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LIST OF THE BIRDS OF LOUISIANA.

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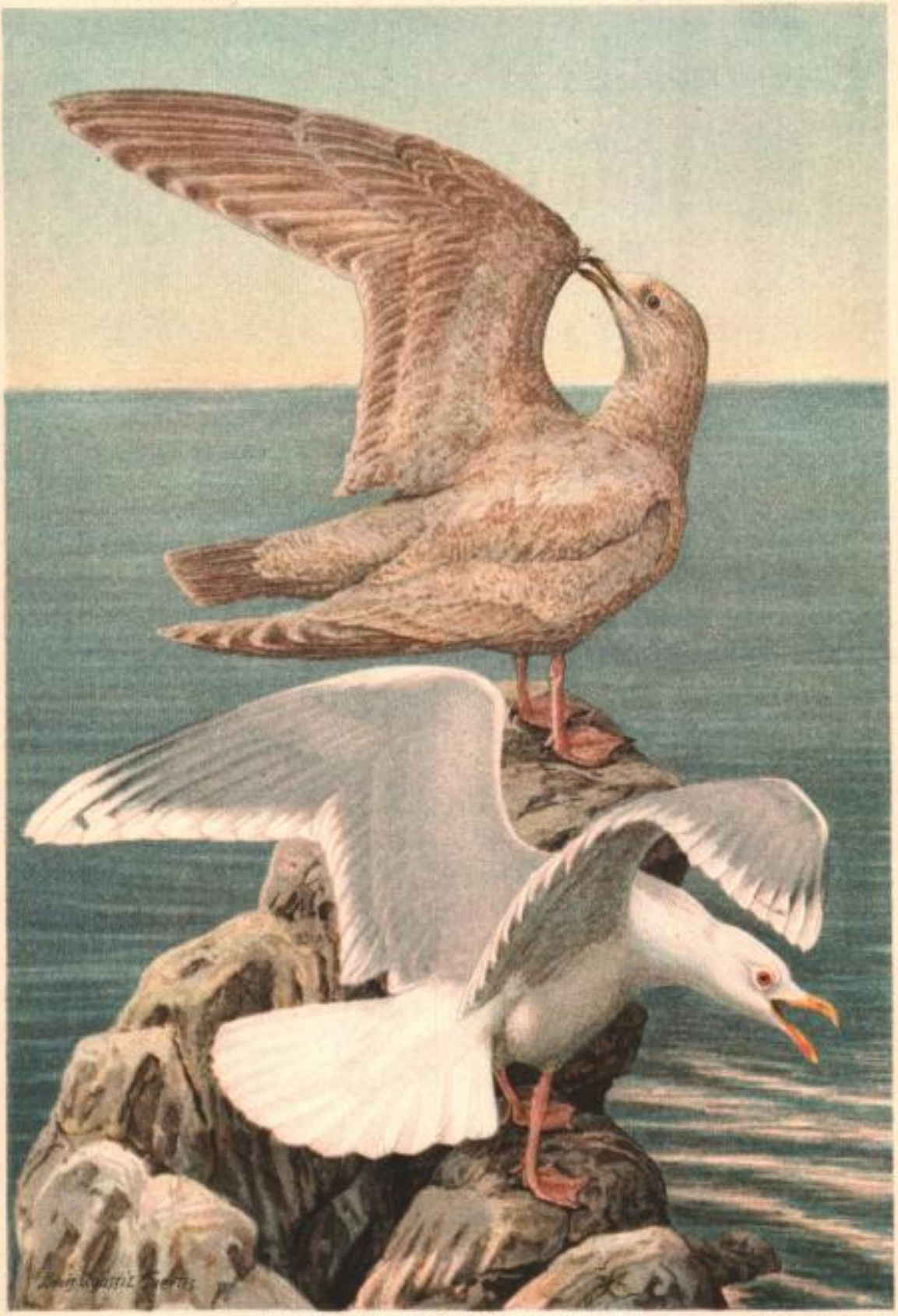
PART I.— PRELIMINARY SKETCH.

