

In flight this species can be distinguished at any distance by shape alone. The female is about as long as a Black Duck and the male considerably longer, though at any distance the long tail-feathers become invisible making it appear but little longer than the female. The long slender neck and slender body are, therefore, very striking. Compared with a Black Duck, the body is much narrower and less deep. The wings are also much narrower at the base than any other fresh water species. The flight resembles that of the Baldpate.

The female has a hoarse, guttural quack, the male a mellow, piping whistle like the syllables *whee, ee, ee, ee*, very rapidly uttered.

15. *Aix sponsa*.—WOOD DUCK.

The beautiful plumage of the male Wood Duck is unique, and unexcelled by any other North American species. On the wing the brilliancy of the colors is lost. The head is ornamented with a long crest, however, and there are conspicuous white markings on the sides of the head and neck, and a broad crescent of white in front of the wing. The female has a noticeable crest, is dark brown in general color, and resembles a female Baldpate in general appearance. The chin, is however, pure white, and there is a conspicuous white eye-ring. There is also very much less white in the wing.

In flight at any distance a stray female Wood Duck mixed in with other species could not be distinguished with certainty. It prefers wooded swamps and flooded lands, however, where the other species of Anatinae rarely occur. The Wood Duck is rarely seen in the marshes or on large bodies of water. It is perfectly at home in the woods, darting through the trees at top speed, and frequently alighting on branches and stumps, a habit shared by no other species.

The commonest note of the male is a *hoo-éek-hoo-éek*, given when alarmed. It also, according to Eaton, has a mellow *peet, peet*. The call of the duck closely resembles her mate's.

*American Museum of Natural History, New York.*

(To be concluded)

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## THE WINTER BIRDS OF THE BILOXI, MISSISSIPPI, REGION.

BY JULIAN D. CORRINGTON.

HAVING occasion to spend the latter half of the winter of 1920-1921 on the Gulf Coast, I took the opportunity of making a study of the fauna, and particularly the birds of Biloxi, Mississippi, and its environs, and found this territory to be a veritable paradise for winter birds of all groups.

A second trip was made to Biloxi for the last nine days of December, 1921, and additional observations made at that time.

*Concerning Biloxi.* This region is a part of the American Riviera, which extends from New Orleans to Mobile, and which is fast becoming a popular "all-the-year-round" resort. The coast line is dotted with mansions and cottages and a line of watering places, the principal ones being from west to east, Bay St. Louis, Pass Christian, Gulfport, Biloxi, Ocean Springs, and Pascagoula. These cities are all in the State of Mississippi, and face the Mississippi Sound, a shallow body of water partially separated from the main Gulf by a chain of long and narrow islands, lying on an average of nine miles from shore. This country is served by the Louisville and Nashville Railroad, the Gulf and Ship Island Railroad, in part by an electric interurban line, and by fine shell roads.

Biloxi is situated on a long thin peninsula, washed by the Mississippi Sound on the south and the Biloxi Back Bay on the north. The chief industry is that of the sea,—fishing of all kinds, but principally the canning and exporting of oysters and shrimp. The immediate back country is not suitable for agriculture of a general nature, as nearly fifty per cent of the land is made up of small marshes and wooded swamps for a considerable distance inland. However, the orange and pecan groves flourish, and do well on reclaimed soil.

*Acknowledgements.* The writer met with unfailing kindness and courtesy from many friends made in Biloxi, and wishes to especially recognize here the assistance rendered by Mr. John Hord, who made the more distant trips to Ship Island and the Pascagoula Swamp possible with his power boat and car, and who aided in many ways, among which was the satisfactory establishment of the presence of certain species not seen by the author. Thanks are also due Dr. A. A. Allen of the Zoological Department, of Cornell University, for helpful criticism of the manuscript.

*Previous Publication.* During the four day period of February 13–16, 1904, Messrs. H. H. Kopman, W. B. Allison, and Andrew Allison made observations in the vicinity of Bay St. Louis, the western-most of the Riviera resorts. This city is the county seat of Hancock County, and since this is the only one of the three coastal counties not covered in my own studies, I have decided to include

these records in the present writing. The younger generation of readers may not be familiar with Mr. Allison's paper, and then too, it is well to have the winter avifauna of the three adjacent counties incorporated in a single article. This report\* includes 61 species, and is the only published record to my knowledge of this interesting region.

The territory embraced in the following records is by no means uniform in its faunal distribution, and for the purposes of this paper I have divided it into seven localities, designated by the letters A to G.

Locality A is bounded on the east and west by the cities of Biloxi and Gulfport, and on the north and south by Back Bay and Mississippi Sound respectively. Throughout it is heavily wooded with deciduous trees, with but scatterings of pines, which accounts for the absence or scarcity here of the typical birds of the great southern pineries. There are occasional small wooded swamps and innumerable small marshes, fresh water on the north, salt water on the south. A goodly number of farms and clearings occur, but field frequenting birds are rare. Several places in this area were especially good for bird study, notably the Biloxi Cemetery, the Confederate Soldiers' Home at Beauvoir, the Camp Ground, Heartsease, Handsboro, and the Golf Links. At Gulfport, a long pier runs out from the Great Southern Hotel grounds to the beach, crossing over a good sized salt marsh. This proved an especially fertile field for marsh birds, as one could look directly down upon them and observe with ease, though on descending to the ground he would be able to see little or nothing because of the dense and high growth. Much was accomplished here without the use of a blind.

Locality B includes the towns of Ocean Springs and Seymour, the latter being a cross-the-bay extension of Biloxi. The character of the land is quite different, and even in places where one might throw a stone across, the change from locality A to B is very noticeable. Deciduous woods are present but are greatly overshadowed by the pines, and large fields of various kinds occur,

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\* Allison, Andrew: Notes on the Winter Birds of Hancock County, Mississippi. Auk, XXIII, 1906, No. 1, pp. 44-47.

with apparently more successful and attractive farming. Marshes are much scarcer but there are several fair-sized swamps. As a consequence of these differences, the bird life of the two regions presents many contrasts. Meriting especial mention for field work are the vicinities of Seymour and Woolmarket.

Locality C, Deer Island, is a more compact unit as would be expected, and was one of the finest spots for bird study, particularly for groups lower than the Passeres, in the entire region. Pine groves clothe the eastern and western ends, and the shores everywhere teem with life. The bulk of the interior consists of one great marsh, well enough isolated from civilization to retain a primitive wildness, and was indeed a treasure house of marsh forms.

Locality D, Ship Island, is similar but not as good. Only the eastern tip, from the lagoon east bears any vegetation, and consists of pine groves and marshes. The remainder of the island is a long and narrow spit of bare sand.

Locality E is the Mississippi Sound portion of the region visited.

Locality F, the Biloxi Back Bay, is salt water for only a short distance inland, and was well supplied with bird life in spite of the constant traffic. The long bridge across to Seymour furnished good hunting with the field glasses.

