TABLE OF MEASUREMENTS.

		Wing	Tail	Culmen
D. albovittatus	1 ♂	86.5	98.	21.
"	1 ♀	79.	93.5	21.
D. a. atricapillus	13 ♂	81.–90.	92. –102.	20. –24.
"	9 ♀	76.–84.	87. – 95.5	19. –22.
D. a. brachypterus	11 ♂	79.–82.	92. –103.	21. –23.
"	4 ♀	76.–81.	87. – 95.	19.5–22.

American Museum of Natural History, New York.

NOTES ON THE BIRDS OF PORCHER ISLAND, B. C.

BY ALLAN BROOKS.

IN April of 1920, I was travelling up the coast of British Columbia by the "inland" route on one of the fine passenger boats of the Canadian Government line.

To a bird lover the dearth of life along these quiet fjords, together with the monotony of the heavily wooded rugged shore-line, was rather depressing, but just before the mouth of the Skeena was reached there was a glimpse to the westward of an island totally unlike anything I had seen before on this northwestern coast.

A glance at the chart showed this to be Porcher Island, and I made up my mind to investigate this promising looking locality at a later date. An unfortunate accident reduced this visit from the month I had planned to only nine days in the month of September, but my friend Mr. Charles deB. Green during June and July of 1921, spent nearly two months on this island in an effort to solve the mystery of the breeding of the Marbled Murrelet, and he has generously supplied me with his notes together with the few birds he collected. Porcher Island, in latitude 54°, is about twenty miles long by fifteen wide. It is almost cut into three pieces by a Y-shaped arm of the sea, very incorrectly shown on all maps, and is singular in a densely forested region, in being for the most part open or scantily wooded. The highest mountains are only about 3000 ft., their crests covered with a thick mat of

recumbent yellow cedar and Sitka spruce which at a distance looks like turf.

The whole island is covered with a sponge of sphagnum and other mosses on a rock formation; about two-thirds of its area is muskeg, not flat but rising fairly rapidly from the shore-line.

A large proportion has been burned over a number of times and small bleached conifers are studded all over the muskegs. There are some stretches of fairly large timber—spruce, hemlock, and yellow and western cedar—still untouched by fire; also several streams and a number of small shallow lakes mostly covered with lily-pads.

The total precipitation is about 100 inches and the winters are mild.

The streams are full of salmon and trout and the muskegs covered with berry-bearing bushes—*Vaccinium, Empetrum,* etc., altogether a very promising looking country, but like all this portion of the British Columbian and Alaskan coast mammals and birds are amazingly scarce.

In its mammals Porcher island is the very opposite of the Queen Charlotte group lying to the west. Bear and marten which are common on the Queen Charlottes are unknown on Porcher, while Sitka deer and mink are common on the latter and not found at all on the former except where imported deer have been introduced.

It is strange to see the sphagnum bogs and grassy marshes without a sign of a runway of any species of Vole or Lemming-mouse, none seem to occur although the conditions seem so favourable.

Land birds are very scarce, the only exceptions being Bald Eagles and Ravens which are present in extraordinary numbers and may account to some extent for the dearth of other life.

A list of all the birds seen by Mr. Green and myself would be of little value as it would be in the highest degree incomplete. To save valuable space I shall record only the more notable species observed, but this will include all the birds known to breed on the island.

There are very few settlers on Porcher island although an attempt was made at one time to convert it into an agricultural community; the large number of deserted cabins attest the failure of the experiment.

The few remaining settlers mostly depend on fishing but all have gardens and all complain bitterly of the depredations of the flocks of migrating sparrows in the spring. These not only eat off the tender green plants but excavate large holes to get at the germinating seeds.

Their descriptions left no doubt as to the identity of the offenders. Fox Sparrows were the worst culprits, with Golden-crowned a close second. Some species of White-crown was also described, probably Gambel's. A Bluebird evidently the Mountain Bluebird and the Bittern were also described so that there could be no doubt as to their identity, as stragglers only. The notable birds of Porcher island are its Ptarmigan, Song Sparrow, and Jay. The two first indicate that it is the last outpost of the Alaskan Coastal fauna to the north-west, while the Jay links it with the dry interior to the eastward. Both Mr. Green and myself worked the northern end of the island only, from a landing made at Refuge bay.

Gavia stellata. RED-THROATED LOON.—A few pairs breed.