THE most striking feature of the well known topographical and corresponding biotic variety in Louisiana is the absolute contrast between the biota of the fertile and extended delta plain of the Mississippi in the southeastern part of the State and the biota of every type of Louisiana country to the west and north and northwest, except the remaining portion of the general flood plain of the Mississippi lying within the borders of Louisiana.

In the keenness of this distinction should be founded every attempt to understand the distribution of avian as well as all other life in this decidedly remarkable State; for since the low southeastern section referred to as the delta plain touches almost every other topographic type in Louisiana, great value is given to a study of life along the line of divergence between the extreme lowland in the southeast and all the slightly or much more elevated country of different soil conformations of Louisiana. The ecological problems here involved are scarcely to be paralleled elsewhere.

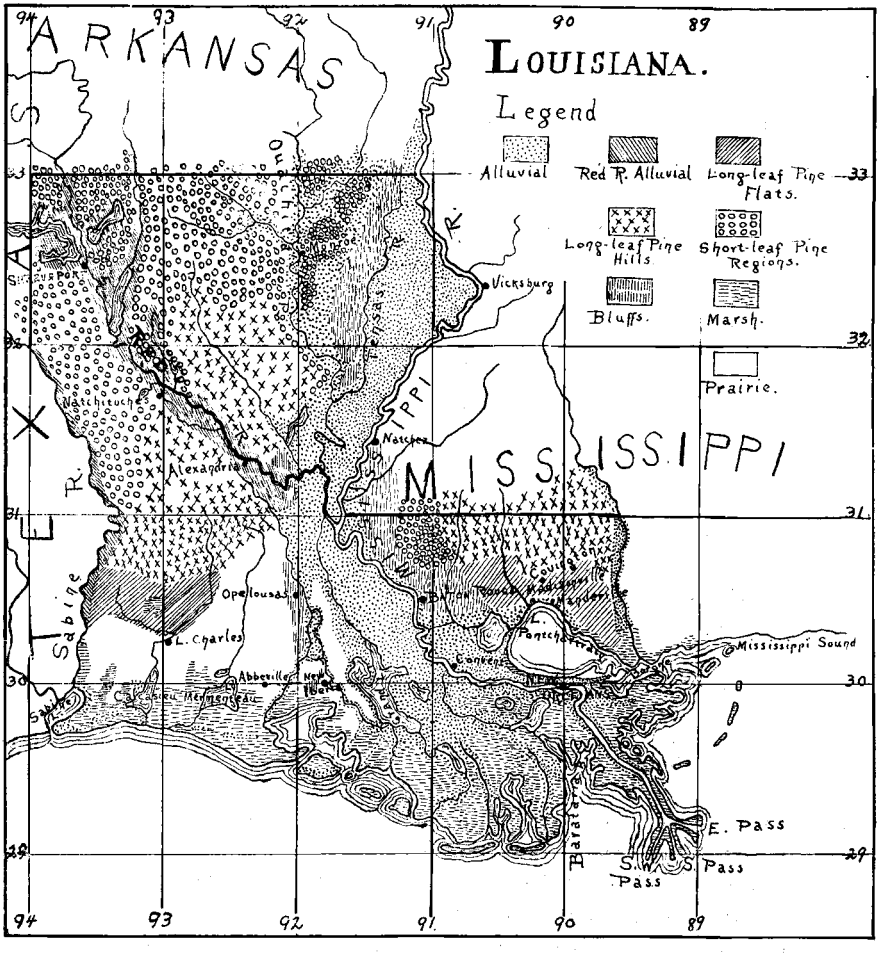
A view of the Louisiana avifauna might properly be focused in the southeastern part of the State merely in recognition of the uncommon difference between bird life as found in that section and as found in all other parts of the United States. The immense and, in some ways, peculiar development of aquatic bird life in southeast Louisiana especially, and a lesser, but corre-



LARUS KUMLIENI BREWSTER.

UPPER FIGURE, JUVENAL; LOWER FIGURE, ADULT.

sponding, development of bird life representing the higher orders, make this the peculiarly characteristic region of the State. This is the section to which has attached all bird-lore preëminently



MAP OF LOUISIANA.

Louisianian: it was chiefly through the exploitation of this region that Audubon brought the State of his birth so prominently before the ornithological world.

