

## BIRDS OF SOUTHERN LOUISIANA

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*Photographs by Alfred M. Bailey.*

The coastal marshes of Louisiana are well known for their abundant bird life; thousands of waterfowl migrate down the Mississippi Valley each fall and spend the winter on the wide-stretching savannahs, and, then, when they have departed in the spring for their northern breeding grounds, their places are taken by species which wintered in Central and South America. There are many resident forms also, so all in all, the lowlands bordering the Gulf of Mexico are ideal for bird study.

The region under consideration in this paper includes the off-shore sand and shell islands and the great stretch of territory bordering the gulf from the Texas border to the state of Mississippi; for convenience we may use the Southern Pacific Railway, which extends westward across the state of Louisiana from New Orleans, as our northern boundary line. In this vast area we have marsh land with occasional high knolls (known as "islands") and extensive flat regions bordering the marsh, which in dry seasons would be known as "prairie." The region is diversified, and conditions are suitable for many different species of birds; we have offshore islands for terns and gulls, typical marsh country for wintering or breeding waterfowl; miles of swamps for woodland species; and lastly, high wooded knolls. As would naturally be expected, it is an interesting field for the naturalist, but owing to the fact that transportation presents a serious problem, the average student can not expect to cover the entire region except in the course of many years' work.

Louisiana is fortunate in possessing three great areas which have been set aside as sanctuaries for bird life. Mr. E. A. McIlhenny, of Avery Island, has been the leader in this work, and was instrumental in having the land deeded to the state. The three reserves have a total acreage of 174,664 acres, and are known as the Louisiana Wild Life Sanctuary, Marsh Island Refuge, and the Rockefeller Foundation Wild Life Refuge. In addition to these lands, there is the Paul Rainey Reserve, under charge of the National Audubon Society, in Vermilion Parish, a region of 150,000 or more acres, which is privately owned. Another area of marsh land, in Cameron Parish, owned and protected by Mr. H. J. Lutchter Stark, is one of the most important wintering grounds in Louisiana, and while it is in safe hands in Mr. Stark's care, it should be purchased and set aside for all time under the protection of the state or national government. Then, Louisiana would have a

network of reserves extending from the Texas border, over half way toward the Mississippi River.

The majority of the islands used by sea birds for rearing their young, extend from the mouth of the Mississippi northward toward the Mississippi state line. There are many of these little shell keys, the most important being grouped together in a series known as the Chandeleur Islands. At the south end of this chain we find Breton Island, some five miles in length, and at the other end, as might be expected, is North Island. In between, we find Grand Gosier, Tern, and Errol Islands, as well as many others, on which are found sea birds of several species. Royal and Cabot Terns, Laughing Gulls, skimmers, and Brown Pelicans are the most numerous, while Caspian, Forster's, and Least Terns nest in smaller numbers. The mud lumps at the mouth of the Mississippi River are also well known as the breeding grounds of thousands of pelicans.

The region about the mouth of the Mississippi is ideal for the study of water birds, and one of the stations covered in this article is the north side of Main Pass. Through the courtesy of Messrs. Joseph Leiter and Eugene R. Pike, two weeks were spent in October, 1928, with headquarters at "Chateau Canard" and photographs made of the ducks and thousands of geese which were arriving from their breeding grounds.

Centrally located in the state, along the Gulf of Mexico, are the State Wild Life, Marsh Island, and Paul Rainey Reserves, while bordering the gulf is a wonderful strip of live-oak woods extending for about five miles, which is known as Chenier au Tigre (oak ridge of the tiger). The winter bird life of the Chenier has been covered in the *Auk* (Volume XLV, July, 1928), and the reader is referred to that paper for a more extensive description of the area. North of this section, across Vermilion Bay, is a series of high knolls rising 100 to 150 feet above the sea, which are known as islands. The most important of these is Avery Island, one of the finest places in the south to observe bird life. This is the home of Mr. E. A. McIlhenny, and it is unique—there is no better example of what can be accomplished in matters of conservation. Mr. McIlhenny has written an interesting paper, "How I Made a Bird City," which was published in *Country Life in America*, and which gives in detail what we have summarized briefly below.

There are several ponds on the island, and one of them, Willow Pond, was made in 1894 by damming a small creek which meandered among the hills. At this time, many species of our beautiful birds

were threatened with extermination, due to the demand for their feathers and plumes for millinery trade. The Snowy Egret was one of the most persecuted, and Mr. McIlhenny thought it might be possible to attract birds of this species to his pond where they would be safe to breed. Eight young were taken from their nests in the nearby marsh, kept in captivity along Willow Pond, and handled every day, so they became very tame. Then in the fall the birds were liberated. They remained about for a few days, then joined the other migrating birds and left, presumably, for South America. On the 18th of March following, four birds returned to the pond, and two days later two more arrived. One disappeared after a few days, so five birds remained and two pairs nested. Eight young were hatched, and all survived to go south with the five adults—"all left on the same night, the 17th of November". The birds returned year after year, other species joined the Snowy Egrets, so we now find Louisiana, Little Blue, Green, and Snowy Herons crowding the bushes; Anhingas build their heavy nests in the cypresses and willows, and gallinules, among the low growing plants.

Avery Island is not a remote place, far off from civilization; on the contrary, it is one of the show places of southern Louisiana, about ten miles below New Iberia, and connected with the Southern Pacific by the Salt Mine Railway, and also by an excellent shell road. The trains run within thirty feet of the heronry, and the birds pay no attention to the passing traffic. The same birds, however, will not allow one to approach within a hundred yards of them, out in the open marsh, and when they fly from their breeding ponds for their feeding grounds, they trek high in the air. It is a wonderful sight just at dusk, when the incoming birds are returning to their nests; they fly high—a continuous chain of birds coming from the grayness—until they are over the pond; then they tumble on set and whistling wings, performing gymnastics which make one dizzy to watch. Avery Island has many other advantages for the bird student, however, for there are high hills, cultivated fields, extensive marshes, and nearby swamps with heavy growths of cypress, tupelo, and gum, so all in all, it is an attractive region for study.