Brachyramphus marmoratus. MARBLED MURRELET.—Mr. Green's efforts to find the eggs were unsuccessful. No evidence of their breeding on the mountain tops was found, and his experience points to outlying islands beyond the reach of molestation by minks as the probable breeding place.

The birds were in evidence all the time and several likely looking burrows were dug out without being able to get to the end of the burrow with the tools at his disposal. In one case a fresh grass nest was uncovered some twelve feet down.

Cerorhinca monocerata. RHINOCEROS AUKLET.—Mr. Green found a large breeding colony on an island some ten miles from Refuge Bay.

Cepphus columba. PIGEON GUILLEMOT.—Breeding.

Larus glaucescens. GLAUCOUS-WINGED GULL. — The only breeding Gull although *Larus brachyrhynchus* breeds on small lakes near the mouth of the Skeena on the adjacent mainland.

Mergus americanus. MERGANSER.—Breeding.—C. deB. Green.

Anser albifrons. WHITE-FRONTED GOOSE.—The very early southward movement of this far northern breeding Goose was noticeable. Flocks were noticed going over from September 6 every day.

These were all the small subspecies now identified by Swarth as *Anser albifrons albifrons.*

According to the residents this Goose remains all winter and suffers much from the persecutions of Bald Eagles.

Branta canadensis, subsp.? CANADA GOOSE.—These Geese are permanent residents and are probably the same as the large dark race of *canadensis* found on the Queen Charlottes and generally identified as *Branta c. occidentalis.*

Olor buccinator. TRUMPETER SWAN.—Swans usually winter in considerable numbers although reported as absent the winter of 1921–22.

From the description of their cry this must be the prevailing species.

A missionary found a pair breeding on an island north of the Skeena mouth a few years ago and took the two eggs as playthings for his little daughter after blowing them with a hole at each end. Mr. Green was told by the Indians that they always took the eggs for food whenever found.

Ardea herodias fannini. NORTHWEST HERON.—Common and must breed.

Totanus melanoleucus. GREATER YELLOW-LEGS.—A fairly common breeder; young were already hatched when Mr. Green arrived on the island the last week in May. This is two weeks earlier than I found them with young in the southern portion of the Cariboo district in the interior of the province, over one hundred miles to the southward.

Oxyechus vociferus. KILLDEER.—Seen by Green in June.

Aphriza virgata. SURFBIRD.—Five females and two males taken by Green out of a large flock, 12 July. All of the females and one of the males had very obvious incubating patches proving them to have bred, yet they all look like birds of the preceding year. They are in worn summer plumage with a lot of old winter feathers, especially on the pectoral region. The late Mr. Sidney Williams sent me several specimens from this region, he reported them in enormous flocks about Cridge passage a little to the southward in August and September. My migration records for this mysterious bird indicate that it leaves for its breeding grounds much earlier than the Black Turnstone and arrives earlier on its return journey. Theories in regard to the amazing habits of the Limicolae are dangerous, but this would indicate a breeding ground with an earlier accessibility than that of the Black Turnstone.

Hæmatopus bachmani. BLACK OYSTERCATCHER.—Breeds.

Gallinago delicata. WILSON'S SNIPE.—Rare in June (Green).

Dendragapus obscurus sitkensis Swarth. SITKA GROUSE.—Common. Fourteen specimens taken all show the pronounced characters of this handsome new form of the Dusky Grouse. The adult males are decidedly light colored without a darker pectoral band, in fresh plumage the feathers of the whole lower surface are conspicuously margined with whitish. One adult male taken September 9 shows a decided trace of eclipse, the feathers of the upper throat being rich rufous barred with black as in the female.

Females and young are all of the rich rufous type resembling the reddest phases of Franklin's Grouse, and are among the handsomest of all American

Grouse. The exceptional characteristics of Porcher Island make it an ideal home for this Grouse but their numbers are kept down by the attentions of the abundant Bald Eagles.

Lagopus lagopus alexandræ. ALEXANDER'S PTARMIGAN. The report of resident Ptarmigan was one of the principal incentives to my visit to this island. Only a few residents had ever seen them and others regarded them as a myth. Two ranges on which they were said to have been seen were worked unsuccessfuly, nor did the higher ground with its dense mats of recumbent conifers seem suitable to Ptarmigan. After this the discovery of the bird by Green came as a delightful surprise as I had almost come to the conclusion that the birds seen by the residents were strays blown over from Prince of Wales Island, Alaska, which lies to the northward. Only one pair was seen by Green on the Belle Range, the most northerly mountain on the island; both birds were taken together with the nest of nine eggs. The birds are now in my collection and have been identified by Dr. Grinnell as extreme examples of this subspecies. This is a new record for Canada.

