish similar outposts on the Cape, so that data may be obtained which will indicate whether the many migrants captured in the spring and fall find their way to the Station grounds by traveling from the mainland "down" the Cape or whether the Cape is a resting-place in a direct over-water line of flight from Nova Scotia and Maine to Long Island and New Jersey.

The thrill of capturing, banding, studying and then releasing such locally rare species as the Clay-colored and Ipswich Sparrows, Acadian Flycatcher, Philadelphia Vireo, and the Blue-winged, Cerulean, and Cape May Warblers, have been holiday events for the workers, who patiently and methodically have recorded the innumerable repeatings of humble Chipping and Song Sparrows, Juncoes, Chickadees, and Tree Swallows. Adequate compensation has been found for making routine trap rounds every two or three hours in discovering that Vesper Sparrows banded as nestlings were feasting with adults in traps six miles away two weeks later, that birds haunt grain stations in greatly increased numbers the day before storms begin, that many birds are more seasonal in their food preferences than are humans, that if sorely in need of food a Herring Gull will swallow a Catbird.

Detailed records are made of all activities while they are fresh in the minds of the workers. Banding data are filed by a system which eliminates the possibility of error through the daily automatic cross-checking of totals. This secretarial work is assigned to a trained individual, and is considered most important for the additional reason that the attention of the person who constantly handles these records is drawn to interest-

ing and important occurrences. The Secretary discovered that one of our Chipping Sparrows might have continued indefinitely to fare sumptuously had wanderlust not impelled it to leave the trap in which it had been found on every round for several weeks to sample the seeds in a trap accessible to a foraging black snake. Posting the hour and minute of each removal of a bird from a trap invited the observation that our avian guests were in the habit of altering their siesta hour to conform with changes in temperature. Effort has been made to make the accumulated data available by the preparation and publishing of reports and essays. Our statistics and observations will be given to swell totals for any one collecting material for study since we consider the hoarding of such acquisitions an ornithological capital offense. Graphs have been prepared, one of which demonstrates that Cape Cod fared equally with other parts of New England in a shortage of sparrows this last summer.

Sight observations are made constantly by all workers, recorded in their field-books and entered, later, in the carefully detailed daily notes; when time permits, more or less comprehensive census are made. Since specific field identification, in the last analysis, is open to question, the accumulation of this data is not emphasized, rather it is considered a by-product of our activities.

Many thousand feet of motion-picture film are made each year to record the likenesses and behavior of both common and rare species, also to demonstrate our methods of capturing birds for banding and study. This is believed to be the most convincing means of proving many of our contentions, for who can question that the behavior of the Common Tern is exceedingly and comparatively illogical and erratic when this bird is shown carefully cleaning house by removing the shell of a newly hatched egg from its crude apology for a nest.

Of the diseases which handicap and kill wild birds little is known, although brilliant and conclusive investigations have been well advanced in the study of a few conditions. While recently it has been shown that the botulinus organism, a common and widespread inhabitant of the soil, is responsible for the condition popularly known as "duck-sickness," which causes an enormous mortality in waterfowl, no work has been done to demonstrate the cause, symptomatology, and curability of the many diseases which analogy insists birds experience. Parrots and Canaries have died of laboratory-proven pneumonias; Goldfinches and Puffins must be susceptible to infection by the same organism. One of our greatest endeavors will continue to

be to increase the knowledge of avian pathology. Observations already made appear to demonstrate that physical injury, not heart disease or fright, is the lethal factor when birds die suddenly in the hand. A rather ubiquitous mite, widespread in the soil under certain conditions, has been found to be the probable cause of the so-called foot disease which ends in the deformities so often observed on the feet of birds.

Experimenting is done constantly not only to devise new trapping methods, but also to improve those already accepted. The pull-string trap for collecting shore-birds wasted so much time that an efficient automatic trap of the maze type augmented by long leaders similar to those on which the practicability of the fishweir depends was evolved, making possible the first bandings of several species. Since all who deprive birds of their liberty, even temporarily, are obligated to insure their safety, every casualty is investigated to determine the cause and eliminate it from subsequent operations. Black snakes and rats are exterminated, Shrikes and Sharp-shinned Hawks, after banding, are transported and released several miles away; under ordinary conditions trap rounds are made every three hours, but in cool, also in wet weather, they are made even hourly if necessary. When the scorching sun of dog-days threatens sunstroke, all traps which cannot be shaded adequately are left wide open.

The appended tables which detail and summarize the Station's captures and bandings for the first two calendar years demonstrate not only that Cape Cod has ornithological possibilities but also that no bird-banding should be done which is open to the designation of being a casual pastime. The considerable totals taken should be encouragement to the bander of smaller numbers since they increase his opportunity for valuable recaptures. Just as our establishment of a large number of small outlying posts is essential to a knowledge of what happens ornithologically on Cape Cod, so the excellent collective accomplishments of the many directors of small stations throughout New England is essential to the solution of distributional problems.