Cameron Parish, in the southwest corner of the state, is another important place from the point of view of the naturalist. Through the courtesy of Captain William E. Lea and Mr. H. J. Lutchter Stark, we have made many trips to the region. It is totally different from Avery Island, but just as interesting in other ways, for we find forms in the west which are lacking in the latter place. This is the last



FIG. 19. Along Black Bayou, Cameron Parish.



FIG. 20. Live Oaks and Palmettos.

bird, and after the breeding season, one will often find the solemn-stronghold of the Roseate Spoonbill; the American Egret is a common faced Wood Ibis lining the shores of lagoons. There are two distinct areas; just below the intercoastal canal is an expanse of prairie which, in normal years, is comparatively dry, while to the south, and extending to the gulf is typical marsh land. The usual ridges are found along the gulf, so conditions are favorable for both land and water birds. The marsh is one of the finest wintering grounds for wild fowl in the south, for there seems to be an abundant food supply, as well as wide-stretching, impassable areas which offer places of refuge.

This paper covers intermittent observations over the past fifteen years; it is not intended as a list of the birds of the region, but rather of those actually observed by the writers. We have made no effort to compile life history notes, but we have tried to give specific dates for the occurrence of species which are not so common as to make such records superfluous. The majority of the field notes are from the various trips made by the senior author in the interests of the Louisiana State Museum in 1916-19; November and December, 1925, for the Colorado Museum of Natural History; and, October, 1928, for the Chicago Academy of Sciences. Another trip was made for the Chicago Academy of Sciences in 1930, with Earl G. Wright, Francis R. Dickinson, and E. V. Komarek as other members of the party. Headquarters were made at Avery Island in May, and the many places of interest—Chenier au Tigre, Marsh Island, and Mr. Stark's estate in Cameron Parish were visited; and then, the second week in June, work was carried on among the bird islands off the east coast, with visits made at the "mud lumps," Breton, Tern, Brush, and North Islands, as well as less well-marked places.

Messrs. Francis R. Dickinson and A. M. Bailey spent an additional two weeks in March, 1931, making observations on Marsh Island, Chenier au Tigre, and in Cameron Parish. This is the "betwixt and between" season, when the majority of the wintering birds are still found in numbers, and some of the migrants are arriving from South and Central America.

The recent trips were made to secure motion films of Louisiana wild life for the film library of the Academy, and we are greatly indebted to many individuals for their coöperation—not only during these expeditions, but in others of past years. We wish to acknowledge our indebtedness to Mr. Robert Maestri, Commissioner of Conservation, and Mr. Armand P. Daspit, in charge of the Wild Life Division of the Department, for their coöperation; the resources of the

Department of Conservation, their boats and personnel, were placed at our disposal, and made possible much more extensive work than otherwise would have been practical. As was mentioned before, Mr. E. A. McIlhenny, Mr. Lutcher Stark, and Capt. William E. Lea aided in every way, furnished quarters and boats, built blinds, and gave us the services of their men. We also wish to acknowledge the kindness of Dr. Robert Glenk, who has always cooperated in our field work, and the members of the staff of the Department of Conservation of the present and the past administrations, Mr. Stanley C. Arthur, Mr. Percy Viosca, and Mr. E. S. Hopkins, and Mr. and Mrs. Simms Sagera, our hosts on many trips to Chenier au Tigre.

Owing to the fact that the majority of the field trips were made to secure exhibit material for museums, the small, inconspicuous birds were neglected, and many opportunities to make valuable observations were lost. Mr. H. H. Kopman has made more extensive observations on the perching birds, and the reader is referred to his article which was published in the *Auk*, as listed below.

We have regretted the preparing of this paper before the new check-list has made its appearance, but for convenience, we have followed the order of the third edition. It has been impossible for the writers to keep informed on the latest scientific names; probably this paper should have been submitted to an authority for his suggestions, but we realized that other names would be changed before the article could be published. We feel apologetic that with the opportunities we have had, we have failed to observe and record many species, especially the smaller forms, which are probably abundant at various seasons, and we believe that any observer will be able to make many additions to our list.

**HORNED GREBE.** *Colymbus auritus*. The Horned Grebe is not common. It occurs in small flocks during the winter months, on the larger lagoons and lakes near the Gulf Coast. A few were observed daily on Vermilion Bay, the middle of November, 1917, and all were in the gray-and-white winter dress. One specimen was collected.

**PIED-BILLED GREBE.** *Podilymbus podiceps*. A common species on fresh water or slightly brackish lagoons during the fall and winter months. Its distribution is general along the coast at this season of the year. It was especially common in the marshes along Main Pass, at the mouth of the Mississippi River during the latter part of October, 1928, and was observed in Cameron Parish, in the western part, during November of the same year. This species is recorded as a resident, but we have failed to find it at other seasons.

LOON. *Gavia immer*. Occurs during the winter, but never observed abundantly. One was collected on Vermilion Bay in winter plumage, November 19, 1916, and a few others noted; from one to a dozen were seen on each trip along the coastal marshes. They were fairly common in the Mississippi Sound in March, 1918, when many high-plumaged birds were seen.

HERRING GULL. *Larus argentatus smithsonianus*. Many of these large gulls are found along the Mississippi River and the Gulf Coast during the winter months. They are irregular in their habits, for sometimes they are very numerous, and at other times there are few to be seen, probably due to the food supply. As in other parts of the country, the Herring Gull will be found about the water fronts of the cities where they feed upon refuse. They are present from the latter part of October until the first part of April. Several were collected at Chenier au Tigre, March 6, 1918.

RING-BILLED GULL. *Larus delawarensis*. This is the most common of the gulls found along the coast during the winter, and it was observed on every trip. Flocks of them worked along the beaches and the lagoons at Chenier au Tigre during the early part of March, 1918, and they were common during January, 1919. On December 12, 1925, a flock of 200 was observed cruising against the wind.