Locality G embraces the great Pascagoula Swamp, a compact unit, and one well deserving of a separate volume. On two successive days my friend, Mr. Hord, took me out by automobile to points beyond Vancleave whence we paddled in a dugout through miles of veritable fairyland, covering different routes each time. An uncharted wilderness, this vast swamp consists of a maze of interlacing bayous and lakes in which the unacquainted would be speedily lost. The land areas, much of which were under water at the time of our visit, are heavily timbered but without the tangle of undergrowth one might expect, and the water everywhere was completely free from debris, never stagnant, and entirely fit to drink. In the bayous, all of which connect up with the large central Pascagoula River and its branches, the water averaged some fifty feet in depth and afforded wonderful fishing. We saw alligators and swarms of turtles, but very few snakes indeed. Mr. Hord told me that the razorbacks which run wild in the swamp keep them killed off. Hunting parties from Biloxi, Gulf-

port, and other points find the shooting exceptionally good here, the bags of Wild Turkeys running from ten to twenty for a two or three day trip of several persons, with a few deer and even an occasional bear. With limited time, we could not penetrate deeply enough into the swamp to find such game, but my ornithological zeal was satisfied by the sight of an Ivory-billed Wood-pecker, a bird so near extinction that I had never hoped to see a living specimen.

*Ecological Associations.* Zoologically, the region lies in the Austroriparian Zone, and the characteristic species of this belt are well represented. In the following synopsis of the forms recorded it will be of value to note the ecological associations in which each typically occurs, together with those which it may invade. These environments are given as I found them to be for this particular region and for the winter only, and have no connection with the possible haunts of the birds at other places and seasons. No attempt was made in this study to work up the flora systematically, and of animals only the birds are given, as other forms lie without the scope of this publication. Thus simplified, I have listed the Associations under ten headings, as follows:

1. The Open Water Association, consisting here of localities E and F. The flora includes the usual seaweeds of the shallows.
2. The Littoral Association, practically without vegetation and including all shore lines, tidal flats, bars, and the water bordering them for a distance of fifty feet outward.
3. The Marsh Association, involving fresh, brackish, and salt water marshes and made up principally of sedges, rushes, and cat-tails.
4. The Swamp Association, composed of small swamps in scattered places particularly in the various river bottoms, but reaching its full development only in the magnificent Pascagoula Swamp. Here the flora includes live oaks, cypress, sweet gum, tupelo gum, spruce-pine, and some scrub palmetto in the drier places.
5. The River Association. Fresh water streams in themselves form an environment characteristic of a few species and must be listed separately. Practically all of the other associations descend

to the very banks of the rivers, but the birds listed under this head are typical of the river and not of the surroundings. The Water-lily is the most frequent plant.

6. The Field Association. Under this general term are included such diverse habitats as wet meadows, dry upland fields, thickets, and the very numerous areas of scrub palmetto.

7. The Deciduous Woods Association. The characteristic tree all over this region is the live oak, which grows everywhere, from the beaches to the distant swamps. Many other oaks are in evidence, and there are lesser growths of magnolias, sycamores, hickories, etc.

8. The Coniferous Woods Association. Various evergreens are found, but the long-leaved yellow pine is the most abundant. This is a very compact association, many of the typical forms occurring nowhere else.

9. The Universal Association. An artificial group created to take care of some of the most widespread forms,—those which are encountered wherever one may go, be it beach, swamp, or dense pinery, and which are apparently equally at home in any environment.

10. The Social Association. Another artificial category, and including those species which are only to be met with in the immediate vicinity of dwellings, whether of town or farm.

*Description of Field Studies.* The record covers a period of 78 days, from January 13 to March 31, inclusive, during which time there were 26 days on which regular field trips were made for the express purpose of faunal study. Of these, 9 were taken in January, 10 in February, and 7 in March. Again, of the 26, 13 trips were made in Locality A, 8 in Locality B, 2 to C, 1 to D, and 2 to G. Localities E and F were studied in connection with many of the above trips, and were noted casually every day. In addition to the 26, cursory observations for a brief period to nearby points were made on 9 additional days.

On my second visit to Biloxi, covering the dates of December 23 to December 31, 1921, several cursory records were added, and two field trips made, one up the Biloxi River by boat, and one to the Pascagoula Swamp.

*Hypothetical List.* A number of species should be at least occasionally met with in this region in the winter that I did not find, and for whose presence I could not establish satisfactory evidence from local sources. Also it is well to call attention to the fact that certain groups are more fully represented in number of species in this region than the synopsis would indicate.

- The Water Turkey (*Anhinga anhinga*) proved the most elusive of all. Many times I responded to calls to "come and see the Water Turkey," and many persons pointed a would-be specimen out to me, but in each case the bird in question turned out to be a Cormorant. I looked for them in all of the most suitable situations, especially inland on the rivers, but never found one.

Reports were both numerous and credible from fishermen, hunters, and from sailors stationed at the Gulfport Naval Training Station, of large mixed flocks of Ducks and Geese of many different species to be met with on the open Gulf beyond the chain of islands. Unable to go out there, I had to be contented with the small flocks and strays seen along the coast, and my list of Anseres is unquestionably very incomplete.

The Sandhill Crane (*Grus mexicana*) was another form of reported common occurrence but each bird observed proved, as might be expected, to be a Great Blue Heron.

The list of Rails is undoubtedly deficient, and both species of Gallinules should also occur in this fauna. The difficulties always attending the study of this group were intensified here by the dense and high growth in all the marshes, and by lack of time and opportunity to use a blind.

Shore-birds are certainly more numerous in species than my list would indicate, but are of erratic distribution locally as well as generally. More trips to the islands would probably have swelled my number of Limicolae considerably. I believe I saw some Semipalmated Sandpipers (*Ereunetes pusillus*) on Deer Island, but could not approach closely enough to make certain.

I expected to encounter the Ground Dove (*Chaemepelia passerina terrestris*) but could not find it or uncover any reliable records of its presence here. The same is true of the Osprey (*Pandion haliaetus carolinensis*). A reward was offered anyone who could show me a Barn Owl (*Aluco pratincola*) but it remained unpaid.

No traces were found of Screech Owls, the Whip-poor-will, Purple Finch, Red-breasted Nuthatch, and others of anticipated winter occurrence.

Regarding the Pine Siskin (*Spinus pinus pinus*) there is some evidence but no proof. Allison's paper brackets this species with a question-sign and the remark: "Doubtful. A flock of supposed Siskins seen." Several persons in Biloxi also told me they are fairly sure of having seen Siskins during several winters.

*Subspecies and Geographic Races.* The ultimate analysis of certain forms was not determined, as I had no opportunity for general collecting or the preparation of skins, and the identification of the forms listed below cannot with certainty be made in the field. Also I question the value of going around shooting Meadowlarks, for example, just to see if the form present is the Meadowlark (*Sturnella magna magna*) or the Southern Meadowlark (*Sturnella magna argutula*) or if both occur. I did take one Grackle and found it to be the Florida Grackle (*Quiscalus quiscula aglaeus*) but the Bronzed Grackle (*Q. q. aeneus*) is very probably found here in the winter also.

The following forms are listed in the synopsis under the binomial term only, though it is practically certain that both the migratory and resident forms are intermingled all through this part of the South in the winter.