On account of the general, as well as the purely scientific interest involved, therefore, the ornithology of Louisiana offers its greatest and most attractive problems in a study of the correlative dispersal of species between this section and the remaining regions of the State.

Before considering in a general way the various types of country in Louisiana, we will take up several of the factors that make the southeast delta plain unlike all the other regions. The silt of the Mississippi deposited over its flood plain bears no evergreen conifers, and in such soil the entire coniferous tribe is unrepresented except for one species, the bald cypress (*Taxodium distichum*). The tree-growth of the delta plain is a most unusual development of deciduous trees unbroken by native evergreen arboreal growths except the live oak and the partially evergreen water oaks. In addition to these and the cypress, the predominant species of trees are red maple, ash, willow, tupelo (*Nyssa uniflora*), and box elder (*Negundo*) in the wetter situations; elms (*Ulmus americana* and *U. fulva*) nearly everywhere; Texas red oak in rich wet woods, and in drier localities with hackberry, honey-locust, cottonwood, sweet gum, and sycamore. Several species of haw, dogwood, and holly are found in considerable abundance. The lesser shrub growth is uninteresting, and contains but one evergreen, the wax myrtle. Over a large part of the area, the button-bush (*Cephalanthus*) is the most conspicuous shrub. It will be noticed that magnolia, *as a native,* is entirely absent from this region. In fact, the tree flora, if considered from the standpoint of separate species, is by no means peculiar or attractive. The tupelo, the cypress, and the live and water oaks are the only trees in any degree characteristic. The distinction of the extreme lowlands is the conspicuousness of certain familiar trees on higher ground, to the exclusion of many others equally characteristic of more elevated regions. In fact, the country under consideration exhibits a decided floral paucity except among certain of the cryptogamous orders. There is less peculiarity in the floral units than in the exuberance of certain growths, and in the manner of their distribution, combination, and adaptation.

The topographical peculiarity of this territory is the extent of its water-broken coast. The breadth of its marshes, the various

ramification of its sluggish bayous, and the impenetrability of its cypress fastnesses need hardly be reiterated wherever the literature of the time is known. In the particularly water-broken territory in the region of the lower Mississippi, however, there are features worth notice from a distributional standpoint. The region under immediate consideration lies between the 89th and 92nd degrees of west longitude and between the 29th degree of north latitude and a line following rather closely the northern shores of Lakes Pontchartrain and Maurepas, westward to about New Iberia, in central southern Louisiana. Such a line gives about the extreme southern breeding limit of the Baltimore Oriole, the Yellow-throated Vireo, and the Yellow Warbler. Continued still farther westward, to Lake Charles, in southwest Louisiana, this line in its full extent will give about the beginning of the rise to the highlands of the State, which are pronounced at such points as Covington, Baton Rouge, and Opelousas. New Orleans, on the other hand, is in the very heart of the typical low alluvial plain.

The marshes of southeast Louisiana extend in from the coast for varying distances, according to the conformation of the 'lakes,' and the courses of the streams. Whether the 'lakes' are salt or fresh depends, of course, upon the distance from the sea, and the volume of the streams with whose outflow they come into contact. The 'lakes' are merely the remains of former marginal bays, and, at present, the streams not only flow into them, but, in a majority of cases, flow out of them again. Lake Pontchartrain, though landlocked except for several small outlet channels, is comparatively salt. Some of those now a considerable distance inland, on the other hand, exhibit no salinity whatever. Just as between the fresh 'lakes' and the salt 'lakes,' no sharp line can be drawn, so between the latter and the ordinary inlets and bays of the Gulf, no exact distinction can be made. The consequent variability of the character of the marsh is readily appreciated.

It will be seen also that this variability is important in determining the comparative abundance of water birds in different localities of a region which casual inspection might pronounce uniform. As the seasons change, and with them the nature of avian requirements, certain species in this region show varying choices of localities. Moreover, different individuals of the same species appear

in the State in various rôles according to the season, and consequently their dispersion throughout this region will show much variation. These remarks apply especially to the Terns, the Herons, and the Rails, and to such semi-aquatic species among the higher orders as the Red-winged Blackbird and the Seaside Sparrow.