LAUGHING GULL. *Larus atricilla*. These gulls are found at all seasons of the year, but they are often scarce during the cold days of winter. They are the only gulls which nest along the Gulf Coast, and they are extremely common during the nesting season. The Laughing Gulls prefer to hide their nests upon the ground among the coarse grasses, wax myrtles, and water oaks of the offshore islands, and while they are community dwellers, their well constructed nests are usually some distance apart. They have from three to four greenish eggs which are spotted with black. The downy chicks are brownish in color, and when an intruder appears they quickly leave the nest and hide in the dense vegetation. Several hundred birds will often nest upon the same little island, and when disturbed they rise out of the grass and hover overhead, all of them calling and shrieking their displeasure. As is the case with most gulls, they are more or less predaceous, and seize every opportunity to plunder the nests of other birds. They are fast fliers, light of wing and keen of eye, and as they scan the waves, they inspect every little object; it is a common sight to see hundreds sailing along after a fishing boat, waiting for refuse to be thrown overboard.



FIG. 21. Royal and Cabot's Terns, at Chandeleur Islands.



FIG. 22. Cabot's Terns and young.



FRANKLIN'S GULL. *Larus franklini*. Several bands of gulls were noted flying from the north, the first week in November, 1917, at Avery Island. They flew in rather compact flocks, as though in migration, and Mr. E. A. McIlhenny identified them as this species. He stated that he had had considerable experience with this form. No specimens were taken, and we do not know of a Louisiana record, although we may have seen many and mistaken them for the preceding form.

GULL-BILLED TERN. *Gelochelidon nitotica*. These terns were encountered on but three occasions, in spite of many trips along the coast at all seasons of the year. Four birds were observed at Chenier au Tigre March 6, 1918, and one collected; another was taken at the same place, January 21, 1919, and several were observed October 22, 1928, at Main Pass, at the mouth of the Mississippi River.

CASPIAN TERN. *Sterna caspia*. This tern is a resident, and is common among the low islands along the eastern coast. It nests on the ground in company with the Royal and Cabot's Terns, but it is not so numerous. The two large eggs are laid in a depression in the ground shell. They were nesting on Timbalier Island, June 14, 1918, and many were seen on Lost Island, December 8, 1918. Thirty-five nests were counted on one of the "mud lumps" at the mouth of the Mississippi River, June 1, 1917, and a week later, fifty pairs were found nesting on Free Mason Keys. They were observed June 7 to 13, 1930, on the mud lumps, and on Tern Island. The Caspian Terns refused to return to their eggs at the mud lumps when we attempted to photograph them. We saw turnstones breaking the tern eggs and eating them.

ROYAL TERN. *Sterna maxima*. This is the most common of terns, and while it is found at all seasons of the year, the majority migrate southward during the winter. They are well named, for they are large, strong-winged birds with dark, keen eyes, and heavy, capable build, and they strut about their nesting island with crests erect, in a fearless manner. They nest on many of the "outside" islands along the east coast, although the colonies are changed from year to year. Errol, Grand Gosier, Breton, Hog, Battledore, and Brush Islands are a few of the places where we have found large colonies in years past. This past season we did not find them nesting on Breton or Grand Gosier, but on Tern Island, a low lying spit, there were fully 7500 pairs of Royal and Cabot's Terns nesting in the two colonies. What a sight for the bird photographer! From the distance they looked like shimmering snow fields. A great flock of Man-o'-war-birds circled over-

head, and bands of shrieking terns rose from their eggs and flew to meet us. The two colonies of terns were about half a mile apart, and while Bailey made motion films of the larger flock, Wright and Komarek counted the eggs in the smaller. There were 2400 Royal and Cabots' Tern eggs, the Royal being more abundant than the Cabot's. The terns usually lay but one egg each along the Louisiana Gulf Coast, although many sets of two were observed. The eggs are deposited in shallow depressions in the sand or shell, and both adults share the task of incubation. They are variously mottled and of many sizes, and the young are just as varied in their coloration. Some are pure white, others are brown, with all degrees of shades between the two extremes. Many of the young have orange legs and feet, while others are brownish black. All the young terns, Royal, Cabot's, and Caspian, have similar habits, and it is usual to see whole rafts of these little birds swimming parallel to their island, and they often swim far to sea. We were greatly mystified to hear a clear, whistle-like note, on one occasion, and we tried to locate the source of the sound; it came clear and resonant, but seemed to come from no particular direction. We finally discovered it was made by a young Caspian Tern far out in the gulf—the call to its parents. It is interesting to see the old birds guide the young back to shore after they feel the danger is over. They circle overhead, scold and scream, and then fly toward land, circling back repeatedly as they coax the youngsters along.

CABOT'S TERN. *Sterna sandvicensis acuflavida*. These terns are smaller than the Royal Terns, and nest with them in perfect harmony—if the constant bedlam for which these colonies are noted, can be called harmony. They are beautiful little fellows, silver pearl of wing, and white with rose-washed underparts. Their eyes are dark, and they have black crests which they erect when excited; they are more fearless than the Royal Terns, and seem to take better care of their young. Although they nest in the same colonies with the Royal Tern, they are not so numerous. On Tern Island, there were two nests of the Royal Tern for each one of the Cabot's Tern, and the percentage seems to hold in other colonies. The nesting season varies from the first of June until well into July. We have found the terns with downy young the first week in June, one season, while another year there were no young until July. Many times the entire colony is wiped out by high water, and it is no unusual sight to see eggs washed in windrows. This past season was a late one, for young terns were found on Brush Island only, during the first two weeks of June. On some islands the terns

had not started to nest, while on others we found fresh eggs only. On Brush, however, the downy chicks of Cabot's and Royal Terns were making their appearances, and at one edge of the main colony, along the beach where the waves had piled the shell, was a little group of Cabot's. When we approached too closely, they stretched their necks to full length, with crests erect, and protested at the top of their voices, and then, when a step nearer, they raised and drifted gracefully away, and then circled in against the wind and fluttered down to protect their youngsters from the hot sun. One adult tried to coax her little one over the rim of the beach to the water's edge. She would go ahead a few steps, teasing and scolding, and then go back, as though out of patience with the wayward child. This species has been listed as a resident, but Bailey has failed to record it on his numerous coastal trips during the winter months.