Accipiter velox. SHARP-SHINNED HAWK.—Common and probably breeds. A young female taken September 10 while dark colored is not conspicuously so, and is less rufescent than a very dark example of the same age taken the preceding month on Graham Island.

Buteo borealis, subsp.?—The Red-tailed Hawk of the region is probably the same as that of the Queen Charlotte group. In this the adults are of the variety with the underparts dark red, quite different from the type of *alascensis* in the Museum of Vertebrate Zoology which is of the ordinary light bellied variety. The young, of which I have a large series, are very uniform and uniformly light, showing a large unspotted cream-colored area on the breast. The majority of these are migrants from the Alaskan coast but they seem to be the full normal size of *Buteo borealis calurus*.

Haliæetus leucocephalus alascanus. NORTHERN BALD EAGLE.—After the Raven the most abundant land bird. At the time of my visit in September the streams were packed with a run of Hump-backed Salmon and the Eagles could gorge themselves without effort, yet even on top of the highest crests the Eagles could be seen quartering the more open spaces.

I killed a pair of Grouse right and left, the second bird going about seventy-five yards before it fell dead in a clump of small pines; an Eagle appeared from nowhere, his wings half flexed, shooting along like a Goshawk and pitched in a tree just over the dead bird which was completely hidden in the thick scrub. I had to hurry up to save my game, this with a stream packed with salmon not fifty yards distant.

Falco peregrinus pealei. PEALE'S FALCON.—Resident, one young female taken.

Otus asio kennicotti. KENNICOTT'S OWL.—The wings and tails of a brood that were reared nearby seen in the house of a settler at Jap Inlet.

Ceryle alcyon caurinus. NORTHWEST KINGFISHER.—Resident.

Dryobates villosus subsp.? HAIRY WOODPECKER.—A Hairy Woodpecker is scarce, reported as breeding by Green—no specimens.

Sphyrapicus ruber notkensis. NORTHERN RED-BREASTED SAPSUCKER.—Numerous evidences of this bird's work were seen wherever there were alders.

Colaptes cafer saturatior. NORTHWESTERN FLICKER.—Common.

Colaptes auratus luteus. NORTHERN FLICKER.—A hybrid which is nearer to this than to the preceding species taken. On the mainland near Prince Rupert a brood of pure bred birds just able to fly were seen September 16.

Cypseloides niger borealis. BLACK SWIFT.—Twice seen on migration in September.

Cyanocitta stelleri annectens. BLACK-HEADED JAY.—As Porcher Island is the nearest point on the British Columbian coast to the Queen Charlotte group, it was of special interest to see how closely its Jay approached the extreme form of the species found on the Queen Charlottes. Unfortunately Jays were scarce though said by the settlers to be usually common. I only saw three and lost one of these. The one taken proved a great surprise as instead of being a very dark bird like *carlottae* it resembles *annectens* from the dry interior.

There is a distinct trace of the white spot over the eye characteristic of the latter subspecies. In tone of color, entire absence of any brown tone on head, breast, or back, and length of crest, it agrees closely with a series of birds from Okanagan, but is slightly smaller in measurements.

The Okanagan birds are by no means uniform in the possession of a white spot over the eye, several have still less white than shown in the Porcher Island bird. This character is not diagnostic of *annectens* in British Columbia, however infallible it may be in the case of this subspecies in the southern portion of its range. In this connection see Taverner, Condor, Vol. XXI, no. 2, p. 83; and Riley, Canadian Alpine Club Journal, 1912, p. 63. A character of the Porcher Island bird that I have not seen in any other skin of the *stelleri* group is the abrupt transition of the black of the throat into the blue of the breast, which suggests a band of black on the upper breast.

Corvus corax principalis. NORTHERN RAVEN.—The commonest bird on the island.

Corvus caurinus. NORTHWESTERN CROW.—Tolerably common and breeding.

Pinicola enucleator subsp.? PINE GROSBEAK.—A few breeding pairs seen by Green, no specimens taken.

Loxia curvirostra minor. RED CROSSBILL.—Breeding. (C. deB. G.)