North Eastham, Cape Cod, Mass.

THE O. L. AUSTIN ORNITHOLOGICAL RESEARCH STATION
STATISTICAL REPORT FOR 1930

Species	*Number Banded*	*No. of Repeating Individuals*	*No. of Returns*	*No. of Recoveries*
Loon	1			
Black-crowned Night Heron	19			
Red-breasted Merganser	2			
Sharp-shinned Hawk	1			
Sparrow Hawk	2	1		
Bob-White	8	7		
Sora	1			
Black-bellied Plover	2			
Semipalmated Plover	6			
Piping Plover	7	1		
Ruddy Turnstone	5			
Pectoral Sandpiper	1			
White-rumped Sandpiper	11			
Least Sandpiper	8			
Red-backed Sandpiper	14			
Semipalmated Sandpiper	5	7	1	
Spotted Sandpiper	2			
Great Black-backed Gull	2			
Herring Gull	7			
Common Tern	408			
Roseate Tern	1			
Dovekie	1			
Mourning Dove	76	26	10	3
Yellow-billed Cuckoo	1			
Black-billed Cuckoo	2			
Chimney Swift	3			
Belted Kingfisher	1			
Northern Flicker	17	3	3	
Kingbird	1			
Wood Pewee	2	1		
Acadian Flycatcher	1			
Tree Swallow	17		4	
Barn Swallow	6	1		
Bank Swallow	5			
Blue Jay	10	2		
Black-capped Chickadee	40	17	6	
Red-breasted Nuthatch	1			
Brown Creeper	28	9	1	
Winter Wren	1	1		
Catbird	72	34	15	
Brown Thrasher	5	1		
Robin	55	5		
Hermit Thrush	8	1		
Olive-backed Thrush	6			
Grey-cheeked Thrush	3	1		
Bluebird	12		1	
Cedar Waxwing	9	1		
Northern Shrike	9			
Starling	15			

Species	*Number Banded*	*No. of Repeating Individuals*	*No. of Returns*	*No. of Recoveries*
Red-eyed Vireo	10	4		
Black and White Warbler	9	3		
Yellow Warbler	2			
Black-throated Blue Warbler	1			
Myrtle Warbler	68	4	2	
Magnolia Warbler	1			
Black-poll Warbler	2			
Pine Warbler	19	2	1	
Western Palm Warbler	3			
Yellow Palm Warbler	1			
Prairie Warbler	1			
Oven-bird	2			
Northern Water-Thrush	22	9		
Northern Yellow-throat	10			
Wilson's Warbler	1			
Redstart	2			
Cowbird	115	15	7	
Red-winged Blackbird	18	11	4	1
Meadowlark	9			
Baltimore Oriole	13	1	1	
Pine Siskin	1			
Vesper Sparrow	86	51	19	
Savannah Sparrow	51	11		
Grasshopper Sparrow	13	6	6	
White-crowned Sparrow	5	4		
White-throated Sparrow	211	162		1
Tree Sparrow	80	60	13	
Chipping Sparrow	297	193	53	
Clay-colored Sparrow	2	2		
Field Sparrow	98	63	13	
Song Sparrow	305	242	43	2
Junco	437	178	1	
Lincoln's Sparrow	6	1		
Swamp Sparrow	71	40	1	
Fox Sparrow	7	1		
Towhee	1	1		
Indigo Bunting	2			
TOTALS — 87 Species	3,001	1,383	205	7

THE O. L. AUSTIN ORNITHOLOGICAL RESEARCH STATION STATISTICAL REPORT FOR 1931

Species	*Number Banded*	*No. of Repeating Individuals*	*No. of Returns*	*No. of Recoveries*
American Bittern	1			
Green Heron	1			
Brack-crowned Night Heron	4			
Common Black Duck	155	52	1	5
Red-legged Black Duck	222	59	2	7
Wood Duck	1			
Marsh Hawk	3			
Sharp-shinned Hawk	1			
Red-tailed Hawk	1			
Pigeon Hawk	1			
Sparrow Hawk	2			
Bob-White	29	23	2	
Black-bellied Plover	1			
Semipalmated Plover	12			
Piping Plover	3			
Pectoral Sandpiper	1			
White-rumped Sandpiper	1			
Least Sandpiper	183	12		
Semipalmated Sandpiper	201	2		
Spotted Sandpiper	50	9		
Common Tern	6,974		1	12
Roseate Tern	1,002			3
Arctic Tern	7			
Least Tern	1			
Razor-billed Auk	1			
Mourning Dove	111	47	1	3
Black-billed Cuckoo	7	2		
Great Horned Owl	1			
Saw-whet Owl	2	1		
Whip-poor-will	2			
Ruby-throated Hummingbird	2			
Belted Kingfisher	6	3		
Northern Flicker	27	1		
Yellow-bellied Sapsucker	5	1		
Hairy Woodpecker	1			
Downy Woodpecker	5	2		
Kingbird	8			
Phœbe	4			
Wood Pewee	10			
Yellow-bellied Flycatcher	1			
Tree Swallow	253			
Barn Swallow	27			1
Bank Swallow	46			
Crow	8	3	3	
Blue Jay	9	1		
Black-capped Chickadee	83	12	3	
Red-breasted Nuthatch	12	1		
White-breasted Nuthatch	1			
Brown Creeper	25	10		
Winter Wren	1			