Migrant Race.	Resident Race.
Double-crested Cormorant	Florida Cormorant
<i>Phalacrocorax auritus auritus</i>	<i>Phalacrocorax auritus floridanus</i>
Great Blue Heron	Ward's Heron
<i>Ardea herodias herodias</i>	<i>Ardea herodias wardi</i>
Northern Flicker	Flicker
<i>Colaptes auratus luteus</i>	<i>Colaptes auratus auratus</i>
Meadowlark	Southern Meadowlark
<i>Sturnella magna magna</i>	<i>Sturnella magna argutula</i>
Migrant Shrike	Loggerhead Shrike
<i>Lanius ludovicianus migrans</i>	<i>Lanius ludovicianus ludovicianus</i>
Maryland Yellow-throat	Florida Yellow-throat
<i>Geothlypis trichas trichas</i>	<i>Geothlypis trichas ignota</i>
Robin	Southern Robin
<i>Planesticus migratorius migratorius</i>	<i>Planesticus migratorius achruster-</i>
<i>ius</i>	<i>us</i>

*Synopsis of Species:* The arrangement adopted for presenting the data of the synopsis is as follows:

First paragraph consists of statistical matter, made as concise as possible and arranged in the following order:

1. Status of species as a winter visitant or resident of this region.
2. Localities in which the species was found.
3. Typical ecological association in which the species occurs here in the winter, together with those which it may invade.
4. If the species is recorded in Allison's paper, the notation "Allison, common," "Allison, a few," etc., follows, giving the status as he found it in the Bay St. Louis district.

Remarks of a general or particular nature on phases of distribution, associations, notes, or unusual behavior are given in a second paragraph.

The nomenclature follows the A. O. U. Check-List of 1910 and subsequent supplement.

Of the 112 species listed, 96 were recorded by the present writer of which 54 were also noted by Allison, 7 additional forms were observed by Allison which I did not find, 4 more are mentioned in other papers by Allison, 2 rest on the reliable authority of Mr. Hord, and a final 3 were striking birds, impossible of confusion by the veriest amateur, and reported by numerous residents of Biloxi in such a manner that I am satisfied of the propriety of their inclusion in this list.

1. **Colymbus auritus.** HORNED GREBE.—Rare. Locality E. Littoral Association.

Throughout my first visit, none of these birds were seen, but on December 25, 1921, a very tame individual spent the day close to the shore at the Biloxi Yacht Club Pavilion, and was not frightened away by passing traffic.

2. **Podilymbus podiceps.** PIED-BILLED GREBE.—Common. Localities D, E, and F. Littoral Association, invades Open Water and River. Allison, 2.

Found in small flocks of three and four individuals, either quite tame and frequenting shore lines of busy waters, or farther out in company with Ducks.

3. **Gavia immer.** LOON.—Common. Locality E. Open Water Association, invades Littoral.

Occurred singly or in groups of from two to four. Were not unduly wary and did not mingle with other birds. Last seen April 4.

4. **Larus argentatus.** HERRING GULL.—Abundant. Localities E, and F along all shores. Littoral Association, invades Social along waterfront. Allison, common.

The majority of all specimens observed were immature birds. They could be seen at all times about the fishing docks and factories, but were much less in evidence along the residential beach. Last seen March 27.

5. **Larus delawarensis.** RING-BILLED GULL.—Abundant. Localities E and F along all shores. Littoral Association, invades Social on waterfront. Allison, common.

This was the most abundant Gull of any, and was more often met with along the residential than on the commercial beaches. Not observed after April 6.

6. **Larus atricilla.** LAUGHING GULL.—Allison states a few were seen by his party, but I did not record this species.

7. **Larus philadelphicus.** BONAPARTE'S GULL.—Common. Localities E and F along all shores. Littoral Association, invades Social along waterfront.

This Gull was much less in evidence than others and like the Ring-billed, preferred the residential beach. All of the Gulls mingled considerably but while this species was often observed in company with the Ring-bills, it was seldom seen with Herring Gulls. Last recorded March 21.

8. **Sterna maxima.** ROYAL TERN.—Common. Localities E and F along the shores and bars. Littoral Association, invades Social on waterfront, but much less frequently than Gulls.

These birds were seen resting on sand-bars in company with Gulls, Skimmers and Limicolae, and were frequently noted singly while fishing. I did not identify any Caspian Terns, *Sterna caspia*, but judge that they too are found in this region as they winter on the Gulf Coast in many places. Allison records them on the Louisiana Coast not far distant,\* but I do not give them a separate rating in this list, as I can find no definite data of their occurrence in this Biloxi region.

9. **Rynchops nigra.** BLACK SKIMMER.—Common. Locality E along shores of A and C. Littoral Association.

Skimmers were always seen in large flocks of from 75 to 100 individuals, and were most commonly found resting on the bars with Gulls, Terns, etc., and did not seem especially afraid. In fact, one flock approached a small skiff I was in with apparent curiosity, and as I made no movement, soon fell to feeding in their peculiar manner all about the boat, uttering their hound-like barkings. A certain flock roosted on the western spit of Deer Island and could be seen going out over the Gulf in the morning to points unknown, and returning about sundown. They flew swiftly, in very compact formation, and just barely above the surface of the water,

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\* Beyer, A. Allison, and Kopman: List of the Birds of Louisiana, Part III, Auk, Vol. XXIV, 1907, no. 3, p. 315.

keeping a perfect unison in the wing-beats. They did not feed en route during this daily journey.

10. **Phalacrocorax auritus.** DOUBLE-CRESTED CORMORANT.—Abundant. Localities E and F, near shores, and G. Littoral Association, invades Open Water, Swamp, and River.

One flock of 25 of these birds apparently roosted on or near the southern shore of Black Bay, as they were several times disturbed and seen to swim out from shore in the early morning. In a short while this flock would disperse and I never met such large groups after seven A. M. Cormorants were a common sight, though, at all times of the day perched singly on every buoy and beacon in the various harbors, and would suffer a close approach from passing boats. Individuals were also seen farther out in the Gulf, fishing from the surface of the water.

11. **Pelecanus erythrorhynchos.** WHITE PELICAN.—Uncommon. Open Water Association.

Not recorded by the writer. Reported to be occasionally met with in the open Gulf beyond the chain of islands, by fishermen, sportsmen, and others, who furnished accurate descriptions of appearance and feeding habits.

12. **Pelecanus occidentalis.** BROWN PELICAN.—Faily common. Locality E, near shores of A and D. Open Water Association, invades Littoral.

Seen fishing singly or by twos or threes. Occasionally noted perched in grotesque fashion on piles, once in company with Great Blue Herons. They fly with great ease and buoyancy for so heavy and clumsy looking birds, with more sailing than flapping, and when diving for fish do so precipitately and with a great splash that can be seen and heard half a mile or more.

13. **Fregata aquila.** MAN-O'-WAR BIRD.—Uncommon. Locality E, and beyond the chain of islands. Open Water Association.

I saw none of these unique birds myself, but they were reliably reported by fishermen and sportsmen.

14. **Mergus serrator.** RED-BREASTED MERGANSER.—Common. Localities E and F, near shores of A, C, and D. Open Water Association, invades Littoral.

Next to the Lesser Scaup this Duck was the tamest of any and suffered close approach by boat even during the shooting season. They were most commonly seen, in fact, where the bay traffic was the heaviest.

15. **Anas rubripes(?)**. BLACK DUCK.—Uncommon. Locality E; near A. Open Water Association, invades Littoral.

I am not aware that this species has been recorded heretofore as wintering on the Gulf Coast, and so hesitate to make the diagnosis positive. Their winter range does include southern Louisiana, so that it seems quite likely that occasional specimens should be met within the territory covered by this paper. However, the Mottled Duck (*A. fulvigula maculosa*) could

also occur here with equal reason, and the two forms cannot with certainty be distinguished in the field, unless under exceptionally favorable circumstances. I am of the opinion that the flock of four birds I observed on March 18 were Black Ducks.