**FORSTER'S TERN.** *Sterna forsteri*. These terns are common summer residents, and they nest abundantly along the coastal marshes and islands east of the Mississippi River. They nest upon drift which has been stranded by the high tides, and make a rather bulky nest of grass in which are deposited the three greenish or brownish eggs. They are characteristic birds of the marshes, and we have never found them nesting upon the gravel, or associated with other species of terns. While a few of this species winter along the Gulf Coast, by far the majority migrate southward. They were common at the mouth of the Mississippi, October 25, 1928. Among the small terns which are seen over the sheltered bays during winter months, some are undoubtedly Common Terns, but we have no definite record of their occurrence.

**LEAST TERN.** *Sterna antillarum*. This small tern is becoming abundant among the shell islands off the east coast where it nests in colonies. It was practically exterminated in this region, along with other terns, when feather hunting was at its height, but due to protection, the birds are once more returning to their old haunts. They nest on many of the offshore islands, and we have found them on Breton Island, Free Mason, and Mitchell Keys, where their two protectively colored eggs are laid in depressions in the shell. They are aggressive little fellows and make ideal photographic subjects, having a pleasing way of alighting near their nests, and approaching with wings raised. The young are hard to find, for they crouch motionless when alarmed, but once the photographer is concealed, they tumble about the uneven terrain, reminding one of thistle down blown by the wind. They nest early in June, and all nests observed June 7, 1930, contained fresh eggs.



FIG. 23. Royal and Cabot's Terns, Chandeleur Islands.



FIG. 24. Royal Terns and young.

BLACK TERN. *Clidonia nigra surinamensis*. While these birds are common along the Gulf Coast during all seasons of the year, they have not been recorded nesting. They were abundant among the off-shore islands and over the coastal marshes during May and June, 1930. We observed them from the western part of the state to the Mississippi border. In Cameron Parish we noted them by the thousands over the lagoons, where they seemed to be feeding upon insects which were destroying the water plants.

BLACK SKIMMER. *Rynchops nigra*. These are common birds of the coast at all seasons of the year. They were numerous at Lost Island, December 8, 1918. Bailey records: "Skimmers are on the islands by thousands—great waves of them. They seem to be more or less nocturnal in their habits; during the day they sit on the mud bars or stalk about, talking with curious, raucous voices, but as soon as twilight comes around, they start flying close over the surface of the water, bands of fifteen to twenty-five working together." They nest abundantly on the islands east of the Mississippi, and colonies will be found upon the ridges of shell thrown up by the waves. The four speckled eggs are deposited in pits which the birds have fashioned with their feet and breasts. The downy youngsters are interesting in that their mandibles are nearly of an equal length, while the lower one of the adult is much longer than the upper. The skimmers were later nesting than the terns during 1930, for we found very few eggs, although the bands of adults were congregated at the chosen nesting sites, and the pits were prepared.

BLUE-FACED BOOBY. *Sula cyanops*. A specimen was secured alive in August, 1915, at Avery Island by E. A. McIlhenny; the bird had been blown inland by a gulf storm. Mr. E. S. Hopkins informs me he found a specimen dead on Coral Island, Chandeleur Group, in July, 1929. It was not preserved. Beyer, Allison, and Kopman record several specimens, but it must be considered a rare straggler in the state.

BOOBY. *Sula leucogastra*. This species is also an accidental visitor. It has been recorded previously, but the only definite record of which we know is an adult in the State Museum at New Orleans, which was collected in April, 1929, on Grand Isle, by E. S. Hopkins.

ANHINGA. *Anhinga anhinga*. This is one of the most interesting of the water birds. It is often seen along cypress-lined bayous, and because of its long, reptile appearing neck, it is often called the "snake bird". It nests in cypress trees in company with the herons, and we had many opportunities to study and photograph nesting birds. A dozen pairs had their nests among the low cypresses on Avery

Island, and large young were observed the last week in May. These tawny, downy fellows with long, snake-like necks, are fed by regurgitation, and they thrust their slender heads into the parent's throat in exactly the same manner as do the young pelicans and cormorants. Both sexes incubate the eggs and feed the young. Twenty or more pairs were nesting on Bird Island in Cameron Parish, in the same colony with American Egrets, Florida and Mexican Cormorants, and Wards' Herons. A characteristic posture for an adult to assume is to stand with wings and tail half-spread, and the long, slender neck outthrust. While this species has been recorded as a resident, we have no definite winter records.

DOUBLE-CRESTED CORMORANT. *Phalacrocorax auritus auritus*. An extremely common bird along the coast during the winter. On Lost Island, December 10, 1918, Bailey recorded thus: "The 'nigger geese' were seen by hundreds. We went ashore on one sandspit after dark, with a flashlight, and the birds allowed us within ten feet of them. Their eyes gleamed in the light, and there was a constant shuffling of feet in the hard sand as the big flock moved in front of us. The nearest birds floundered out of the way, but they did not seem greatly alarmed." Cormorants were seen by thousands at Grand Isle, March 15, 1919.

FLORIDA CORMORANT. *Phalacrocorax auritus floridanus*. We have not compared breeding birds from Louisiana with specimens from the north; this is the form which has been given as the breeding bird by Beyer, Allison, and Kopman, and by Arthur, but we have not made comparisons to check their identifications. We found a dozen pairs or more nesting on "Bird Island" in Cameron Parish, the nests being rather bulky structures in high cypress trees. Young were well grown at the time of our visit, June 1.

MEXICAN CORMORANT. *Phalacrocorax vigua mexicanus*. This is not a common bird; a few pairs were observed on the big lake at Avery Island during the breeding seasons of 1916, 1917, 1918, and 1930, but no nests were observed. In Cameron Parish, however, it was recorded at Bird Island during the different nesting seasons. This past season there were perhaps twenty nests with half-grown young. Adults were seen sitting about on topmost branches with half open wings, taking sun baths, a habit similar to that of the anhinga.

WHITE PELICAN. *Pelecanus erythrorhynchos*. This species is a resident along the coast, but has not been recorded breeding. A flock of twenty-four was observed at Timbalier Island, June 14, 1918, and another of forty, December 10 of the same year, on Lost Island. A

few birds were seen at Grand Isle, March 15, 1919. Many were seen from time to time over the lakes inland from Chenier au Tigre. The pelicans are good natured fellows, and make fine pets. One of the Conservation Department boats picked up a wing-tipped bird and kept it for several weeks. At first he refused to eat, but finally, when he decided to accept the gifts offered, he took fourteen catfish in succession.