Species	*Number Banded*	*No. of Repeating Individuals*	*No. of Returns*	*No. of Recoveries*
Catbird	154	67		
Brown Thrasher	2			
Mockingbird	1			
Robin	154	14	1	
Hermit Thrush	29	5		
Olive-backed Thrush	3	1		
Grey-cheeked Thrush	1			
Bluebird	28	5		
Golden-crowned Kinglet	7			
Ruby-crowned Kinglet	5			
Cedar Waxwing	61	8		
Starling	106	5		
Red-eyed Vireo	10	3		
Philadelphia Vireo	1	1		
Black and White Warbler	19	4		
Blue-winged Warbler	1	1		
Golden-winged Warbler	1			
Nashville Warbler	4			
Northern Parula Warbler	8	1		
Yellow Warbler	27	6		
Myrtle Warbler	267	32		
Magnolia Warbler	6	1		
Cerulean Warbler	1	1		
Black-poll Warbler	32	7		
Pine Warbler	51	6		
Yellow Palm Warbler	10	1		
Prairie Warbler	5			
Black-throated Green Warbler	1			
Cape May Warbler	2			
Oven-bird	13			
Northern Water-Thrush	36	18		
Northern Yellow-throat	57	10		
Wilson's Warbler	1			
Canada Warbler	1			
Redstart	13	6		
Bobolink	1			
Cowbird	191	69		1
Red-winged Blackbird	194	72		2
Baltimore Oriole	13	3		
Rusty Blackbird	5			
Bronzed Grackle	11			1
Scarlet Tanager	1	1		
Goldfinch	15			
Purple Finch	52	9		
Vesper Sparrow	183	98		
Ipswich Sparrow	3			
Savannah Sparrow	60	22		
Sharp-tailed Sparrow	1			
Grasshopper Sparrow	51	15		
White-crowned Sparrow	19	13		
White-throated Sparrow	147	123		
Tree Sparrow	122	85	5	
Chipping Sparrow	231	130		
Field Sparrow	57	32		
Song Sparrow	259	157		

Species	*Number Banded*	*No. of Repeating Individuals*	*No. of Returns*	*No. of Recoveries*
Slate-colored Junco	314	140		
Lincoln's Sparrow	5			
Swamp Sparrow	16	9		
Fox Sparrow	164	68		
Indigo Bunting	2	1		
Towhee	47	10		
Rose-breasted Grosbeak	2			
TOTALS — 112 Species	13,600	1,501	19	25

	1930	*1931*	*Total*
Birds Banded	3,001	13,600	16,601
Species Banded	87	112	
Total Takes	10,670	23,176	33,846
Old Birds	5,540	7,319	12,859
Repeating Individuals	2,032	1,749	3,781

REPORT OF TERN-BANDING ON CAPE COD DURING 1931[1]

By CHARLES B. FLOYD

DURING the season of 1931 we endeavored to band as many juvenile birds as possible on the tern rookeries of Cape Cod between Provincetown on the north and Lewis Bay on the south, with the following results:

Locality	*S. hirundo*	*S. dougalli*	*Total*
Tern Island, Chatham	4,983	1,045	6,028
Egg Island, Lewis Bay	1,721	55	1,776
Billingsgate Island, Eastham	418		418
Pamet River Rookery, Truro	125		125
Hopkins Island, Orleans	122		122
Nauset (west colony), Eastham	41		41
Rocky Island, Orleans	40		40
TOTALS	7,450	1,100	8,550

Comparatively little time was spent in attempting to trap adults, but on Tern Island 77 adult *hirundo* were banded; in the Pamet River rookery, 31 *hirundo* and 4 *paradisæa;* and at Hopkins Island, 9 *hirundo* and 3 *paradisæa*—a total of 124 adults.

Five of these colonies have been described previously in *Bird-Banding* and the *Bulletin of the Northeastern Bird-Banding*

[1]Contribution Number 8 from the Austin Ornithological Research Station.