16. **Dafila acuta.** PINTAIL.—Common. Locality E, near D. Open Water Association, invades Littoral.

The largest flock I encountered numbered 24 individuals. They were feeding along sand-bar shallows and were very tame.

17. **Marila marila.** SCAUP DUCK.—Fairly common. Locality E, near A. Open Water Association, invades Littoral.

Seen only in very small flocks, and fairly tame.

18. **Marila affinis.** LESSER SCAUP DUCK.—Common. Localities E, near A, and also in D. Open Water Association, invades Littoral and Marsh.

Toward the end of the winter these Ducks became so confiding that they would swim along the very edge of the beach front within 25 feet of passing traffic. Present only in small flocks, but considerably more numerous than the preceding. Last seen April 4.

19. **Glaucionetta clangula americana.** GOLDEN-EYE.—Fairly common. Locality F. Open Water Association, invades Littoral.

Occurred in small flocks only and in company usually with Red-breasted Mergansers.

20. **Botaurus lentiginosus.** BITTERN.—Fairly common. Locality C. Marsh Association.

Apparently solitary at this season, but not infrequently heard booming and stake-driving.

21. **Ixobrychus exilis.** LEAST BITTERN.—Fairly common. Locality C. Marsh Association.

Both species of Bitterns were found only on Deer Island by the writer, but doubtless they occur elsewhere throughout the region in suitable locations.

22. **Ardea herodias.** GREAT BLUE HERON.—Abundant. Localities C, D, and G. Swamp Association, invades Littoral, Marsh, and River. Allison, 1.

These big Herons were especially frequent and picturesquely revealed along the shores of the islands, where they would wade out a considerable distance from land and fish among the abundant schools of small fry. Their appearance in such a place is so Crane-like that one does not wonder at the reported observations of "Sandhill Cranes."

23. **Hydranassa tricolor ruficollis.** LOUISIANA HERON.—Satisfactorily identified and reported to be fairly common by several different parties in Biloxi. One was seen right on the front beach during my stay, but it was gone before I could answer the summons, and I saw none at any time.

24. **Florida cærulea.** LITTLE BLUE HERON.—Fairly common. Locality G. Swamp Association.

I found this species only in the Pascagoula Swamp, but no doubt it occurs elsewhere here in suitable places.

25. **Rallus elegans.** KING RAIL.—Probably not very common. Locality A. Marsh Association. Allison, common but inconspicuous.

Rails were certainly present in nearly every marsh throughout the area but as before stated, were especially difficult to observe and I hesitate to remark as to their specific abundance.

26. **Porzana carolina.** SORA.—Probably fairly common. Locality A. Marsh Association.

I saw only a few individuals of the two Rails here listed, and the Sora was of course more often met with than the King Rail.

27. **Fulica americana.** Coot.—Common. Localities A and C. Marsh Association.

Seen only on Deer Island, but their loud cackling notes were heard at Gulfport and elsewhere in Locality A.

28. **Philohela minor.** Woodcock.—Uncommon. Locality G. Swamp Association.

I only recorded a single specimen, seen on December 31, 1921, on my second trip, but Mr. Hord reports them as seen fairly often in a region of upland thickets near the borders of the Pascagoula Swamp, beyond Vancleave.

29. **Gallinago delicata.** WILSON'S SNIPE.—Abundant. Localities A, B, C, and D, most abundant in B. Marsh Association, (borders), invades Field and Deciduous Woods.

Snipe were by far the commonest of any game bird, and could be flushed by the dozens from the wet and soft borders of both fresh and salt-water marshes. They were nearly always gregarious but did not frequent the society of other birds. One solitary individual was observed along a brook in fairly deep deciduous woods.

30. **Oxyechus vociferus.** KILLDEER.—Abundant. Localities A, B, C, and D. Littoral Association. Allison, not uncommon.

The Killdeer allowed a fairly close approach and was usually seen in small flocks of from three to six, though one flock of 20 was noted. Also they were usually in company with Semipalmated Plovers and Gulls.

31. **Charadrius semipalmatus.** SEMIPALMATED PLOVER.—Common. Localities A and C. Littoral Association. Allison, a few,—the first winter record.

Observations on this little Plover ran all the way from a few solitary birds through medium sized flocks up to one of 200. They were always associated with Killdeers, and frequently with Gulls.

32. **Arenaria intrepres morinella.** RUDDY TURNSTONE.—Fairly common. Locality C. Littoral Association.

These were seen in small flocks in company always with the two preceding species.

33. **Colinus virginianus virginianus.** BOB-WHITE.—Common. Localities A and B. Field Association.

Unlike most other species observed, Quail were not met with on the islands. The average size of a flock was five; the largest covey contained 30. At no time were they heard whistling.

34. **Meleagris gallopavo silvestris.** WILD TURKEY.—Reported as common in the Pascagoula Swamp by Mr. Hord, Dr. H. H. West of Gulfport, and others. From 10 to 20 birds are commonly secured by small hunting parties in a sojourn of two or three days in the Swamp. I was unable to visit that portion of the Swamp in which the Turkeys are most numerous, and did not find any.

35. **Zenaidura macroura carolinensis.** MOURNING DOVE.—Abundant. Localities A, B, and C. Field Association. Allison, 1.

This bird was more often flushed from roadsides and plowed fields, usually in small flocks of two to four individuals.

36. **Cathartes aura septentrionalis.** TURKEY VULTURE.—Allison reports this species as common, with the remark that the two forms of Vultures do not mix much. Strangely enough, I saw not one single Turkey Vulture during my stay in Biloxi, and am at a loss to account for this apparent absence of so typical a bird. Stockard\* states that the Black Vulture is much the commoner of the two in the southern part of the State.

\* See Bibliography.

37. **Coragyps urubu.** BLACK VULTURE.—Abundant. Localities A and B, most abundant in B. Field Association. Allison, common.

Vultures are said to shun the islands off Biloxi, and many were the local theories told me in explanation of this belief. I certainly saw none about the islands at any time, even Deer Island, which lies only a few hundred yards from the mainland, and this despite the fact that carcasses of both pigs and cattle were no uncommon sight on both Deer and Ship Island. This species prospects in groups, whereas the Turkey Vulture usually hunts alone. Only once did I see an individual Black Vulture soaring in solitude; the commonest number was three or four, and the largest flock noted contained 20.

38. **Circus hudsonius.** MARSH HAWK.—Fairly common. Localities C and D. Marsh Association.

As if in contrast to the preceding species, I met with Marsh Hawks only on the islands, but presumably they were present elsewhere in marshes of a size large enough to secure some degree of isolation.

39. **Accipiter velox.** SHARP-SHINNED HAWK.—Common. Localities A and B. Universal Association.

I met these little fellows in most unexpected places,—one right in the city of Gulfport,—and found them bold and aggressive and always solitary.

40. **Buteo borealis.** RED-TAILED HAWK.—Under this head Allison remarks, "A large Hawk seen at a distance must have been of this species." Though I saw three other forms of large Hawks, I met with none of this species, and would not include it on such slender evidence were it not for the fact that the Red-tail's winter range extends to the Gulf Coast in general, and such a wide ranging Hawk would certainly be found here occasionally.