**BROWN PELICAN.** *Pelecanus occidentalis*. The Brown Pelican nests on the different islands along the Louisiana Gulf Coast, but the largest colony is found on the "mud lumps" at the mouth of the Mississippi River. These lumps were thrown up by pressure from below, and those most thickly inhabited by pelicans are found off the mouth of Pass a Loutre, where thousands of birds come each year to raise their young. The first eggs are laid about the middle of April, the outermost islands being occupied first, and as the birds increase in numbers and overpopulate the islands, the islands toward shore are gradually used until all have their families of downy white youngsters and awkward parents. The nesting season extends over several months, there being fresh eggs on the innermost lump during the middle of June, while the young first hatched were shifting for themselves. We spent several days in June on this reservation and hardly expected to find young birds, for we had just visited several colonies near the Mississippi coast and found none, all the eggs being fresh. There is a difference of more than six weeks in the nesting time of the different colonies.

The old birds lay three chalk-white eggs in bulky nests on the ground, or among the bushes a few feet from the ground. On Errol Island and on some of the mud lumps which were devoid of vegetation, the nests were merely piles of sticks clumsily heaped together, while on North Island they were well made structures in the "mangroves". The young, when first hatched, resemble little India-rubber balls more than anything else; naked, black little fellows that are extremely sensitive to the sun, and so are constantly sheltered by their parents. In a few days the white down appears, and the rookery is white as a cotton field. As soon as the youngster is able to paddle about, he keeps his parents fishing in order to satisfy his enormous appetite, and there is a continuous arrival of old birds from afar—a long string of birds flying with methodically timed strokes—a few strong beats and then a coast, each bird following the wing strokes of the leader, and all scaling so close to the surface that it seems they must strike the water at every beat. And what excitement there is when the old ones arrive!



FIG. 25. Windrow of terns' eggs, washed up by the waves at Chandeleur Islands.



FIG. 26. Forster's Tern on the nest.



The downy fellows follow after the old ones with anxious, begging cries; the parents open wide their beaks and disgorge the fish, while the youngsters anticipate its arrival by thrusting their heads down the parent's throat. It is amusing to see heavy youngsters, weighing more than the adults, feeding in this manner, and the more they receive, the more they beg. They flop their wobbly wings and jerk their heads back and forth, blinking their eyes and staggering about. Often they receive so many fish that the tails of the last ones remain in sight, and when extra large fish are taken, their course can be followed down the skinny necks. Often the babies become so gorged that they sprawl on their breasts, or flop over on their backs with feet extended in the air. At first, when we walked around the rookery, we thought these stuffed fellows were dying, but when they were straightened out, they immediately disgorged and started paddling away. The young large enough to travel take to the water immediately when one comes near their home, and they gather in large flocks as they drift idly in the quiet water and wait until their rookery is undisturbed.

The pelican secures his food by diving, but only fish living near the surface are caught. Of the many we examined, not one game fish was found. Menhaden, a bony sardine, and a few mullet make up the bulk of their food supply during the breeding season.

Bailey records that at Grand Gosier in June, 1918, "we counted over 1200 newly made pelican nests with fresh eggs in each. We visited this island six weeks later, and expected to find it overrun with fuzzy youngsters, but to our surprise, there were fewer than 200 nests, and only one or two young in each nest. We thought at first that the abnormally high tides had drowned them, but we discovered four nests of sea turtles which had been robbed, and there were many tracks of raccoons. Undoubtedly, these animals cause immense damage among the nesting sea birds."

MAN-O'-WAR-BIRD. *Fregata aquila*. This species, which is known as the "storm bird" by the people of the coast region, is a summer visitor. We have never seen it during the winter. They are abundant about the pelican colonies on Errol and North Islands where they secure an easy living stealing from the nesting birds. It is a common sight to see thousands of these long-winged marauders sitting about the bushes; as one approaches the colony the Man-o'-war-birds take wing and sail directly overhead, often poising on outstretched wing as they eye the intruder inquisitively; often they will circle high in the air until they appear as small dots in the sky. A few definite records of their occurrence may be given; namely, several hundred were seen

at Isle of Pitre, June 7, 1918, and others on the same date at North Island. They were only about one hundred at Errol Island, June 5, 1919, while on June 10, 1930, several thousand were noted in one flock at North Island. Beyer, Allison, and Kopman give the species as a resident and breeding commonly, but on our many trips to the bird islands we have no evidence to support this.

**RED-BREASTED MERGANSER.** *Mergus serrator*. This is a common bird of the coast during the winter months. The local name, "bec-scie de mer" (saw bill of the sea) is an appropriate one, for they are found along the passes and in the gulf. They were seen on practically every trip during the fall and winter months, and Bailey's notes record that specimens were taken in Vermilion Bay, November 20, 1916, at Grand Island, March 15, 1919, and that there were many at the mouth of the Mississippi River off Main Pass, October 25, 1928. He failed to identify *Mergus americanus*, although it undoubtedly occurs along the coast in winter.

**HOODED MERGANSER.** *Lophodytes cucullatus*. These handsome birds were seen in small flocks in the tidal streams and bays along the coast during the winter. In November, 1918, many were observed in the small bayous adjacent to Vermilion Bay, and a few specimens collected. Several flocks were noted at Chenier au Tigre, March 10, 1918, and one bird in the same locality, December 8, 1925. While this species is generally distributed, it is never seen commonly when compared in numbers with other species of ducks.

**MALLARD.** *Anas platyrhynchos*. This is the common duck of Louisiana. They begin to arrive the latter part of October, and many remain until the latter part of April. They were observed in pairs in the western part of the state, in April, just before they started their northward migration. Their distribution is general, and their abundance in a given region from year to year, depends upon the food supply. In November, 1916, they were particularly numerous near Chenier au Tigre. A trapper told us that in a single run of ninety muskrat traps, he had caught seventeen Mallards. Under date of November 17, Bailey's notes read: "I never can hope to see more Mallards than I saw when I cut across from the ridge, for they rose in clouds from almost under foot, only to settle down a little way ahead. In places, they would rise from the cane, and would get tangled so that one could easily catch them."