A feature of the immediate delta and southeast coast region of interest is the presence of hundreds of islands, some purely marshy, some more or less sandy, a few formed chiefly of shells, and still others formed entirely from the muddy deposits of the Mississippi, according, in each case, to the relative influence exerted by the building operations of the sea and by those of the river. The character of these islands is of great importance in studying the distribution of the terns on the coast, and is a subject that has scarcely been touched yet from a careful ecological standpoint.

The chief shrubby and arboreal growth of these islands is wax myrtle and dwarfed live oaks. The fishermen of the region often speak of 'mangrove,' but they use the word as a generic term. Prof. S. M. Tracy, expert of the U. S. Department of Agriculture and resident on the Gulf Coast, tells us that he has never found the mangrove on the islands about the mouth of the Mississippi, and that he doubts exceedingly its occurrence so far north.

In the main body of the marsh — what, in fact, might be called mainland — the occurrence of thickets and 'islands' of wax myrtle and small live oaks is characteristic. The more important growth, along some of the streams and about the borders of the 'lakes,' is chiefly cypress; these cypress brakes are outrunners of the swamps further inland.

At the latitude of New Orleans, except for the little marshy corner of the State on the east, and one or two similar small regions to the west, the continuity of the swamp *woodland* is practically unbroken, except for the water surfaces. Here again, however, there are small but important distinctions to be made. Owing to the continual elevation of the flood plain of the Mississippi, districts along the bank of the river have been raised entirely above the level of standing swamp water, while water from overflow has been made the rare exception by the levee system. Consequently, there is a considerable amount of comparatively dry woodland in

the parishes bordering the Mississippi in southeast Louisiana, and its bird life is appreciably different from that of the typical cypress and tupelo swamp.

The alternation of these two very mobile types of woodland with one another, and with the less important marshes, gives another highly interesting set of problems in distribution. With the gradual elevation of the country, such species as the Bob-white, the Florida Blue Jay, the Southern Meadowlark, and the Towhee, are gradually acquiring a wider coastwise dispersion. Some spots in this region, though probably not more than eight or ten feet above sea-level, have positively a slight upland cast in the appearance of their woodland, and the effect of this difference upon bird life cannot be better appreciated than during the migrations, when transient life will be largely attracted to such spots.

The peculiarity of the delta plain region is attested in a variety of ways. By virtue of its latitude, Louisiana might be expected to attract a considerable number of tropical birds in summer. As a matter of fact, however, it does not. But the few tropical birds occurring in the State in the warmer months seem restricted to the delta plain region.

To just what extent the avifauna of southeast Louisiana partakes of a tropical nature is shown by the occurrence and status of the following species: The Booby is a rather rare summer visitor to the water-broken region of the southeast; the Scarlet Ibis appears at exceedingly rare intervals; the White-winged Dove has been found in limited numbers on the coast islands; the Mangrove Cuckoo is alleged to occur there; while the Ani (*Crotophaga ani*) and the Groove-billed Ani (*Crotophaga sulcirostris*) are both very rare.

Another measure of the peculiarity of this region, as well as of its tropical affiliation, is the coastwise wintering of species mostly extra-limital at that season. But the winter conditions in even the southernmost part of Louisiana are not what would be expected of a region popularly estimated as subtropical. The margin of difference between fact and assumption in this matter may be gauged with some accuracy by the following data: The White-eyed Vireo and the Blue-gray Gnatcatcher winter casually in this section; the Tree Swallow winters irregularly, but sometimes

abundantly; while the Barn Swallow is supposed to winter along the coast in small numbers. Other species present very rarely in winter but apparently not by accident, will be considered in this connection in the systematic annotation.

The coast winter is usually sufficiently mild to attract a large number of the Limicolæ. Of the nearly forty species of this order so far recorded from Louisiana, fully half are represented by wintering individuals. Some of these individuals belong to resident species, as the Willet, the Killdeer, and the Wilson's Plover, while others represent species for the most part transient, such as the Dowitcher and the Semipalmated Plover.