41. **Buteo lineatus.** RED-SHOULDERED HAWK.—Common. Localities A and G. Swamp Association, invades Deciduous Woods.

These noisy Hawks were always seen in pairs, which fact suggests the probability that they were the resident form, the Florida Red-shouldered Hawk (*Buteo lineatus alleni*). The type race, *B. l. lineatus*, winters south to the Gulf Coast, but should not be paired at this season, as the spring migrants come north unmated.

42. **Buteo platypterus.** BROAD-WINGED HAWK.—Fairly common. Locality A. Deciduous Woods Association.

Observed to be far less wary than other Hawks, a trait for which the species is noted. One memorandum on this bird is especially unusual and interesting. Two Broad-wings were seen on April 2 in company with a Sharp-shinned Hawk, the three being flushed at close quarters from adjacent parts of the same dead tree. I was walking with a companion down a road through deciduous woods, and in plain sight we stopped to watch the Hawks. They rose above us to the level of the tree tops and began to circle and wheel about at this altitude, paying us no attention and showing no fear whatever. They seemed to be at play and reminded me of schoolboys at a game of tag. Flapping and sailing about in small circles, diving down toward or even into the tree tops and at each other, they presented a curious spectacle. The Sharp-shin seemed to have as much of a part in the sport as any, and far from objecting to the intrusion of a totally different type and species, the Broad-wings appeared to make him welcome. All three maintained silence during the whole performance, which lasted some ten minutes. Gradually the centers of the revolutions shifted, and the three Hawks drifted away over the trees and disappeared. I am certain that the Broad-wings, which at this time of the year were probably a mated pair, were not trying to drive the Sharp-shin away from a possible nesting-site or out of their sphere of the woods.

43. **Haliaeetus leucocephalus leucocephalus.** BALD EAGLE.—Uncommon. Locality B. Littoral Association, invades River and Coniferous Woods.

I saw one specimen perched in a pine tree that was particularly tame. He did not take wing until I approached to within fifty feet and then flew but a short distance, again alighting in a pine. This action was repeated three times, when finally in seeming disgust, the Eagle flew high into the air and headed for the Gulf, uttering his loud cries.

44. **Falco sparverius sparverius.** SPARROW HAWK.—Abundant. Localities A, B, C, and D. Field Association. Allison, not common.

These birds were always seen singly, perched on some dead stub that commands a large field.

45. **Strix varia allenii.** FLORIDA BARRED OWL.—Fairly common. Locality G. Swamp Association. Allison, 1.

I heard a number of these noisy Owls in the Pascagoula Swamp, but did not see any.

46. **Bubo virginianus virginianus.** GREAT HORNED OWL.—Mr. Hord reports these birds to be common in the Pascagoula Swamp, but I saw none myself.

47. **Ceryle alcyon alcyon.** BELTED KINGFISHER.—Common. Localities A, B, C, D, and G. River Association, invades Littoral-Marsh, and Swamp.

While commonly seen fishing in pairs during the breeding season, I found them to be strictly solitary here in the winter.

48. **Campephilus principalis.** IVORY-BILLED WOODPECKER.—Uncommon. Locality G. Swamp Association.

After hearing of the great wildness of the Pascagoula Swamp, I had hoped to find these nearly extinct birds still holding out there, and was assured that a visit to the big Swamp would be rewarded by several views of this magnificent Woodpecker. Circumstances made it impossible for me to spend the night there, and it was necessary to start from Biloxi in the morning and return the same evening. This called for a jaunt of 80 miles by auto, and limited the time at the Swamp to such an extent that we could not penetrate to those remote and little visited portions to the north and east where the Ivory-bill as well as all the wilder and rarer game exist in greatest numbers. Nevertheless, I did see one specimen on the first visit to the Swamp, though I saw none the second trip. Both Mr. Hord and I had a splendid and satisfactory view of the bird, a large male in fine plumage. The species has been observed frequently enough by Mr. Hord, Dr. H. H. West of Gulfport, Dr. G. F. Carroll of Biloxi and others while on hunting and fishing trips so as to be listed as uncommon rather than rare.

The third trip to the Swamp, made on December 31, 1921, during the second visit to Biloxi, was uneventful as regards Ivory-bills until we were nearly ready to leave, when a large woodpecker flew across a bayou some distance in front of us. An instant later the call of presumably this same bird was heard, and while I have had no previous experience in the call of the Ivory-bill, this call was "a high, rather nasal, *yap, yap-yap*, sounding in the distance like a penny trumpet." (Chapman). From its size, the bird must have been either an Ivory-bill or Pileated Woodpecker, and the call heard was certainly not that of the latter.

49. **Dryobates villosus auduboni.** SOUTHERN HAIRY WOODPECKER.—Common. Localities A and B. Deciduous Woods Association. Allison, a few.

This form is relatively more abundant than is in *D. v. villosus* in the north. It was always solitary and unassociated.

50. ***Dryobates pubescens pubescens*.** SOUTHERN DOWNTY WOODPECKER.—Abundant. Localities A and B. Deciduous Woods Association. Allison, uncommon.

Occurred in about the same proportion as does the northern form, *D. p. medianus*, but single and unassociated, since the factor of limited food supply which operates to bring together the Downy, Chickadee, and White-breasted Nuthatch in a northern winter is not present here.

51. ***Dryobates borealis*.** RED-COCKADED WOODPECKER.—Fairly common. Locality B. Coniferous Woods Association. Allison, common.

Usually seen in pairs and sometimes associated with Red-bellied Woodpeckers, Flickers, Brown-headed Nuthatches, Pine Warblers, and Bluebirds.

52. ***Sphyrapicus varius varius*.** YELLOW-BELLIED SAPSUCKER.—Fairly common. Localities A, B, and C. Deciduous Woods Association.

Always single, but associated with some other species of Woodpecker. Not recorded after February 25.

53. ***Phloeotomus pileatus pileatus*.** PILEATED WOODPECKER.—Fairly common. Localities B and G. Swamp Association, invades Deciduous Woods.

I found this big fellow only in the Pascagoula Swamp, but Miss Josie Pope of Biloxi, has seen it at Woolmarket also. The local vernacular names applied indiscriminately to this species and the Ivory-bill are interesting. The commonest term is "Lord God," said by some to be in fancied imitation of one of the call notes, but I agree with the explanation of Miss Pope that it is a corruption of "Log Cock," a designation met with in many parts of the south. The "Lord God" has in turn suffered corruptions, among them being "Good God" and "Oh My God." These deified or perhaps anathematized birds are unfortunately too often the target of the thoughtless hunter's gun in the big Swamp, and will go the way of the Ivory-bill unless better protected. In spite of such persecution I found them by no means shy.

54. ***Melanerpes erythrocephalus*.**—RED HEADED WOODPECKER. Abundant. Localities A, B, and G. Swamp Association, invades Deciduous Woods and Social. Allison, a few.

These Woodpeckers were so abundant in the Pascagoula and other smaller swamps that I considered the species as typically a swamp bird here at this season. Quarrelsome as ever, they were never seen actually paired or in groups, and their silence seemed strangely unnatural.

55. ***Centurus carolinus*.** RED-BELLIED WOODPECKER.—Abundant. Localities A, B, C, and G. Deciduous Woods Association, invades Swamp and Coniferous Woods. Allison, a few.