**BLACK DUCK.** *Anas rubripes*. This species is generally distributed along the coast, and a few were seen on practically every trip during the winter months. They were noted as common on just one occasion,

near the Pass a Loutre, at the mouth of the Mississippi River, early in November, 1918, and even then they were few in comparison with the number of Mallards.

**MOTTLED DUCK.** *Anas fulvigula maculosa*. We have eight specimens of the "summer Mallard", including five from the eastern part of the state, two from the western, and a breeding female from the central part, (Chenier au Tigre). They vary considerably in the markings and the head, the breeding bird being especially lightly streaked. This specimen, which was taken with a set of eggs, May 27, 1930, appears faded, and the dark mottlings of the breast feathers are distinctly brownish in contrast with the black markings of the other seven birds which were collected in November. The mottled duck is a common resident of the salt marshes, and they nest abundantly during April and May. The bird upon the nest will often allow one within a few feet before flushing from the eggs, and when young are near, it will flop upon the marsh grass in an attempt to decoy the intruder away. The nests are concealed in grass, and are lined with down plucked from the breast. Bailey encountered an old bird with a brood of young at Chenier au Tigre, May 5, 1917, another one May 12, 1918, and found a nest containing twelve eggs, April 6, 1919. Three sets were found March 9-13, 1931, which varied from eight to eleven eggs. Owing to the fact that the nests are built on the ground, many are flooded when the gulf is forced back into the marshes.

**GADWALL.** *Chaulelasmus streperus*. This is a common form in Louisiana during the winter months. They begin to arrive early in the fall; they were common at the mouth of Main Pass by October 24, (1928), and were extremely abundant in western Louisiana on November 1. These birds were not regarded highly by the market shooters, as they spoil quickly. We have not encountered the species during the summer months.

**BALDPATE.** *Mareca americana*. This beautiful duck is also a common form during winter, and occurs in mixed flocks with the preceding species. They arrive early in October and many linger until early in the spring. We have no records of their occurrence during the summer months.

**GREEN-WINGED TEAL.** *Nettion carolinense*. A common species during the winter months. They arrive early in the fall with many other forms, and on October 24, 1928, they were abundant in the marshes adjacent to Main Pass at the mouth of the Mississippi River. They are generally distributed throughout the marsh country, and often are found in large flocks.



FIG. 27. Nest and eggs of the Least Tern, on the shell beach.



FIG. 28. Coots, at Chenier au Tigre.

**BLUE-WINGED TEAL.** *Querquedula discors*. The blue-wings arrive early in the fall, and many of them migrate to northern South America. They are common throughout the lowlands during winter, and are the last of the ducks to leave for the north in the spring, many of them lingering along the gulf until the first part of May. We have no records of the species breeding in the state. They are tame, and are often found in large flocks feeding about the borders of lagoons. On October 24, 1928, Bailey recorded them as common at the mouth of Main Pass, and on one occasion, observed a flock feeding in company with Coots and Shoveller ducks, while along the mud flats were several beautiful American Egrets.

**SHOVELLER.** *Spatula clypeata*. The Shovellers are common in lower Louisiana from the latter part of October until April, and a few linger in the marshes even during the summer months. They were especially abundant in Cameron Parish, November 1, 1928. A pair was observed May 27, 1930, at Chenier au Tigre.

**PINTAIL.** *Dafila acuta tzitzihca*. Pintails are common winter residents, the first arriving in late October, and the last stragglers returning to their northern breeding grounds in April. Often, several hundred males will be seen in a single flock; they are favorites of the sportsmen, and thousands are killed during the hunting season.

**WOOD DUCK.** *Aix sponsa*. This species inhabits wooded regions and is an uncommon one along the coastal marshes. The only record from the salt marshes which we have is one, a female, at Chenier au Tigre, December 15, 1925. They are not uncommon, however, along the wooded bayous near Avery Island, and a few pairs nest on the large lake in the center of the Island. We saw a small flock among the reeds May 18, 1930, and on the same date, encountered a female with a band of five half grown youngsters. Mr. McIlhenny reported them as fairly numerous along the wooded bayous.

**REDHEAD.** *Marila americana*. The only definite records we have of this species are a few specimens taken at Belle Isle Lake, Vermilion Parish, in December, 1925. They prefer the waters along the coast and large open bays, and Mr. McIlhenny reports them as numerous at certain times.

**CANVAS-BACK.** *Marila valisineria*. This species is found along the coast or upon large lakes, as are the Redheads, but is more abundant. Bailey found it common at the mouth of the Mississippi River early in November, 1918, and a few were seen in the vicinity of West Chenier Lakes, Chenier au Tigre, in November, 1916, March 6, 1918, and in December, 1925.

LESSER SCAUP DUCK. *Marila affinis*. These birds are very common in the larger lakes and estuaries, sometimes occurring in great numbers; they begin to arrive early in October, and many linger until the middle of April. In fact, Wright collected a specimen on Avery Island, May 17, 1930, which had been banded by Mr. McIlhenny at the same locality, February 12, 1930. The scaups are typical bay ducks, and are found most abundantly where the bays are affected by the tide. Although many scaup ducks have been examined, we have failed to find a single one which could be referred to *Marila marila*. The latter undoubtedly occurs, however; Beyer, Allison, and Kopman state it is a bird of the open gulf.

OLD-SQUAW. *Clangula hyemalis*. This rare straggler has been recorded a few times from Louisiana, and Mr. E. S. Hopkins has given us data for three other specimens. He killed a female at Grand Isle, April 4, 1921, and another in Cameron Parish, January 22, 1929, and saw a male which was shot by a sportsman, at the Delta Duck Club, in December, 1928.

WHITE-WINGED SCOTER. *Melanitta deglandi*. This species is listed by Beyer, Allison, and Kopman, and by Arthur, but the only definite record we know of is a young male taken in Cameron Parish by Elmer Bowman, the latter part of December, 1924. This specimen is now in the office of Mr. Lutch Stark, at Orange, Texas, and it was recorded in the *Auk*, July, 1925.