Passer domesticus. ENGLISH SPARROW.—A mysterious stranger that had taken up its quarters in the chicken yard of Mr. Miller at Refuge bay proved to be a female of this pushing colonizer.

Passerculus sandwichensis alaudinus. WESTERN SAVANNA SPARROW.—It is very unlikely that any Savanna Sparrow breeds on the island, none remain in summer on the Queen Charlottes. This subspecies was just commencing to arrive the first week in September.

Junco oreganus oreganus. OREGON JUNCO.—Scarce resident.

Melospiza melodia caurina. YAKUTAT SONG SPARROW.—This was the Song Sparrow found feeding along the beaches both on the island and adjacent mainland early in September. They certainly did not act like migrants. Six taken are very large and dark and identified by Mr. Swarth as typical *caurina*. No Song Sparrows were found on Porcher Island by Green in June but they were breeding on adjacent islands. He took no specimens, which is unfortunate as the resident subspecies of this region remains uncertain.

Melospiza melodia rufina. SOOTY SONG SPARROW.—One specimen of this form taken on Porcher and one on the mainland near mouth of Skeena, both identified as *rufina* by Swarth. While this should be the resident form these two birds were undoubted transients in company with Lincoln's Sparrows passing south. I am strongly inclined to regard *caurina* as the resident bird as it undoubtedly is on the Queen Charlottes.

Melospiza lincolni striata. FORBUSH'S SPARROW.—Summer resident.

Iridoprocne bicolor. TREE SWALLOW.—Scarce summer resident (Green).

Vermivora celata lutescens. LUTESCENT WARBLER.—Scarce summer resident (Green).

Dendroica æstiva rubiginosa. ALASKA YELLOW WARBLER.—One taken 13 September at Refuge bay on the northern end of the island. Common at Prince Rupert on mainland two days later. The lateness of this migration is notable as Yellow Warblers have practically all disappeared from the southern interior (Okanagan) a month before.

Not noticed by Green so evidently a migrant only.

Cinclus mexicanus unicolor. DIPPER.—Scarce resident.

Nannus hiemalis pacificus. WESTERN WINTER WREN.—Resident.

Regulus satrapa olivaceus. WESTERN GOLDEN-CROWNED KINGLET.—Breeds, not common (Green).

Regulus calendula grinnelli. SITKA KINGLET.—This is the commoner of the two Kinglets, the reverse being the case on the Queen Charlottes, where the Ruby-crown is a very scarce and local.

Penthestes rufescens rufescens. CHESTNUT-BACKED CHICKADEE.—Resident.

Hylocichla guttata nanus. DWARF HERMIT THRUSH.—Scarce summer resident (Green).

Planesticus migratorius subsp.? ROBIN.—Robins are common on migration and a few must remain to breed although not recorded by Green. No specimens were taken. The Queen Charlotte bird is dark though not

more so than the darkest individuals seen in the interior of the province, and young taken there vary from dark to the extreme of paleness seen in the juvenile.

Ixoreus nævius nævius. VARIED THRUSH.—Scarce breeder (Green). *Okanagan Landing, B. C.*

SOME ASPECTS OF THE GROUP HABIT AMONG BIRDS.

BY CHARLES L. WHITTLE.

IN the way of preface and to anticipate the criticism likely to be made by anyone reading the following article that the rather meagre data brought forward scarcely warrant discussion, I wish to say that my purposes herein are to assemble such detailed information as I possess, some old and some possibly new, in the hope that the matter will stimulate the search for new facts bearing on the questions discussed, and to speculate somewhat on the import of the observations thus far made.

Viewed in a large way, each species and race of birds during the mating season,—say of the Song Sparrow and the Fox Sparrow, the former nesting throughout the United States, much of Canada and part of Alaska—is in reality a large colony. Between the regions occupied at this season by the many recognized races of the Song Sparrow are zones of intergrading, geographical forms. It is self evident that such races and intergrades could not have arisen and could not survive were it not true that the individuals composing them, or their descendants, occupy, in a greatly preponderating way, the same regions year after year. Were it otherwise, were the different races to mix indiscriminately together or with the transition forms, the races would be extinguished and become one species by the swamping effect of the resulting intermatings. The various factors, such as relative humidity, amount of sunshine, temperature, etc., believed to originate geographical races, would be impotent to effect changes in species were the bird population continually shifting its nesting area. It therefore seems certain that such races and their intergrades as a whole must return each year to their approximate nesting places of the