Unlike the preceding, this bird was never found on the streets of Biloxi or near the beaches, and was never single but always paired and noisy.

56. **Colaptes auratus.** FLICKER.—Abundant. Localities A, B, and G. Deciduous Woods Association, invades Swamp, Field, and Coniferous Woods. Allison, common, mostly in small flocks.

In contrast with Allison's observations, I did not find Flickers in small flocks but usually singly, though almost always in company with some other Woodpecker, or Pine Warblers, Bluebirds, etc. I did not see any specimens feeding on the ground here, though ants were abundant.

57. **Sayornis phoebe.** PHOEBE.—Common. Localities A and B. River Association, invades Littoral, Swamp, and Field. Allison, common.

In song all winter and solitary. Last seen February 25.

58. **Cyanocitta cristata cristata.** BLUE JAY.—Abundant. Localities A, B, C, D, and G. Universal Association. Allison, common.

Present at all times and in all places, usually in flocks of from three to six members and always in the company of other birds. The Jays seemed to want society or to be interested in the affairs of other birds, though the particular species of associate made no difference.

59. **Corvus brachyrhynchos brachyrhynchos.** CROW.—Fairly common. Localities A and B. Deciduous Woods Association, invades Swamp and Field. Allison, very common.

Crows were very much less abundant than was expected, or as Allison found them, or as they are in the north in winter. They were not present on the islands or coasts, and did not mingle with the Fish Crows.

60. **Corvus ossifragus.** FISH CROW.—Abundant. Localities A, B, C, and G. Littoral Association, invades Swamp, Marsh, and Field. Allison, common.

These birds greatly outnumbered the common Crow and were as typical of shore areas as Gulls, in less frequented places. Though numerous on Deer Island, near the mainland, they were absent on Ship Island, twelve miles out. The call note is usually described as a nasal *car*, and I have never seen a two-syllabled note mentioned in the literature of the species, but I found that the commonest call uttered consisted of distinctly two syllables, a hoarse *car-uh*.

61. **Molothrus ater ater.** COWBIRD.—Rare. Locality A. Field Association.

Only one specimen was seen, a male in song, on January 21.

62. **Agelaius phoeniceus floridanus.** FLORIDA RED-WING.—Abundant. Localities A, B, C, D, and G. Marsh Association, invades Field. Allison, rather common.

Present in large flocks and in song all winter. In the marshes they associated with Rusty Blackbirds and Florida Grackles, and in orchards with Meadowlarks.

63. **Sturnella magna.** MEADOWLARK.—Abundant. Localities A and B. Field Association.

Meadowlarks were met with but rarely in Locality A, and then with but few exceptions on the Golf Links. In B they were very abundant, and in song all winter.

64. ***Euphagus carolinus*.** RUSTY BLACKBIRD.—Abundant. Localities B, C, and D. Marsh Association, invades Deciduous Woods. Allison, one flock in a pine clearing.

Found in numbers only in the marshes of the islands, and there mingling with Red-wings and Grackles, and usually singing.

65. ***Quiscalus quiscula aglaeus*.** FLORIDA GRACKLE.—Common. Localities A, B, C, and G. Marsh Association, invades Social. Allison, a few.

These birds were uncommon except on Deer Island until the very end of March, when they invaded the towns in force. Always gregarious and noisy when present.

66. ***Megaquiscalus major major*.** BOAT-TAILED GRACKLE.—Uncommon. Locality D. Marsh Association. Allison, fairly common.

The few specimens I saw on Ship Island were feeding on marshy flats and were silent.

67. ***Passer domesticus domesticus*.** HOUSE SPARROW.—Occurred all too abundantly in all localities of the Social Association.

68. ***Astragalinus tristis tristis*.** GOLDFINCH.—Common. Localities A and B. Deciduous Woods Association, invades Field and Social. Allison, rather common.

Small flocks were frequent in the less noisy streets of the towns. Singing though not in full song. Last recorded March 25.

69. ***Pooecetes gramineus gramineus*.** VESPER SPARROW.—Fairly common. Localities A and B. Field Association. Allison, rather common.

Allison states that he found them in song, but all the birds I observed were silent. The typically associated species of the cultivated fields and orchards, found on the ground in mixed flocks, consisted of Vesper, Savannah, Grasshopper (occasionally), Chipping and Field Sparrows, and often Yellow Palm Warblers and Bluebirds.

70. ***Passerculus sandwichensis savanna*.** SAVANNAH SPARROW.—Fairly common. Localities A and B. Field Association. Allison, sparingly present.

Not in song and never solitary.

71. ***Ammodramus savannarum australis*.** GRASSHOPPER SPARROW.—Uncommon. Localities A and B. Field Association.

Not in song, and usually single, though always associated with other Sparrows.

72. ***Passerherbulus nelsoni nelsoni*.** NELSON'S SPARROW.—Mentioned by Allison as not common but represented in the marshes of the coast in a paper on the Sparrows of Mississippi.\* The designation as *Ammodramus caudacutus* must refer to this form, the only one of the

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\* Allison, Andrew: The Sparrows of Mississippi. Auk, XVI, 1899, no. 3, pp. 266-270. This citation, p. 268.

Sharp-tailed Sparrows to reach the Gulf Coast in winter. I did not myself observe this bird.

73. **Passerherbulus maritimus.** SEASIDE SPARROW.—Noted in this same paper as very abundant. Of the five races of this species recognized by the A. O. U., the Louisiana Seaside Sparrow (*P. m. fisheri*) and the Macgillivray's Seaside Sparrow (*P. m. macgillivraii*) are the two forms whose winter range includes the Gulf Coast. Allison's description was *Ammodramus maritimus*. Not noted by the present writer.

74. **Chondestes grammacus grammacus.** LARK SPARROW.—Reverting to 'Allison's Winter' Birds paper, this species is recorded with the following note: "We found this species in the pine clearings, about equally common with the Vesper Sparrow, and in song. Up to this time we had found it only very rarely." I saw none myself.

75. **Zonotrichia albicollis.** WHITE-THROATED SPARROW.—Abundant. Localities A, B, C, and G. Field Association, invades Deciduous Woods. Allison, common.

White-throats were abundant in thickets, associated with Towhees, till the first of March, after which they became rare. Not in song.

76. **Spizella passerina passerina.** CHIPPING SPARROW.—Abundant. Localities A and B. Field Association, Allison, very common.

I found Chippies in frequent small or medium-sized flocks, mingling with other Sparrows, and occasionally in very large bodies, alone. I never met with them in any of the towns, as did Allison, an environment which they are commonly supposed to prefer in the south in winter. Not in song, and it was a curious sight to come across a hundred of these birds feeding briskly over some large recently burned tract, the whole flock shifting ahead as fast as a man walks, each bird moving separately, and all as silent as though they had completely forgotten their familiar little chant.

77. **Spizella pusilla pusilla.** FIELD SPARROW.—Abundant. Localities A and B. Field Association.

Present in all mixed Sparrow flocks, and not in song.

78. **Junco hyemalis hyemalis.** SLATE-COLORED JUNCO.—Allison's paper on the Sparrows, recently cited, says of the Junco: "Winters abundantly in northern Mississippi but apparently only reaches the Coast in very severe winters." My winter there was a very mild one, and I did not see these cheery little sprites.

79. **Melospiza melodia melodia.** SONG SPARROW.—Uncommon. Localities A, B, and C. Field Association, invades Littoral and Marsh.