RUDDY DUCK. *Erismatura jamaicensis*. A very common winter resident, but we have not recorded it in large numbers, in any one locality. They are found in the lakes of the marshes, and when alarmed, often seek to escape by diving rather than by taking wing. They are generally distributed over the low country. A few were observed October 24, 1928, at Main Pass, and others were seen in Cameron Parish, November 1. They are not held in high esteem as game birds, as one of their local names "god-dam", will bear witness. This expletive is used when the hunter attempts to pick his duck, for they are very tough skinned.

SNOW GOOSE. *Chen hyperboreus hyperboreus*. This species winters along the entire coast of Louisiana, but they are found most abundantly in the western part of the state. They arrive the latter part of October, and leave for the north in April; their range is restricted to within a few miles of the coast. There is a great tract of land in Cameron Parish along the Sabine River and bordering the gulf, the property of Mr. Lutch Stark, where Snow Geese were extremely

abundant during November, 1928. The territory is a natural wintering ground, and I am told that the birds occur abundantly each season. The great flocks were feeding on the tender shoots of grass, and at times, it appeared there were acres of snow white birds. The dark colored young were numerous, (in fact, the big flocks appeared to be formed of family groups), but they were so protectively colored that they were not conspicuous, as were the adults. Among these flocks were a few Blue Geese—possibly one Blue Goose to twenty Snow Geese. In the eastern part of the state, the ratio is reversed; the Blue Goose is the common bird, and the white one the interloper. Of many Snow Geese examined during several seasons, not one approached the size given for the Greater Snow Goose.

BLUE GOOSE. *Chen caerulescens*. This is one of the most interesting of the game birds found in Louisiana. It is extremely abundant locally along the coast, from the mouth of the Mississippi to the central part of the state, in the vicinity of Chenier au Tigre. Farther west the species is found associated with the large flocks of Snow Geese. They arrive on their wintering grounds early in October, and remain until April. The main migration occurred, in the fall of 1928, on October 25, and Bailey records their arrival at Main Pass, at the mouth of the Mississippi River—"we went down Piling Bayou and into our blind along the gulf about nine o'clock. The noise of the boat flushed about 2,000 Blue Geese from the marsh, which we were sure were new arrivals. We soon realized that the main migration of the Blue Geese was on, for flock after flock and calling horde after horde came in from the west. They were flying high and each flock was apparently following in calling distance of the one before. The flight continued all the time we were in the blind, from 9:00 in the morning until 4:30 in the afternoon, with a flock of from fifty to two hundred birds in sight at all times, and often there were several flocks. We heard the birds coming in all night. A strong northwest wind had been blowing, which shifted to the northeast."

Chenier au Tigre is another ideal place to study the Blue Geese. They feed and spend the night in a great flat area known locally as the "pasture". Every morning the geese rise from their resting place and wing across the marshes, often stopping to feed at the Paul Rainey Reserve, or continuing on to the gravel banks of Hell Hole Beach. It is a wonderful sight to see the geese returning in the evening. On March 10, 1918, Bailey's field notes read, in part, "we saw the Blue Geese coming into the pasture, and it took them a full thirty minutes to pass—just a continuous stream. They seemed to fly in several dis-



FIG. 29. Young pelicans, on mud lumps, Chandeleur Islands.



FIG. 30. Pelicans, on mud lumps, Chandeleur Islands.



tinct groups, with about seventy large flocks to the group. There were five of these hosts of geese in all, and the regular V-shaped formations were often so interlaced that intricate networks were traced in the sky."

The plumage of the Blue Goose is varied, the belly often being nearly white, and we have specimens with white in the wings and back. Hybridism between this species and the Snow Goose is probable, for the forms are closely associated, and oftentimes an adult Blue and an adult Snow Goose will be seen with a small group of young birds, which would appear to be a family group. Bailey has observed such groups, and on October 25, 1928, one such family, if a family it was, passed his blind three times. This little band of five birds passed directly overhead, a fine Snow Goose leading, three gray immature birds following, and an adult Blue Goose with dark belly bringing up the rear. The guide called his attention to this one band, particularly. A half hour later they were seen again, in the same order, as they "bucked the current of the migration", winging northwest. They flew out of sight, and then, a few moments later, they were again seen drifting back with new arrivals. They were flying in the same group formation, with the Snow Goose leading.

There are approximately thirty Snow and Blue Geese in Lincoln Park, in Chicago, and we have watched them in the spring with interest. They pair off indiscriminately, and it is more unusual for a Blue Goose to have a similarly colored mate than it is for it to be paired with a Snow Goose.

**WHITE-FRONTED GOOSE.** *Anser albifrons albifrons*. This small race is the common one—if there are two forms in North America. It is found most commonly in the western part of the state where it feeds on the drier portion of the marsh. They were abundant in Cameron Parish early in November, 1917, and were observed again in November, 1928. Two were collected at Chenier au Tigre, April 6, 1919. They are rare along that part of the coast.

**TULE GOOSE.** *Anser albifrons gambelli*. During the fall of 1923, three specimens were secured, two at Pilot Town at the mouth of the Mississippi River, and the other in Cameron Parish in western Louisiana, which approach the size given for the Tule Goose. In some measurements they greatly exceed the minimum for that form, and in others they are slightly under. In other words, they are "betwixt and between" specimens. We are slightly skeptical about the advisability of two races for this species, when there is no geographic ground as a basis. When Messrs. Swarth and Bryant published the results of their study (1917), the difference given for *gambelli* included (1)

greater size, (2) difference in color of eyelid, (3) difference in number of tail feathers, and (4) difference in general coloration. It has been shown that the color of the eyelids and the number of tail feathers can not be used as diagnostic characters, and we doubt that the coloration of the back is any better. If the underparts of the White-fronted Goose are variable and become darker with age, then the upper parts are just as likely to be subject to change. The main difference between the two races, then, is one of size, and there seems to be a continuous gradation from the smallest to the largest. If the breeding grounds of the large bird could be found, and a geographic range established, we should feel that there is a more legitimate reason for dividing the White-fronted Geese into two races. The measurements for our three Louisiana birds, which are intermediate, but nearer those given for *gambelli* than *albifrons*, are: (C. A. of S. No. 2007) male, culmen, 55 mm.; wing, 430 mm.; tarsus, 72 mm. (C. A. of S. No. 2001) female, culmen, 57 mm.; wing, 415 mm.; tarsus, 70 mm. (C. A. of S. No. 1977) immature, culmen, 50 mm.; tarsus, 71 mm.; wing, 405 mm. Numbers 2007 and 1977 were taken at Pilot Town, Louisiana, and the immature specimen was a soft-bodied bird. It weighed 5½ pounds. The adult female, Number 2001, a very dark-bellied bird, was taken in Cameron Parish.