The effect of winter on the Herodiones is much more pronounced than in the case of the Limicolæ. The reason is apparent; the congeniality of their summer habitat is affected not only by the mere fact of lower temperatures, but also by the practical defoliation of these abodes; for most vegetation is truly dormant, for a short period, in even the Louisiana coast winter. Consequently, a large part of the marsh and swamp habitats of the herons is rendered unfit for their resort; and as their feeding grounds lie among such places rather than on the beaches and mudflats, as in the case of a majority of the Limicolæ, their numbers in winter are greatly reduced. In fact, the Louisiana, Little Blue, Snowy, and Green Herons, the Reddish Egret, and apparently the Yellow-crowned Night Heron, are entirely absent in winter, while the numbers of all other species, except the American Bittern, essentially a winter visitor, are much diminished.

There appears to be no time in the Louisiana winter when all individuals of the several species of ducks occurring regularly in the State have been driven from the coast. Even the more southern wintering species, such as the Pintail, and even the Blue-winged Teal and others that pass far into the tropics, are usually represented in southern Louisiana to a considerable extent throughout the winter.

As for the other extreme of winter bird life in southern Louisiana, that of species driven south by occasional blizzards reaching to the Gulf Coast, it is not particularly striking. Such species as the Scoters, the Long-tailed Duck, and the Snow Bunting have been brought this far south on several occasions; but with the

exception of a slight increase of species already represented in the wintering bird life of the southern section, there is usually no great interest attached to these periods of unseasonable weather, which generally come about the middle of February. Even in deciduous southern forests, there is commonly considerable shelter, thus obviating the necessity of great movement of winter species when the blizzards strike far south.

To return to a more specific consideration of the elements that make southeast Louisiana unique in its avifauna, we find that possibly the most important of these is the absence of certain species very familiar in other regions. The Chipping Sparrow, for instance, has never, to our knowledge, been found in the fertile alluvial plain, while other common species, such as the Bluebird, have very circumscribed breeding areas within the region, and are general in distribution only in winter. Even at that season they are rarely common. The Bluebird, however, is apparently becoming better established, and recently we have found it at New Orleans in the nesting season. The Kingbird is decidedly uncommon in the region more closely adjacent to New Orleans, and appears in regular numbers only in the pine woods to the east, in Mississippi, in the pine flats and hills to the north, in Louisiana, and on towards the prairies in southwest Louisiana. About the same conditions prevail with regard to the Nighthawk and the Cowbird, and, less conspicuously, in the case of the Southern Meadowlark. Another peculiarity is the absence of all Nuthatches in southeastern lowland Louisiana.

The positive peculiarities of this region of the State are the abundance of Orchard Orioles and the abundance of wet woodland warbler life. Hooded and Prothonotary Warblers are astonishingly plentiful, and so is the Parula Warbler in certain localities, especially the neighborhood of New Orleans. The fondness of Swainson's Warbler for the growths of 'switch cane'(*Arundinaria tecta*) bring it to this section of the State as well as to the river bottoms in higher areas. But the distribution of this warbler is distinctly local in the former region. In fact, we have found it only near New Orleans, and we have not secured proof of its breeding there. The Sycamore Warbler, of course, is representative of this region, and especially of the lake and bayou cypress swamps.

The Kentucky Warbler is common in moist level woodland throughout the region. Other characteristic species are the Yellow-billed Cuckoo, the Green-crested Flycatcher, the White-eyed Vireo, and the Yellow-breasted Chat. The characteristic breeding finches are the Cardinal and the Painted Bunting. No other breeding finches, except the Towhee and the Indigo Bunting, in comparatively small numbers, are recorded for this section, though the Dickcissel is a hypothetical breeder in this area, and is always found in summer to the very eastern edge of the prairie region on the west.

A species whose range in Louisiana might almost be said to define the area under consideration is the Florida Grackle.

Catbirds and Thrashers are absent in summer, as, indeed, from most of the State. The normal abundance of Crested Flycatchers, Wood Pewees, Summer Tanagers, and Red-eyed Vireos, however, and the presence of the Wood Thrush as a breeder in much smaller numbers than these species, make it still more difficult to discover the exact set of characters to which should be attributed some of the deficiencies in summer.