Only about a dozen were seen all winter, and they kept to themselves and were not singing. Last recorded on February 22.

80. **Melospiza georgiana.** SWAMP SPARROW.—Fairly common. Localities A and B. Marsh Association. Allison, common.

These Sparrows did not associate with other birds. They were not observed in the extensive marshes of the islands, and were not in song.

81. **Pipilo erythrorthalmus erythrorthalmus.** TOWHEE.—Abundant. Localities A and B. Deciduous Woods Association. Allison, a few.

The call notes of Towhees were characteristic of all thickets on the mainland, and occasional birds were in full song all winter.

82. **Cardinalis cardinalis cardinalis.** CARDINAL.—Abundant. Localities A, B, and G. Deciduous Woods Association, invades Swamp, River, and Field. Allison, rare.

Allison writes: "Rare! This is hardly normal, though it is never as common here as is *C. c. magnirostris* in lower Louisiana." I found Cardinals present in numbers in all suitable situations on the mainland. They began singing the middle of February.

83. **Frogne subis subis.** PURPLE MARTIN.—Rare. Localities A and B. Social Association, invades Field. Allison, a few.

The description of the status as rare applies to the Martin only as a winter resident. Allison brackets his inclusion of this species, and remarks: "A spring bird, of course, and so hardly in keeping in this list; a few were present, being seen and heard nearly every day of the trip" (Feb. 13-16). My records show that Martins were first observed on February 18, becoming common by the first week of March, and abundant by the 15th. Strictly speaking, they are probably not to be considered as a winter resident, but as the earliest of spring migrants. Their presence during so considerable a portion of the winter, however, justifies their inclusion in this list. From the first, they established head-quarters in the Martin boxes, which were to be found in nearly every back yard.

84. **Iridoprocne bicolor.** TREE SWALLOW.—Abundant. Localities A, B, C, and G. Universal Association.

The only true winter resident Swallow, these birds were to be seen at all times and in all places. They did not seem to prefer marshes and were as commonly met with over the Gulf and in the towns. Abundant till the middle of February, there was a very noticeable reduction in their numbers till the first of April, when large flocks were again in evidence. It is likely that the earlier multitudes were the real winter residents, which started north first, and the later Swallows those which were coming up from sojourns farther south.

85. **Bombycilla cedrorum.** CEDAR WAXWING.—Abundant. Localities A and B. Deciduous Woods Association. Allison, only a few heard.

The outstanding feature in the winter distribution of Waxwings here, and which I have not seen brought out in other writings, was their constant and close association with Robins. At no time were they noted separately, or in small numbers. Early mornings were the best times at which to observe the great flocks of these two species, Robins predominating, as they flew far overhead, presumably leaving the roost for the feeding grounds. The largest single flock I estimated to contain 500 Robins and 200 Waxwings, but many others of nearly equal size were seen. Robins

continued abundant till early in March, but Waxwings disappeared after February 12.

86. **Lanius ludovicianus.** LOGGERHEAD SHRIKE.—Abundant. Localities A and B. Field Association, invades Littoral. Allison, common. Usually met with singly, occasionally in pairs, and not singing.

87. **Vermivora celata celata.** ORANGE-CROWNED WARBLER—I did not record this species at all, but Allison writes of them. "Conspicuous when present, and not at all uncommon in the deciduous woods, though always single."

88. **Dendroica coronata.** MYRTLE WARBLER.—Abundant. Localities A, B, C, D, and G. Universal Association. Allison, very common and ubiquitous.

Takes first rank in abundance over all other birds. Large scattered flocks were present everywhere, on the sandy beaches, in marshes, swamps, fields, islands, all woods, and the towns. They frequently fed on the ground in company with various field-dwelling Sparrows, and were not singing. I roughly estimated the number of individuals present per county throughout this region as 15,000.

89. **Dendroica vigorsi.** PINE WARBLER.—Abundant. Localities A, B, C, and D. Coniferous Woods Association. Allison, very common.

In song all winter, and met with in every pinery. Usually associated with other Warblers and Bluebirds.

90. **Dendroica palmarum hypochrysea.** YELLOW PALM WARBLER.—Common. Localities A and B. Field Association, invades Deciduous and Coniferous Woods. Allison, common.

Allison found them always more or less gregarious and associated with Pine Warblers. My notes partially confirm this, but I also often found them singly, feeding in the fields or on the Golf Links with various Sparrows. Not in song.

91. **Geothlypis trichas.** MARYLAND YELLOW-THROAT.—Uncommon. Localities A and B. Field Association. Allison, 2 heard.

Singing all winter, and frequenting low and rather dense situations. The least common of any Warbler present.

92. **Anthus rubescens.** PIPIT.—Abundant. Localities A, B, and C. Field Association, invades Littoral. Allison, not common.

When met with on the beaches these birds were in small groups of three to five, but on inland fields, particularly recently burned-over areas, large flocks were the rule, the largest seen numbering 100. Not singing, but their flight notes were always given when flushed.

93. **Anthus spraguei.** SPRAGUE'S PIPIT.—While not included in Allison's list from which I have been quoting, and not observed by myself either, a separate note by Allison reads as follows: "On January 1, 1902, a specimen of Sprague's Pipit was taken by W. B. Allison and the writer, in a low meadow cleared from the pine woods near Bay St. Louis.

It was in fine plumage and good condition. Another was seen in the same place on February 11, 1903. These two are the only Mississippi records."\*

94. **Mimus polyglottos polyglottos.** MOCKINGBIRD.—Abundant. Localities A, B, C, D, and G. Universal Association. Allison, common.

Found singly, more frequently paired, and fairly often in groups of three to five. Present in all situations and with various associates, mainly Jays, Towhees, and Myrtle Warblers. They began singing the middle of February, but were not heard at night till the end of March.

95. **Dumetella carolinensis.** CATEBIRD.—Rare. Localities A and G. Deciduous Woods Association, invades Swamp.

Only two were recorded. These were single, unassociated, and not in song.

96. **Toxostoma rufum.** BROWN THRASHER.—Common. Localities A, B, and G. Field Association, invades Swamp and Deciduous Woods. Allison, 2.

Met with singly and in pairs, mingling with Towhees, Cardinals or Mockingbirds, and not singing.

97. **Thryothorus ludovicianus ludovicianus.** CAROLINA WREN.—Abundant. Localities A, B, C, D, and G. Deciduous Woods Association, invades Coniferous Woods and Social. Allison, very common.

In fine song all winter, these Wrens were perhaps the most thoroughly typical bird of the region. Observed singly and paired, but unassociated. Their voice was the first to begin the morning bird chorus, commencing about five minutes before the Mockingbird.

98. **Thryomanes bewicki bewicki.** BEWICK'S WREN.—Rare. Locality A. Social Association. Allison, 2.

I saw only a single specimen, occupied in investigating the bare lattice-work of an arbor, and not in song.

99. **Troglodytes aëdon aëdon.** HOUSE WREN.—Common. Localities A, B, and C. Deciduous Woods Association, invades Field and Social. Allison, not common.

Occurred singly or in pairs in the woods, thickets, and scrub palmettos, and less often about buildings. Unassociated and not in song.

100. **Cistothorus stellaris.** SHORT-BILLED MARSH WREN.—Allison notes this species as not uncommon, but I did not record it.