CANADA GOOSE. *Branta canadensis canadensis*. This species is fairly common locally in Louisiana during the winter months. It has become scarcer of late years, however. It arrives early in October, the first birds making their appearance at the mouth of the Mississippi in 1928, before the middle of the month. About one hundred birds were seen feeding in the marsh in company with an equal number of White-fronted Geese. This species was recorded from Chenier au Tigre but once in the many visits to that place, a half dozen birds on April 6, 1919. A fine flock of 150 birds was observed on the State Wild Life Preserve in November, 1916. The warden, Wilfred Trahan, said the flock had grown from 15 birds to 150 during the three years he had protected them. Cameron Parish is an ideal location to study these birds, for they still occur in numbers in certain places. They were common in the rice fields during February, 1919.

*Branta canadensis* subsp. Two small geese were collected by Bailey at Cameron Farm, Cameron Parish, February 27, 1919, the only ones observed in three years of field work. We never satisfactorily identified the birds, for some of their measurements placed them as *minima*, while others approached those given for *hutchinsi*. The Hutchins's Goose has been recorded as common in winter, and it may

have been in years past. It certainly is far from being numerous at the present time.

FULVOUS TREE DUCK. *Dendrocygna bicolor*. The first of this species was observed at Chenier au Tigre, May 6, 1917, a flock of twenty-five over the marsh. Five specimens were taken. A few small bands were seen during the following week. The birds have a characteristic flight, their long necks and dangling legs, and their methodical wing strokes giving them the appearance of ibises. A few were seen the following spring, but during the winter of 1925 the "Mexican squealer", as he is commonly known, was abundant in the vicinity of the Chenier. The marsh men told Bailey that about two thousand had ranged near the entire fall. There were about five hundred birds during his visit in December.

ROSEATE SPOONBILL. *Ajaia ajaia*. This is an uncommon species, its distribution being limited to the western part of the state, for the most part. A few were seen occasionally at Avery Island during the summer months; two were observed on April 27, 1917. A nesting colony was formerly located in the cypresses of Black Bayou, near the Sabine River. Fourteen birds were observed June 16, 1919, but they were not nesting. The Black Bayou colony was broken up because of the discovery of oil; greasy derricks and rattling machinery now are found where the roseates once held forth. The only nesting colony in Cameron Parish, so far as we know, is in a little cluster of cypresses known as Bird Island. The roseates are irregular in their nesting habits, however, and do not return to the Island every year. During the summer of 1930, we did not see a single roseate in the bird colony. The people living near by reported a few in flight the week previous to our visit, and we saw five birds over the marsh on the Cameron Land Company holdings. A small band was observed November 1, 1928, in the general locality.

WHITE IBIS. *Guara alba*. This form has been given as a fairly numerous one, but our experience does not justify this view. A few were seen at Avery Island, April 27, 1917, and one was collected, and a few were observed in Cameron Parish, June 16, 1919. Bailey and S. C. Arthur wore out a great deal of shoe leather in various marshes, endeavoring to find nesting places, where the birds were said to be "by thousands". Small herons were seen, but not a White Ibis. They undoubtedly nest in limited numbers, however, but they are far from abundant.



FIG. 31. Snowy Egret on nest, Avery Island.



FIG. 32. Little Blue Heron on nest, Avery Island.

GLOSSY IBIS. *Plegadis autumnalis*. The only records we have are from the mouth of the Mississippi River. There are four specimens in the Chicago Academy collections, secured through the kindness of Messrs. E. R. Pike and Joseph Leiter, which are of this species. Bailey saw several flocks in the same locality, October 22, 1928, and they were probably this species, but no specimens were taken.

WHITE-FACED IBIS. *Plegadis guarauna*. Ibises are usually common in the marshes of Vermilion Parish during the winter months, and flocks of hundreds of individuals are not unusual. All the specimens collected proved to be this form, although it is probable that some of the birds observed were of the preceding species. A few specific occurrences are as follows: ten were observed in the State Wild Life Sanctuary, November 20, 1916; several hundred at Chenier au Tigre four days later; common in large flocks, May 5, 1917, and again January 15 to 21, 1919. On January 15 Mrs. Bailey recorded in her notes, "the ibis has a swift, erratic flight when cruising over the lowlands; it swirls about in the air with wavelike motion so characteristic of skimmers, swooping this way and that, its wings making a loud, swishing noise in turning—a noise which is audible for several hundred yards. Each bird flies with no particular position in the flock, seemingly, but the flock rises and falls together with a rapidity which is surprising. When alarmed, however, they have a direct flight, the whole flock stringing out in file, each bird holding its relative position. They are curious, and occasionally the flocks will circle overhead, sailing slowly along and peering down with little calls of alarm. When the ibises alight and are feeding, they talk to each other contentedly, a noise which resembles the voices of a crowd of people talking at a distance; they feed in the long marsh grass where they catch crabs and crayfish."

WOOD IBIS. *Mycteria americana*. This species makes an irregular appearance in the lowlands; it will be seen commonly during the summer months in a given region, and few will be seen the following season. It was common in the marshes along the Sabine River, where it fed in company with the Roseate Spoonbills, in June, 1919, but during 1930, we did not see a single bird. Several large flocks were observed November 1, 1928, near the Gulf Coast, in Cameron Parish. It nests, as formerly, within the state; small colonies are reported from Tammany and Madison Parishes, by Beyer, Allison, and Kopman.

[To be continued]