In migration, the country is stamped somewhat peculiar through the practical absence of the northern breeding and extralimital wintering *Dendroicæ* and most of the other northern breeding Mniotiltidæ, except, of course, the Myrtle Warbler. The usual inconspicuousness of this class of warblers, however, is more or less characteristic of all the adjoining regions in both Louisiana and Mississippi, and, in fact, almost throughout the coastal plain of the Gulf States.

Even the more southern breeding warblers, such as the Black-and-white, Worm-eating, Yellow, and Redstart, are uncommon migrants throughout this Louisiana area in spring. In fall, the conditions are not so unusual. Notable exceptions in fall to the conditions found in spring are the more southern breeding warblers, and two of the more northern breeding, the Magnolia and the Tennessee. The last two are among the commonest migrants in October.

In winter, the conditions approach more nearly to what would be considered normal somewhat to the north. The principal exception to this statement is afforded in the small variety of win-

tering sparrows, which are practically limited to an abundance of Swamp, White-throated, and Savanna Sparrows. The Song Sparrow is practically unknown in this region. As has been stated already, the Chipping Sparrow does not occur at any season. White-crowned and Fox Sparrows are decidedly rare, and Vesper and Field Sparrows are about equally uncommon. The Myrtle Warbler, on the other hand, is remarkably abundant in winter. The Orange-crowned Warbler is often abundant in mid-winter, but never, of course, to the same degree as the Myrtle Warbler. The Pine Warbler invades this area from the pine regions. The Blue-headed Vireo is a characteristic, though not particularly common, mid-winter bird. The Purple Finch is seen chiefly in winters when there has been unusually severe weather, this species being somewhat of an exception to the statement made previously in this connection. The Junco, however, rarely reaches to the lowland. There is nothing especially peculiar in the winter distribution of Kinglets, Hermit Thrushes and Robins; Brown Creepers are more apt to be found in the pine region.

Several special topographical developments in the flood plain of the Mississippi may properly be treated with an account of the extension of the delta plain, for the lands bordering both banks of the Mississippi towards the south, and those bordering the west bank practically throughout the length of the State, display about the same characteristics in this entire distance. Of the special developments referred to, the most noticeable in the south is the formation of land outside the levees; in many cases, this land is subject partly or wholly to annual overflow. Such formation in southeast Louisiana is known as 'batture' (land that has been built by the river). Its principal tree growths are willow, cottonwood, and hackberry, with a varying amount of the other species characteristic of the drier soils of the lowland, but especially sycamore and honey-locust. These battures become perfectly dry, and, in fact, very well drained after the spring rises are past, but their moist and often partly flooded condition in spring and early summer makes them attractive to many birds. The manner of tree growth on the pure silt here deposited by the Mississippi is substantially different from that in the swamp lands away from the river. The even and somewhat open river bottom woodland

found regularly along the higher course of the Mississippi is roughly duplicated on these batture lands, whose avifauna, especially in migration, is frequently worth careful investigation.

Much of the flood-plain of the Mississippi along the northern half of its course in Louisiana is marked by very heavy swamp and a multiplicity of shallow woodland lakes, formed by cut-offs and ox-bow loops of the river. The water-bird life of the southeastern part of the State is reflected in this region.

Passing on to a broader consideration of topographical division in Louisiana, we thus have: (1) an extreme lowland coastal plain, including, as already described, the fertile delta plain of marshes and wet woodland and cypress swamp in the east, and the prairies and marshes in the west; and (2) an upland region, exhibiting successive degrees of elevation, from south to north, beginning with the slightly elevated long-leaf pine flats, and continuing through the long-leaf pine hills, and the uplands of short-leaf pine, oak, and hickory. This upland region, however, is traversed by the flood plains of the Mississippi and Red Rivers; the former extends along the eastern border of the State, the latter runs diagonally from the northwest corner and joins the Mississippi plain somewhat below the center of the State.