101. **Telmatodytes palustris iliacus.** PRAIRIE MARSH WREN.—Uncommon. Locality A. Marsh Association.

I met with this variety of the Long-billed Marsh Wren only occasionally. They then formed a part of the typical marsh fauna and were singing.

102. **Certhia familiaris americana.** BROWN CREEPER.—Rare. Locality A. Deciduous Woods Association.

Only one was seen,—on the 17th of January.

\* Allison, Andrew: Notes from Hancock County, Mississippi. Auk, XXIII, 1906, no. 2, p. 232.

103. **Sitta carolinensis.** WHITE-BREASTED NUTHATCH.—Allison mentions this species as follows: "Very conspicuous; we saw it in company with Bluebirds and Pine and Yellow Palm Warblers, even feeding with them on the ground, in one instance." In view of such observations it is most remarkable that I neither saw nor heard a single one, and cannot account for the absence of so typical or common a bird. And I am convinced that they were absent, because it is inconceivable that so ubiquitous a form could continually escape recording if present. The variety Allison noted was probably no. 727b., the Florida White-breasted Nuthatch, *S. c. atkinsi*, as the range of the typical form, *S. c. carolinensis*, does not include the Gulf Coast.

104. **Sitta pusilla.** BROWN-HEADED NUTHATCH.—Common. Localities A, B, C, and G. Coniferous Woods Association. Allison, abundant.

The commonest notes of this species impressed me as bearing a strange resemblance to those of the Red-shouldered Hawk,—a *kee-you, kee-you*,—uttered in the cheery timbre of the Goldfinch, and of course lacking the volume and ferocity of the Red-shoulder's cry. These little Nuthatches were always seen in small bands of from two to eight individuals, very talkative, and frequently associated with other characteristic birds of the pines.

105. **Baeolophus bicolor.** TUFTED TITMOUSE.—Common. Localities A, B, and G. Deciduous Woods Association, invades Coniferous Woods. Allison, very common.

Titmice were always gregarious, singing, and in company with Chickadees.

106. **Penthestes carolinensis carolinensis.** CAROLINA CHICKADEE.—Common. Localities A, B, and G. Deciduous Woods Association, invades Coniferous Woods. Allison, common.

Found singly, but more often in groups up to five, and travelling with Titmice, but not with the Downy Woodpecker or Nuthatches as does the Black-cap in northern winters. Also they were not nearly as talkative as their northern cousins.

107. **Regulus satrapa satrapa.** GOLDEN-CROWNED KINGLET.—Fairly common. Localities A and B. Coniferous Woods Association. Allison, common.

Found in small bands, and not singing. Last seen February 22.

108. **Regulus calendula calendula.** RUBY-CROWNED KINGLET.—Common. Localities A and B. Deciduous Woods Association, invades Coniferous Woods. Allison, fairly common.

Allison found this species less common than the preceding, whereas I made the reverse observation, the difference being probably due to the greater abundance of pineries in the Bay St. Louis region. This Kinglet occurred singly and in pairs or small groups of three or four, associated with White-throated Sparrows, Towhees, and Myrtle Warblers, and was not singing.

109. **Polioptila caerulea caerulea.** BLUE-GRAY GNATCATCHER.—Rare. Locality A. Deciduous Woods Association.

These miniature Mockingbirds became fairly common by the end of March, but were rare as a winter resident. Solitary and silent when present. On December 27, on the second trip, however, two were seen together, and were mewing.

110. **Hylocichla guttata pallasi.** HERMIT THRUSH.—Common. Localities A and B. Deciduous Woods Association. Allison, common.

Met with in low wet areas of fairly dense growth and always voiceless and alone.

111. **Planesticus migratorius.** ROBIN.—Abundant. Localities A, B, and C. Deciduous Woods Association, invades Coniferous Woods. Allison, abundant.

Of the Robin, Allison has this interesting note: "Over great tracts of young pine, cleared land, and burnt forest, we often walked, seeing hardly any birds but these; they flushed before us at almost every step, and soon became an important feature of the landscape." I seldom met with Robins in such situations, or on the ground, though occasionally I would find flocks perched in the woods. As mentioned under the Cedar Waxwing, very large companies of from one to five hundred individuals were a common sight flying far overhead in the early morning. The Robin here is by no means a bird of the lawns and gardens as in the north in summer, but is as wild as the wildest and frequents only remote districts for feeding and roosting. Perhaps the fact that Robin-pie is still considered a delicacy by negroes and "poor whites" is partly responsible for this condition. Not in song.

112. **Sialia sialis sialis.** BLUEBIRD.—Abundant. Localities A and B. Field Association, invades Deciduous and Coniferous Woods, and Social. Allison, very common.

Bluebirds were quite gregarious, and singing all winter. Their most frequent associates were Myrtle, Pine, and Yellow Palm Warblers in the woods, and various Sparrows and the Yellow Palm Warblers again in the fields. One of their commonest feeding habits was like that of the Pine Warbler, clinging with much fluttering to the sides of trees, and the favorite perch in the woods was a short dead stub on any tree, as low down as possible.

*Bibliography:* Throughout the synopsis, Allison's paper on the 'Winter Birds of Hancock County' has been quoted, and scattered notes were found relative to some particular species as occurring on the Mississippi Coast in winter, with occasional references to summer birds. This comprises the literature of the region, but a bibliography of the Ornithology of Mississippi is here given for the future convenience of those interested in this badly neglected State. The complete files of 'The Auk,' 'Bird-Lore,' and 'Wilson Bulletin' were carefully combed, and all papers found and here

appended were consulted in the preparation of this report, and I feel that the list is fairly complete. Most of the articles are very short, many consisting of but fragmentary notes, and there is a great deal of room and need for further work in this section of the country. Those worth consulting for general purposes are marked with a star.\*

- ALLISON, ANDREW: The Sparrows of Mississippi.\* Auk, XVI, 1899, no. 3, pp. 266-270. 16 species.
- Louisiana and Mississippi Bird Notes. Auk, XVII, 1900, no. 3, p. 297. Migration notes on 5 miscellaneous species.
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#### NOTES ON THE ABUNDANCE AND HABITS OF THE BALD EAGLE IN BRITISH COLUMBIA.

BY ALLAN BROOKS.

THE following notes are the result of observations covering a period of about twenty-seven years (between 1887 and 1920), in the Province of British Columbia. The special features they are meant to cover in regard to the Bald Eagle (*Haliaeetus leucocephalus alascanus*) are: (1) Its present and former numerical strength in the Province; (2) The destructiveness of the species to game and waterfowl.

I have found the Bald Eagle to be generally distributed in British Columbia but always in the vicinity of water, and it is far more abundant on the coast west of the Cascade Mountains than in the interior.

All over the region east of the coast and Cascade ranges this Eagle is found in too small numbers to be of much economic importance. The food supply in the interior is uncertain and so regulates their numbers, also the nesting places are more exposed and accessible than on the coast, which tends to keep their numbers down.

On the coast, and up the larger rivers that break through the coast and Cascade ranges, the Bald Eagle finds a generous food supply and open winters which permit of its existence in larger numbers than on any other portion of the continent. My first acquaintance with the species was in the lower Fraser Valley where, although it was a very scarce breeder, large numbers were resident throughout the year, but increasing in the fall when the run of the various salmon was at its height. Here they confined themselves mainly to a fish diet as this was available throughout