The transition from the river bottoms is chiefly direct in the case of Red River; along the Mississippi, however, it frequently occurs through a type of country not heretofore noticed. This further type is known as the blufflands (the cane hills of Hilgard). It is a more or less broken and elevated region, lacking extensive growths of pine, but showing a characteristic mixture of oaks, hickory, magnolia, and beech. These blufflands not only border the Mississippi flood plain, but in many instances, on the eastern side, in both Louisiana and Mississippi, extend to the river itself, so that the west shore at many points is flat and fertile alluvial, while the corresponding east shore shows precipitous banks, such as the hills upon which Baton Rouge, Natchez, and Vicksburg are situated.

The general similarity between the delta plain in southeast Louisiana and the rest of the Mississippi flood-plain lying within the State, has already been noted. The typical parts of the flood-plain throughout its length are essentially the same. Towards the north, of course, the general elevation is greater, and of interest are the

ecological differences naturally to be expected on account of the differences in altitude and latitude between the northern and southern parts of the flood-plain. But probably of more importance is the occasional occurrence of modified forms of the blufflands type of country protruding into the upper half of the alluvial plain.

The relation of the Red River bottoms to their contiguous country is by no means homologous to the case of the Mississippi River. The sharpness of distinction between the Mississippi bottoms in Louisiana and the adjoining upland country is not duplicated in the case of the Red River, although the transition in the latter case may be more direct.

Of the pine regions in Louisiana, the uplands of short-leaf pine and the long-leaf pine hills have about equal extension. The short-leaf pine uplands are confined almost entirely to the northwestern section of the State. There is a small area in the southeast, being an extension of this region as it occurs in Mississippi; in southeast Louisiana it occurs between cane hills on the west and long-leaf pine hills on the east.

The region of long-leaf pine hills occupies a large area in the central and western parts of the State, and a considerable strip in the east.

The pine forests of these upland regions are diversified, of course, by various broad-leafed growths, which are more or less confined to creek and small river bottoms. The predominant broad-leafed forms throughout the upland region of the State are beech, oak, hickory, and magnolia.

The long-leaf pine flats in Louisiana form two widely separated regions, one in the southwest and the other in the southeast.

In the southeast, this type is the most striking antithesis of the recently deposited fertile alluvial. Its peculiarity as a biotic area is more readily stated than that of the fertile alluvial, yet it is by no means so different from all other regions. It is preëminently the habitat of such resident species as the Red-cockaded Woodpecker, the Loggerhead Shrike (which never breeds in the fertile alluvial, and appears to winter there in smaller numbers than the Migrant Shrike), the Pine Warbler, the Brown-headed Nuthatch, and the Bluebird.

The most varied bird life of this region is to be found in the

heavily wooded river bottoms, in the mixed growths on the higher banks of streams, and in those diversifications of the flatter pine forests known as 'bay galls' or 'bayheads,' which are merely slight depressions, grown to the sweet bay (*Magnolia virginiana*), black gum (*Nyssa biflora*), red maple, and various shrubs peculiar to the region, such as, *Cyrilla, Illicium* (rose bay), and various ericaceous plants. One characteristic set of summer birds found in such situations, especially towards the south and in the lower growths, consists of the Wood Thrush, Parula and Hooded Warblers, White-eyed and Red-eyed Vireos, and Green-crested and Crested Flycatchers. Further north, from about the parallel of 31 degrees north, should be added the Yellow-throated Vireo, Worm-eating Warbler, and Louisiana Water-thrush.

The pine flats of the southwest merge gradually into the prairie section, which is sparingly pine-bearing almost to the coast. In scarcely any particular is this prairie region similar to the fertile alluvial region of the east. The change from its red and yellow clay soil conformation, however, to the muddy lands of the Mississippi, is very gradual, country of indeterminate nature stretches fifteen or twenty miles each side of the town of New Iberia. The most conspicuous feature of summer bird life on the prairies is the abundance of Mourning Doves, Nighthawks, Kingbirds, and Meadowlarks.

Along the coast, about the eastern edge of the prairie section, are situated the 'Five Islands,' pronounced by geologists to be without American homologues. They are hills in the marshy or prairie-land region. They have proved to be scarcely less interesting from faunistic and floristic standpoints than from a geological point of view. In their avifauna, however, they have been found less peculiar than might have been expected. The wealth of their woodland in a somewhat thinly wooded area has attracted large numbers of birds; but beyond this, no facts of particular ecological importance have been observed, except that in migration these spots attract a rather larger variety of birds than are found at corresponding times in the surrounding country.

It should be noted further of the prairie section that its river bottoms are fully as well wooded as those of any other section of the State, and along the rivers and bayous, and about the lakes

in the marshes that border it coastwise, are found swamp growths of the greatest luxuriance.

It is to the prairie section of Louisiana that are most naturally attracted western forms not found to any great extent in other regions of the State. Such is true of Sprague's Pipit, the Yellow-headed Blackbird, and the Swallow-tailed Flycatcher. Sprague's Pipit, however, is by no means unusual at New Orleans, while the Swallow-tailed Flycatcher at least is casual there. The Louisiana Tanager, which has been recorded once from the vicinity of New Orleans, and Brewer's Blackbird, which has been taken in the same region on several occasions, might both be expected to occur casually in the southwestern part of the State.

Summarized, the more important points of distribution in Louisiana give the following view:

Inland water-bird life includes chiefly the following forms: Residents — *Podilymbus, Larus atricilla* (may *not* breed in the interior), *Anhinga, Phalacrocorax mexicanus, Guara alba, Botaurus, Ardea, Nycticorax nycticorax nævius, Philohela*!, and *Ægialitis vocifera*; summer visitors — *Sterna antillarum, Ardetta, Herodias, Egretta, Hydranassa* (?), *Florida, Butorides, Ionornis, Gallinula,* and *Actitis*; winter visitors — *Pelecanus erythrorhynchos,* principal genera and species of Anatidæ, *Rallus* (except *crepitans* and *jamaicensis*), *Porzana, Fulica,* and *Gallinago*; transients — a large proportion of the Limicolæ.

The Falconidæ, except *Elanus, Ictinia, Buteo platypterus* (only in pinewoods towards the south), *Buteo lineatus alleni, Haliæetus,* and *Pandion,* are either absent from the State in summer or are chiefly confined to the upland regions at that season.

The common Strigidæ occurring in Louisiana, *Asio* excepted, are chiefly resident and generally distributed.

Coccyzus americanus occurs in all sections in summer except unbroken pine forests.

The Picidæ are generally distributed at all seasons, except *Campephilus,* which is very rare, and found in heavy forests of the central and eastern sections; *Dryobates borealis,* which is confined to pine regions; and *Sphyrapicus,* which occurs as a winter visitor. *Melanerpes erythrocephalus* is commoner in summer, and somewhat partial to piney regions.

Antrostomus carolinus, common as summer visitor in heavy growths in pine or upland regions, is rare in the low fertile alluvial of the southeast.

The distribution of the Passeres will be more readily comprehended if considered in relation to the distribution of pine and hardwood growths.

Unbroken tracts of pine forest normally attract none but the following forms: Residents — *Corvus, Sturnella, Spizella socialis, Peucæa, Lanius, Dendroica vigorsii, Sitta,* and *Sialia*; summer visitors — *Piranga rubra*; winter visitors — *Astragalinus, Spinus, Poœcetes, Passerculus, Ammodramus henslowii*! (at least in long-leaf pine flats), *Dendroica coronata, Dendroica palmarum* and *Merula*; transients — *Dendroica virens.*

In point of species, omitting the few important exceptions already noted, the resident, summer visitor, and winter visitor classes of bird life in the State are mainly the same in all broad-leafed growths, whether forming unbroken forests as in parts of the east and southeast, or whether occurring as diversifications of the pine regions.

In point of comparative abundance of various species, however, there are great differences to be found in the several sections, as noted earlier in this résumé.

The occurrence of transients, as shown before, is most limited in the fertile alluvial of the southeast. The extremity of this condition is found in the typical swamps of cypress, red maple, tupelo, elm, and ash. In spring, especially, such country is practically unvisited by transients, except of the few species that breed there. Where the land and the growth have both been diversified by agriculture or through other means, the passage of transients is much more noticeable in this region. Furthermore, in both spring and fall, there are a few purely transient species that are found in striking abundance.

Attention is merely called again to these interesting conditions, which cannot be thoroughly understood without study of the annotated list to follow.

(*To be continued.*)